Cassini Magnetometer

Planetary Data System User's Guide

Prepared by

Hanying Wei

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This document has been reviewed for ITAR compliance and has been determined not to contain export controlled technical data.

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1. Introduction

1.1 *Purpose*

The Cassini Magnetometer Planetary Data System User's Guide describes the Cassini magnetometer data available from the Planetary Data System (PDS) and how to use them for scientific research. The guide is divided into seven sections, which include the following:

2. an introduction to the Cassini magnetometer instrument and datasets available from PDS,
3. an explanation of the calibrations of the instrument data and calibration tools on PDS,
4. a description of the Cassini magnetometer data sets archived with PDS,
5. detailed instructions on how to search for and obtain Cassini magnetometer data from PDS,
6. examples with step-by-step instructions on how to use the data for scientific research, and
7. additional useful information, web sources and external tools that a user may need when using the data

The examples in sections 6 demonstrate the following:

- how to find and use the calibrated data for studying the Saturnian magnetosphere
- how to transfer the data into a moon interaction coordinate system for studying moon-magnetosphere interactions
- how to use the calibration tools to process the raw data on PDS.

These examples will be most useful to those who already have some knowledge of the Cassini magnetometer instrument, but would like to learn how to use the data.

2. The Cassini magnetometer instrument

2.1 Instrument overview

Magnetometers are direct-sensing instruments that detect and measure the strength and orientation of magnetic fields. The Cassini Dual Technique Magnetometer (MAG) measures magnetic fields in the vicinity of the Cassini obiter during its mission. The MAG instrument consists of two independent magnetometers, a common data processing unit, three power supplies, and associated operating software and electronics.

The first magnetometer, the vector/scalar helium magnetometer (V/SHM), is capable of two modes of operation. In vector mode, it measures three orthogonal components of the magnetic field, allowing determination of the field magnitude and direction. Using two dynamically selectable ranges of operation, vector fields up to ±256 nT may be measured. In scalar mode, in

which only the field magnitude is measured, the magnetometer is capable of measuring fields in the range 256 to 16384 nT. The V/SHM and its electronics have been provided for the Cassini mission by the Jet Propulsion Laboratory (JPL).

The second magnetometer, the fluxgate magnetometer (FGM), uses three orthogonal ringcore fluxgate sensors to make vector field measurements. This magnetometer operates in one of four dynamically selectable ranges, allowing the measurement of fields up to ±44000 nT. The FGM and its electronics have been provided for the mission by Imperial College, London.

The instrument data processing unit (DPU) interfaces with the spacecraft Command and Data Subsystem through the JPL-designed bus interface unit (BIU). All commands, data, and processor program changes are received or transmitted through the BIU. Three power supplies and the 28 V spacecraft bus power the MAG components. Power supply 0 powers the BIU and the DPU core. Power supplies 1 and 2 are redundant and power the remainder of the instrument.

The magnetometers are sensitive to field distortions caused by electric currents and ferrous components onboard the spacecraft. To minimize these spurious effects the sensors are located on an 11 m boom which was deployed from the spacecraft before the first magnetic-field measurements were made. For the Cassini mission, the FGM sensor is located midway along the magnetometer boom and the V/SHM sensor is at the end of the boom.

2.2. Instrument modes

The vector helium magnetometer (V/SHM) can operate in both the vector mode (VHM) and the scalar mode (SHM), which have two and one dynamic ranges respectively. The fluxgate magnetometer (FGM) has four dynamic ranges. All these ranges and the corresponding sensor resolutions are listed in Table 2.1.

Sensor	**Range Label**	**Range (nT)**	**Resolution (nT)**
VHM	R0	±32	0.0039
VHM	R1	±256	0.0312
SHM		256-16384	0.036
FGM	R0	±40	0.004
FGM	R1	±400	0.048
FGM	R2	±10000	1.2
FGM	R3	±44000	5.4

Table 2.1. The dynamic ranges of the MAG instruments.

Switching between ranges in normal operations is automatic, controlled by the Data Processing Unit (DPU). The DPU monitors each component field value. If the magnitude of any component exceeds an upper threshold for greater than a specified number of samples, the DPU will switch the instrument to a higher range. Similarly, if the magnitudes of all three components fall below a lower threshold for more than a specified number of samples, the DPU will switch the instrument to a lower range (*Dougherty et al., 2004*).

2.3. Scientific objectives of Cassini MAG instrument

The primary objectives of the Cassini MAG instruments are to determine the detailed structure of the planetary magnetic field and to study the physical processes in the planetary system that are associated with the magnetic field. In particular, the MAG instruments will endeavor to:

- determine the internal magnetic field of Saturn
- develop a three-dimensional model of Saturn's magnetosphere
- determine the magnetic state of Titan and its atmosphere
- derive an empirical model of the Titan electromagnetic environment
- investigate the interactions of Titan with the magnetosphere, magnetosheath, and solar wind
- survey the ring and dust interactions with the electromagnetic environment
- study the interactions of the icy satellites with the magnetosphere of Saturn
- investigate the structure of the magnetotail and the dynamic processes at the icy satellites

2.4. Strategies behind the planning and implementation of observation patterns

The MAG instruments are sensitive to field distortions caused by electric currents and ferrous components onboard the spacecraft. To minimize these spurious effects, the sensors are located on an 11 m boom which was deployed from the spacecraft before the first magnetic-field measurements were made. The two FGM sensors are mounted midway along the magnetometer boom (5.814 m from the spacecraft centre) and the V/SHM sensor is mounted at the end of the boom (11.015 m from the spacecraft centre). Spacing the FGM and V/SHM at different distances along the boom allows the spacecraft-generated field to be better characterized and removed from the observations during calibration process.

The advantage of having both FGM and V/SHM measurements is to improve the accuracy during high field operation of the instrument. In the past, a problem with achieving high accuracy from vector measurements has been the precise attitude knowledge required. The FGM has a large dynamic range and shortcomings in deriving accurate estimates of weak field components in a strong field. But with the SHM, this problem is avoided by measuring the field magnitude directly by way of a resonance magnetometer. This improved accuracy of the SHM is especially important for determining the 4th and 5th order moments of Saturn's internal field because the SHM measurements close to the planet have better accuracy than those from the FGM. More details of this strategy are discussed in Dougherty et al. (2004). The V/SHM failed on 17 November 2005, and thereafter cross-calibration between FGM and V/SHM was no longer possible. In addition, the VHM optimizes low frequency vector measurements in low fields, and the FGM operates best at high frequency and over an extremely wide dynamic range. The twin sensor configuration of FGM also contributes to overall instrument reliability. If one sensor fails, field measurements can be made with the other sensor, with sufficient performance to achieve many of the major objectives of the investigation. Reliability has been further increased by the provision of redundant instrument power supplies and data processing units and by careful selection of electronic components which can survive the radiation environments encountered during the long cruise phase of the mission and in the Saturnian system.

2.5. Instrument limitations and factors affecting instrument data

As discussed above, the MAG instrument is mounted on a boom to minimize the interference from the spacecraft-generated fields. However, the mounting of the sensors on a boom could result in their orientation with respect to the spacecraft axes changing from time to time, especially after spacecraft maneuvers. Thus a means of sensor alignment determination has been provided by the Cassini project, the Science Calibration Subsystem (SCAS). The SCAS consists of two coils rigidly mounted on the spacecraft body with a known alignment to the spacecraft axes. These produce well-defined magnetic fields on command which can be detected by the sensors and used to correct for any changes in sensor orientation.

An implicit feature of the SHM is the null zone which arises if the ambient field falls outside a cone of 45 degree half angle with respect to the optical axis of the magnetometer. This results in the signal being dramatically weakened and the absolute accuracy of the instrument will suffer. Thus a requirement has been placed on the Cassini mission to avoid spacecraft orientations inside of 4 Saturn radii which will cause the planetary field to lie within the null zones of the scalar device.

3. Calibration of the instrument data

3.1 Ground calibration and in-flight calibration

The calibration of the MAG instrument consists of ground calibration and in-flight calibration. The ground calibration of the fluxgate magnetometer was done in the 2.5 m Braunbek coil system of the Institute of Geophysics and extraterrestrial Physics at the Technical University of Braunschweig, which included tests on the sensitivity, orthogonality, zero levels, linearity and frequency response (*Dougherty et al., 2004; Glassmeier et al., 2007*). The calibration procedure for the vector helium magnetometer included accurate measurements of the triaxial scale factors and linearity, intrinsic instrument noise, triaxial offsets, the amplitude and phase response as a function of frequency, response to the in-flight calibration signals, and orthogonality of the three axes, which were done at a coil facility maintained by the US Coast and Geodetic Survey magnetic observatory. Details on these ground calibration procedures and key magnetometer parameters are presented *in Dougherty et al. (2004)* and *Kellock et al. (1996).*

While the ground calibration provided initial values for the correction parameters, these parameters varied after launch, since the spacecraft field added to the sensor offsets and the sensor alignment could not be established until the deployment of the magnetometer boom. The initial in-flight calibration took advantage of the well-known Earth's field during Earth swing-by in 1999. Periodic alignment checks have been carried out during the mission. The fluxgate magnetometer (FGM) and vector/scalar helium magnetometer (V/SHM) that comprise the MAG instrument provide two independent measurements of the local field simultaneously for cross-calibration between sensors, as described in *Smith et al. (2001).* Note that the V/SHM stopped functioning after November 17, 2005. Thus, such cross-calibration was no longer possible subsequently.

As the mission has progressed, the in-flight calibration of the FGM has been performed using spacecraft rotations. Rotation of the spacecraft around one axis followed by another allows the estimate of the sensor offset plus spacecraft field along that axis. When viewed in the sensor's frame of reference during the spacecraft rotation, the field component due to the ambient external field will be seen to rotate, producing a sinusoidal signal, while the field component due to sensor offset and spacecraft field will remain steady. Using its thrusters, the spacecraft can rotate at approximately 0.4 degree per second. Such spacecraft rotations are planned by the instrument team to take place approximately every 20 days. More detailed description is in *Dougherty et al. (2004).*

3.2 Data calibration and availability

The in-flight calibration of the Cassini MAG data is performed at Imperial College. The data are first pre-processed using software to extract vectors from the telemetry packets generated by the instrument, to add relevant housekeeping information needed for processing, to remove corrupted data and correct the data times generated by the instrument. The datasets generated after this processing are called level 1A (L1A) data by the instrument team. These L1A data are delivered to PDS and are named "CASSINI MAGNETOMETER RAW DATA V1.0" on PDS,

with the URL http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001. Strictly speaking, they should be called level L1A data, but they are called "raw data" on PDS and later in this user guide for clarity.

These pre-processed data are further calibrated at Imperial College, which includes subtracting zero levels, multiplying by an orthogonality-sensitivity matrix, rotating from sensor coordinates to spacecraft coordinates, and subtracting the internal spacecraft field. All the above calibration values are stored in calibration files which are delivered to the PDS and stored in the CALIB directory (URL: http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001/CALIB.The instrument team also provides software to PDS for applying the calibration file to the raw data. The software is in the DOCUMENT/SOFTWARE directory (URL: http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001/DOCUMENT/SOFTWARE). This ensures that any calibration done by users or the PDS will produce the same data products as the instrument team, so that there will not be different versions of calibrated data.

The other three datasets on PDS, i.e. "CASSINI ORBITER MAG CALIBRATED FULL RES V1.0", "CASSINI ORBITER MAG CALIBRATED SUMMARY 1 MINUTE AVERAGE V1.0" and "CASSINI ORBITER MAG CALIBRATED SUMMARY 1 SECOND AVERAGE V1.0", are produced by PDS using data which were calibrated, and rotated into geophysical coordinates by the Cassini MAG team at Imperial College (IC). Data users can also apply the calibration themselves, by using the software which was provided by IC, and included in the PDS Cassin MAG Raw archive volume (COMAG_0001). As indicated above, copies of the source code, and executables of this software are located in the DOCUMENT/SOFTWARE directory along with example files for the users to test their calibration. Section 3.5 describes the calibration procedure for the software and test files on PDS.

3.3 Calibration procedures performed by the instrument team

The FGM data are calibrated mainly using spacecraft rotations, which are either specifically requested during mission planning for calibration of the magnetometer, occur as a result of other instrument operations, or made during spacecraft downlink periods. In the uncalibrated data, a roll signature can be seen when the spacecraft rotates over 360 degrees, producing a sinusoidal signature. A turn signature in the data appears when the spacecraft rotates less than 360 degrees, producing a partial roll. The spacecraft rolls due to other instrument operations and during downlink periods are always about the same spacecraft axis (Z) and occur fairly frequently (about twice a week). The rolls requested for MAG instrument calibration are about an axis in the spacecraft XY-plane and are intended to yield information on the FGM sensor Z-axis offset. These calibration rolls are requested approximately every 20 days, and are scheduled in regions where the ambient magnetic field is expected to be relatively quiet. When the field is too noisy, such rolls cannot be used for such calibration.

FGM and VHM data are normally available in parallel until November 2005 except in special circumstances. The SHM and VHM cannot work in parallel, so when SHM data are available there are no VHM data. Generally the SHM data were recorded whenever the predicted field is greater than 256 nT. If SHM data files are present in the archive for a particular day, then the SHM was operating, but there is no list of times when the SHM data were recorded. In principle, the VHM data were calibrated in the same way as the FGM data, which are described in more detail as follows. The SHM calibration was obtained by ground calibration and checked against the relatively well-known Earth magnetic field during the swing-by in 1999.

The FGM has four dynamic ranges (Range 0 to Range 3), i.e. ±40nT, ±400nT, ±10000nT, ±44000nT, with sensor resolutions of 4.0pT, 48.8pT, 1.2nT and 5.4nT, respectively. The instrument can automatically switch to a higher or lower range when the detected field reaches certain threshold *(Dougherty et al., 2004)*. The data received from the telemetry packets generated by the instrument are first pre-processed by the instrument team, which generate the level 1A data (which are called raw data on PDS).

These pre-processed data are then calibrated by first looking at the rolls in the data due to spacecraft rotations. The rolls are sinusoidal signatures and their amplitudes give the estimate the ambient field strength along each sensor. The strengths of the steady fields give the estimate of the sensor offset.

The rolls are first looked at in the most sensitive instrument range, Range 0. The instrument team uses their software tools to display the data and adjust the sensor offsets until any visible roll

signature is removed. This process begins by using the offsets obtained at the end of the preceding calibration period. Each set of rolls in the current calibration period is calibrated separately. The offsets are not allowed to change significantly unless there has been a known onboard event that could trigger a large change, such as a major spacecraft reconfiguration (e.g. the release of Huygens probe on Dec 25, 2004, 0200 UT) or an instrument power cycle (e.g. on Nov 24, 2006, the offset on the x-axis of FGM changed by about 0.08 nT). For Range 0 calibration, the raw vector data from science packets (YYDDD _MRDCD_SDFGMC for FGM data) are first averaged to 1 minute resolution before the above processing. The 1 minute resolution data are deemed to be sufficient because the MAG calibration rolls take approximately 53 minutes to complete. Typically, between four and eight rolls occur during each request. The data can be used at higher resolution, but the process would be slower.

Once the Range 0 offsets are obtained, the higher instrument ranges can be calibrated. For Range 1, the highest resolution data (YYDDD_MRDCD_SDFGMC for FGM data) are used for calibration. The process treats the calibration period sequentially, beginning with the first 0 to 1 range transition and using the Range 0 offset already obtained to adjust the Range 1 offset to minimize any step. This adjusted Range 1 offset is then applied to check rolls and turns in the ensuing Range 1 period to ensure there are no signatures from the spacecraft maneuvers. If there

are, the Range 1 offset is adjusted for the best combination of roll, turn and step removal. This process is repeated for the following higher ranges (Range 2 and Range 3) and down again until the calibration of the range 1 to 0 step.

This summarizes the calibration procedures that are performed at Imperial College, which provides calibration files and software to the PDS that allow the user to apply the same calibration to the raw data. As stated previously, the PDS user will therefore obtain the same calibrated data as produced by Imperial College. This prevents the use of different versions of calibrated data that would arise if calibration were done independently by the user.

3.4 Calibration tools available on PDS

In-flight calibration tools are provided on PDS in the CASSINI MAGNETOMETER RAW DATA V1.0 directory (i.e. COMAG_0001, under URL: http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001). The raw data are in the DATA directory, with file names in the form yyddd_MRDCD_SDFGMC for FGM data and YYDDD _MRDCD_SDVHMC for V/SHM data. The calibration files are in the CALIB directory, which contains all the information needed to reproduce the same calibrated data processed by Imperial College. The software tools to do the data calibration and coordinate transformation are in the DOCUMENT/SOFTWARE directory, specifically CAL02 and TRANSCAL. The user guide for these software tools are under the directory of DOCUMENT, specifically CAL02_GUIDE and TRANSCAL_GUIDE. The CATALOG and VOLSIS directories contain useful files describing the mission and the datasets. A general description of the files under COMAG_0001 is shown in Figure 7.1, toward the end of this document.

3.5 Calibration procedures using the software tools on PDS

In order to calibrate the raw data on PDS, the user must use the Win32 console application CAL02.exe and the calibration file for the time of interest. This application can be launched by double-clicking the application icon. A DOS-type window will open, in which questions will appear sequentially as the user answers them.

The calibration values are stored in files in the CALIB directory and are applied to the raw data by CAL02.exe. The application CAL02.exe performs the same calibration process as done at Imperial College, which consists of subtracting zero levels, multiplying by an orthogonality-sensitivity matrix, rotating from the sensor coordinates to the spacecraft coordinates, and subtracting internal spacecraft field. There are example files (in the SOFTWARE directory) for the users to test their calibration results.

Users may want to transform the data from the spacecraft coordinates to a certain coordinate system like KSM (Kronocentric Solar Magnetospheric coordinates). The application TRANSCAL.exe allows users to transfer the data obtained from CAL02.exe to a user-selected

available coordinate system. TRANSCAL is also a Win32 console application and the users can open it by double-clicking on the icon. A DOS-type window opens, in which the user types answers to various questions. It also requires input of the spacecraft attitude information from a quaternion in a channelized attitude flatfile (i.e. CHATT flatfile available on PDS under directory of DATA/Yyyyy/yyddd/SCDCD) or from a SPICE C kernel, which can be download from NAIF website. There are example files of the data in several coordinate systems in the DOCUMENT/SOFTWARE directory for the users to test their results.

More detailed steps using these applications are described in Example 3 of Section 6.

Users should note that both CAL02.exe and TRANSCAL.exe were developed for Windows systems, because it is the designated platform according to the requirements specified by the MAG Principal Investigator. It needs changes to compile and run them on other systems. Users can obtain more information on the software installation and descriptions of the source code files from the CAL02_GUIDE and TRANSCAL_GUIDE.

4. General information about the Cassini magnetometer data

4.1. Characteristics of the archived datasets

The magnetometer data of the Planetary Data System (PDS) includes the four datasets from the Cassini magnetometer (Figure 4.1):

1) COMAG_0001 (Raw data at highest resolution),
2) COMAG_3001 (Calibrated data at highest resolution),
3) COMAG_4001 (Calibrated data at 1 second resolution), and
4) COMAG_4002 (Calibrated data at 1 minute resolution).

COMAG_0001

This dataset contains certified Cassini Orbiter magnetometer raw data covering the period 1999-08-16 through the most recent public release, and related documents, instrumental information data and calibration software. In the DATA directory, each data product contains a single day's worth of data, organized in a file system called “flatfiles”. It contains a data file (.FFD) and a header file (.FFH). The data file is a binary, fixed record length file, and the header is an ASCII file. PDS archiving standards also require an additional ASCII label file (.LBL) describing each data file. The label file contains similar information to the header file. Each data file contains six columns: (1) time in spacecraft clock time counts, (2-4) magnetic field components along three axes of the instrument sensors (in engineering units), (5) MAG status (status information related to active magnetometer modes, packet types, etc), and (6) VHM/FGM status (status information for the vector helium magnetometer or the fluxgate magnetometer instruments). These science

data are in the DATA/“Y”yyyy/yyddd/MRDCD directory, where “yyyy” specifies the year and “yyddd” specifies the year and day of year for a certain data file.

The other files in the DATA directory and their contents are:

- yyddd_MRDCD_HKANAN contains analog housekeeping data;
- yyddd_MRDCD_HKCMDN contains command validation information;
- yyddd_MRDCD_HKCONN contains configuration image information maintained by the DPU computer;
- yyddd_MRDCD_HKERRN contains error counter information;
- yyddd_MRDCD_HKVHMN contains vector helium magnetometer housekeeping data;
- yyddd_MRDCD_HKFGMC contains fluxgate magnetometer science data;
- yyddd_MRDCD_HKVHMC contains vector helium magnetometer science data;
- yyddd_ECDCD_CHATT contains channelized data (Attitude quaternion, and Rotation rate);
- yyddd_ECDCD_CHUSR contains user-selected channelized data.

COMAG_3001

This dataset contains Cassini Orbiter magnetometer calibrated data in highest available resolution from 1999-08-16 to 2012-09-30, and related documents. In the DATA directory, each data product contains a data file (.TAB) with a single day's worth of data and a label file (.LBL) describing the data file, both in ASCII format. These data are in RTN coordinates prior to Cassini's arrival at Saturn, and KRTP coordinates at Saturn (beginning 2004-05-14). These two coordinate systems are described below in this user guide. Each data file contains four columns:

(1) time (in the format yyyy-mm-dd“T”hh:mm:ss),

(2-4) magnetic field components along three axes of the given coordinate system (in units of nanotesla).

COMAG_4001

This dataset contains Cassini Orbiter calibrated magnetometer data in 1 second averages available covering the period 1999-08-16 to 2012-06-17, and related documents. In the DATA directory, the data are organized in four coordinate systems, KRTP, KSM, KSO and RTN. These

coordinate systems are described below in this user guide. Each data product contains a data file (.TAB) with length of one Cassini orbit around Saturn and a label file (.LBL) describing the data file, both in ASCII format. For example, in the file 09009_09019_100_FGM_KRTP_1S.TAB, “09009” is the start time (i.e. year 2009, day 009); “09019” is the end time; “100” is the orbit or rev number (i.e. the 100th orbit around Saturn); “FGM” is the instrument name; “KRTP” is the coordinate system; and “1S” is the data resolution (i.e. 1 vector per second). Each data file contains six columns:

(1) time (in the format yyyy-mm-dd“T”hh:mm:ss),

(2-4) magnetic field components along three axes of the given coordinate system (in units of nanotesla),

(5) average of the magnetic field magnitudes (in nanotesla),

(6) number of points in the average.

COMAG_4002

This dataset contains Cassini Orbiter calibrated magnetometer data in 1 minute averages available covering the period 1999-08-16 to 2012-03-30, and related documents. In the DATA directory, the data are organized in four coordinate systems, KRTP, KSM, KSO and RTN, which will be described later in this user guide. Each data product contains a data file (.TAB) with length of one year and a label file (.LBL) describing the data file, both in ASCII format.

In the KRTP coordinate system, each data file contains 10 columns:

(1) time (in the format yyyy-mm-dd“T”hh:mm:ss),

(2-4) magnetic field components along three axes of the given coordinate system (in units of nanotesla),

(5) the average magnetic field magnitudes (in nanotesla),

(6) range from center of Saturn to the spacecraft (in Saturn radii, Rs=60268 km),

(7) planetographic latitude of the spacecraft (in degrees),

(8) planetographic east longitude of the spacecraft based on Saturn’s rotation rate from IAU (in degrees),

(9) local time (in hours, which is the angle between the observer's sub-Saturn meridian and the anti-sunward meridian, measured in Saturn's equatorial plane in the direction of planetary rotation)

(10) number of points in the average.

In the KSM and KSO coordinate systems, each data file contains 10 columns:

(1) time (in format of yyyy-mm-dd“T”hh:mm:ss),

(2-4) magnetic field components along three axes of the given coordinate system (in nanotesla),

(5) the average magnetic field magnitudes (in nanotesla),

(6-8) spacecraft position components along three axes of the given coordinate system (in Rs),

(9) local time (in hours),

(10) number of points in the average.

In the RTN coordinate system, each data file contains 12 columns:

(1) time (in the format yyyy-mm-dd“T”hh:mm:ss),

(2-4) magnetic field components along three axes of the given coordinate system (in units of nanotesla),

(5) the average magnetic field magnitudes (in nanotesla),

(6-8) range from Sun to spacecraft (in astronomical units, AU = 149674000 km),

(9) solar heliocentric latitude of the spacecraft (in degrees),

(10) solar longitude of the spacecraft east of the Sun-Aries line (in degrees),

(11) spacecraft position components (in AU) along three axes of the inertial heliographic cartesian coordinates (x-axis along the Sun-Aries line and positive towards Aries, z-axis along the direction of Sun’s rotation axis, y-axis completes the right handed set being z cross x),

(12) number of points in the average.

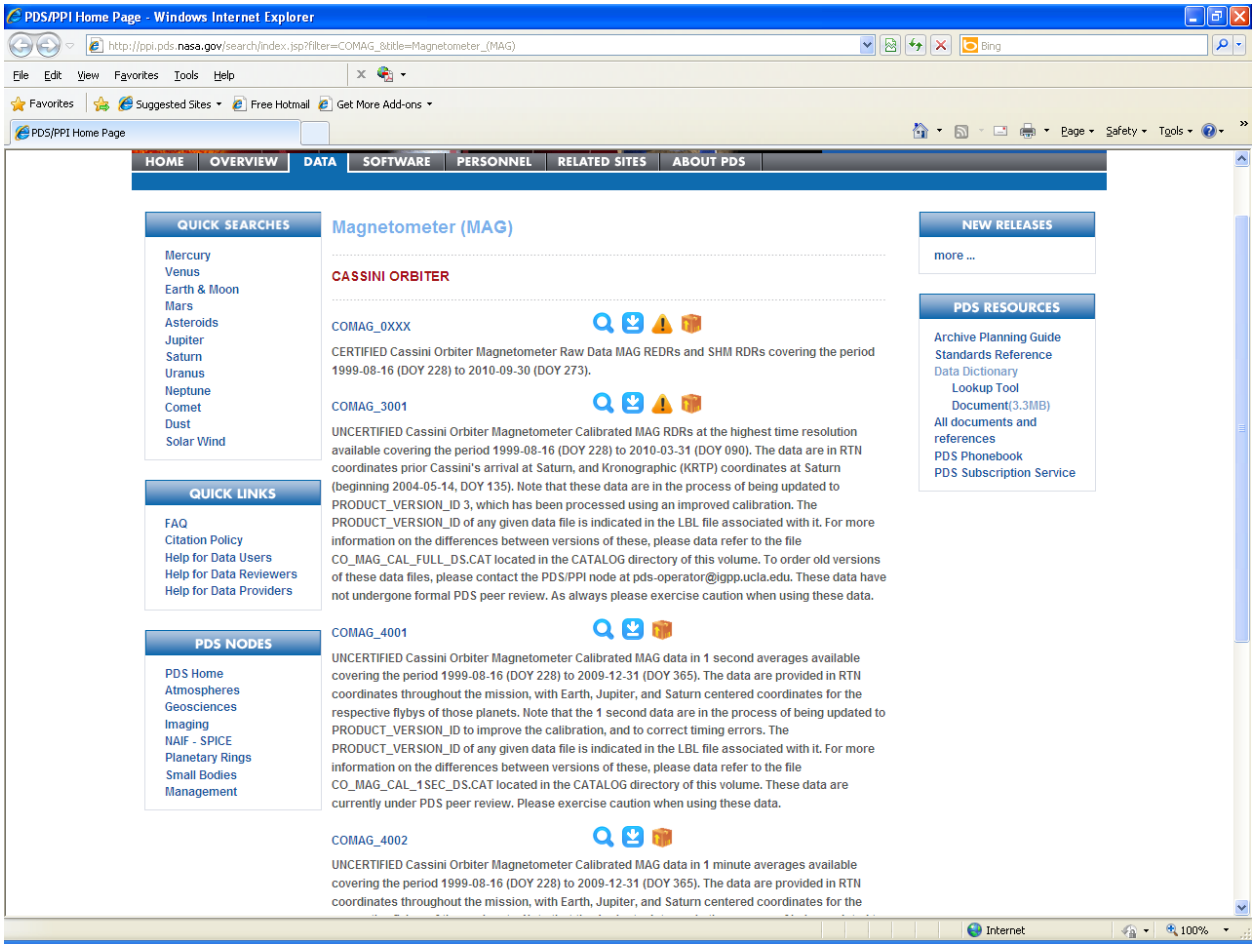

Figure 4.1 Screen shot of the four Cassini MAG datasets webpage on PDS webpage: http://ppi.pds.nasa.gov/search/?t=null&sc=Cassini&i=Magnetometer&title=Cassini%20:%20Magnetometer

4.2. Coordinate systems of the datasets

The five coordinate systems in which the magnetometer data are provided are RTN, KRTP, KSM, KSO and sensor coordinates.

1) The RTN coordinate system is centered on the Sun and has the R-axis (radial component) pointing from Sun to the spacecraft, T-axis (tangential component) parallel to the solar equatorial plane and perpendicular to R-axis, and N-axis (normal component) completing the right handed set.

2) The KRTP coordinate system is centered on Saturn and has the R-axis (radial component) pointing from Saturn to spacecraft, P-axis (phi component) parallel to Saturn's equator and perpendicular to Saturn's spin axis, and T-axis (theta

component) completing the right handed set (P cross R) and counted positive southward.

3) The KSM coordinate system is centered on Saturn and has the X-axis pointing from Saturn to the Sun, Y-axis perpendicular to the magnetic dipole (Omega) and the Saturn-Sun direction (Omega cross X), and Z-axis completing the right handed set (X cross Y). Thus the XZ-plane of KSM coordinates contains Saturn's centered magnetic dipole axis.

4) The KSO coordinate system is centered on Saturn and chas the X-axis pointing from Saturn to the Sun, Y-axis being parallel to Saturn's orbital plane and perpendicular to the Saturn-Sun line, and Z-axis completing the right handed set (X cross Y). Thus the XZ-plane of KSO coordinates contains Saturn's orbital axis.

The sensor coordinate system is along the three axes of the instrument sensor, and the CHATT flatfile or the SPICE C kernel contains the information to transform the data from spacecraft coordinates to another coordinate system like KRTP (see Section 4, Example 3).

5. Understanding the Cassini MAG data: search, extract and process that data

5.1. Search methods to obtain the MAG datasets available on PDS

There are two ways to search for the Cassini magnetometer data on the planetary data system (PDS) (homepage (http://pds.nasa.gov/) shown in Figure 5.1). One way is to search by key words: click "DATA" in top of this page, and then a new page for data searching will be opened, where the user can type the key words "Cassini MAG" and click "Search". The other way is using the "Quick Searches" column in the left of the PDS homepage: click "Saturn", then in the new page opened click "Cassini-Huygens", and in the new page click "Magnetometer". The search result should include the datasets discussed in Section 1.1 of this guide: Cassini magnetometer raw data, Cassini magnetometer calibrated full resolution data, Cassini scalar magnetometer data, Cassini magnetometer calibrated 1 minute resolution data, and Cassini magnetometer calibrated 1 second resolution data. All these data can be found and downloaded in the Planetary Plasma Interactions (PPI) node of PDS system (http://pds.nasa.gov) which will be discussed later in this section.

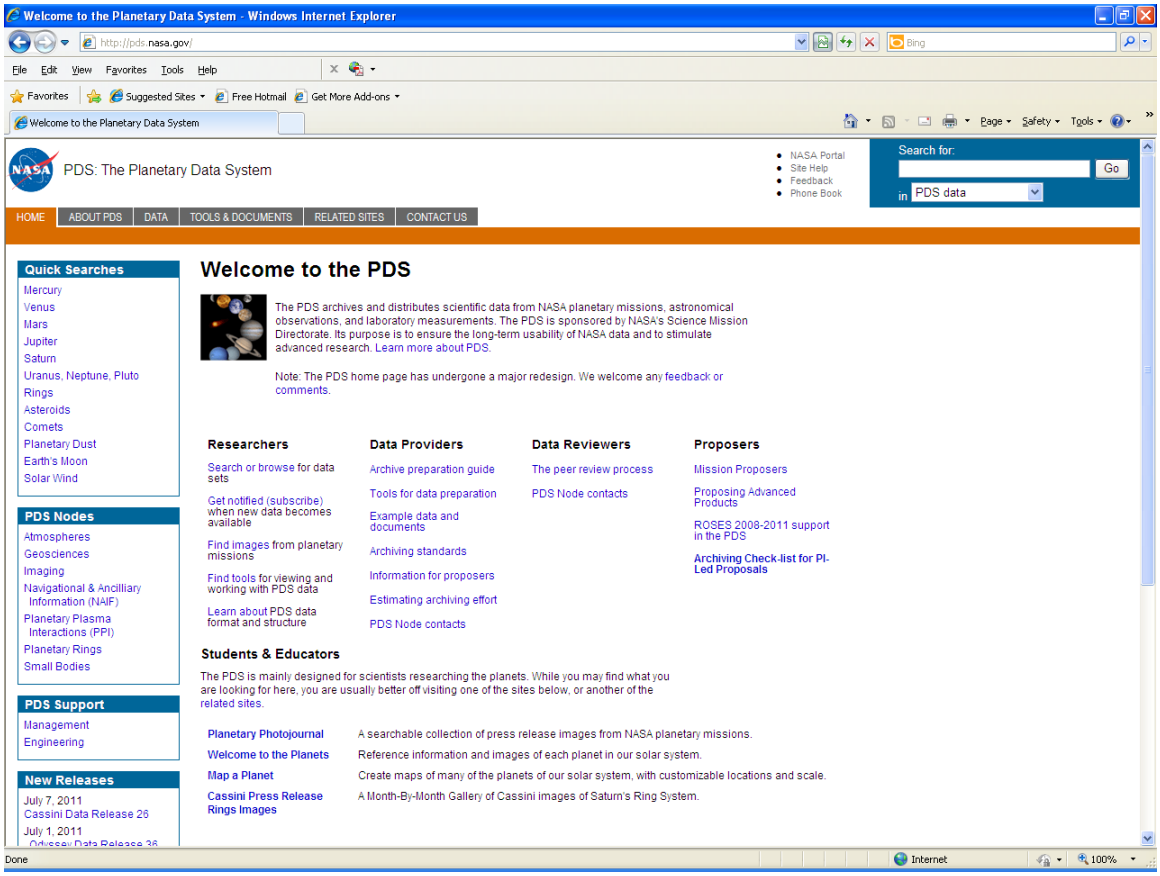

Figure 5.1 Screen shot of the PDS homepage: http://pds.nasa.gov.

Users can also search for the Cassini MAG data in the Planetary Plasma Interactions (PPI) node of the PDS system, webpage http://ppi.pds.nasa.gov (shown in Figure 5.2). Similarly, there are two ways for searching for the MAG datasets. One way is to search by key words: type the key words “Cassini MAG” in the box under “Search for” in the upper right of the webpage, and then click “Go”. The other way is using the “Quick Searches” column in the left of the PPI node webpage: click “Saturn”, then in the new page opened click “Cassini” under “Spacecraft”, and in the new page click “Magnetometer (MAG)” under “Instrument”.

Figure 5.2 Screen shot of the PPI node webpage: http://ppi.pds.nasa.gov.

The search result is shown in Figure 5.3, which includes four datasets: COMAG_0001 (Raw data in highest resolution), COMAG_3001 (Calibrated data in highest resolution), COMAG_4001 (Calibrated data in 1 second resolution), and COMAG_4002 (Calibrated data in 1 minute resolution). Details on these datasets and data format are described in Section 1.1. We recommend that users opt to use the PPI node webpage for search data because it is more up-to-date than the PDS homepage.

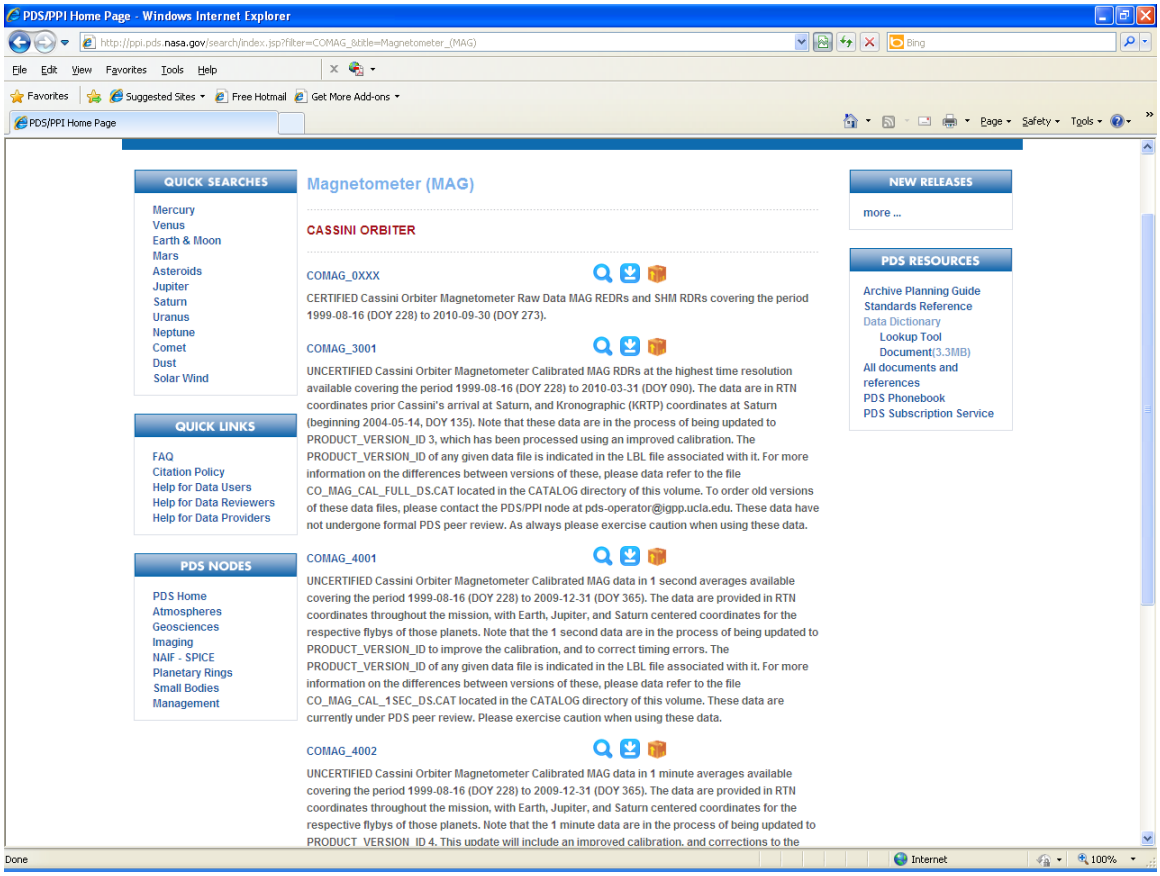

Figure 5.3 Screen shot of the four Cassini MAG datasets webpage on PDS webpage: http://ppi.pds.nasa.gov/search/?t=null&sc=Cassini&i=Magnetometer&title=Cassini%20:%20Magnetometer

In order to give users a general idea on how these datasets are organized, the directories of these four dataset are listed in Section 7.

5.2 Types of searches to find specific data: by date, by target, by spacecraft trajectory

The data are organized by time of year and coordinate systems under sub-directories of the four datasets talked above. In order to find a subset of data during a specific time, under certain resolution, or in a chosen coordinates, users can just browse the webpage to download the data they need. If users want to search for some data by target, for example during Enceladus flybys, they can first check the table of Cassini tour event summary, which is attached in Section 5, to find the time interval of their interested flybys and then search the data by time. If users want to search for the data with specific spacecraft trajectories, for example between 19 to 21 Saturn radii, they can first download the calibrated 1 minute resolution data (COMAG_4002), and then search the spacecraft position data by their criteria. Users can also browse the orbit plots provided by the PDS website to search for the Cassini orbits that satisfy their criteria and then download only the data they want.

5.3 Extract and process the Cassini MAG data

Except for the dataset for the raw data in highest resolution (COMAG_0001), all the data in the other three datasets are in ASCII file format and in physical units. Hence there is no need to process these data before using them for scientific research, unless users want to transform the data into an unavailable coordinate system or resolution. In Section 6, there is an example showing how to transform the data from a Saturn centered coordinate system to a moon interaction coordinate system.

The raw data (COMAG_0001) are in flatfile format and have the field measurements in engineering units and time in spacecraft clock time counts, so they do need some processing to be usable. In Section 6, Example 3 shows the processing steps to calibrate the raw data, reduce them to physical units and transform them into a user-selected coordinate system. Users should note that the calibrated data in highest resolution (COMAG_3001) are processed from the raw data with the same tools and processing steps by PDS staff, so they can often just use the calibrated data in highest resolution and avoid doing the raw data processing themselves.

6. Examples of using MAG data for scientific research

In this section, we show examples of using the magnetometer data for scientific research based on identified results in published papers. Specifically, we show how to obtain the data from PDS and reproduce the same results in various selected publications. Example 1 is the simplest, which shows how to use the PDS-provided data in different coordinates and resolutions for different research objectives. Example 2 is aimed at providing instructions on how to use the data on PDS and necessary tools on SPICE kernels for studying Saturnian moon interactions with the magnetosphere. Example 3 shows how to use the calibration tools and the raw data provided by PDS in order to reproduce the same calibrated data on PDS. The users should note that doing these calibrations themselves is often not necessary or recommended because the calibrated data with full resolution can be obtained from PDS. We also explain how the data could be affected by operation as well as possible features in the data that are not physical but artificial.

6.1. Example 1: This example shows how to obtain the calibrated magnetometer data in KSM and KRTP coordinate systems, for studies in the following paper.

M. K. Dougherty, N. Achilleos, N. Andre, C. S. Arridge, A. Balogh, C. Bertucci, M. E. Burton, S. W. H. Cowley, G. Erdos, G. Giampieri, K.-H. Glassmeier, K. K. Khurana, J. Leisner, F. M. Neubauer, C. T. Russell, E. J. Smith, D. J. Southwood, and B. T. Tsurutani, Cassini magnetometer observations during Saturn orbit insertion, Science, 307, 1266-1270. 2005.

First we show how to obtain the 1-second resolution data in KSM coordinates, during the interval of 27 June 2004 0000 UT to 29 June 2004 2400 UT, which is the same as in the left panel of Fig. 1 of *Dougherty et al. (2005).* We then show how to obtain the 1-second resolution

data in KRTP coordinates, during the interval of 30 June 2004 2047 UT to 30 June 2004 2135 UT, as shown in Fig. 5 of *Dougherty et al (2005).* The data can be downloaded from the PDS website, under "DATA," selecting "Cassini" under the "Spacecraft" category and then selecting "Magnetometer (MAG)" under the "Instrument" category. The window opened by these actions is shown in Figure 6.1.

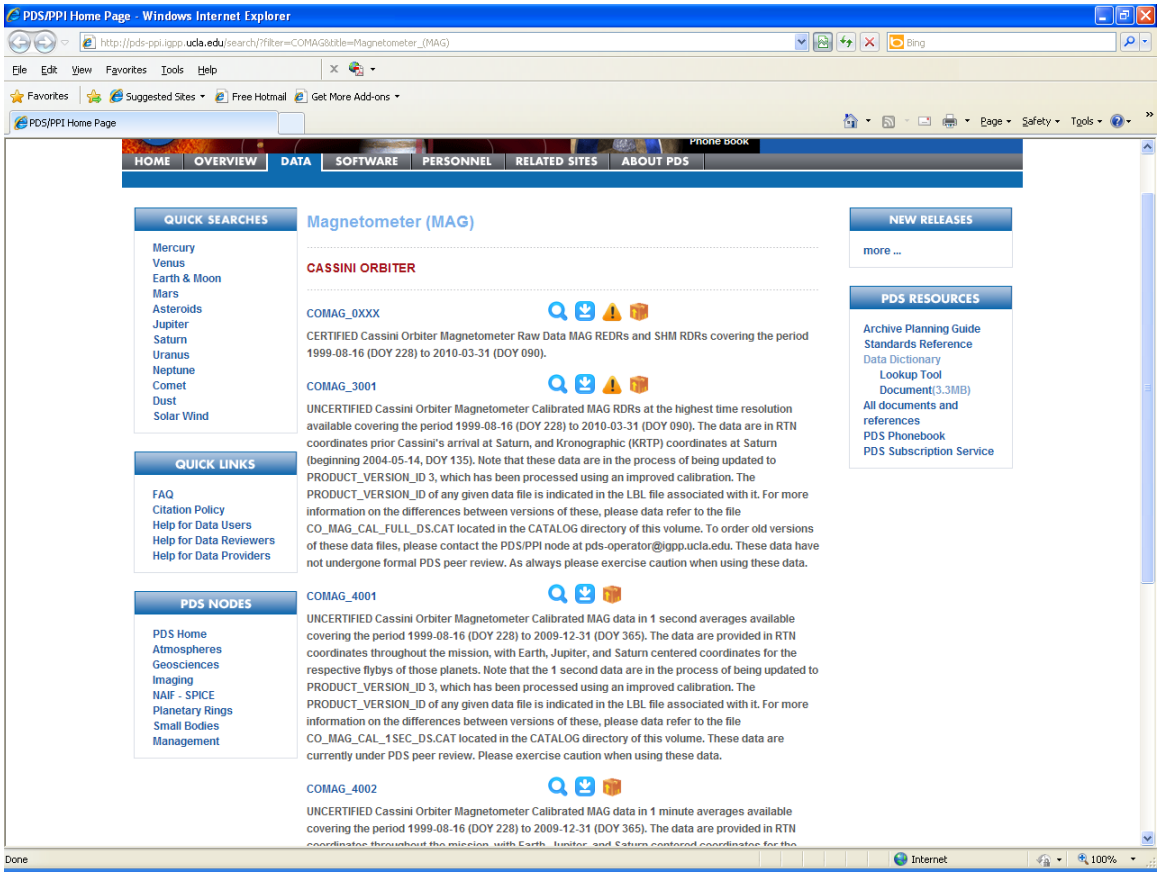

Figure 6.1. Screen shot of the Cassini MAG data webpage on PDS: http://ppi.pds.nasa.gov/search/?t=null&sc=Cassini&i=Magnetometer&title=Cassini%20:%20Magnetometer

There are four types of datasets on the webpage; we choose "COMAG_4001", i.e. calibrated MAG data in 1-second resolution. The webpage opened is shown in Figure 6.2.

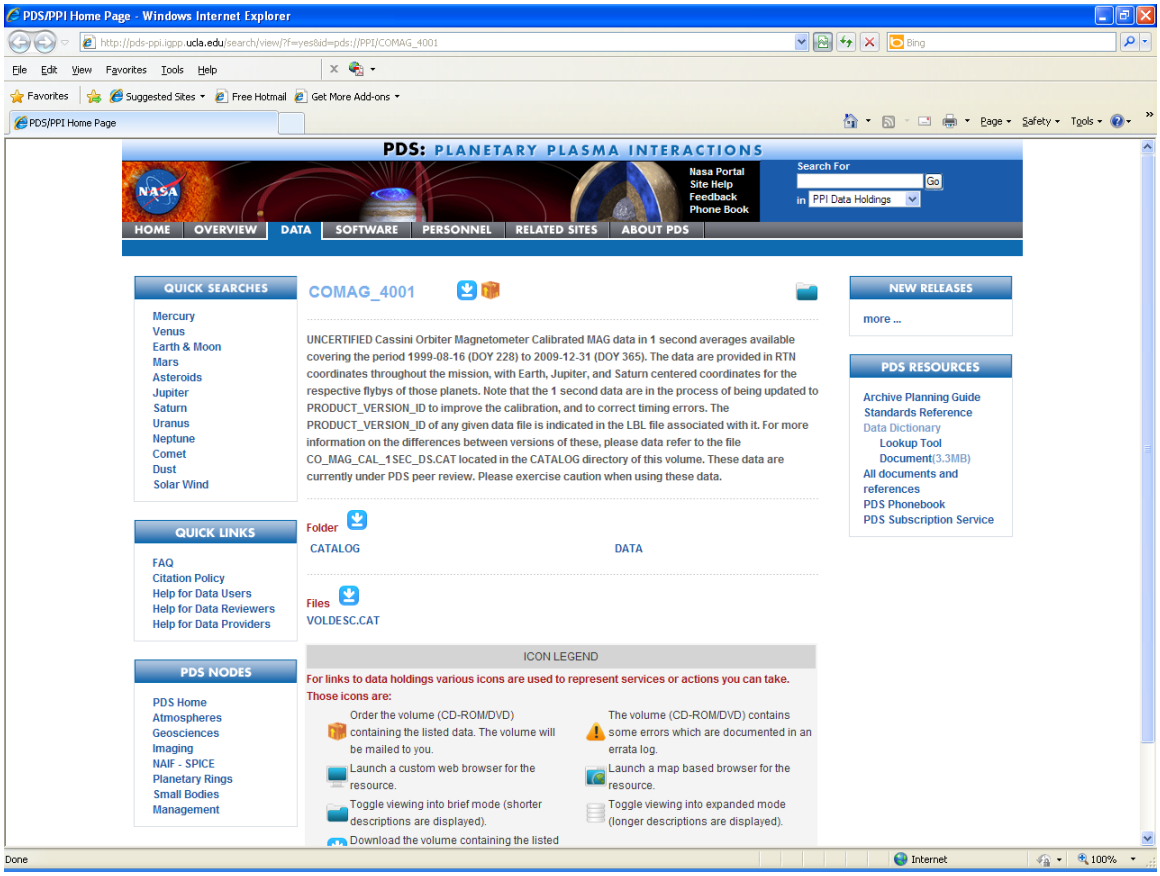

Figure 6.2. Screen shot of the calibrated MAG data in 1-second average: http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_4001

Choose "DATA" under "Folder" to open a new webpage, http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_4001/DATA (shown in Figure 6.3).

The data are tabulated in four different coordinate systems, i.e. KRTP, KSM, KSO, and RTN. In this example, we use the data in KSM and KRTP coordinates. Under the sub-directory of each coordinate system, the data files are ordered by time of year, and then each data file contains data from one Cassini orbit.

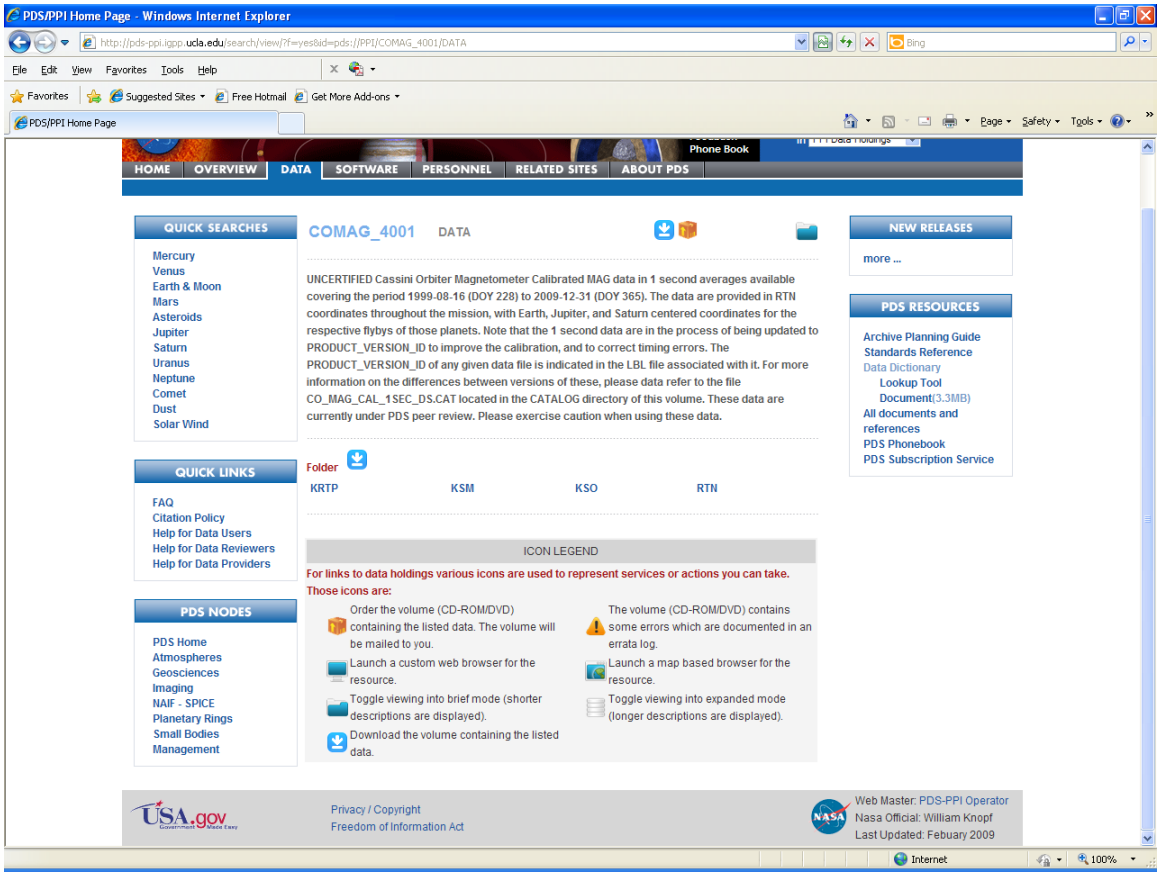

Figure 6.3. Screen shot of the 1-second resolution calibrated data: http://pds-ppi.igpp.ucla.edu/search/view/?f=yes&id=pds://PPI/COMAG_4001/DATA

The KSM coordinates have the x-axis pointing from Saturn to the Sun, y-axis being perpendicular to the magnetic dipole and the Saturn-Sun direction (i.e. the cross product of dipole axis and x-axis), and z-axis completing the right-handed set, so that the xz-plane contains Saturn's centered magnetic dipole axis. To download the calibrated 1-second resolution data in KSM coordinates, we choose "04135_04240_00_FGM_KSM_1S" under "KSM". The opened webpage is shown in Figure 6.4.

Figure 6.4. Screen shot of the 1-second resolution calibrated data in KSM coordinates during Cassini's first orbit around Saturn (Rev 0): http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_4001/DATA/2004/04135_04240_00_FGM_KSM_1S&o=1

There are two files for downloading: "04135_04240_00_FGM_KSM_1S.LBL", the label file, contains the data description; "04135_04240_00_FGM_KSM_1S.TAB" contains the data. Click on them to download and save the files on a local computer. In the data file, there are six columns: universal time, B_X, B_Y, B_Z, B_{Total}, and NPTS (Number of points in the average). The universal time is in the form of "2004-05-14T00:00:24.5." Thus, to generate the plot as in the left panel of Fig. 1 in *Dougherty et al. (2005)*, we only need to plot the second, third, fourth, and fifth columns from time 2004-06-27T00:00:0.5 to 2004-06-29T23:59:59.5.

The KRTP coordinates have the x-axis (Radial) pointing from Saturn to spacecraft, z-axis (Phi) being parallel to Saturn's equator and perpendicular to Saturn's spin axis (i.e. the cross product of Saturn's rotation axis and the x-axis), and y-axis (Theta) completing the right-handed set. Choose "04135_04240_00_MAG_KRTP_1s" under "Files" to download the calibrated 1-second resolution data in KRTP coordinates. The opened webpage is shown in Figure 6.5.

Figure 6.5. Screen shot of the 1-second resolution calibrated data in KRTP coordinates during Cassini's first orbit around Saturn (called Rev 0): http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_4001/DATA/2004/04135_04240_00_FGM_KRTP_1S&o=1

There are two files for downloading: "04135_04240_00_MAG_KRTP_1S.LBL", the label file, contains the data description; "04135_04240_00_MAG_KRTP_1S.TAB" contains the data. Click on them to download and save the files on a local computer. In the data file, there are six columns: universal time, B_R, B_{THETA}, B_{PHI}, B_{TOTAL}, and NPTS (number of points in the average). The universal time is in the form of "2004-05-14T00:00:24.5." Thus, to generate the plot as shown in Fig. 5 *in Dougherty et al. (2005)*, we need only to plot the second, third, fourth, and fifth columns from time 2004-06-30T20:47:0.5 to 2004-06-30T21:29:00.5.

Similarly, we can obtain the calibrated 1-second resolution data in KSO and RTN coordinates, during interested intervals. The KSO coordinates have the x-axis pointing from Saturn to the Sun, y-axis being parallel to Saturn's orbital plane and perpendicular to the Saturn-Sun line, and z-axis being perpendicular to Saturn's orbital plane upward normal, completing the right-handed set. The RTN coordinates have the x-axis (Radial) from Sun to the spacecraft, y-axis (Tangential) being parallel to the solar equatorial plane and perpendicular to the x-axis, and z-axis (Normal) completing the right-handed set.

In order to obtain the calibrated 1-minute resolution data, we should choose the dataset COMAG_4002 (http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_4002). The webpage is shown in Figure 6.6.

Figure 6.6. Screen shot of COMAG_4002, containing the 1-minute resolution calibrated data: http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_4002

Each data file contains one year's length of the 1-minute resolution data, in four coordinates, KRTP, KSM, KSO, and RTN. Each data consists of a label file with the file name ending in ".LBL" that contains the data description and a data file with the file name ending in ".TAB.", indicating the data is presented as a table. The data format is similar to the 1-second resolution data and the format information can be found in ".LBL" file.

6.2. Example 2: This example shows how to obtain the calibrated data for studying moon-magnetosphere interactions, as in the following paper:

K.K. Khurana, M.K. Dougherty, C.T. Russell, Mass loading of Saturn's magnetosphere near Enceladus, *J. Geophys. Res.*, *112*, A08203, doi:1029/2006JA012110, 2007.

First, we obtain the calibrated full-resolution data from PDS in the KRTP coordinate system, then transform the data from the KRTP coordinate system to the Enceladus interaction coordinate system (ENIS) using the data and tools in the Spice kernel.

The calibrated full resolution magnetometer data can be downloaded from PDS at http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_3001

The calibrated full-resolution data files each contain one day's length of data. We download the data for February 17, 2005. We select "DATA" on the webpage, select "Y2005", and select "05048_FGM_KRTP" which contains the data in KRTP coordinates for February 17, 2005. The opened webpage is shown in Figure 6.7. "05048_FGM_KRTP.LBL" is the label file describing the data format and the definition of the coordinate system. The KRTP coordinates have the x-axis (Radial) pointing from Saturn to spacecraft, z-axis (Phi) being parallel to Saturn's equator and perpendicular to the Saturn-Sun line (i.e. the cross product of Saturn's rotation and the x-axis), and z-axis (Theta) completing the right-handed set. "05048_FGM_KRTP.TAB" is the data file, which contains four columns, i.e. time, Bx, By, and Bz, respectively. The format of time is "yyyy-mm-ddThr:mn:sc.###", e.g. 2005-02-17T00:03:34.538. We will use the data between 0300 and 0430 UT.

Figure 6.7. Screen shot of the calibrated full-resolution data on Feb. 17, 2005: http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_3001/DATA/2005/05048_FGM_KRTP&o=1

In order to transform the data from KRTP coordinates to ENIS coordinates, we need to use the data and software in Spice kernels, http://naif.jpl.nasa.gov/naif/. This Spice website can be

accessed via a link on the page of Figure 6.7, on the lower left side of this page where it says "NAIF - SPICE" in the column for "PDS NODES." The screen shot of the Spice webpage is shown in Figure 6.8. It contains navigation and ancillary information for NASA planetary flight projects to assist scientists in planning and interpreting scientific observations from space-based instruments. The Spice system also includes software for reading the Spice kernel files and computing derived observation geometry, etc. The Spice software is offered in FORTRAN, C, IDL and MATLAB. This example will use the software in MATLAB (called Mice) to access the Spice kernel data and calculate the coordinate-transform matrices.

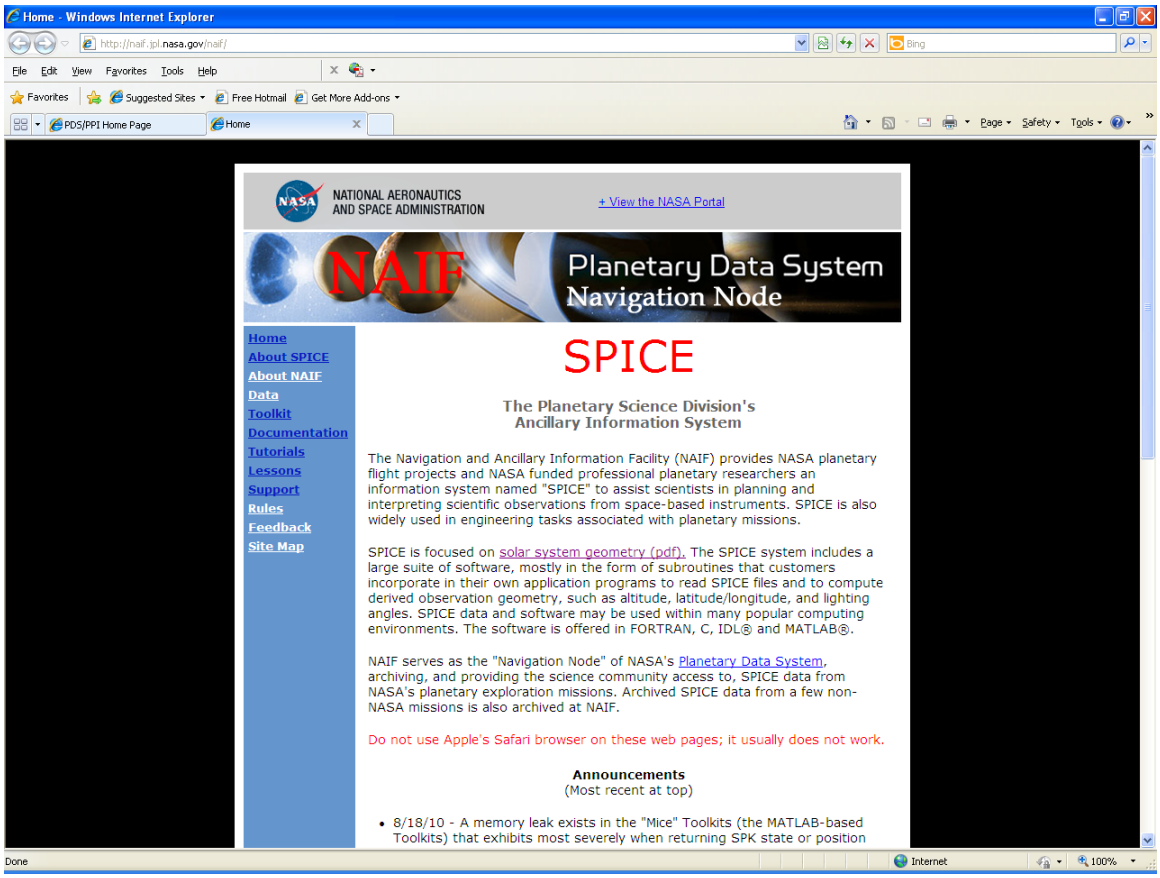

Figure 6.8. Screen shot of the Spice webpage: http://naif.jpl.nasa.gov/naif/.

In order to use the Spice software, we should first download the toolkit for MATLAB from http://naif.jpl.nasa.gov/naif/toolkit_MATLAB.html, which contains four files, "mice.zip," "README," "dscriptn.txt," and "whats.new". The file "mice.zip" can be un-zipped using the Windows built-in un-zip option or a third party un-zip utility. After being un-zipped, it creates a toolkit directory structure which is described in the file "dscriptn.txt". Another important file to read before using the software is "Mice required reading" under the directory "…/mice/doc/cspice.req". Use of Mice requires that both the "lib" and mice "src" directories exist in the MATLAB search path. The inclusion of the Mice directories to the MATLAB search path can be done programmatically (e,g. >>addpath('/path_to/mice/src/mice/'),

>>addpath('/path_to/mice/lib/')), or manually by adding the two directories to the MATLAB search path under "file" and "Set Path…".

Secondly, we need to obtain the kernel files containing the information about "spacecraft clock correlation data (in SCLK)," "leapseconds (in LSK)," "planetary constants (in PCK)," and "spacecraft and planet ephemeris (in SPK)." A brief introduction of these kernels can be found in the tutorial files at http://naif.jpl.nasa.gov/naif/tutorials.html. Before using the Mice software to do the analysis in this example, one should at least read these tutorials: "08 intro to kernels," "17 time," "18 lsk and sclk," "19 spk," and "20 pck". The kernel files needed to do the coordinate transform are from LSK, SCLK, PCK and SPK which contain Feb 17 2005 0300 to 0430 UT. They can be found in the PDS archived SPICE data sets in the webpage shown in Figure 6.9. On the home page of Spice (Figure 6.8), select "Data" in the left column, select "PDS Archived SPICE Data Sets," select "PDS SPICE Archive", then open the FTP link for Cassini Orbiter. The kernel files needed are "naif0009.tls" from in "LSK" kernel, "cas00105.tsc" from the "SCLK" kernel, "pck00009.tpc" from the "PCK" kernel, and "050414RB_SCPSE_05034_05060.bsp" from the "SPK" kernel. The screen shot of the opened webpage is shown in Figure 6.9. The above kernel files may be downloaded from "Volume FTP Link" or "Data Set Subsetter Link" in the first row for "Cassini Orbiter".

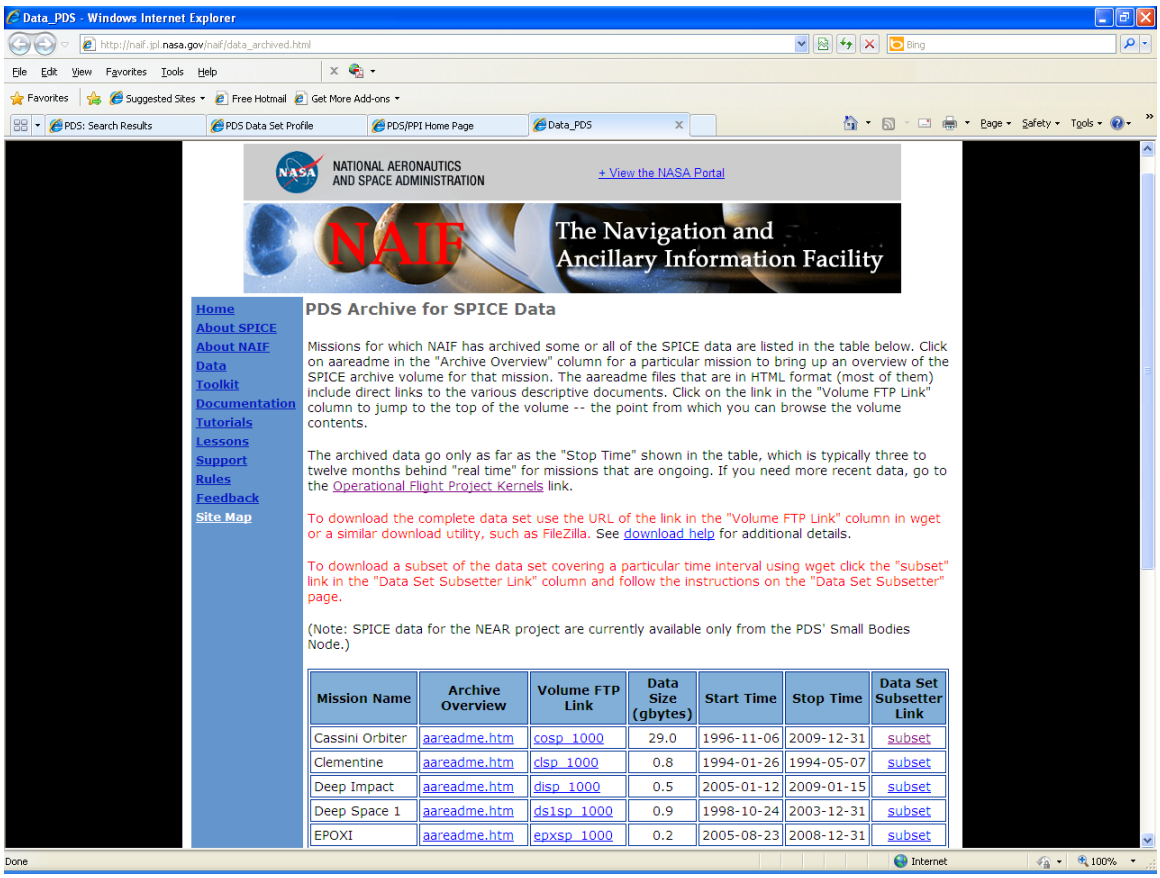

Figure 6.9. Screen shot of the webpage for downloading the kernel files for Cassini: http://naif.jpl.nasa.gov/naif/data_archived.html.

In recent years, the NAIF website has offered a new way (called meta-kernels) to ease the users in loading all the needed data. With this new feature, users no longer need to download the individual kernel files as discussed above, but use the subsetting service to download all the kernel files for a corresponding time interval. In the webpage of Figure 6.9, users could click "subset" in the row of "Cassini Orbiter", and then a new webpage will be open, which is shown in Figure 6.10. Then the users type in the start and stop times, and click "Subset". A package of all related kernel files will be downloaded.

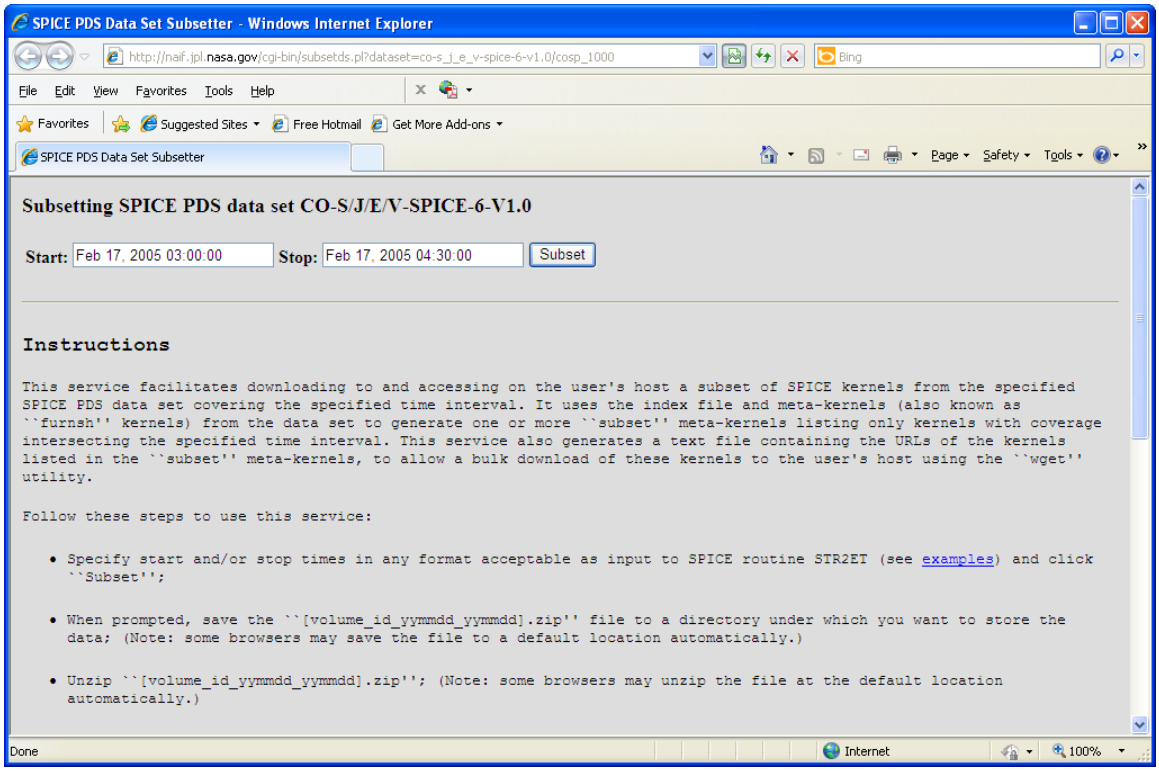

Figure 6.10. Screen shot of the webpage for downloading the meta-kernels for Cassini Obiter: http://naif.jpl.nasa.gov/cgi-bin/subsetds.pl?dataset=co-s_j_e_v-spice-6-v1.0/cosp_1000.

Third, we need to load these kernel files into MATLAB (using the function "cspice_furnsh"), and also load the MAG data into MATLAB.

```
% load spice kernel files
cspice_furnsh('naif0009.tls');
cspice_furnsh('cas00105.tsc');
cspice_furnsh('pck00009.tpc');
cspice_furnsh('050414RB_SCPSE_05034_05060.bsp');
% load the MAG data
FID = fopen('05048_FGM_KRTP.TAB', 'r');
data = textscan(FID,'%s %f %f %f');
fclose(FID);
time = data{1,1};
Bx = data{1,2};
```

```
By = data{1,3};
Bz = data{1,4};
% show the starting and ending time
disp(sprintf('start time is:'))
disp(time(325040))
disp(sprintf('end time is:'))
disp(time(416731))
nn=416731-325040;
```

Then, we need to use the kernel data to construct the matrices for transforming data from KRTP coordinates to ENIS coordinates.

```
% set the starting and ending time
etbeg = cspice_str2et( 'Feb 17, 2005 03:00:00');
etend = cspice_str2et( 'Feb 17, 2005 04:30:00');
nn=416731-325040; % should be the same as the number of data series
delta = ( etend - etbeg ) / nn;
et = [0:nn]*delta + etbeg;
% IAU_Saturn frame (x,y,z) to ENIS frame (x1,y1,z1)
% [x1;y1;z1] = [x_enis;y_enis;z_enis]*[x;y;z]
% i.e. x1=x_enis(1)*x+x_enis(2)*y+x_enis(3)*z
%      y1=y_enis(1)*x+y_enis(2)*y+y_enis(3)*z
%      z1=z_enis(1)*x+z_enis(2)*y+z_enis(3)*z
[en2sa, lt1] = cspice_spkpos( 'Enceladus', et, 'IAU_Saturn', 'LT+S', 'Saturn'
);
r_en2sa = sqrt((en2sa(1,:)).^2+(en2sa(2,:)).^2+(en2sa(3,:)).^2);
y_enis = -en2sa;
% normalize each vector y_enis(:,i)
y_enis(1,:) = y_enis(1,:)./r_en2sa;
y_enis(2,:) = y_enis(2,:)./r_en2sa;
y_enis(3,:) = y_enis(3,:)./r_en2sa;
z_axis(1,1:nn) = 0; z_axis(2,1:nn) = 0;z_axis(3,1:nn) = 1;
x_enis = cross(y_enis,z_axis,1);
% normalize each vector x_enis(:,i)
rx_enis = sqrt((x_enis (1,:)).^2+(x_enis(2,:)).^2+(x_enis(3,:)).^2);
x_enis(1,:) = x_enis(1,:)./rx_enis;
x_enis(2,:) = x_enis(2,:)./rx_enis;
x_enis(3,:) = x_enis(3,:)./rx_enis;
z_enis = cross(x_enis,y_enis,1);
% IAU_Saturn frame (x,y,z) to KRTP frame (x2,y2,z2)
% [x2;y2;z2] = [x_krtp;y_krtp;z_krtp]*[x;y;z]
% i.e. x2=x_krtp(1)*x+x_krtp(2)*y+x_krtp(3)*z
%      y2=y_krtp(1)*x+y_krtp(2)*y+y_krtp(3)*z
%      z2=z_krtp(1)*x+z_krtp(2)*y+z_krtp(3)*z
[scpos, lt1] = cspice_spkpos( 'Cassini', et, 'IAU_Saturn', 'LT+S', 'Saturn'
);
r_scpos = sqrt((scpos(1,:)).^2+(scpos(2,:)).^2+(scpos(3,:)).^2);
% normalize each vector scpos(:,i)
x_krtp(1,:) = scpos(1,:)./r_scpos;
x_krtp(2,:) = scpos(2,:)./r_scpos;
x_krtp(3,:) = scpos(3,:)./r_scpos;
z_krtp = cross(z_axis,x_krtp,1);
% normalize each vector z_krtp(:,i)
rz_krtp = sqrt((z_krtp(1,:)).^2+(z_krtp(2,:)).^2+(z_krtp(3,:)).^2);
z_krtp(1,:) = z_krtp(1,:)./rz_krtp;
z_krtp(2,:) = z_krtp(2,:)./rz_krtp;
```

```
z_krtp(3,:) = z_krtp(3,:)./rz_krtp;
y_krtp = cross(z_krtp,x_krtp,1);
```

Finally, we transform the data from KRTP coordinates to IAU_Saturn and then to ENIS coordinates.

```
% transform KRTP to ENIS
B_KRTP = [Bx';By';Bz'];
for i=1:nn
    M1(:,:,i)=[x_enis(:,i)';y_enis(:,i)';z_enis(:,i)'];
    M2(:,:,i)=[x_krtp(:,i)';y_krtp(:,i)';z_krtp(:,i)'];
    M3(:,:,i)=M1(:,:,i)*(M2(:,:,i))^-1;
    B_ENIS(:,i)=M3(:,:,i)*B_KRTP(:,i);
end
```

We can plot B_ENIS to reproduce the first three panels in figure 3 of *Khurana et al (2007)*. For transforming the KRTP coordinates to other moon interaction coordinates (such as Titan interaction coordinates), we need to the use the kernel data for the appropriate moon for the corresponding time interval, but the method is similar to the given example. Note that in this example we do vector normalization and construct the coordinate transform matrix by basic calculations. These can also be done by using the functions provided in the Mice library, i.e. “cspice_unorm” and “cspice_twovec”, respectively.

6.3. Example 3: In this example, we introduce calibration steps that should be applied to the magnetometer raw data set using the software and calibration files available on PDS. These data are called “raw data” on PDS but they are archive level 1A data which have been pre-processed at Imperial College. In addition, we give a few examples of features in the data due to operations, such as sensor range change.

The full resolution raw data set is named “CASSINI MAGNETOMETER RAW DATA V1.0” (under URL http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001. The directory of file and content in each file are listed in Table 4.1. The data files to calibrate are yyddd_mrdcd_sdfgmc, and the software to use are CAL02.exe and TRANSCAL.exe. The calibration files (e.g. COMAG_0001/CALIB/ 06001_06090_FGM_CAL), provided by Imperial College, contain all the calibration data to allow users to apply the same calibration to the raw data. In this way, the user will obtain the same calibrated data as created by Imperial College. The detailed calibration process done by Imperial College is described in Section 2 of this user guide.

We then show the steps for the users to calibrate the raw data on PDS. During this process, the users need to use the data file (under URL http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001/DATA), calibration file (under URL http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001/CALIB), data processing applications (under URL

http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001/DOCUMENT/SOFTWARE), and SPICE kernel files (under URL http://naif.jpl.nasa.gov/naif/index.html). The application CAL02.exe is used to calibrate magnetic field vector measurements obtained by FGM (fluxgate magnetometer) and VHM (vector helium magnetometer) sensors in the spacecraft coordinates. The application TRANSCAL.exe is used to transform the calibrated magnetic field vectors from the spacecraft coordinates to user-selected available coordinates (such as the Kronocentric Solar Magnetospheric (KSM) coordinates).

First, we use the application CAL02.exe to calibrate the raw data. The calibration process applied at Imperial College consists of subtracting zero levels, multiplying by an orthogonality-sensitivity matrix, rotating from the sensor coordinates to the spacecraft coordinates, and subtracting internal spacecraft field. All the above calibration values are stored in calibration files in the CALIB directory (see Figure 7.1).

The content and format of the FGM and VHM calibration files are listed in Table 21 and Table 22 of the VOLSIS file (http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001/DOCUMENT/VOLSIS/VOLSIS&o=1). CAL02 is a Win32 console application, which can be launched by double-clicking the application icon. A DOS-type window will appear, in which the user types answers to various questions:

1) Enter the name of the input data file;

2) Specify whether the data is FGM or VHM;

3) Choose whether byte-swapping needs to be applied to the input data file (Byte swapping is required for compatibility between PC and Unix systems, so input flatfiles generated on a Unix system need to be byte swapped, and output flatfiles intended for use on a Unix system also need to be byte swapped.);

4) Enter the name of the output file (The default is the name of the input data file with the suffix _C. The user may simply press Enter if using the default name.);

5) Choose whether byte-swapping needs to be applied to the output data file;

6) Enter the name for the file in which the report will be written (The default name for the report file is the name of the output data file with suffix _Rpt.txt. The user may simply press Enter if using the default name.);

7) Enter the name of the calibration flatfile.

After the processing is completed, the calibrated data file and report file are generated and CAL02 displays the number of records written and the number of invalid data records. If there is any file that cannot be opened during the above process, the user is asked to re-enter the file

name or exit. Samples of the CAL02 console window and CAL02 report are given in CAL02 User Guide in the DOCUMENT directory (see Figure 7.1).

Second, we use the application TRANSCAL.exe to transform the calibrated data (obtained from the above steps) from the spacecraft coordinates to a user-selected available coordinate system. TRANSCAL is a Win32 console application. The user can open it by double-clicking on the application icon; a DOS-type window will open in which the user types answers to various questions:

1) Enter the name of the file in which to write the report for this run; the report file is opened;

2) Choose the reference body for the output spacecraft position;

3) Choose the coordinate system into which the magnetic field vector will be transformed;

4) Choose whether to obtain spacecraft attitude information from a quaternion in a channelized attitude flatfile or from a SPICE C kernel (The SPICE C kernel is preferred and the kernel file can be obtained from http://naif.jpl.nasa.gov/naif/index.html);

5a) If SPICE C kernel option was chosen in step 4, enter the name of a SPICE metafile that contains the filenames of all the SPICE kernel files to be loaded;

5b) If the quaternion attitude option was chosen in step 4, enter the name of the CHATT flatfile;

6) enter the name of the input calibrated vector data file;

7) Choose whether byte-swapping needs to be applied to the input data file (Byte order is reversed for PC and Unix system, so input flatfiles generated on a Unix system need to be byte swapped, and output flatfiles intended for use on a Unix system also need to be byte swapped.);

8) enter the name of the output file;

9) Choose whether byte-swapping needs to be applied to the output data file.

After the processing is completed, the calibrated data file in the chosen coordinates and report file are created.

The sample windows for the CAL02 console, the CAL02 report file, the TRANSCAL console, and the TRANSCAL report file are shown in Figure 6.11. The test files used in the above example are provided on PDS under the directory of SOFTWARE/EXAMPLE_FILES, including the raw data, generated data after calibration, and report files. The user can practice the calibration process and test their results.

```
C:\cassini\y99archive>cal02
Cal02 Ver 041206


Input FlatFile:
Enter full flatfile name: 99238_mrdcd_hkvhmc

Cannot open 99238_mrdcd_hkvhmc
Enter 1 to try again, 0 to exit: 1
Enter Input Flatfile name: 99238_mrdcd_hkvhmn

Enter 0 if input is FGM, 1 if VHM: 1

Enter 1 to SWAP BYTES on INPUT flatfile, 0 not to swap: 1

Output FlatFile,Default is 99238_mrdcd_hkvhmn_C
Enter full flatfile name:

Enter 1 to SWAP BYTES on OUTPUT flatfile, 0 not to swap: 1

Default Report File: 99238_mrdcd_hkvhmn_C_Rpt.txt
Enter Report filename:
Opened Report File 99238_mrdcd_hkvhmn_C_Rpt.txt

Opened Input Flatfile 99238_mrdcd_hkvhmn
NCOLS 6  RECL 28

Enter Calibration Flatfile name: vhm_esb05_cal
Data Recs Written = 10714
Invalid Data Recs Not Calibrated = 0
Flatfiles Closed
Press Enter to Exit
```

Figure 6.11 (a). The sample window for the CAL02 console. The sample data and generated files are provided under directory of DOCUMENT/SOFTWARE/EXAMPLE_FILES.

```
CAL02 ver041206 Report

Opened Input Flatfile: 99238_mrdcd_hkvhmn
Sensor: VHM
Input Byte Swapping is ON

Opened Output Flatfile 99238_mrdcd_hkvhmn_C
Output Byte Swapping is ON

Calibration File = vhm_esb05_cal.ffd

Rec        1,  Range        0
Rec    10714,  Range        0

Data Recs Written = 10714
Data Recs Calibrated = 10714
Invalid Data Recs Not Calibrated = 0

Flatfiles Closed
```

```
End of CAL02 Report.
```

Figure 6.11 (b). The sample window for the CAL02 report file.

```
C:\cassini\y99archive>transcal
TransCal v050324

Enter Report File Name: transcal_rpt.txt
Opened Report File transcal_rpt.txt

Enter Reference Body ID
      (399 for Earth, 699 for Saturn, 599 for Jupiter, 10 for Sun): 399

Available Coordinate Systems:
     0  J2000
     1  ECLIPJ2000
     2  IAU_VENUS
     3  IAU_EARTH
     4  GSE
     5  GSM
     6  RTN
     7  CASSINI (no transformation)
     8  J3 (IAU_JUPITER)
     9  JMAG XYZ
     10  JMAG RTP
     11  KG (IAU_SATURN)
     12  SATURN RTP
     13  KSM (SUN-SATURN)
     14  KSO (SUN-SATURN_ORBIT_PLANE
Enter Number of Coordinate System: 4

Enter Q to use Quaternions from flatfile, C to use C-Kernel file: c

Enter Name of Spice Metafile with KERNELS_TO_LOAD:
kernels.txt
Spice Kernels Loaded = 6

Enter Input Flatfile Name (s/c coords): 99238_mrdcd_hkvhmn_C
Enter 1 to SWAP BYTES on INPUT Flatfile; 0 not to swap: 1

Enter Output Flatfile Name: 99238_mrdcd_hkvhmn_gse
Enter 1 to SWAP BYTES on OUTPUT Flatfile; 0 not to swap: 1

Working.
Number of Vectors Read:    10714
Number of Vectors Written: 10714
End TRANSCAL

Press Enter to Exit

C:\cassini\y99archive>
```

Figure 6.11 (c). The sample window for the TRANSCAL console.

```
TransCal v050324 Report

Cassini Position is relative to Body 399
Position Coordinate System is  GSE

Vectors Will Be Transformed from Cassini body-fixed to GSE

Attitudes will be calculated from C Kernel File(s)

3 Spice Text Kernel Files Loaded
\cassini\spicekernels\naif0007.tls
\cassini\spicekernels\cpck30Sep2004_jupiter.tpc
\cassini\spicekernels\cas00090.tsc
2 Spice SPK Files Loaded
\cassini\spicekernels\000331R_SK_V2P12_EP15.bsp
\cassini\spicekernels\010420R_SCPSE_EP1_JP83.bsp
1 Spice C Kernels Loaded
\cassini\spicekernels\99235_99242rb.bc

Opened Input Flatfile 99238_mrdcd_hkvhmn_C
 X, Y, Z components assumed in Columns 2, 3, 4
 Input Flatfile Times assumed SCLK(1958)

Input Byte Swapping is ON

Opened Output Flatfile 99238_mrdcd_hkvhmn_gse
Output Byte Swapping is ON


Number of Vectors Read:    10714

Number of Vectors Written: 10714
End Report
```

Figure 6.11 (d). The sample window for the TRANSCAL report file.

Next, we give examples on how the spacecraft operation affects the data. Anomalous fields can be generated by the instrument during operations, such as range changes, mode changes, etc. Time intervals of range changes, mode changes, SCAS (Science Calibration Subsystem) time can be found under the DOCUMENT/DATA_QUALITY directory in files “RANGE_CHANGES”, “MODE_CHANGES”, “SCAS_TIMES”, and “SPURIOUS_RANGE_CHANGES”. The data gap intervals and causes can be found in files “GAP_FILE_SCI_HK” and “GAP_FILE_SCI_SD” under the DOCUMENT/DATA_QUALITY directory, and in file “REDR_DS” under the CATALOG directory, respectively.

Next, we show an example of the data during range change and point out the influence by the operation. There are four ranges (R0 to R3) for FGM (i.e. ±40 nT, ±400 nT, ±10000 nT, ±44000 nT, with sensor resolutions of 4.0 pT, 48.8 pT, 1.2 nT and 5.4nT, respectively) and two ranges (R0 and R1) for the VHM (i.e. ±32 nT and ±256 nT, with sensor resolutions of 3.9 pT and 31.2 pT, respectively). Switching between ranges in normal operations is automatic, controlled by the Data Processing Unit (DPU). The DPU monitors each FGM component field value, if the

magnitude of any component exceeds an upper threshold for greater than a specified number of samples, the DPU will switch the FGM to a higher range. Similarly, if all three component value magnitudes fall below a lower threshold for more than a specified number of samples, the DPU will switch the FGM to a lower range (*Dougherty et al., 2004*).

Figure 6.12 shows the time series of the FGM data during an interval including range change. At around 0247 UT, the FGM changed from R1 (±400 nT) to R2 (±10000 nT). Note that there is a spike right at the time of range change, which often appears during range changes and can be removed by the users. The sensor resolutions are 48.8 pT for R1 and 1.2 nT for R2. We notice that the wave activity disappeared when the sensor switched from R1 to R2, which is due to the sensor resolution of R2 (i.e. 1.2 nT) being lower than the amplitude of wave so that the wave becomes "undetectable." Figure 6.13 shows two power spectra of the Bx component for the intervals before and after range change. The wave activity near 0.4 Hz in the left spectrum clearly disappears in the right spectrum. Physically this wave activity should exist after the sensor range change, but it became un-detectable because the sensors in range R2 can only detect waves with amplitude above 1.2 nT. If we assume the wave after range change has the same amplitude as before 0247 UT, the wave amplitude should be less than 0.3 nT, which is much lower than the threshold of 1.2 nT. Thus, users using these data for scientific research should be aware of such effects by operations when interpreting their results.

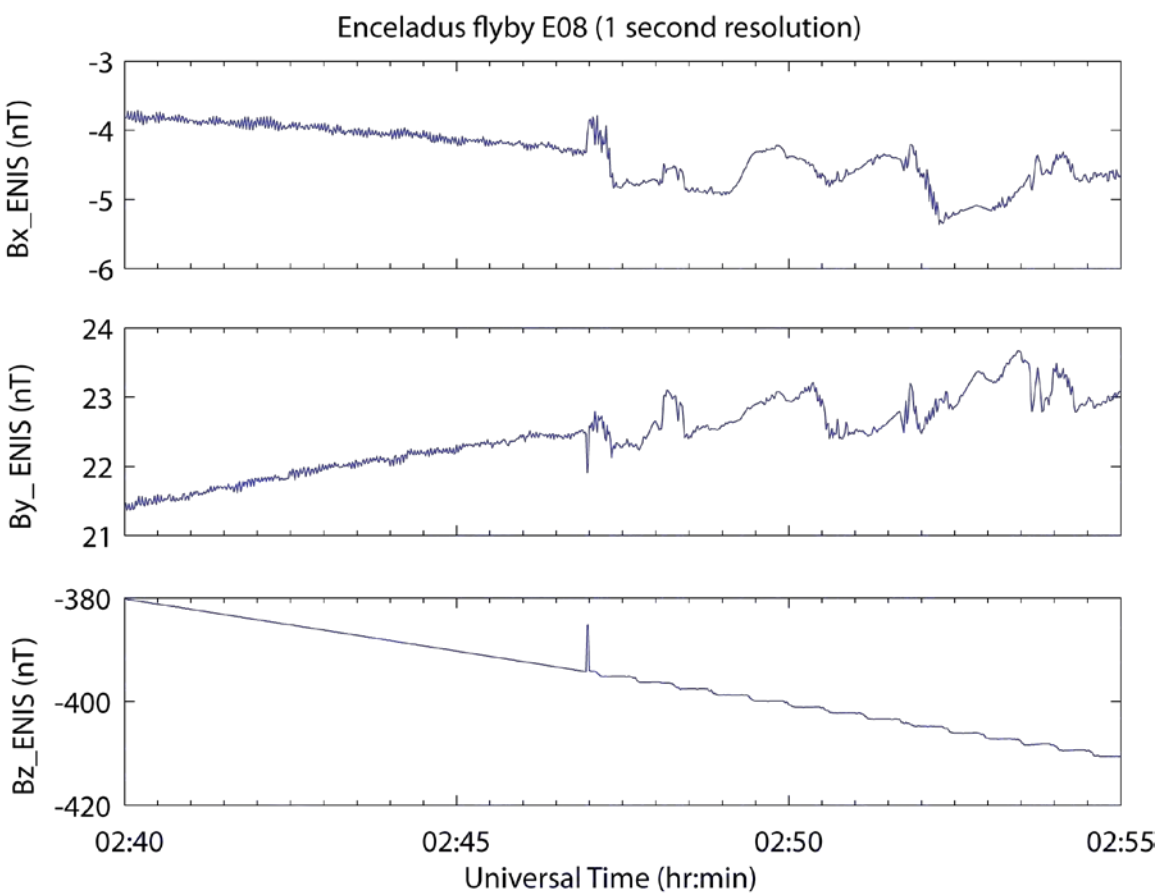

Figure 6.12. Time series of the magnetic field component during Enceladus flyby E08. The instrument had a range change near 0247 UT. Note that the wave activity (visible in Bx and By components) disappeared after the sensor switched to a higher range, because the sensor resolution became lower than the wave amplitude.

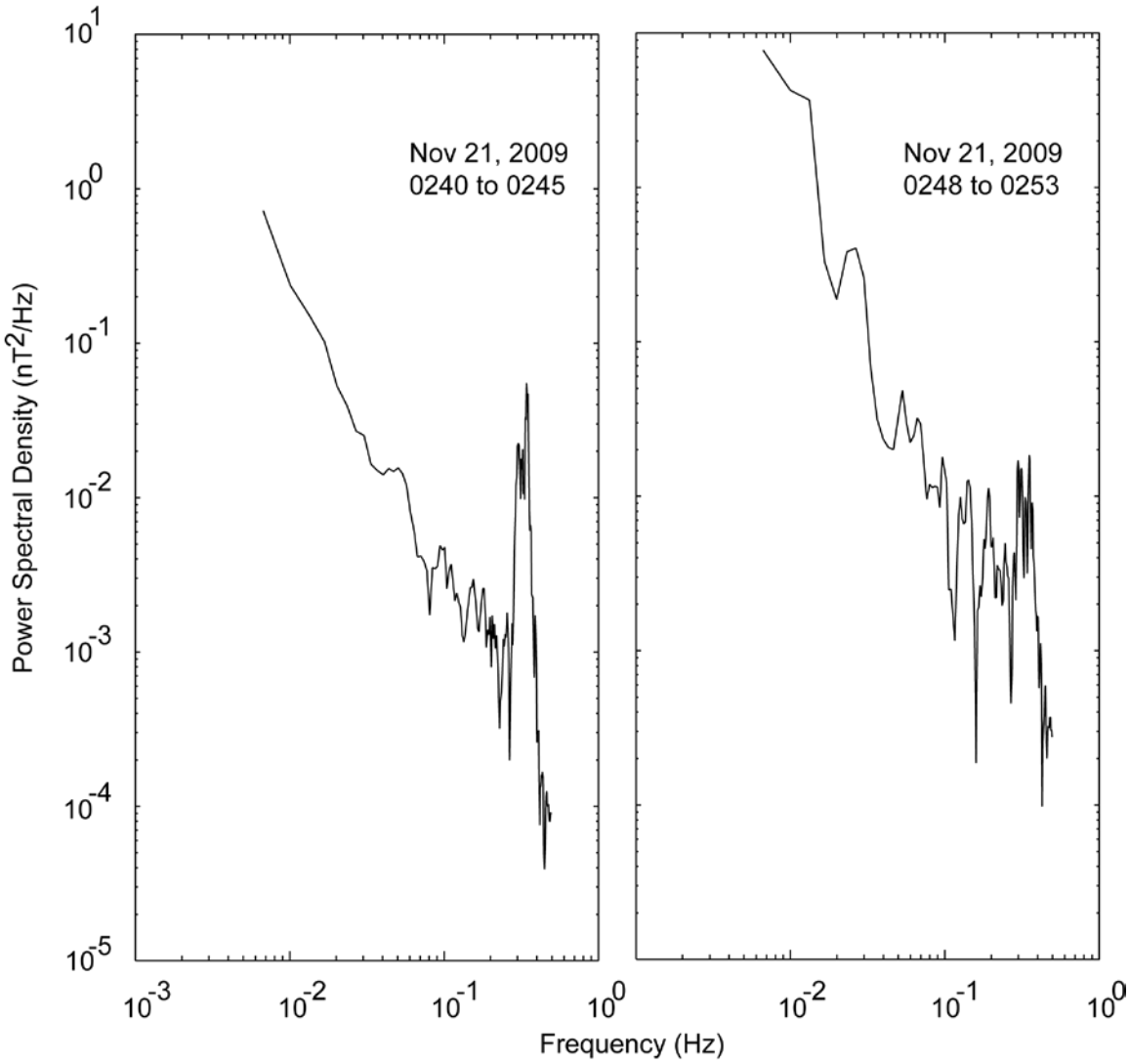

Figure 6.13. Power spectra of the Bx component for two five-minute intervals before (left panel) and after (right panel) range change. It is clear that the noise level of the instrument increases after the range change, preventing the resolution of the narrow band waves near 0.3 Hz.

7. Other useful information

7.1. Reference documents in published literature and on PDS website

- Dougherty, M. K., S. Kellock, D. J. Southwood, A. Balogh, E. J. Smith, B. T. Tsurutani, B. Gerlach, K. H. Glassmeier, F. Gleim, C. T. Russell, G. Erdos, F. M. Neubauer, and S.

W. H. Cowley, The Cassini Magnetic Field Investigation, Space Science Reviews, Vol. 114, Nos. 1-4, pp. 331-383, 2004.

- Dougherty, M. K., N. Achilleos, N. Andre, C. S. Arridge, A. Balogh, C. Bertucci, M. E. Burton, S. W. H. Cowley, G. Erdos, G. Giampieri, K.-H. Glassmeier, K. K. Khurana, J. Leisner, F. M. Neubauer, C. T. Russell, E. J. Smith, D. J. Southwood, and B. T. Tsurutani, Cassini magnetometer observations during Saturn orbit insertion, Science, 307, 1266-1270. 2005.
- Glassmeier, K.-H., I. Richter, A. Diedrich, G. Musmann, U. Auster, U. Motschmann, A. Balogh, C. Carr, E. Cupido, A. Coates, M. Rother, K. Schwingenschuh, K. Szego, and B.Tsurutani, RPC-MAG The Fluxgate Magnetometer in the ROSETTA Plasma Consortium, Space Science Reviews, Vol. 128, pp. 649-670, doi: 10.1007/s11214-006-9114-x, 2007.
- Kellock, S., P. Austin, A. Balogh, B. Gerlach, R. Marquedant, G. Musmann, E. Smith, D. Southwood and S. Szalai, Cassini dual technique magnetometer instrument (MAG), Proc. SPIE, Denver, Colorado, 2803, 141, 1996.
- Khurana, K. K., M. K. Dougherty, C. T. Russell, and J. S. Leisner, Mass loading of Saturn's magnetosphere near Enceladus, J. Geophys. Res., 112, A08203, doi:10.1029/2006JA012110, 2007.
- Smith, E. J., M. K. Dougherty, C. T. Russell, and D. J. Southwood, Scalar helium magnetometer observations at Cassini Earth swing-by, J. Geophys. Res., 106, 30129, 2001.
- MAG Standard Data Products and Archive Volume Software Interface Specification:
    - http://ppi.pds.nasa.gov/search/view/?f=yes&id=pds://PPI/COMAG_0001/DOCUMENT/VOLSIS/VOLSIS&o=1
    - Describes the format, content, and general information of the MAG data products
- MISSION.CAT
    - Under the CATALOG directory of each dataset, such as: http://ppi.pds.nasa.gov/archive1/COMAG_0001/CATALOG/MISSION.CAT
    - Describe the Cassini mission plan, spacecraft orbits, targeted moon encounters, etc.
- MAG_INST.CAT
    - Under the CATALOG directory of each dataset, such as: http://ppi.pds.nasa.gov/archive1/COMAG_3001/CATALOG/MAG_INST.CAT
    - Describe the instrument characteristics.

7.2. Acronyms and abbreviations used in this user guide

- ASCII: American Standard Code for Information Interchange
- BUI: Bus Interface Unit
- DPU: Data Processing Unit

- FGM: Fluxgate Magnetometer
- HK: Housekeeping
- JPL: Jet Propulsion Laboratory
- KRTP: Kronocentric Radial Theta Phi (coordinate system)
- KSM: Kronocentric Solar Magnetospheric (coordinate system)
- KSO: Kronocentric Solar Orbital (coordinate system)
- LSK: Leapseconds (Kernel on SPICE)
- MAG: Dual Technique Magnetometer
- MAPS: Magnetosphere and Plasma Science
- NAIF: Navigation and Ancillary Information Facility
- NASA: National Aeronautical and Space Administration
- PCK: Planetary Constants Kernel (on SPICE)
- PDS: Planetary Data System
- PPI: Planetary Plasma Interactions
- RTN: Radial Tangential North (coordinate system)
- SCAS: Science Calibration and Alignment Subsystem
- SCLK: Spacecraft Clock / Spacecraft Clock Correlation Data (Kernel on SPICE)
- SPICE: S- Spacecraft ephemeris; P- Planet, satellite, comet or asteroid ephemerides; I- Instrument description kernel; C- Pointing kernel; E- Events kernel. (SPICE is an information system to assist scientists in planning and interpreting scientific observations from space-based instruments.)
- V/SHM: Vector/Scalar Helium Magnetometer

7.3. Useful internet links and tools

- http://saturn.jpl.nasa.gov/index.cfm
    - Homepage of the Cassini-Huygens mission at JPL website, which contains general information about the mission, the spacecraft instruments, recent discoveries, spacecraft trajectories, etc.
- http://naif.jpl.nasa.gov/naif/
    - The NASA planetary science division's ancillary information system, which is used throughout the life cycle of NASA planetary science missions to help scientists and engineers design missions, plan scientific observations, analyze science data and conduct various engineering functions associated with flight projects. It also serves as the "Navigation Node" of NASA's Planetary Data System.
- http://mapsview.engin.umich.edu/

- This website provides access to Key Parameter data collected at Saturn by the MAPS instruments on NASA's Cassini spacecraft. Note that user account is required to download these data.

7.4. Directories of the four datasets

The contents of the four datasets are listed here, so that the users can get an overview on what each dataset has and general information on the various files.

```
COMAG_0001 (Root)
|
|- AAREADME.TXT              Description of content in the Raw data volume
|
|- ERRATA.TXT                Description of known anomalies on this volume
|
|- VOLDESC.CAT               Description of the contents of this volume
|
|- [BROWSE]                  Plots of all available magnetic field data
|
|- [CALIB]                   Instrument calibration data
|
|- [CATALOG]                 Catalog files describing mission and dataset
|
|- [DATA]                    MAG data files  (in year and month directories)
|       |
|       |- [MRDCD]           Instrument data
|       |
|       |- [SCDCD]           Spacecraft data
|       |
|- [DOCUMENT]                Relevant documentation
|       |
|       |- [CAL02_GUIDE]     Vector calibration software user guide
|       |
|       |- [DATA_QUALITY]    Files recording known errors in the data
|       |
|       |- [TRANSCAL_GUIDE]  Vector transformation software user guide
|       |
|       |- [VOLSIS]          Archive volume SIS
|       |
|       |- [SOFTWARE]        Calibration/transformation software
|       |
|       |       |- [EXAMPLE_FILES]   Examples of data
|       |       |
|       |       |- CAL02.EXE         The executable application required to calibrate raw vector data files
|       |       |                     to  give correct magnetic-field values relative to the spacecraft -
|       |       |                     coordinate system
|       |       |
|       |       |- CAL02.CPP         C++ source code for the CAL02 application
|       |       |
|       |       |- CAL_MAG.H         C++ header file required by calibration software
|       |       |
|       |       |- CALFUNC02.H       C++ header file required by calibration software
|       |       |
|       |       |- CALFUNC02.CPP     C++ source file required by calibration software
|       |       |
|       |       |- FF_IGPP.C         C Source, UCLA Flatfile procedures
|       |       |
|       |       |- FF_IGPP.H         C Header File, UCLA Flatfile declarations  and type defs
|       |       |
|       |       |- KERNEL_FILELIST   Metafile containing a list of the SPICE kernels loaded by TransCal
|       |       |
|       |       |- TIME_IGPP.C       C Source, UCLA Flatfile Time Functions
|       |       |
|       |       |- TIME_IGPP.H       C Header File, UCLA Flatfile Time declarations and definitions.
|       |       |
|       |       |- TIME_IGPPP.H      C Header File, More UCLA Time definitions
|       |       |
|       |       |- TRANSCAL.CPP      C++ source code for the TRANSCAL application
|       |       |
|- [INDEX]                   Index files relating to this volume
```

Figure 7.1. Directory of files under COMAG_0001

```
COMAG_3001 (Root)
|
|- AAREADME.TXT                Description of the contents of this data volume
|
|- ERRATA.TXT                  Description of known anomalies on this volume
|
|- VOLDESC.CAT                 Description of the contents of this volume
|
|- [CATALOG]                   Catalog files describing mission and dataset
|
|- [DATA]                      MAG data files
|   |
|    |- [yyyy]                 Data for the year yy
|        |
|          |- [yyddd_FGM_RTN]  FGM Data in RTN coord. For the day ddd or year yy
|        |
|          |- [yyddd_FGM_KRTP] FGM Data in KRTP coord. For the day ddd or year yy
|        |
|          |- yyddd_VHM_RTN]   VHM Data in RTN coord. For the day ddd or year yy
|        |
|          |- [yyddd_VHM_KRTP] VHM Data in KRTP coord. For the day ddd or year yy
|
|- [DOCUMENT]                  Relevant documentation
|   |
|    |- [DATA_QUALITY]         Tables containing data quality and coverage information
|
|- [INDEX]                     Index files relating to this volume
```

Figure 7.2. Directory of files under COMAG_3001

```
COMAG_4001 (Root)
|
|- AAREADME.TXT          Description of the contents of this data volume
|
|- ERRATA.TXT            Description of known anomalies on this volume
|
|- VOLDESC.CAT           Description of the contents of this volume
|
|- [CATALOG]             Catalog files describing mission and dataset
|
|- [DATA]                MAG data files
|    |
|    |- [yyyy]           Data for the year yyyy
|
|- [DOCUMENT]            Relevant documentation
|    |
|    |- [DATA_QUALITY]   Tables containing data quality and coverage information
|
|- [INDEX]               Index files relating to this volume
```

Figure 7.3. Directory of files under COMAG_4001

```
|COMAG_4002 (Root)
|
|- AAREADME.TXT          Description of the contents of this data volume
|
|- ERRATA.TXT            Description of known anomalies on this volume
|
|- VOLDESC.CAT           Description of the contents of this volume
|
|- [CATALOG]             Catalog files describing mission and dataset
|
|- [DATA]                MAG data files
|    |
|    |- [yyyy]           Data for the year yyyy
|
|- [DOCUMENT]            Relevant documentation
|    |
|    |- [DATA_QUALITY]   Tables containing data quality and coverage information
|
|- [GEOMETRY]            SPICE metakernels containing lists of the SPICE
|                        kernels used in processing the data files.
|
|- [INDEX]               Index files relating to this volume
```

Figure 7.4. Directory of files under COMAG_4004

7.5. Format of some frequently used files in the dataset of COMAG_0001

There are various files in the dataset of COMAG_0001, especially in the DATA directory (see Section 4.1). Since some of them are relatively complicated and users may be less familiar with those data formats, we briefly list them here. Users can find more detailed information in VOLSIS.DOC, which describes the archived data.

Column	Name	Data type	Start byte	Description	Units
001	TIME_START	T	0	start time	SCLK counts
002	TIME_STOP	T	8	stop time	SCLK counts
003	Xrg0	R	16	instrument offset	nT

004	Yrg0	R	20	instrument offset	nT
005	Zrg0	R	24	instrument offset	nT
006	Xrg1	R	28	instrument offset	nT
007	Yrg1	R	32	instrument offset	nT
008	Zrg1	R	36	instrument offset	nT
009	Xrg2	R	40	instrument offset	nT
010	Yrg2	R	44	instrument offset	nT
011	Zrg2	R	48	instrument offset	nT
012	Xrg3	R	52	instrument offset	nT
013	Yrg3	R	56	instrument offset	nT
014	Zrg3	R	60	instrument offset	nT
015	o11rg0	R	64	O/S matrix element	
016	o12rg0	R	68	O/S matrix element	
017	o13rg0	R	72	O/S matrix element	
018	o21rg0	R	76	O/S matrix element	
019	o22rg0	R	80	O/S matrix element	
020	o23rg0	R	84	O/S matrix element	
021	o31rg0	R	88	O/S matrix element	
022	o32rg0	R	92	O/S matrix element	
023	o33rg0	R	96	O/S matrix element	
024	o11rg1	R	100	O/S matrix element	
025	o12rg1	R	104	O/S matrix element	
026	o13rg1	R	108	O/S matrix element	
027	o21rg1	R	112	O/S matrix element	
028	o22rg1	R	116	O/S matrix element	
029	o23rg1	R	120	O/S matrix element	
030	o31rg1	R	124	O/S matrix element	
031	o32rg1	R	128	O/S matrix element	
032	o33rg1	R	132	O/S matrix element	
033	o11rg2	R	136	O/S matrix element	
034	o12rg2	R	140	O/S matrix element	
035	o13rg2	R	144	O/S matrix element	
036	o21rg2	R	148	O/S matrix element	
037	o22rg2	R	152	O/S matrix element	
038	o23rg2	R	156	O/S matrix element	
039	o31rg2	R	160	O/S matrix element	
040	o32rg2	R	164	O/S matrix element	
041	o33rg2	R	168	O/S matrix element	

042	o11rg3	R	172	O/S matrix element	
043	o12rg3	R	176	O/S matrix element	
044	o13rg3	R	180	O/S matrix element	
045	o21rg3	R	184	O/S matrix element	
046	o22rg3	R	188	O/S matrix element	
047	o23rg3	R	192	O/S matrix element	
048	o31rg3	R	196	O/S matrix element	
049	o32rg3	R	200	O/S matrix element	
050	o33rg3	R	204	O/S matrix element	
051	Xs/c	R	208	S/C (spacecraft internal) field	nT
052	Ys/c	R	212	S/C field	nT
053	Zs/c	R	216	S/C field	nT
054	o11	R	220	S/C (sensor to spacecraft coordinate transformation) matrix element	
055	o12	R	224	S/C matrix element	
056	o13	R	228	S/C matrix element	
057	o21	R	232	S/C matrix element	
058	o22	R	236	S/C matrix element	
059	o23	R	240	S/C matrix element	
060	o31	R	244	S/C matrix element	
061	o32	R	248	S/C matrix element	
062	o33	R	252	S/C matrix element	

Table 7.1. Format of FGM calibration file. “T” represents an 8-byte real (time) value, “R” represents a 4-byte real value, and “I” represents a 4-byte integer value.

Column	Name	Data type	Start byte	Description	Units
001	TIME_ START	T	0	start time	SCLK counts
002	TIME_ STOP	T	8	stop time	SCLK counts
003	Xrg0	R	16	instrument offset	nT
004	Yrg0	R	20	instrument offset	nT
005	Zrg0	R	24	instrument offset	nT
006	Xrg1	R	28	instrument offset	nT
007	Yrg1	R	32	instrument offset	nT
008	Zrg1	R	36	instrument offset	nT
009	N/A	R	40	N/A	
010	N/A	R	44	N/A	

011	N/A	R	48	N/A	
012	N/A	R	52	N/A	
013	N/A	R	56	N/A	
014	N/A	R	60	N/A	
015	o11rg0	R	64	O/S matrix element	
016	o12rg0	R	68	O/S matrix element	
017	o13rg0	R	72	O/S matrix element	
018	o21rg0	R	76	O/S matrix element	
019	o22rg0	R	80	O/S matrix element	
020	o23rg0	R	84	O/S matrix element	
021	o31rg0	R	88	O/S matrix element	
022	o32rg0	R	92	O/S matrix element	
023	o33rg0	R	96	O/S matrix element	
024	o11rg1	R	100	O/S matrix element	
025	o12rg1	R	104	O/S matrix element	
026	o13rg1	R	108	O/S matrix element	
027	o21rg1	R	112	O/S matrix element	
028	o22rg1	R	116	O/S matrix element	
029	o23rg1	R	120	O/S matrix element	
030	o31rg1	R	124	O/S matrix element	
031	o32rg1	R	128	O/S matrix element	
032	o33rg1	R	132	O/S matrix element	
033	N/A	R	136	N/A	
034	N/A	R	140	N/A	
035	N/A	R	144	N/A	
036	N/A	R	148	N/A	
037	N/A	R	152	N/A	
038	N/A	R	156	N/A	
039	N/A	R	160	N/A	
040	N/A	R	164	N/A	
041	N/A	R	168	N/A	
042	N/A	R	172	N/A	
043	N/A	R	176	N/A	
044	N/A	R	180	N/A	
045	N/A	R	184	N/A	
046	N/A	R	188	N/A	
047	N/A	R	192	N/A	
048	N/A	R	196	N/A	

049	N/A	R	200	N/A	
050	N/A	R	204	N/A	
051	Xs/c	R	208	S/C field	nT
052	Ys/c	R	212	S/C field	nT
053	Zs/c	R	216	S/C field	nT
054	o11	R	220	S/C matrix element	
055	o12	R	224	S/C matrix element	
056	o13	R	228	S/C matrix element	
057	o21	R	232	S/C matrix element	
058	o22	R	236	S/C matrix element	
059	o23	R	240	S/C matrix element	
060	o31	R	244	S/C matrix element	
061	o32	R	248	S/C matrix element	
062	o33	R	252	S/C matrix element	

Table 7.2. Format of VHM calibration file. “T” represents an 8-byte real (time) value, “R” represents a 4-byte real value, and “I” represents a 4-byte integer value.

Column	Name	Data type	Start byte	Description
001	SCLK(1958)	T	0	SCLK count since the epoch Jan 1 1958 00:00:00
002	X_FGM	R	8	Magnetic-field component along sensor X-axis, in engineering units
003	Y_FGM	R	12	Magnetic-field component along sensor Y-axis, in engineering units
004	Z_FGM	R	16	Magnetic-field component along sensor Z-axis, in engineering units
005	MAGStatus	I	20	Array of bits containing status information related to active MAG magnetometer modes, packet type, etc
006	FGMStatus	I	24	Array of bits containing status information for the FGM instrument

Table 7.3. Format of FGM data file.

Column	Name	Data type	Start byte	Description
001	SCLK(1958)	T	0	SCLK count since the epoch Jan 1 1958 00:00:00
002	X_VHM	R	8	Magnetic-field component along sensor X-axis, in engineering units
003	Y_VHM	R	12	Magnetic-field component along sensor Y-axis, in engineering units
004	Z_VHM	R	16	Magnetic-field component along sensor Z-axis, in engineering units

Column	Name	Data type	Start byte	Description
005	MAGStatus	I	20	Array of bits containing status information related to active MAG magnetometer modes, packet type, etc
006	VHMStatus	I	24	Array of bits containing status information for the VHM instrument

Table 7.4. Format of VHM data file.

Column	Name	Data type	Start byte	Description
001	TIME_TAI	T	0	SCET in seconds since the epoch Jan 1 2000 12:00:00 TAI (= 11:59:28 UTC)
002	B_SHM	R	8	Corrected field magnitude, in nT
003	X_IAU_S	R	12	Cassini position (km) on the x axis relative to Saturn in IAU_SATURN coordinate system
004	Y_IAU_S	R	16	Cassini position (km) on the y axis relative to Saturn in IAU_SATURN coordinate system
005	Z_IAU_S	R	20	Cassini position (km) on the z axis relative to Saturn in IAU_SATURN coordinate system

Table 7.5. Format of SHM data file.

Column	Name	Data type	Start byte	Description	Units
001	SCLK(1958)	T	0	SCLK count since the epoch Jan 1 1958 00:00:00	
002	PreampOut	T	8	Subcommutated VHM data – pre-amplifier output	volt
003	IRDectBias	R	12	Subcommutated VHM data – infrared detector bias	volt
004	HeLmpRFAmp	R	16	Subcommutated VHM data – He lamp RF amplifier	volt
005	HeCllRFAmp	R	20	Subcommutated VHM data – He cell RF amplifier	volt
006	BIU VCCSPV	R	24	Subcommutated VHM data – BIU VCC, BIU supply voltage	volt
007	+/-3.75V	R	28	Subcommutated VHM data – +/-3.75V supply	volt
008	+/-12V	R	32	Subcommutated VHM data – +/-12V supply	volt
009	+/-6.2V	R	36	Subcommutated VHM data – +/-6.2V supply	volt
010	VCOMonitor	R	40	Subcommutated SHM data – VCO (Voltage Controlled Oscillator) monitor	volt
011	+/-7V	R	44	Subcommutated SHM data – +/-7V supply	volt
012	Detect2fg	R	48	Subcommutated SHM data – Detected $2f_o$	volt
013	VCOModltn	R	52	Subcommutated SHM data – VCO modulation	volt
014	+7.5V	R	56	Subcommutated FGM data – +7.5V supply	volt
015	-7.5V	R	60	Subcommutated FGM data – -7.5V supply	volt
016	X-Field	R	64	Subcommutated FGM data – X component of magnetic field	volt
017	Y-Field	R	68	Subcommutated FGM data – Y component of magnetic field	volt
018	Z-Field	R	72	Subcommutated FGM data – Z component of magnetic field	volt

Column	Name	Data type	Start byte	Description	Units
019	PSU1	R	76	Subcommutated FGM data – PSU (Power Supply Unit) 1	volt
020	PSU2	R	80	Subcommutated FGM data – PSU 2	volt
021	Ground F	R	84	Subcommutated FGM data – FGM Ground	volt
022	Reference	R	88	Subcommutated DPU data – Reference voltage	volt
023	A_VCC	R	92	Subcommutated DPU data – Supply voltage processor system A	volt
024	P12V	R	96	Subcommutated DPU data – ADC (Analog Digital Converter) supply voltage of active processor system	volt
025	M12V	R	100	Subcommutated DPU data – ADC supply voltage of active processor system	volt
026	B_VCC	R	104	Subcommutated DPU data – Supply voltage processor system B	volt
027	Ground D	R	108	Subcommutated DPU data – DPU Ground	volt
028	SOURCE	R	112	Subcommutation maintenance data derived from source sequence count of packets	

Table 7.6. Format of ANA data file, which contains analog housekeeping data.

Column	Name	Data type	Start byte	Description
001	SCLK(1958)	T	0	SCLK count since the epoch Jan 1 1958 00:00:00
002	VCCtr	R	8	Valid command counter
003	LVCC	R	12	Last valid command code
004	2LVCC	R	16	2nd last valid command code
005	3LVCC	R	20	3rd last valid command code
006	ICC	R	24	Invalid command code
007	LICC	R	28	Last invalid command code
008	Error	R	32	Error code

Table 7.7. Format of CMD data file, which contains command validation information.

Column	Name	Data type	Start byte	Description
001	SCLK(1958)	T	0	SCLK count since the epoch Jan 1 1958 00:00:00
002	wNTChannel	R	8	Noise test channel data
003	wNTLenthExpo	R	12	Noise test exponent, 2^n
004	wTTChannel	R	16	Turbo test channel data
005	wADCSetTime	R	20	ADC (Analog Digital Converter) settlement time
006	wADCSetTimeGnd	R	24	ADC Ground settlement time
007	awSSStatJ0 (Job Status)	I	28	Snapshot Job 0 (J0) status
008	awSSStatJ1 (Job Status)	I	32	Snapshot Job 1 (J1) status
009	awSSStatJ2 (Job Status)	I	36	Snapshot Job 2 (J2) status
010	awSSStatJ3 (Job Status)	I	40	Snapshot Job 3 (J3) status
011	awSSSizeSRJ0	R	44	Snapshot size for J0 (number of subrings)

Column	Name	Data type	Start byte	Description
012	awSSSizeSRJ1	R	48	Snapshot size for J1 (number of subrings)
013	awSSSizeSRJ2	R	52	Snapshot size for J2 (number of subrings)
014	awSSSizeSRJ3	R	56	Snapshot size for J3 (number of subrings)
015	awSSFactorAEJ0	R	60	Snapshot trigger factor and averaging exponent for J0
016	awSSFactorAEJ1	R	64	Snapshot trigger factor and averaging exponent for J1
017	awSSFactorAEJ2	R	68	Snapshot trigger factor and averaging exponent for J2
018	awSSFactorAEJ3	R	72	Snapshot trigger factor and averaging exponent for J3
019	awSSRowDataRdJ0	R	76	Snapshot row data read pointer for J0
020	awSSRowDataRdJ1	R	80	Snapshot row data read pointer for J1
021	awSSRowDataRdJ2	R	84	Snapshot row data read pointer for J2
022	awSSRowDataRdJ3	R	88	Snapshot row data read pointer for J3
023	awSSPostTrigCntJ0	R	92	Snapshot post-trigger counter for J0
024	awSSPostTrigCntJ1	R	96	Snapshot post-trigger counter for J1
025	awSSPostTrigCntJ2	R	100	Snapshot post-trigger counter for J2
026	awSSPostTrigCntJ3	R	104	Snapshot post-trigger counter for J3
027	awSSTrigLevelJ0	R	108	Snapshot trigger level for J0
028	awSSTrigLevelJ1	R	112	Snapshot trigger level for J1
029	awSSTrigLevelJ2	R	116	Snapshot trigger level for J2
030	awSSTrigLevelJ3	R	120	Snapshot trigger level for J3
031	awSSAvValueJ0	R	124	Snapshot quality figure for J0
032	awSSAvValueJ1	R	128	Snapshot quality figure for J1
033	awSSAvValueJ2	R	132	Snapshot quality figure for J2
034	awSSAvValueJ3	R	136	Snapshot quality figure for J3
035	awSSsubring00	R	140	Snapshot subring status (subring 00)
036	awSSsubring01	R	144	Snapshot subring status (subring 01)
037	awSSsubring02	R	148	Snapshot subring status (subring 02)
038	awSSsubring03	R	152	Snapshot subring status (subring 03)
039	awSSsubring04	R	156	Snapshot subring status (subring 04)
040	awSSsubring05	R	160	Snapshot subring status (subring 05)

Column	Name	Data type	Start byte	Description
041	awSSsubring06	R	164	Snapshot subring status (subring 06)
042	awSSsubring07	R	168	Snapshot subring status (subring 07)
043	awSSsubring08	R	172	Snapshot subring status (subring 08)
044	awSSsubring09	R	176	Snapshot subring status (subring 09)
045	awSSsubring10	R	180	Snapshot subring status (subring 10)
046	awSSsubring11	R	184	Snapshot subring status (subring 11)
047	awSSsubring12	R	188	Snapshot subring status (subring 12)
048	awSSsubring13	R	192	Snapshot subring status (subring 13)
049	awSSsubring14	R	196	Snapshot subring status (subring 14)
050	awSSsubring15	R	200	Snapshot subring status (subring 15)
051	awSSsubring16	R	204	Snapshot subring status (subring 16)
052	awSSsubring17	R	208	Snapshot subring status (subring 17)
053	awSSsubring18	R	212	Snapshot subring status (subring 18)
054	awSSsubring19	R	216	Snapshot subring status (subring 19)
055	awSSsubring20	R	220	Snapshot subring status (subring 20)
056	awSSsubring21	R	224	Snapshot subring status (subring 21)
057	awSSsubring22	R	228	Snapshot subring status (subring 22)
058	awSSsubring23	R	232	Snapshot subring status (subring 23)
059	awSSsubring24	R	236	Snapshot subring status (subring 24)
060	awSSsubring25	R	240	Snapshot subring status (subring 25)
061	awSSsubring26	R	244	Snapshot subring status (subring 26)
062	awSSsubring27	R	248	Snapshot subring status (subring 27)
063	awSSsubring28	R	252	Snapshot subring status (subring 28)
064	awSSsubring29	R	256	Snapshot subring status (subring 29)
065	awSSsubring30	R	260	Snapshot subring status (subring 30)
066	awSSsubring31	R	264	Snapshot subring status (subring 31)
067	awSSsubring32	R	268	Snapshot subring status (subring 32)
068	wSSSubRintSCRd	R	272	Snapshot subring science read
069	wSSVecCntScRd	R	276	Snapshot vector counter science read

Column	Name	Data type	Start byte	Description
070	wSSSubRingHKRd	R	280	Snapshot subring housekeeping read
071	wSSVecCntHKRd	R	284	Snapshot vector counter housekeeping read
072	wSSXOffset	R	288	Commandable offset for ADC conversion of X field component
073	wSSYOffset	R	292	Commandable offset for ADC conversion of Y field component
074	wSSZOffset	R	296	Commandable offset for ADC conversion of Z field component
075	wJoiData	I	300	Field containing status / mode indicators for ADC clock frequency, range control, averaging mode, science packet generation in sleep mode, LU (Latch Up) testing, ATC (Artificial Time Code) generation, VHM sensor status, FGM calibration, etc.
076	byMemScrub	I	304	Memory scrubbing status
077	wPowerStat	R	308	Power (on/off) status
078	wVersion	R	312	Software version, Patch code status
079	dwRamChckUBa	R	316	RAM check end address (upper bound) A
080	dwRamChckUBb	R	320	RAM check end address (upper bound) B
081	dwRamChckLBa	R	324	RAM check start address (lower bound) A
082	dwRamChckLBb	R	328	RAM check start address (lower bound) B
083	wFCalTime	R	332	FGM calibration frequency 2^n
084	wFRSBound	R	336	FGM reverse range switching boundary
085	wFFSBound	R	340	FGM forward range switching boundary
086	wFRSBCntLimit	R	344	FGM counter limit, reverse range switch
087	wFFSBCntLimit	R	348	FGM counter limit, forward range switch
088	wHKDataStatus	R	352	Housekeeping data status
089	wLUCtrlStatus	I	356	Latch up detector control status
090	wHLUHLMask	I	360	Latch up detector high / low level mask
091	wRunAvExp	R	364	Running average exponent
092	wWDSwitchForNMI	R	368	Watchdog switch after 100 NMI (Non Maskable Interrupts)
093	bWDServeEnable	R	372	Watchdog service enabled / disabled
094	wNormalRTITime	R	376	Normal RTI (Real Time Interrupt) time for artificial RTI generation
095	wNormalDTITime	R	380	Normal DTI (Dead Time start Interrupt) time for artificial DTI generation
096	wArtRTITime	R	384	Artificial RTI time to detect missing RTI
097	wArtDTITime	R	388	Artificial DTI time to detect missing DTI
098	wArtRTICnt	R	392	Number of RTIs until switch to artificial RTI
099	wArtRTIFix	R	396	Artificial RTI status (free / fix)
100	bArtRTIEnd	R	400	Artificial RTI status (enabled / disabled)
101	wTime0	R	404	Measurement Cycle time
102	wTimeEna	I	408	Timer status (enabled / disabled)
103	wVRSBound	R	412	VHM reverse range switching boundary
104	wVFSBound	R	416	VHM forward range switching boundary

Column	Name	Data type	Start byte	Description
105	wVRSCntLimit	R	420	VHM counter limit, reverse range switch
106	wVFSCntLimit	R	424	VHM counter limit, forward range switch
107	wVAutoIFCTime	R	428	VHM automatic IFC (In Flight Calibration) time
108	wVAutoIFCCycle	R	432	VHM auto IFC cycle
109	wVFormatTime	R	436	VHM format pulse frequency

Table 7.8. Format of CON data file, which contains configuration image information maintained by the DPU computer.

Column	Name	Data type	Start byte	Description
001	SCLK(1958)	T	0	SCLK count since the epoch Jan 1 1958 00:00:00
002	wBIUCheckErrCnt	R	8	BIU (Bus Interface Unit) Check Error Counter
003	wUnexptDTIErrCnt	R	12	Unexpected DTI (Dead Time Interrupt) Error Counter
004	wUnexptRTIErrCnt	R	16	Unexpected RTI (Real Time Interrupt) Error Counter
005	wALFCheckSumE	R	20	Calculated (even word) Checksum for last ALF (Assisted Load Format) command
006	wALFCheckSumO	R	24	Calculated (odd-word) Checksum for last ALF (Assisted Load Format) command
007	wCmd12CRC	R	28	CRC (Cyclic Redundancy Check) of last program load command
008	wCmd04CRC	R	32	CRC of last fixed length command
009	wCmd08CRC	R	36	CRC of last parameter load command
010	wTimeTagErrCnt	R	40	Time-tagged command error counter
011	dw16MTestErrCnta	R	44	Multi Snapshot Memory Test, Error Counter A
012	dw16MTestErrCntb	R	48	Multi Snapshot Memory Test, Error Counter B
013	wConfigErrCnt	R	52	Configuration error counter
014	wRegister	R	56	Register readout value
015	wResetCause	R	60	Cause of last reset (0 = Power on, 1 = Watchdog reset)
016	wSingleErrCnt	R	64	RAM single-bit error counter
017	wDoubleErrCnt	R	68	RAM double-bit error counter
018	wProm1TestErrCnt	R	72	PROM (Programmable Read-Only Memory) Bank 1 Test error counter
019	wProm2TestErrCnt	R	76	PROM Bank 2 Test error counter
020	w16M1SingleErrCnt	R	80	Multi Snapshot Memory Bank 1 single error counter
021	w16M1DoubleErrCnt	R	84	Multi Snapshot Memory Bank 1 double error counter
022	w16M2SingleErrCnt	R	88	Multi Snapshot Memory Bank 2 single error counter
023	w16M2DoubleErrCnt	R	92	Multi Snapshot Memory Bank 2 double error counter
024	awOGAnciSentErr	R	96	Outgoing ancillary data sent error, Packet sent count

Column	Name	Data type	Start byte	Description
025	MessErr_NotInit1	R	100	Message error counter / Not Initialized counter
026	PacketNotSentCnt1	R	104	Packet not sent yet counter
027	NotAllPckSentCnt1	R	108	Not all packets are sent yet counter
028	IllegalCallSeqCnt1	R	112	Illegal calling sequence counter
029	awSciPktSentErr	R	116	Science packet sent error, Packet sent counter
030	MessErr_NotInit2	R	120	Message error counter / Not Initialized counter
031	PacketNotSentCnt2	R	124	Packet not sent yet counter
032	NotAllPckSentCnt2	R	128	Not all packets are sent yet counter
033	IllegalCallSeqCnt2	R	132	Illegal calling sequence counter
034	awHKPktSentErr	R	136	HK (Housekeeping) packet sent error, Packet sent counter
035	MessErr_NotInit3	R	140	Message error counter / Not Initialized counter
036	PacketNotSentCnt3	R	144	Packet not sent yet counter
037	NotAllPckSentCnt3	R	148	Not all packets are sent yet counter
038	IllegalCallSeqCnt3	R	152	Illegal calling sequence counter
039	awJMTrigErrCnt	R	156	Job Manager Level Trigger error counter
040	MCITable	R	160	MCI (Measurement Cycle Interrupt) Table
041	RTIDTIFIFO	R	164	RTI/DTI Immediate FIFO
042	RTITable	R	168	RTI Table
043	_128MCITable	R	172	128 MCI Table
044	_032RTITable	R	176	32 RTI Table
045	_512RTITable	R	180	512 RTI Table
046	LongJobFIFO	R	184	Long job, immediate FIFO
047	wLUHandErrCnt	R	188	LU (Latch Up) handling error counter
048	wArtErrCnt	R	192	Artificial RTI error counter
049	awResetData, wLUMainCnt	I	196	Reset data (in BIU memory), LU main counter
050	wLUDRAMCnt	R	200	LU DRAM counter
051	wLUP12VCnt	R	204	LU (+12V supply) counter
052	wLUM12VCnt	R	208	LU (–12V supply) counter
053	wWatchDog	R	212	Watchdog reset status
054	wWDBounceCnt	R	216	Watchdog reset / bounce counter
055	wBIUReset	R	220	BIU reset flag
056	wBIUResetCnt	R	224	BIU reset counter
057	spare1	R	228	Unused
058	spare2	R	232	Unused

Column	Name	Data type	Start byte	Description
059	wMaxStackPos	R	236	Maximum stack position
060	awIntLogLstErr	R	240	BIU Interrupt log list error, Number of interrupts
061	NoMoreInteruptts	R	244	No more interrupts
062	BIUNotInit	R	248	BIU not initialised
063	awRecAACSDataMsg	R	252	Received AACS (Attitude and Articulation Control Subsystem) data messages
064	MessageErr_NotIn1	R	256	Message error (not initialised)
065	NoMoreMess1	R	260	No more messages
066	MessageLost1	R	264	Some message lost
067	awRecCritCmdMsgEr	R	268	Received Critical command messages
068	MessageErr_NotIn2	R	272	Message error (not initialised)
069	NoMoreMess2	R	276	No more messages
070	MessageLost2	R	280	Some message lost
071	awRecFaultCmdMsgE	R	284	Received Fault Protection command messages
072	MessageErr_NotIn3	R	288	Message error (not initialised)
073	NoMoreMess3	R	292	No more messages
074	MessageLost3	R	296	Some message lost
075	awReclCAnciMsgErr	R	300	Received Incoming Ancillary Data messages
076	MessageErr_NotIn4	R	304	Message error (not initialised)
077	NoMoreMess4	R	308	No more messages
078	MessageLost4	R	312	Some message lost
079	awRecNomCmdMsgErr	R	316	Received Nominal command messages
080	MessageErr_NotIn5	R	320	Message error (not initialised)
081	NoMoreMess5	R	324	No more messages
082	MessageLost5	R	328	Some message lost
083	awRecTimModeErr	R	332	Received Telemetry Mode messages
084	MessageErr_NotIn6	R	336	Message error (not initialised)
085	NoMoreMess6	R	340	No more messages
086	MessageLost6	R	344	Some message lost
087	wSTMState	R	348	STM (Spacecraft Time Message) data, STM okay
088	NoSTMReceived	R	352	No STM received
089	UnexpectedSTM	R	356	Unexpected STM
090	wintErrCnt	R	360	Interrupt error counter
091	wSSAngErrCnt1	R	364	Snapshot angular error counter 1
092	wSSAngErrCnt2	R	368	Snapshot angular error counter 2

Column	Name	Data type	Start byte	Description
093	spare3	R	372	
094	Not used	R	376	
Columns 095 to 130 not used				
130	Not used	R	520	
131	Type	R	524	
132	Status	I	528	

Table 7.9. Format of ERR data file, which contains error counter information.

Column	Name	Data type	Start byte	Description	Units
001	SCLK(1958)	T	0	SCLK count since the epoch Jan 1 1958 00:00:00	
002	A1001	R	8	Attitude quaternion component 1	
003	A1002	R	12	Attitude quaternion component 2	
004	A1003	R	16	Attitude quaternion component 3	
005	A1004	R	20	Attitude quaternion component 4	
006	A1005	R	24	Rotation rate, X spacecraft axis	radians per second
007	A1006	R	28	Rotation rate, Y spacecraft axis	radians per second
008	A1007	R	32	Rotation rate, Z spacecraft axis	radians per second
009	STATUS	I	36	Status information for spacecraft attitude data	

Table 7.10. Format of CHATT data file, which contains channelized data (Attitude quaternion and Rotation rate).

Column	Name	Channel ID	Data type	Start byte	Description	Units
001	SCLK(1958)		T	0	SCLK count since the epoch Jan 1 1958 00:00:00	
002	U_MAG_FGM_T	/ S0200	R	8	FGM temperature	degrees C
003	U_MAG_VSHM_T	/ S0201	R	12	VHM/SHM temperature	degrees C
004	UBAY04_T	/ E2303	R	16	Temperature data	degrees C
005	UBAY07_T	/ E2306	R	20	Temperature data	degrees C
006	U_MAG_Elec_LC	/ E0621	R	24	Current	amp
007	S_MAG_ELECT_a	/ F0653	R	28	Power supply A on/off	
008	S_MAG_ELECT_b	/ F0654	R	32	Power supply B on/off	
009	S_MAG_ELECT_sw	/ F0655	R	36	Power supply operation normal/trip	
010	U_MAG_Elec_LC	/ E1121	R	40	Current	amp
011	S_MAG_ELECT_a	/ F1353	R	44	Power supply A on/off	
012	S_MAG_ELECT_b	/ F1354	R	48	Power supply B on/off	
013	S_MAG_ELECT_sw	/ F1355	R	52	Power supply operation normal/trip	
014	U_MAG_Htrs_LC	/ E0632	R	56	Current	amp
015	S_MAG_RHTR_a	/ F0722	R	60	Heater A on/off	
016	S_MAG_RHTR_b	/ F0723	R	64	Heater B on/off	
017	S_MAG_RHTR_sw	/ F0724	R	68	Heater operation normal/trip	
018	U_MAG_Htrs_LC	/ E1132	R	72	Current	amp

Column	Name	Channel ID	Data type	Start byte	Description	Units
019	S_MAG_RHTR_a	/ F1422	R	76	Heater A on/off	
020	S_MAG_RHTR_b	/ F1423	R	80	Heater B on/off	
021	S_MAG_RHTR_sw	/ F1424	R	84	Heater operation normal/trip	
022	U_30VBus_HF_V	/ E0748	R	88	Bus power supply	volt
023	U_30VBus_HF_V	/ E0749	R	92	Bus power supply	volt
024	S_SCAS_COIL_b	/ F0744	R	96	SCAS coil B on/off	
025	S_SCAS_COIL_a	/ F0743	R	100	SCAS coil A on/off	
026	S_SCAS_COIL_a	/ F1443	R	104	SCAS coil A on/off	
027	S_SCAS_COIL_b	/ F1444	R	108	SCAS coil B on/off	
028	STATUS	/ Status	I	112	Status information for MAG instrument	

Table 7.11. Format of CHUSR data file, which contains analog user-selected channelized data.

7.6. Cassini tour event summary

This is the table "CASSINI TOUR EVENT SUMMARY". In it, users can find information on each spacecraft orbit, targeted moon flybys, etc. The table covers the mission from the start of the Prime Mission in mid-2004 through the Extended (Equinox) and Extended-Extended (Solstice) phases to the end of mission, scheduled for mid-2017. Please note that some of the information can also be found on the PDS website MISSION.CAT under the CATALOG directory of each dataset.

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S01	0	**START OF PRIME MISSION**		2004-135T18:40	May14	Fri	---	28	227	Start of prime mission (2004-2008)
S01	0	**S01 Begins**		2004-135T18:40	May14	Fri	---	28	227	S01 Sequence. Duration = 36 d
S01	0	**MAG**	**Segment**	2004-135T18:40	May14	Fri	---	28	227	MAG_000_PrePhoebe (27d); Early Rev 0 prior to Phoebe
S01	0	**TCM-20**	Phoebe targ	2004-148T16:25	May27	Thu	---	15	240	Phoebe targeting maneuver, 34 m/s. D/L start, burn ~6h later.
S01	0	**SOST**	**Segment**	2004-163T04:02	Jun11	Fri	---	1	14	SOST_000PH (2d); SOST Rev 00 Targeted Phoebe
S01	0	**00PH (t) [P1]**	**PHOEBE**	2004-163T19:34	Jun11	Fri	---	137	15	Inbound 2068.1 km flyby, v = 6.4 km/s, phase = 24 deg
S01	0	**MAG**	**Segment**	2004-164T22:32	Jun12	Sat	1	136	16	MAG_000_PreSOI (18d); Rev 0 after Phoebe before SOI
S01	0	**TCM-21**	Phoebe c/u	2004-168T15:07	Jun16	Wed	5	132	20	Phoebe cleanup maneuver, 4 m/s. D/L start, burn ~6h later.
S02	0	**S02 Begins**		2004-171T21:52	Jun19	Sat	8	129	3	S02 Sequence. Duration = 41 d
S02	0	00PO (nt)	**POLYDEUCES**	2004-182T20:57	Jun30	Wed	19	118	14	Inbound 67990.9 km flyby, v = 13.3 km/s, phase = 90 deg
S02	0	00CA (nt)	**CALYPSO**	2004-182T22:27	Jun30	Wed	19	118	14	Inbound 52100.1 km flyby, v = 14.1 km/s, phase = 92 deg
S02	0	00ME (nt)	**METHONE**	2004-183T00:16	Jul01	Thu	19	118	14	Inbound 51202.4 km flyby, v = 12.9 km/s, phase = 96 deg
S02	0	00MI (nt)	**MIMAS**	2004-183T00:30	Jul01	Thu	19	118	14	Inbound 76487.7 km flyby, v = 22.3 km/s, phase = 80 deg
S02	0	G_ring	**DUST HAZARD**	2004-183T00:46	Jul01	Thu	19	118	14	Egress at 2004-183T00:47 (1 min); protection = HGA to ram and MEA cover closure.
S02	0	Ring CRX	Ascending	2004-183T00:47	Jul01	Thu	19	118	14	r = 2.628 Rs (158525 km)
S02	0	JE_ring	**DUST HAZARD**	2004-183T00:49	Jul01	Thu	19	118	14	Egress at 2004-183T00:50 (1 min); protection = HGA to ram and MEA cover closure.
S02	0	**SOI Start**		2004-183T01:12	Jul01	Thu	19	118	14	SOI burn start, DV= 626 m/s, duration = 01:36:20 (hh:mm:ss)
S02	0	00PA (nt)	**PANDORA**	2004-183T01:16	Jul01	Thu	19	118	0	Inbound 89854.0 km flyby, v = 26.8 km/s, phase = 89 deg
S02	0	00JA (nt)	**JANUS**	2004-183T01:51	Jul01	Thu	19	118	0	Inbound 67681.8 km flyby, v = 12.8 km/s, phase = 106 deg
S02	0	**Earth OCC**	RING	2004-183T02:21	Jul01	Thu	19	118	0	Egress = 2004-183T04:21 (121 min)
S02	0	**Sun OCC**	RING	2004-183T02:21	Jul01	Thu	19	118	0	Egress = 2004-183T04:21 (120 min)
S02	0	Periapse		2004-183T02:38	Jul01	Thu	19	118	0	R = 1.330 Rs, lat = 17 deg, phase = 94 deg
S02	0	**SOI End**		2004-183T02:48	Jul01	Thu	19	118	0	SOI burn end
S02	0	**SOI**	**Segment**	2004-183T03:07	Jul01	Thu	19	118	0	SOI_000 (1d); SOI TWT
S02	0	**Earth OCC**	SATURN	2004-183T03:33	Jul01	Thu	19	117	0	Egress = 2004-183T04:09 (36 min)
S02	0	**Sun OCC**	SATURN	2004-183T03:36	Jul01	Thu	19	117	0	Egress = 2004-183T04:08 (32 min)
S02	0	00PM (nt)	**PROMETHEUS**	2004-183T03:57	Jul01	Thu	19	117	0	Outbound 107413.3 km flyby, v = 28.5 km/s, phase = 91 deg
S02	0	00PN (nt)	**PAN**	2004-183T04:02	Jul01	Thu	19	117	0	Outbound 57684.4 km flyby, v = 22.8 km/s, phase = 88 deg
S02	0	00AE (nt)	**AEGAEON**	2004-183T04:21	Jul01	Thu	19	117	0	Outbound 112909.9 km flyby, v = 26.0 km/s, phase = 94 deg
S02	0	JE_ring	**DUST HAZARD**	2004-183T04:30	Jul01	Thu	19	117	0	Egress at 2004-183T04:30 (1 min); protection = HGA to ram and MEA cover closure.
S02	0	G_ring	**DUST HAZARD**	2004-183T04:33	Jul01	Thu	19	117	0	Egress at 2004-183T04:34 (1 min); protection = HGA to ram and MEA cover closure.
S02	0	Ring CRX	Descending	2004-183T04:34	Jul01	Thu	19	117	0	r = 2.632 Rs (158780 km)
S02	0	**TOST**	**Segment**	2004-184T01:06	Jul02	Fri	20	117	1	TOST_000TI_T0 (2d); TOST 000TI T0
S02	0	00TI (nt)	**TITAN**	2004-184T09:29	Jul02	Fri	21	116	1	Outbound 339120.0 km flyby, v = 8.3 km/s, phase = 67 deg
S02	0	**OTM-001**	SOI c/u	2004-185T14:06	Jul03	Sat	22	115	3	SOI cleanup. D/L start, burn ~6h later. Backup D/L 186T14:06
S02	0	**MAG**	**Segment**	2004-185T23:06	Jul03	Sat	22	115	0	MAG_000_PostTitan (34d); Rev 0 after Titan
S02	0	SEP = 3.0 deg	Conjunction	2004-187T04:21	Jul05	Mon	23	113	2	Commanding must not be required below 3.0 deg
S02	0	SEP = 2.0 deg	Conjunction	2004-188T10:13	Jul06	Tue	25	112	3	Plan no SSR playback below 2.0 deg
S02	0	SEP = 1.0 deg	Conjunction	2004-189T16:28	Jul07	Wed	26	111	4	Require no DSN passes below 1.0 deg
S02	0	SEP = 1.0 deg	Conjunction	2004-192T01:04	Jul10	Sat	28	109	6	Require no DSN passes below 1.0 deg
S02	0	SEP = 2.0 deg	Conjunction	2004-193T07:12	Jul11	Sun	29	107	8	Plan no SSR playback below 2.0 deg
S02	0	SEP = 3.0 deg	Conjunction	2004-194T12:52	Jul12	Mon	31	106	9	Commanding must not be required below 3.0 deg
S02	0	**OTM-001A**	SOI c/u	2004-199T13:21	Jul17	Sat	36	101	14	SOI cleanup. D/L start, burn ~6h later. Backup D/L 200T13:21
S03	0	**S03 Begins**		2004-212T21:32	Jul30	Fri	49	88	13	S03 Sequence. Duration = 44 d
S03	0	**SATURN**	**Segment**	2004-219T13:37	Aug06	Fri	56	81	20	Saturn_000_00A (80d); Atmosphere Segment - Rev 0-A
S03	0	**OTM-002**	PRM	2004-236T09:53	Aug23	Mon	73	64	37	Periapsis raise. D/L start, burn ~6h later. Backup D/L 237T09:38
S03	A	**Apoapse**		2004-240T08:57	Aug27	Fri	77	60	4	Per = 124.1 d, inc = 17.6 deg, r = 150.767 Rs, phase = 87 deg
S03	A	**OTM-003**	PRM c/u	2004-251T10:30	Sep07	Tue	88	49	15	Periapsis raise clean up. D/L start, burn ~6h later. Backup D/L 252T10:25
S04	A	**S04 Begins**		2004-256T11:35	Sep12	Sun	93	44	5	S04 Sequence. Duration = 36 d
S05	A	**S05 Begins**		2004-292T09:30	Oct18	Mon	129	8	41	S05 Sequence. Duration = 28 d
S05	A	**OTM-004**	ATI-3	2004-297T00:16	Oct23	Sat	133	4	46	D/L start, burn ~6h later. Backup D/L 298T00:01
S05	A	**TOST**	**Segment**	2004-299T16:31	Oct25	Mon	136	1	3	TOST_00ATI_TA (2d); TOST Segment for 00ATI (TA)
S05	A	**0ATI (t) [TA]**	**TITAN**	2004-300T15:30	Oct26	Tue	137	48	4	Inbound 1174.0 km flyby, v = 6.1 km/s, phase = 91 deg
S05	A	Ring CRX	Ascending	2004-300T16:53	Oct26	Tue	0	48	4	r = 19.506 Rs (1176795 km)
S05	A	**RINGS**	**Segment**	2004-301T09:16	Oct27	Wed	1	47	4	RINGS_REV_A (5d); Rings REV A Segment
S05	A	Periapse		2004-302T10:20	Oct28	Thu	2	46	5	R = 6.170 Rs, lat = 12 deg, phase = 104 deg
S05	A	Ring CRX	Descending	2004-302T20:01	Oct28	Thu	2	46	6	r = 8.082 Rs (487586 km)
S05	A	**OTM-005**	ATI+3	2004-303T00:15	Oct29	Fri	2	45	6	D/L start, burn ~6h later. Backup D/L 304T00:30
S05	A	**MAG**	**Segment**	2004-306T10:45	Nov01	Mon	6	42	3	MAG_00A_00B (32d); Rev A/B
S06	A	**S06 Begins**		2004-320T07:49	Nov15	Mon	20	28	17	S06 Sequence. Duration = 31 d
S06	A	**OTM-006**	APO	2004-325T23:00	Nov20	Sat	25	23	23	D/L start, burn ~6h later. Backup D/L 326T23:00
S06	B	**Apoapse**		2004-326T08:41	Nov21	Sun	26	22	0	Per = 47.9 d, inc = 13.8 deg, r = 78.090 Rs, phase = 77 deg
S06	B	**SATURN**	**Segment**	2004-338T15:36	Dec03	Fri	38	10	13	Saturn_00Ba (7d); Saturn Rev B - a (Inbound)
S06	B	**OTM-007**	BTI-3	2004-344T21:06	Dec09	Thu	44	4	19	D/L start, burn ~6h later. Backup D/L 345T21:05
S06	B	**TOST**	**Segment**	2004-345T06:06	Dec10	Fri	45	3	0	TOST_00BTI_TB (4d); TOST Segment for 00BTI (TB)
S06	B	**0BTI (t) [TB]**	**TITAN**	2004-348T11:38	Dec13	Mon	48	32	4	Inbound 1192.3 km flyby, v = 6.1 km/s, phase = 102 deg
S06	B	**Sun OCC**	TITAN	2004-348T11:52	Dec13	Mon	0	32	4	Egress = 2004-348T12:15 (23 min)
S06	B	Ring CRX	Ascending	2004-348T14:58	Dec13	Mon	0	32	4	r = 18.860 Rs (1137811 km)
S06	B	**SATURN**	**Segment**	2004-349T07:52	Dec14	Tue	1	31	4	Saturn_00Bb (2d); Saturn Rev B - b (Periapse)
S06	B	0BDI (nt)	**DIONE**	2004-350T01:41	Dec15	Wed	2	30	5	Inbound 72066.8 km flyby, v = 5.3 km/s, phase = 84 deg
S06	B	0BMI (nt)	**MIMAS**	2004-350T05:02	Dec15	Wed	2	30	5	Inbound 106749.6 km flyby, v = 1.6 km/s, phase = 90 deg
S06	B	0BAE (nt)	**AEGAEON**	2004-350T05:43	Dec15	Wed	2	30	5	Inbound 121062.3 km flyby, v = 1.0 km/s, phase = 108 deg
S06	B	Periapse		2004-350T05:51	Dec15	Wed	2	30	5	R = 4.764 Rs, lat = 4 deg, phase = 108 deg
S06	B	Ring CRX	Descending	2004-350T11:03	Dec15	Wed	2	30	6	r = 5.750 Rs (346893 km)
S07	B	**S07 Begins**		2004-351T13:22	Dec16	Thu	3	29	7	S07 Sequence. Duration = 37 d
S07	B	**MAG**	**Segment**	2004-351T13:22	Dec16	Thu	3	29	7	MAG_00B (15d); Rev B
S07	B	**OTM-008**	PTM	2004-351T19:22	Dec16	Thu	3	29	7	Probe targeting. D/L start, burn ~6h later. Backup D/L 352T19:22
S07	B	**OTM-009**	PTM c/u	2004-357T18:52	Dec22	Wed	9	23	6	Probe targeting cleanup. D/L start, burn ~6h later. Backup D/L 358T18:52
S07	B	**PROBE RELEASE**		2004-360T02:00	Dec25	Sat	12	20	2	At entry interface - 20.3 d
S07	B	**OTM-010**	ODM	2004-362T18:37	Dec27	Mon	14	18	5	Orbit deflection. D/L start, burn ~6h later. Backup D/L 363T18:38
S07	B	**SOST**	**Segment**	2004-366T01:30	Dec31	Fri	18	14	3	SOST_00CIA (2d); SOST segment early in Rev C (Iapetus)
S07	C	**Apoapse**		2004-366T07:02	Dec31	Fri	18	14	4	Per = 31.9 d, inc = 5.3 deg, r = 59.651 Rs, phase = 72 deg
S07	C	0CIA (nt)	**IAPETUS**	2004-366T18:49	Dec31	Fri	18	14	4	Inbound 123401.4 km flyby, v = 2.0 km/s, phase = 94 deg
S07	C	**MAG**	**Segment**	2005-002T04:38	Jan02	Sun	20	12	5	MAG_00C (13d); MAG TWT Rev C
S07	C	**OTM-010A**	ODM c/u	2005-003T17:38	Jan03	Mon	21	11	7	D/L start, burn ~6h later. Backup D/L 004T17:38
S07	C	**PROBE ENTRY**		2005-014T09:06	Jan14	Fri	32	0	11	Entry interface alt=1270 km, Tc c/a -2.1 h
S07	C	**0CTI (t) [TC]**	**TITAN**	2005-014T11:12	Jan14	Fri	32	32	11	Inbound 60003.3 km flyby, v = 5.4 km/s, phase = 93 deg
S07	C	Ring CRX	Ascending	2005-014T17:05	Jan14	Fri	0	32	11	r = 18.360 Rs (1107646 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S07	C	**SOST**	**Segment**	2005-015T12:00	Jan15	Sat	1	31	12	SOST_00C (3d); SOST segment in Rev C (non-targeted satellites)
S07	C	**OTM-011**	CTI+2	2005-016T03:20	Jan16	Sun	2	30	12	D/L start, burn ~6h later. Backup D/L 017T03:30
S07	C	0CME (nt)	**METHONE**	2005-016T04:58	Jan16	Sun	2	30	0	Inbound 113120.3 km flyby, v = 1.8 km/s, phase = 78 deg
S07	C	0CMI (nt)	**MIMAS**	2005-016T06:08	Jan16	Sun	2	30	0	Inbound 107630.4 km flyby, v = 1.3 km/s, phase = 100 deg
S07	C	Periapse		2005-016T06:25	Jan16	Sun	2	30	0	R = 4.824 Rs, lat = 4 deg, phase = 106 deg
S07	C	0CPL (nt)	**PALLENE**	2005-016T07:26	Jan16	Sun	2	30	0	Outbound 90824.4 km flyby, v = 2.4 km/s, phase = 138 deg
S07	C	Ring CRX	Descending	2005-016T11:58	Jan16	Sun	2	30	0	r = 5.905 Rs (356223 km)
S07	C	**MAG**	**Segment**	2005-018T10:00	Jan18	Tue	4	28	2	MAG_00C_003 (17d); Mag Rev C/3
S08	C	**S08 Begins**		2005-022T10:38	Jan22	Sat	8	24	6	S08 Sequence. Duration = 36 d
S08	C	**OTM-012**	~APO	2005-028T01:08	Jan28	Fri	14	18	12	D/L start, burn ~6h later. Backup D/L 029T01:08
S08	3	**Apoapse**		2005-032T03:26	Feb01	Tue	18	14	4	Per = 31.8 d, inc = 5.2 deg, r = 59.250 Rs, phase = 74 deg
S08	3	**SATURN**	**Segment**	2005-035T11:07	Feb04	Fri	21	11	7	Saturn_003 (10d); Saturn Rev 3 Inbound
S08	3	**OTM-013**	3TI-3	2005-043T00:07	Feb12	Sat	29	3	15	D/L start, burn ~6h later. Backup D/L 043T16:37
S08	3	**TOST**	**Segment**	2005-045T09:07	Feb14	Mon	31	1	2	TOST_003TI_T3 (2d); TOST Segment 003TI (T3)
S08	3	**03TI (dt) [T3]**	**TITAN**	2005-046T06:58	Feb15	Tue	32	2	3	Inbound 1579.0 km flyby, v = 6.0 km/s, phase = 99 deg
S08	3	**SOST**	**Segment**	2005-047T08:59	Feb16	Wed	1	1	4	SOST_003 (2d); SOST segment in Rev 3 (Enceladus non-targeted)
S08	3	E_ring_lg	Dust Crossing	2005-047T22:39	Feb16	Wed	2	0	5	Egress at 2005-048T00:09 (90 min); protection = none.
S08	3	03PA (nt)	**PANDORA**	2005-047T23:03	Feb16	Wed	2	0	5	Inbound 102608.6 km flyby, v = 1.6 km/s, phase = 62 deg
S08	3	Pallene	Dust Crossing	2005-048T00:03	Feb17	Thu	2	0	5	Egress at 2005-048T01:51 (108 min); protection = none.
S08	3	03EP (nt)	**EPIMETHEUS**	2005-048T00:10	Feb17	Thu	2	0	5	Inbound 73455.4 km flyby, v = 2.9 km/s, phase = 78 deg
S08	3	03AT (nt)	**ATLAS**	2005-048T00:23	Feb17	Thu	2	0	5	Inbound 76935.0 km flyby, v = 1.6 km/s, phase = 96 deg
S08	3	03CA (nt)	**CALYPSO**	2005-048T00:35	Feb17	Thu	2	0	5	Inbound 83229.2 km flyby, v = 6.9 km/s, phase = 67 deg
S08	3	Ring CRX	Ascending	2005-048T00:50	Feb17	Thu	2	0	5	r = 3.499 Rs (211082 km)
S08	3	Periapse		2005-048T00:57	Feb17	Thu	2	0	5	R = 3.498 Rs, lat = 0 deg, phase = 115 deg
S08	3	03AE (nt)	**AEGAEON**	2005-048T01:23	Feb17	Thu	2	0	5	Outbound 107572.0 km flyby, v = 8.3 km/s, phase = 157 deg
S08	3	E_ring_lg	Dust Crossing	2005-048T01:46	Feb17	Thu	2	0	5	Egress at 2005-048T03:00 (74 min); protection = none.
S08	3	**03EN (dt) [E0]**	**ENCELADUS**	2005-048T03:30	Feb17	Thu	2	20	5	Outbound 1260.7 km flyby, v = 6.7 km/s, phase = 113 deg
S08	3	**Earth OCC**	ENCELADUS	2005-048T03:37	Feb17	Thu	0	20	5	Egress = 2005-048T03:38 (1 min)
S08	3	03PO (nt)	**POLYDEUCES**	2005-048T08:48	Feb17	Thu	0	20	5	Outbound 6446.7 km flyby, v = 8.6 km/s, phase = 121 deg
S08	3	**OTM-014**	3TI+3	2005-049T00:00	Feb18	Fri	1	19	6	D/L start, burn ~6h later. Backup D/L 049T23:36
S08	3	**XD**	**Segment**	2005-049T08:43	Feb18	Fri	1	19	0	XD_003_004 (18d); Cross Discipline Segment Outbound 3-Inbound 4
S08	3	Ring CRX	Descending	2005-057T04:25	Feb26	Sat	9	11	8	r = 43.975 Rs (2653035 km)
S09	3	**S09 Begins**		2005-058T00:36	Feb27	Sun	10	10	9	S09 Sequence. Duration = 41 d
S09	4	**Apoapse**		2005-058T06:20	Feb27	Sun	10	10	9	Per = 20.5 d, inc = 0.4 deg, r = 44.303 Rs, phase = 65 deg
S09	4	**OTM-015**	~APO	2005-060T22:50	Mar01	Tue	13	7	12	D/L start, burn ~6h later. Backup D/L 061T22:50
S09	4	**OTM-016**	4EN-3	2005-064T22:35	Mar05	Sat	17	3	4	D/L start, burn ~6h later. Backup D/L 065T22:20
S09	4	**SOST**	**Segment**	2005-067T07:35	Mar08	Tue	19	1	2	SOST_004EN (2d); SOST Rev 04 Targeted Enceladus
S09	4	04HE (nt)	**HELENE**	2005-068T04:33	Mar09	Wed	20	0	3	Inbound 74490.5 km flyby, v = 6.5 km/s, phase = 67 deg
S09	4	E_ring_lg	**DUST HAZARD**	2005-068T08:06	Mar09	Wed	20	0	3	Egress at 2005-068T10:53 (167 min); protection = HGA to ram and MEA cover closure.
S09	4	**04EN (t) [E1]**	**ENCELADUS**	2005-068T09:08	Mar09	Wed	20	22	3	Inbound 497.3 km flyby, v = 6.6 km/s, phase = 43 deg
S09	4	Pallene	**DUST HAZARD**	2005-068T10:47	Mar09	Wed	0	22	4	Egress at 2005-068T12:31 (104 min); protection = MEA cover closure.
S09	4	Ring CRX	Ascending	2005-068T10:48	Mar09	Wed	0	22	4	r = 3.559 Rs (214695 km)
S09	4	04AT (nt)	**ATLAS**	2005-068T11:29	Mar09	Wed	0	22	4	Inbound 73847.2 km flyby, v = 1.6 km/s, phase = 108 deg
S09	4	Periapse		2005-068T11:40	Mar09	Wed	0	22	4	R = 3.502 Rs, lat = 0 deg, phase = 115 deg
S09	4	04TE (nt)	**TETHYS**	2005-068T11:44	Mar09	Wed	0	22	4	Outbound 82863.3 km flyby, v = 6.9 km/s, phase = 64 deg
S09	4	E_ring_lg	**DUST HAZARD**	2005-068T12:26	Mar09	Wed	0	22	4	Egress at 2005-068T15:13 (167 min); protection = MEA cover closure.
S09	4	**XD**	**Segment**	2005-069T07:26	Mar10	Thu	1	22	4	XD_004_005 (18d); Cross Discipline Segment Outbound 4 - Inbound 5
S09	4	**OTM-017**	4EN+3	2005-070T21:20	Mar11	Fri	3	20	6	D/L start, burn ~6h later. Backup D/L 072T20:49
S09	4	Ring CRX	Descending	2005-073T16:46	Mar14	Mon	5	17	3	r = 36.913 Rs (2226935 km)
S09	4	**OTM-018**	~APO	2005-078T12:19	Mar19	Sat	10	12	8	D/L start, burn ~6h later. Backup D/L 079T12:19
S09	5	**Apoapse**		2005-078T17:35	Mar19	Sat	10	12	0	Per = 20.5 d, inc = 0.2 deg, r = 44.390 Rs, phase = 65 deg
S09	5	**OTM-019**	5TI-3	2005-086T20:00	Mar27	Sun	18	4	8	D/L start, burn ~6h later. Backup D/L 087T19:17
S09	5	**MAG**	**Segment**	2005-087T05:09	Mar28	Mon	19	4	0	MAG_005 (3d); Mag Rev 5
S09	5	05TE (nt)	**TETHYS**	2005-088T18:46	Mar29	Tue	20	2	2	Inbound 108638.1 km flyby, v = 12.2 km/s, phase = 124 deg
S09	5	E_ring_lg	**DUST HAZARD**	2005-088T20:04	Mar29	Tue	20	2	2	Egress at 2005-088T22:49 (165 min); protection = MEA cover closure.
S09	5	05EN (nt)	**ENCELADUS**	2005-088T20:32	Mar29	Tue	20	2	2	Inbound 55573.4 km flyby, v = 9.7 km/s, phase = 134 deg
S09	5	05PL (nt)	**PALLENE**	2005-088T21:48	Mar29	Tue	21	2	2	Inbound 30586.6 km flyby, v = 7.0 km/s, phase = 137 deg
S09	5	05AT (nt)	**ATLAS**	2005-088T22:01	Mar29	Tue	21	2	2	Inbound 97311.2 km flyby, v = 1.4 km/s, phase = 68 deg
S09	5	Pallene	**DUST HAZARD**	2005-088T22:44	Mar29	Tue	21	2	2	Egress at 2005-089T00:31 (107 min); protection = MEA cover closure.
S09	5	Ring CRX	Ascending	2005-088T22:59	Mar29	Tue	21	2	2	r = 3.531 Rs (213006 km)
S09	5	05EP (nt)	**EPIMETHEUS**	2005-088T23:25	Mar29	Tue	21	2	2	Inbound 62012.1 km flyby, v = 2.3 km/s, phase = 102 deg
S09	5	Periapse		2005-088T23:38	Mar29	Tue	21	2	2	R = 3.498 Rs, lat = 0 deg, phase = 114 deg
S09	5	E_ring_lg	**DUST HAZARD**	2005-089T00:26	Mar30	Wed	21	2	2	Egress at 2005-089T02:32 (126 min); protection = MEA cover closure.
S09	5	05ME (nt)	**METHONE**	2005-089T00:51	Mar30	Wed	21	2	2	Outbound 52681.2 km flyby, v = 7.4 km/s, phase = 82 deg
S09	5	05TL (nt)	**TELESTO**	2005-089T01:32	Mar30	Wed	21	2	2	Outbound 74531.9 km flyby, v = 6.5 km/s, phase = 61 deg
S09	5	05PO (nt)	**POLYDEUCES**	2005-089T05:59	Mar30	Wed	21	2	2	Outbound 104025.0 km flyby, v = 6.0 km/s, phase = 59 deg
S09	5	**TOST**	**Segment**	2005-090T05:50	Mar31	Thu	22	1	3	TOST_005TI_T4 (2d); TOST Segment 005TI (T4)
S09	5	**05TI (t) [T4]**	**TITAN**	2005-090T20:05	Mar31	Thu	22	16	4	Outbound 2403.5 km flyby, v = 5.9 km/s, phase = 66 deg
S09	5	Ring CRX	Descending	2005-090T22:07	Mar31	Thu	0	16	4	r = 21.276 Rs (1283557 km)
S09	5	**XD**	**Segment**	2005-092T00:22	Apr02	Sat	1	15	5	XD_005_006 (10d); Cross Discipline Segment Outbound 5 - Inbound 6
S09	5	**OTM-020**	5TI+3	2005-093T20:22	Apr03	Sun	3	13	7	D/L start, burn ~6h later. Backup D/L 094T16:22
S09	6	**Apoapse**		2005-096T23:32	Apr06	Wed	6	10	3	Per = 16.0 d, inc = 7.4 deg, r = 37.956 Rs, phase = 72 deg
S10	6	**S10 Begins**		2005-099T05:15	Apr09	Sat	8	8	5	S10 Sequence. Duration = 35 d
S10	6	**OTM-021**	~APO	2005-099T20:00	Apr09	Sat	9	7	6	D/L start, burn ~6h later. Backup D/L 100T16:00
S10	6	**RINGS**	**Segment**	2005-102T06:30	Apr12	Tue	11	5	2	RINGS_6 (2d); RINGS Rev 6
S10	6	**OTM-022**	6TI-3	2005-103T20:40	Apr13	Wed	13	3	4	D/L start, burn ~6h later. Backup D/L 105T02:14
S10	6	**SATURN**	**Segment**	2005-104T05:55	Apr14	Thu	13	3	0	Saturn_006 (2d); Saturn Rev 6 Periapse
S10	6	06PL (nt)	**PALLENE**	2005-104T20:31	Apr14	Thu	14	2	1	Inbound 119294.2 km flyby, v = 16.6 km/s, phase = 115 deg
S10	6	06ME (nt)	**METHONE**	2005-104T20:52	Apr14	Thu	14	2	1	Inbound 50424.3 km flyby, v = 12.3 km/s, phase = 118 deg
S10	6	G_ring	**DUST HAZARD**	2005-104T22:15	Apr14	Thu	14	2	1	Egress at 2005-104T22:17 (2 min); protection = HGA to ram and MEA cover closure.
S10	6	Ring CRX	Ascending	2005-104T22:16	Apr14	Thu	14	2	1	r = 2.734 Rs (164959 km)
S10	6	Periapse		2005-104T23:16	Apr14	Thu	14	2	1	R = 2.594 Rs, lat = 3 deg, phase = 108 deg
S10	6	**Earth OCC**	RING	2005-104T23:49	Apr14	Thu	14	2	1	Egress = 2005-105T01:45 (117 min)
S10	6	**Sun OCC**	RING	2005-104T23:58	Apr14	Thu	14	2	1	Egress = 2005-105T02:00 (122 min)
S10	6	06EP (nt)	**EPIMETHEUS**	2005-105T00:14	Apr15	Fri	14	2	1	Outbound 46179.6 km flyby, v = 9.8 km/s, phase = 80 deg
S10	6	06MI (nt)	**MIMAS**	2005-105T01:25	Apr15	Fri	14	2	1	Outbound 82488.4 km flyby, v = 14.0 km/s, phase = 94 deg
S10	6	06CA (nt)	**CALYPSO**	2005-105T04:21	Apr15	Fri	14	2	1	Outbound 70531.7 km flyby, v = 12.5 km/s, phase = 115 deg
S10	6	**TOST**	**Segment**	2005-106T06:25	Apr16	Sat	15	1	2	TOST_006TI_T5 (2d); TOST Segment 006TI (T5)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S10	6	**06TI (t) [T5]**	**TITAN**	2005-106T19:12	Apr16	Sat	16	89	3	Outbound 1027.4 km flyby, v = 6.1 km/s, phase = 127 deg
S10	6	**Earth OCC**	TITAN	2005-106T19:12	Apr16	Sat	0	89	3	Egress = 2005-106T19:18 (7 min)
S10	6	**Sun OCC**	TITAN	2005-106T19:13	Apr16	Sat	0	89	3	Egress = 2005-106T19:20 (8 min)
S10	6	Ring CRX	Descending	2005-106T19:58	Apr16	Sat	0	89	3	r = 20.890 Rs (1260316 km)
S10	6	**XD**	**Segment**	2005-107T21:25	Apr17	Sun	1	88	4	XD_006_007 (12d); Cross Discipline Segment Outbound 6 - Inbound 7
S10	6	**OTM-023**	6TI+3	2005-109T18:59	Apr19	Tue	3	86	6	D/L start, burn ~6h later. Backup D/L 110T18:44
S10	7	**Apoapse**		2005-113T23:30	Apr23	Sat	7	82	4	Per = 18.2 d, inc = 21.7 deg, r = 40.629 Rs, phase = 65 deg
S10	7	**OTM-024**	~APO	2005-118T18:58	Apr28	Thu	12	77	9	D/L start, burn ~6h later. Backup D/L 119T18:28
S10	7	**RINGS**	**Segment**	2005-120T04:13	Apr30	Sat	13	76	1	RINGS_7 (5d); RINGS Rev 7
S10	7	07HE (nt)	**HELENE**	2005-122T19:19	May02	Mon	16	73	4	Inbound 114174.6 km flyby, v = 9.9 km/s, phase = 107 deg
S10	7	07TE (nt)	**TETHYS**	2005-122T21:48	May02	Mon	16	73	4	Inbound 51855.5 km flyby, v = 9.3 km/s, phase = 110 deg
S10	7	07EP (nt)	**EPIMETHEUS**	2005-122T23:03	May02	Mon	16	73	4	Inbound 118460.8 km flyby, v = 6.2 km/s, phase = 46 deg
S10	7	E_ring_lg	**DUST HAZARD**	2005-122T23:33	May02	Mon	16	73	4	Egress at 2005-122T23:38 (5 min); protection = MEA cover closure.
S10	7	Ring CRX	Ascending	2005-122T23:36	May02	Mon	16	73	4	r = 3.895 Rs (234996 km)
S10	7	Periapse		2005-123T01:43	May03	Tue	16	73	4	R = 3.590 Rs, lat = 12 deg, phase = 115 deg
S10	7	**Earth OCC**	RING	2005-123T02:56	May03	Tue	16	73	4	Egress = 2005-123T08:38 (343 min)
S10	7	**Sun OCC**	RING	2005-123T03:24	May03	Tue	16	73	4	Egress = 2005-123T09:24 (361 min)
S10	7	**Earth OCC**	SATURN	2005-123T04:40	May03	Tue	16	73	4	Egress = 2005-123T07:03 (144 min)
S10	7	**Sun OCC**	SATURN	2005-123T05:11	May03	Tue	16	73	4	Egress = 2005-123T07:43 (153 min)
S10	7	07TL (nt)	**TELESTO**	2005-123T06:15	May03	Tue	16	73	4	Outbound 108305.9 km flyby, v = 8.3 km/s, phase = 98 deg
S10	7	07TI (nt)	**TITAN**	2005-124T05:37	May04	Wed	17	72	5	Outbound 864240.3 km flyby, v = 10.3 km/s, phase = 154 deg
S10	7	**SATURN**	**Segment**	2005-124T20:30	May04	Wed	18	71	6	Saturn_007 (1d); Saturn Rev 7 Outbound
S10	7	Ring CRX	Descending	2005-125T02:07	May05	Thu	18	71	6	r = 21.422 Rs (1292379 km)
S10	7	**XD**	**Segment**	2005-126T03:40	May06	Fri	19	70	7	XD_007_008 (12d); Cross Discipline Segment Outbound 7-Inbound 8
S10	8	**Apoapse**		2005-132T03:52	May12	Thu	25	64	13	Per = 18.2 d, inc = 21.9 deg, r = 40.608 Rs, phase = 65 deg
S11	8	**S11 Begins**		2005-134T02:50	May14	Sat	27	62	15	S11 Sequence. Duration = 35 d
S11	8	**RINGS**	**Segment**	2005-138T03:00	May18	Wed	31	58	19	RINGS_Rev_8 (5d); RINGS_Rev_8
S11	8	E_ring_lg	**DUST HAZARD**	2005-141T03:51	May21	Sat	34	55	22	Egress at 2005-141T03:56 (5 min); protection = MEA cover closure.
S11	8	Ring CRX	Ascending	2005-141T03:54	May21	Sat	34	55	22	r = 3.903 Rs (235467 km)
S11	8	Periapse		2005-141T06:02	May21	Sat	34	55	22	R = 3.591 Rs, lat = 12 deg, phase = 114 deg
S11	8	08AT (nt)	**ATLAS**	2005-141T06:30	May21	Sat	34	55	22	Outbound 99861.1 km flyby, v = 6.7 km/s, phase = 145 deg
S11	8	08PM (nt)	**PROMETHEUS**	2005-141T06:48	May21	Sat	34	55	22	Outbound 107599.9 km flyby, v = 6.9 km/s, phase = 153 deg
S11	8	**Earth OCC**	RING	2005-141T07:21	May21	Sat	35	55	23	Egress = 2005-141T13:07 (347 min)
S11	8	**Sun OCC**	RING	2005-141T07:46	May21	Sat	35	55	23	Egress = 2005-141T13:48 (362 min)
S11	8	08EN (nt)	**ENCELADUS**	2005-141T08:13	May21	Sat	35	54	23	Outbound 101964.9 km flyby, v = 8.8 km/s, phase = 86 deg
S11	8	**Earth OCC**	SATURN	2005-141T09:06	May21	Sat	35	54	23	Egress = 2005-141T11:31 (146 min)
S11	8	**Sun OCC**	SATURN	2005-141T09:33	May21	Sat	35	54	23	Egress = 2005-141T12:06 (154 min)
S11	8	**SATURN**	**Segment**	2005-142T19:00	May22	Sun	36	53	24	Saturn_008 (1d); Saturn Rev 8 Outbound
S11	8	Ring CRX	Descending	2005-143T05:45	May23	Mon	36	53	24	r = 21.229 Rs (1280748 km)
S11	8	**XD**	**Segment**	2005-144T02:42	May24	Tue	37	52	25	XD_008_009 (12d); Cross Discipline Segment Outbound 8 - Inbound 9
S11	9	**Apoapse**		2005-150T08:21	May30	Mon	44	45	32	Per = 18.2 d, inc = 21.9 deg, r = 40.626 Rs, phase = 66 deg
S11	9	**RINGS**	**Segment**	2005-156T02:00	Jun05	Sun	49	40	37	RINGS_Rev_9 (5d); RINGS_Rev_9
S11	9	09TI (nt)	**TITAN**	2005-157T19:05	Jun06	Mon	51	38	39	Inbound 425570.4 km flyby, v = 5.8 km/s, phase = 83 deg
S11	9	E_ring_lg	**DUST HAZARD**	2005-159T08:23	Jun08	Wed	53	36	41	Egress at 2005-159T08:28 (5 min); protection = MEA cover closure.
S11	9	Ring CRX	Ascending	2005-159T08:26	Jun08	Wed	53	36	41	r = 3.914 Rs (236127 km)
S11	9	09PL (nt)	**PALLENE**	2005-159T09:57	Jun08	Wed	53	36	41	Inbound 64544.8 km flyby, v = 7.0 km/s, phase = 56 deg
S11	9	09CA (nt)	**CALYPSO**	2005-159T10:24	Jun08	Wed	53	36	41	Inbound 97710.2 km flyby, v = 7.8 km/s, phase = 64 deg
S11	9	Periapse		2005-159T10:36	Jun08	Wed	53	36	41	R = 3.591 Rs, lat = 12 deg, phase = 114 deg
S11	9	**Earth OCC**	RING	2005-159T12:03	Jun08	Wed	53	36	41	Egress = 2005-159T17:54 (352 min)
S11	9	**Sun OCC**	RING	2005-159T12:24	Jun08	Wed	53	36	41	Egress = 2005-159T18:26 (362 min)
S11	9	**Earth OCC**	SATURN	2005-159T13:49	Jun08	Wed	53	36	41	Egress = 2005-159T16:17 (149 min)
S11	9	**Sun OCC**	SATURN	2005-159T14:10	Jun08	Wed	53	36	41	Egress = 2005-159T16:44 (155 min)
S11	9	**SATURN**	**Segment**	2005-160T17:21	Jun09	Thu	54	35	42	Saturn_009 (2d); Saturn Rev 9 Outbound
S11	9	Ring CRX	Descending	2005-161T09:08	Jun10	Fri	55	34	43	r = 20.903 Rs (1261058 km)
S11	9	**XD**	**Segment**	2005-163T01:25	Jun12	Sun	56	33	44	XD_009_010 (11d); Cross Discipline Segment Outbound 9 - Inbound 10
S11	10	**Apoapse**		2005-168T13:12	Jun17	Fri	62	27	50	Per = 18.2 d, inc = 21.8 deg, r = 40.663 Rs, phase = 66 deg
S12	10	**S12 Begins**		2005-169T01:34	Jun18	Sat	62	27	50	S12 Sequence. Duration = 44 d
S12	10	10TI (nt)	**TITAN**	2005-173T12:37	Jun22	Wed	67	22	55	Inbound 920614.9 km flyby, v = 3.7 km/s, phase = 65 deg
S12	10	**RINGS**	**Segment**	2005-174T01:30	Jun23	Thu	67	22	55	RINGS_Rev_10 (5d); RINGS_Rev_10
S12	10	10TI (nt)	**TITAN**	2005-177T07:10	Jun26	Sun	70	19	59	Inbound 874592.4 km flyby, v = 7.7 km/s, phase = 111 deg
S12	10	E_ring_lg	**DUST HAZARD**	2005-177T13:27	Jun26	Sun	71	18	59	Egress at 2005-177T13:32 (5 min); protection = MEA cover closure.
S12	10	Ring CRX	Ascending	2005-177T13:29	Jun26	Sun	71	18	59	r = 3.934 Rs (237361 km)
S12	10	10PN (nt)	**PAN**	2005-177T14:23	Jun26	Sun	71	18	59	Inbound 94954.9 km flyby, v = 6.2 km/s, phase = 84 deg
S12	10	10TL (nt)	**TELESTO**	2005-177T14:48	Jun26	Sun	71	18	59	Inbound 87057.7 km flyby, v = 8.0 km/s, phase = 64 deg
S12	10	Periapse		2005-177T15:42	Jun26	Sun	71	18	59	R = 3.603 Rs, lat = 12 deg, phase = 113 deg
S12	10	**Earth OCC**	RING	2005-177T17:20	Jun26	Sun	71	18	59	Egress = 2005-177T23:18 (358 min)
S12	10	**Sun OCC**	RING	2005-177T17:35	Jun26	Sun	71	18	59	Egress = 2005-177T23:38 (364 min)
S12	10	**Earth OCC**	SATURN	2005-177T19:07	Jun26	Sun	71	18	59	Egress = 2005-177T21:38 (152 min)
S12	10	**Sun OCC**	SATURN	2005-177T19:21	Jun26	Sun	71	18	59	Egress = 2005-177T21:56 (156 min)
S12	10	**SATURN**	**Segment**	2005-179T00:30	Jun28	Tue	72	17	60	Saturn_010 (1d); Saturn Rev 10 Outbound
S12	10	Ring CRX	Descending	2005-179T13:44	Jun28	Tue	73	16	61	r = 20.762 Rs (1252546 km)
S12	10	**XD**	**Segment**	2005-180T01:25	Jun29	Wed	73	16	61	XD_010_011 (13d); Cross Discipline Segment Outbound 10-Inbound 11
S12	11	**Apoapse**		2005-186T18:57	Jul05	Tue	80	9	68	Per = 18.3 d, inc = 21.8 deg, r = 40.748 Rs, phase = 67 deg
S12	11	**OTM-025**	11EN-6	2005-189T14:37	Jul08	Fri	83	6	71	D/L start, burn ~6h later. Backup D/L 190T14:37
S12	11	**SATURN**	**Segment**	2005-192T23:30	Jul11	Mon	86	3	3	Saturn_011_In (1d); Saturn Rev 11 Inbound
S12	11	**SOST**	**Segment**	2005-193T23:30	Jul12	Tue	87	2	4	SOST_011EN (3d); SOST Rev 11 Targeted Enceladus
S12	11	11PM (nt)	**PROMETHEUS**	2005-195T19:31	Jul14	Thu	89	0	6	Inbound 122149.3 km flyby, v = 6.1 km/s, phase = 51 deg
S12	11	E_ring_lg	**DUST HAZARD**	2005-195T19:53	Jul14	Thu	89	0	6	Egress at 2005-195T19:58 (5 min); protection = MEA cover closure.
S12	11	**11EN (t) [E2]**	**ENCELADUS**	2005-195T19:55	Jul14	Thu	89	39	6	Inbound 166.3 km flyby, v = 8.2 km/s, phase = 64 deg
S12	11	Ring CRX	Ascending	2005-195T19:56	Jul14	Thu	0	39	6	r = 3.947 Rs (238115 km)
S12	11	11ME (nt)	**METHONE**	2005-195T20:48	Jul14	Thu	0	39	6	Inbound 36705.4 km flyby, v = 7.6 km/s, phase = 110 deg
S12	11	11EP (nt)	**EPIMETHEUS**	2005-195T20:55	Jul14	Thu	0	38	6	Inbound 76769.5 km flyby, v = 6.3 km/s, phase = 84 deg
S12	11	Periapse		2005-195T22:10	Jul14	Thu	0	38	6	R = 3.609 Rs, lat = 13 deg, phase = 113 deg
S12	11	11AE (nt)	**AEGAEON**	2005-195T22:11	Jul14	Thu	0	38	6	Outbound 118582.1 km flyby, v = 11.1 km/s, phase = 163 deg
S12	11	**Earth OCC**	RING	2005-196T00:02	Jul15	Fri	0	38	6	Egress = 2005-196T06:04 (363 min)
S12	11	**Sun OCC**	RING	2005-196T00:07	Jul15	Fri	0	38	6	Egress = 2005-196T06:11 (364 min)
S12	11	**Earth OCC**	SATURN	2005-196T01:48	Jul15	Fri	0	38	6	Egress = 2005-196T04:23 (155 min)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S12	11	Sun OCC	SATURN	2005-196T01:52	Jul15	Fri	0	38	6	Egress = 2005-196T04:28 (157 min)
S12	11	SATURN	Segment	2005-196T23:30	Jul15	Fri	1	37	7	Saturn_011_Out (2d); Saturn Rev 11 Outbound
S12	11	Ring CRX	Descending	2005-197T19:43	Jul16	Sat	2	37	8	r = 20.630 Rs (1244598 km)
S12	11	XD	Segment	2005-198T23:20	Jul17	Sun	3	35	9	XD_011_012 (12d); Cross Discipline Segment Outbound 11-Inbound 12
S12	11	SEP = 3.0 deg	Conjunction	2005-201T04:31	Jul20	Wed	5	33	12	Commanding must not be required below 3.0 deg
S12	11	SEP = 2.0 deg	Conjunction	2005-202T09:58	Jul21	Thu	7	32	13	Plan no SSR playback below 2.0 deg
S12	11	SEP = 1.0 deg	Conjunction	2005-203T15:49	Jul22	Fri	8	31	14	Require no DSN passes below 1.0 deg
S12	12	Apoapse		2005-205T01:57	Jul24	Sun	9	29	15	Per = 18.3 d, inc = 21.8 deg, r = 40.827 Rs, phase = 67 deg
S12	12	SEP = 1.0 deg	Conjunction	2005-205T23:08	Jul24	Sun	10	28	16	Require no DSN passes below 1.0 deg
S12	12	SEP = 2.0 deg	Conjunction	2005-207T04:45	Jul26	Tue	11	27	18	Plan no SSR playback below 2.0 deg
S12	12	SEP = 3.0 deg	Conjunction	2005-208T09:48	Jul27	Wed	13	26	19	Commanding must not be required below 3.0 deg
S12	12	SATURN	Segment	2005-210T21:30	Jul29	Fri	15	23	21	Saturn_012_In (2d); Saturn Rev 12 Inbound
S13	12	S13 Begins		2005-212T22:00	Jul31	Sun	17	21	23	S13 Sequence. Duration = 30 d
S13	12	SOST	Segment	2005-212T22:00	Jul31	Sun	17	21	23	SOST_012MI (3d); SOST Rev 12 Non-targeted Mimas
S13	12	E_ring_lg	DUST HAZARD	2005-214T03:30	Aug02	Tue	18	20	25	Egress at 2005-214T03:35 (5 min); protection = MEA cover closure.
S13	12	Ring CRX	Ascending	2005-214T03:33	Aug02	Tue	18	20	25	r = 3.948 Rs (238184 km)
S13	12	12DA (nt)	DAPHNIS	2005-214T03:58	Aug02	Tue	18	20	25	Inbound 102508.5 km flyby, v = 6.1 km/s, phase = 68 deg
S13	12	12MI (nt)	MIMAS	2005-214T04:21	Aug02	Tue	18	20	25	Inbound 61148.8 km flyby, v = 6.1 km/s, phase = 58 deg
S13	12	12PM (nt)	PROMETHEUS	2005-214T05:17	Aug02	Tue	18	20	25	Inbound 84970.7 km flyby, v = 6.3 km/s, phase = 111 deg
S13	12	Periapse		2005-214T05:48	Aug02	Tue	18	20	25	R = 3.604 Rs, lat = 13 deg, phase = 112 deg
S13	12	12CA (nt)	CALYPSO	2005-214T07:47	Aug02	Tue	18	20	25	Outbound 106192.2 km flyby, v = 7.1 km/s, phase = 73 deg
S13	12	Sun OCC	RING	2005-214T07:48	Aug02	Tue	18	20	25	Egress = 2005-214T13:52 (365 min)
S13	12	Earth OCC	RING	2005-214T07:54	Aug02	Tue	18	20	25	Egress = 2005-214T14:00 (367 min)
S13	12	Sun OCC	SATURN	2005-214T09:33	Aug02	Tue	19	20	25	Egress = 2005-214T12:09 (157 min)
S13	12	Earth OCC	SATURN	2005-214T09:38	Aug02	Tue	19	20	25	Egress = 2005-214T12:16 (159 min)
S13	12	12TI (nt)	TITAN	2005-214T15:55	Aug02	Tue	19	20	25	Outbound 939763.3 km flyby, v = 6.5 km/s, phase = 35 deg
S13	12	OTM-026	NEARP	2005-215T05:50	Aug03	Wed	19	19	26	D/L start, burn ~6h later. Backup D/L 216T13:20
S13	12	SATURN	Segment	2005-215T14:50	Aug03	Wed	20	19	0	Saturn_012_Out (1d); Saturn Rev 12 Outbound
S13	12	Ring CRX	Descending	2005-216T02:39	Aug04	Thu	20	18	1	r = 20.428 Rs (1232417 km)
S13	12	XD	Segment	2005-216T22:20	Aug04	Thu	21	17	2	XD_012_013 (13d); Cross Discipline Segment Outbound 12 - Inbound 13
S13	12	12TI (nt)	TITAN	2005-218T12:33	Aug06	Sat	23	16	3	Outbound 837687.8 km flyby, v = 3.8 km/s, phase = 62 deg
S13	12	OTM-027	~APO	2005-222T07:21	Aug10	Wed	26	12	7	D/L start, burn ~6h later. Backup D/L 223T12:52
S13	13	Apoapse		2005-223T08:29	Aug11	Thu	28	11	1	Per = 18.2 d, inc = 21.9 deg, r = 40.691 Rs, phase = 68 deg
S13	13	RINGS	Segment	2005-229T18:00	Aug17	Wed	34	5	7	RINGS_Rev_13 (4d); Rings Rev 13 segment
S13	13	OTM-028	13TI-3	2005-230T05:00	Aug18	Thu	34	4	8	D/L start, burn ~6h later. Backup D/L 231T05:00
S13	13	13TE (nt)	TETHYS	2005-232T07:02	Aug20	Sat	36	2	2	Inbound 122847.5 km flyby, v = 12.4 km/s, phase = 123 deg
S13	13	E_ring_lg	DUST HAZARD	2005-232T08:57	Aug20	Sat	37	2	2	Egress at 2005-232T09:02 (5 min); protection = MEA cover closure.
S13	13	Ring CRX	Ascending	2005-232T09:00	Aug20	Sat	37	2	2	r = 3.930 Rs (237122 km)
S13	13	Periapse		2005-232T11:15	Aug20	Sat	37	2	2	R = 3.585 Rs, lat = 13 deg, phase = 112 deg
S13	13	13TL (nt)	TELESTO	2005-232T12:13	Aug20	Sat	37	2	2	Outbound 105277.7 km flyby, v = 7.8 km/s, phase = 67 deg
S13	13	Sun OCC	RING	2005-232T13:17	Aug20	Sat	37	2	2	Egress = 2005-232T19:22 (365 min)
S13	13	Earth OCC	RING	2005-232T13:37	Aug20	Sat	37	2	2	Egress = 2005-232T19:45 (368 min)
S13	13	Sun OCC	SATURN	2005-232T15:01	Aug20	Sat	37	2	2	Egress = 2005-232T17:38 (158 min)
S13	13	Earth OCC	SATURN	2005-232T15:17	Aug20	Sat	37	2	2	Egress = 2005-232T17:57 (161 min)
S13	13	TOST	Segment	2005-233T21:20	Aug21	Sun	38	0	4	TOST_013TI_T6 (2d); TOST Segment 013TI (T6)
S13	13	Ring CRX	Descending	2005-234T07:31	Aug22	Mon	38	0	4	r = 20.270 Rs (1222898 km)
S13	13	13TI (t) [T6]	TITAN	2005-234T08:54	Aug22	Mon	39	16	4	Outbound 3660.2 km flyby, v = 5.9 km/s, phase = 44 deg
S13	13	XD	Segment	2005-235T13:42	Aug23	Tue	1	15	5	XD_013_014 (10d); Cross Discipline Segment Outbound 13 - Inbound 14
S13	13	OTM-029	13TI+3	2005-237T11:08	Aug25	Thu	3	13	7	D/L start, burn ~6h later. Backup D/L 238T10:59
S13	14	Apoapse		2005-240T12:02	Aug28	Sun	6	10	3	Per = 16.0 d, inc = 15.6 deg, r = 37.798 Rs, phase = 75 deg
S13	14	OTM-030	~APO	2005-242T12:43	Aug30	Tue	8	8	5	D/L start, burn ~6h later. Backup D/L 243T10:38
S14	14	S14 Begins		2005-242T21:43	Aug30	Tue	9	7	0	S14 Sequence. Duration = 39 d
S14	14	RINGS	Segment	2005-245T20:00	Sep02	Fri	11	5	3	RINGS_Rev_14 (4d); Rings Rev 14 Segment
S14	14	OTM-031	14TI-3	2005-246T11:30	Sep03	Sat	12	4	4	D/L start, burn ~6h later. Backup D/L 247T10:30
S14	14	G_ring	DUST HAZARD	2005-248T10:38	Sep05	Mon	14	2	2	Egress at 2005-248T10:39 (1 min); protection = MEA cover closure.
S14	14	Ring CRX	Ascending	2005-248T10:39	Sep05	Mon	14	2	2	r = 2.928 Rs (176673 km)
S14	14	14AE (nt)	AEGAEON	2005-248T10:48	Sep05	Mon	14	2	2	Inbound 8517.2 km flyby, v = 8.1 km/s, phase = 115 deg
S14	14	14PA (nt)	PANDORA	2005-248T11:31	Sep05	Mon	14	2	2	Inbound 51938.2 km flyby, v = 7.0 km/s, phase = 57 deg
S14	14	14PM (nt)	PROMETHEUS	2005-248T11:32	Sep05	Mon	14	2	2	Inbound 102396.9 km flyby, v = 14.6 km/s, phase = 151 deg
S14	14	Periapse		2005-248T11:52	Sep05	Mon	14	2	2	R = 2.748 Rs, lat = 8 deg, phase = 105 deg
S14	14	Sun OCC	RING	2005-248T12:38	Sep05	Mon	14	2	2	Egress = 2005-248T17:53 (316 min)
S14	14	Earth OCC	RING	2005-248T12:52	Sep05	Mon	14	2	2	Egress = 2005-248T18:22 (330 min)
S14	14	14ME (nt)	METHONE	2005-248T13:57	Sep05	Mon	14	2	2	Outbound 63024.5 km flyby, v = 10.2 km/s, phase = 91 deg
S14	14	Sun OCC	SATURN	2005-248T14:37	Sep05	Mon	14	2	2	Egress = 2005-248T16:53 (136 min)
S14	14	Earth OCC	SATURN	2005-248T14:53	Sep05	Mon	14	2	2	Egress = 2005-248T17:19 (147 min)
S14	14	TOST	Segment	2005-249T20:30	Sep06	Tue	15	0	3	TOST_014TI_T7 (2d); TOST Segment 014TI (T7)
S14	14	Ring CRX	Descending	2005-250T06:46	Sep07	Wed	16	0	4	r = 20.226 Rs (1220222 km)
S14	14	14TI (dt) [T7]	TITAN	2005-250T08:12	Sep07	Wed	16	17	4	Outbound 1074.8 km flyby, v = 6.1 km/s, phase = 85 deg
S14	14	XD	Segment	2005-251T12:46	Sep08	Thu	1	16	5	XD_014_015 (14d); Cross Discipline Segment Outbound 14-Inbound 15
S14	14	OTM-032	14TI+3	2005-253T11:09	Sep10	Sat	3	14	7	D/L start, burn ~6h later. Backup D/L 254T09:30
S14	15	Apoapse		2005-257T16:50	Sep14	Wed	7	9	4	Per = 18.4 d, inc = 0.3 deg, r = 41.471 Rs, phase = 74 deg
S14	15	OTM-033	~APO	2005-262T10:40	Sep19	Mon	12	5	9	D/L start, burn ~6h later. Backup D/L 263T10:15
S14	15	SATURN	Segment	2005-265T18:43	Sep22	Thu	15	1	3	Saturn_015 (3d); Saturn Rev 15 Periapse
S14	15	OTM-034	15HY-3	2005-266T01:45	Sep23	Fri	16	1	4	D/L start, burn ~6h later. Backup D/L 267T10:20
S14	15	Ring CRX	Ascending	2005-266T17:11	Sep23	Fri	16	0	1	r = 4.514 Rs (272323 km)
S14	15	E_ring_lg	DUST HAZARD	2005-266T17:30	Sep23	Fri	16	0	1	Egress at 2005-266T19:11 (101 min); protection = HGA to ram and MEA cover closure.
S14	15	15CA (nt)	CALYPSO	2005-266T18:51	Sep23	Fri	16	0	1	Inbound 91042.5 km flyby, v = 7.0 km/s, phase = 83 deg
S14	15	Pallene	DUST HAZARD	2005-266T19:10	Sep23	Fri	16	0	1	Egress at 2005-266T19:22 (12 min); protection = MEA cover closure.
S14	15	15MI (nt)	MIMAS	2005-266T19:40	Sep23	Fri	16	0	1	Inbound 70011.2 km flyby, v = 11.8 km/s, phase = 133 deg
S14	15	Periapse		2005-266T21:36	Sep23	Fri	17	0	1	R = 2.999 Rs, lat = 0 deg, phase = 107 deg
S14	15	15PM (nt)	PROMETHEUS	2005-266T22:26	Sep23	Fri	17	0	1	Outbound 98009.9 km flyby, v = 7.6 km/s, phase = 159 deg
S14	15	E_ring_lg	DUST HAZARD	2005-267T00:00	Sep24	Sat	17	0	1	Egress at 2005-267T01:40 (100 min); protection = MEA cover closure.
S14	15	15TE (dt) [Te1]	TETHYS	2005-267T02:42	Sep24	Sat	17	2	1	Outbound 1495.2 km flyby, v = 9.0 km/s, phase = 68 deg
S14	15	Ring CRX	Descending	2005-267T07:27	Sep24	Sat	0	2	1	r = 7.445 Rs (449149 km)
S14	15	15TI (nt)	TITAN	2005-267T22:47	Sep24	Sat	1	1	2	Outbound 911727.0 km flyby, v = 10.7 km/s, phase = 149 deg
S14	15	SOST	Segment	2005-268T13:40	Sep25	Sun	1	1	2	SOST_015HY (1d); SOST Rev 15 Targeted Hyperion
S14	15	15HY (dt) [H1]	HYPERION	2005-269T02:25	Sep26	Mon	2	16	3	Outbound 479.0 km flyby, v = 5.6 km/s, phase = 48 deg
S14	15	XD	Segment	2005-269T19:20	Sep26	Mon	1	15	4	XD_015_016 (14d); Cross Discipline Segment Outbound 15 - Inbound 16

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S14	15	OTM-035	15HY+3	2005-271T10:11	Sep28	Wed	2	13	5	D/L start, burn ~6h later. Backup D/L 272T10:00
S14	15	OTM-036	~APO	2005-274T08:26	Oct01	Sat	5	10	3	D/L start, burn ~6h later. Backup D/L 275T11:00
S14	16	Apoapse		2005-275T23:34	Oct02	Sun	7	9	2	Per = 18.2 d, inc = 0.3 deg, r = 41.173 Rs, phase = 74 deg
S14	16	OTM-037	16DI-3	2005-281T03:30	Oct08	Sat	12	4	7	D/L start, burn ~6h later. Backup D/L 282T09:12
S15	16	S15 Begins		2005-281T12:30	Oct08	Sat	12	3	0	S15 Sequence. Duration = 35 d
S15	16	SOST	Segment	2005-283T18:27	Oct10	Mon	15	1	3	SOST_016DI (3d); SOST Rev 16 Targeted Dione
S15	16	16TI (nt)	TITAN	2005-283T22:22	Oct10	Mon	15	1	3	Inbound 776295.1 km flyby, v = 9.7 km/s, phase = 65 deg
S15	16	16DI (t) [D1]	DIONE	2005-284T17:52	Oct11	Tue	16	16	4	Inbound 498.5 km flyby, v = 9.1 km/s, phase = 66 deg
S15	16	16TL (nt)	TELESTO	2005-284T20:26	Oct11	Tue	0	16	4	Inbound 9533.5 km flyby, v = 8.7 km/s, phase = 63 deg
S15	16	Ring CRX	Ascending	2005-284T20:38	Oct11	Tue	0	16	4	r = 4.766 Rs (287517 km)
S15	16	E_ring_lg	DUST HAZARD	2005-284T21:26	Oct11	Tue	0	16	4	Egress at 2005-284T23:07 (101 min); protection = MEA cover closure.
S15	16	16PL (nt)	PALLENE	2005-284T22:48	Oct11	Tue	0	16	4	Inbound 50438.7 km flyby, v = 10.8 km/s, phase = 125 deg
S15	16	Pallene	DUST HAZARD	2005-284T23:05	Oct11	Tue	0	16	4	Egress at 2005-284T23:05 (1 min); protection = MEA cover closure.
S15	16	OTM-038	16DI+1	2005-284T23:57	Oct11	Tue	0	16	4	D/L start, burn ~6h later. Backup D/L 286T10:40
S15	16	Periapse		2005-285T01:31	Oct12	Wed	0	16	0	R = 3.002 Rs, lat = 0 deg, phase = 106 deg
S15	16	16AT (nt)	ATLAS	2005-285T01:55	Oct12	Wed	0	16	0	Outbound 55661.5 km flyby, v = 4.0 km/s, phase = 143 deg
S15	16	16EN (nt)	ENCELADUS	2005-285T03:03	Oct12	Wed	0	16	0	Outbound 49076.4 km flyby, v = 6.8 km/s, phase = 73 deg
S15	16	E_ring_lg	DUST HAZARD	2005-285T04:51	Oct12	Wed	0	16	0	Egress at 2005-285T05:36 (45 min); protection = MEA cover closure.
S15	16	Ring CRX	Descending	2005-285T09:57	Oct12	Wed	1	16	0	r = 6.687 Rs (403427 km)
S15	16	XD	Segment	2005-286T19:55	Oct13	Thu	2	14	2	XD_016_017 (14d); Cross-Discipline Segment 16 Outbound-17 Inbound
S15	17	Apoapse		2005-294T00:00	Oct21	Fri	9	7	9	Per = 17.9 d, inc = 0.4 deg, r = 40.697 Rs, phase = 74 deg
S15	17	OTM-039	~APO	2005-294T08:58	Oct21	Fri	10	7	9	D/L start, burn ~6h later. Backup D/L 295T01:29
S15	17	OTM-040	17TI-3	2005-298T01:14	Oct25	Tue	13	3	4	D/L start, burn ~6h later. Backup D/L 299T01:14
S15	17	TOST	Segment	2005-300T18:29	Oct27	Thu	16	0	3	TOST_017TI_T8 (2d); TOST Segment 017TI (T8)
S15	17	17TI (t) [T8]	TITAN	2005-301T04:15	Oct28	Fri	16	30	3	Inbound 1353.0 km flyby, v = 5.9 km/s, phase = 105 deg
S15	17	Earth OCC	TITAN	2005-301T04:24	Oct28	Fri	0	30	3	Egress = 2005-301T04:41 (17 min)
S15	17	SATURN	Segment	2005-302T09:49	Oct29	Sat	1	29	4	Saturn_017 (2d); Saturn Rev 17 Periapse
S15	17	Ring CRX	Ascending	2005-302T21:25	Oct29	Sat	2	28	5	r = 4.699 Rs (283479 km)
S15	17	17ME (nt)	METHONE	2005-302T21:37	Oct29	Sat	2	28	5	Inbound 98875.3 km flyby, v = 2.1 km/s, phase = 57 deg
S15	17	Periapse		2005-302T22:56	Oct29	Sat	2	28	5	R = 4.596 Rs, lat = 0 deg, phase = 92 deg
S15	17	17CA (nt)	CALYPSO	2005-303T02:50	Oct30	Sun	2	28	5	Outbound 107869.7 km flyby, v = 9.4 km/s, phase = 66 deg
S15	17	OTM-041	17TI+3	2005-304T07:59	Oct31	Mon	3	27	6	D/L start, burn ~6h later. Backup D/L 305T08:30
S15	17	XD	Segment	2005-304T17:14	Oct31	Mon	4	26	0	XD_017_018 (25d); Cross Discipline Segment Outbound 17-Inbound 18
S15	17	Ring CRX	Descending	2005-309T17:18	Nov05	Sat	9	21	5	r = 44.355 Rs (2675932 km)
S16	17	S16 Begins		2005-316T17:01	Nov12	Sat	16	14	12	S16 Sequence. Duration = 35 d
S16	18	Apoapse		2005-317T04:57	Nov13	Sun	16	14	13	Per = 28.5 d, inc = 0.4 deg, r = 55.088 Rs, phase = 88 deg
S16	18	OTM-042	~APO	2005-317T08:02	Nov13	Sun	16	14	13	D/L start, burn ~6h later. Backup D/L 318T08:02
S16	18	OTM-043	18RH-3	2005-327T07:03	Nov23	Wed	26	4	10	D/L start, burn ~6h later. Backup D/L 328T07:03
S16	18	SOST	Segment	2005-329T15:48	Nov25	Fri	28	1	2	SOST_018RH (4d); SOST Rev 18 Targeted Rhea
S16	18	18RH (t) [R1]	RHEA	2005-330T22:38	Nov26	Sat	30	30	4	Inbound 503.6 km flyby, v = 7.3 km/s, phase = 87 deg
S16	18	Ring CRX	Ascending	2005-331T09:18	Nov27	Sun	0	29	4	r = 4.761 Rs (287256 km)
S16	18	18EN (nt)	ENCELADUS	2005-331T10:25	Nov27	Sun	0	29	4	Inbound 107850.8 km flyby, v = 7.5 km/s, phase = 134 deg
S16	18	Periapse		2005-331T11:21	Nov27	Sun	1	29	4	R = 4.576 Rs, lat = 0 deg, phase = 92 deg
S16	18	18HE (nt)	HELENE	2005-331T14:37	Nov27	Sun	1	29	4	Outbound 86435.4 km flyby, v = 5.5 km/s, phase = 87 deg
S16	18	OTM-044	18RH+1	2005-331T22:15	Nov27	Sun	1	29	5	D/L start, burn ~6h later. Backup D/L 333T06:33
S16	18	XD	Segment	2005-333T15:33	Nov29	Tue	3	27	2	XD_018_019 (23d); Cross Discipline Segment Outbound 18-Inbound 19
S16	18	Ring CRX	Descending	2005-336T04:53	Dec02	Fri	5	25	4	r = 36.636 Rs (2210259 km)
S16	19	Apoapse		2005-345T04:27	Dec11	Sun	14	16	13	Per = 27.4 d, inc = 0.4 deg, r = 53.563 Rs, phase = 89 deg
S16	19	OTM-045	~APO	2005-345T05:35	Dec11	Sun	14	16	13	D/L start, burn ~6h later. Backup D/L 346T05:35
S17	19	S17 Begins		2005-351T14:21	Dec17	Sat	21	9	6	S17 Sequence. Duration = 41 d
S17	19	MAG	Segment	2005-356T14:21	Dec22	Thu	26	4	11	MAG_019 (4d); Rev 19
S17	19	OTM-046	19TI-3	2005-357T06:25	Dec23	Fri	26	4	12	D/L start, burn ~6h later. Backup D/L 358T04:40
S17	19	Ring CRX	Ascending	2005-358T19:19	Dec24	Sat	28	2	2	r = 4.760 Rs (287193 km)
S17	19	19EN (nt)	ENCELADUS	2005-358T20:29	Dec24	Sat	28	2	2	Inbound 94053.5 km flyby, v = 6.7 km/s, phase = 133 deg
S17	19	Periapse		2005-358T21:23	Dec24	Sat	28	2	2	R = 4.572 Rs, lat = 0 deg, phase = 91 deg
S17	19	19PL (nt)	PALLENE	2005-358T22:26	Dec24	Sat	28	2	2	Outbound 107286.4 km flyby, v = 4.4 km/s, phase = 142 deg
S17	19	19TL (nt)	TELESTO	2005-359T00:44	Dec25	Sun	28	2	2	Outbound 19275.4 km flyby, v = 5.9 km/s, phase = 70 deg
S17	19	19HE (nt)	HELENE	2005-359T01:45	Dec25	Sun	28	2	2	Outbound 74718.3 km flyby, v = 5.4 km/s, phase = 90 deg
S17	19	TOST	Segment	2005-360T06:59	Dec26	Mon	29	1	3	TOST_019TI_T9 (1d); TOST Segment 019TI (T9)
S17	19	19TI (t) [T9]	TITAN	2005-360T18:59	Dec26	Mon	30	20	4	Outbound 10410.9 km flyby, v = 5.6 km/s, phase = 67 deg
S17	19	XD	Segment	2005-361T13:34	Dec27	Tue	1	19	4	XD_019_020 (18d); Cross Discipline Segment Outbound 19 - Inbound 20
S17	19	OTM-047	19TI+3	2005-363T20:47	Dec29	Thu	3	17	7	D/L start, burn ~6h later. Backup D/L 365T04:07
S17	19	Ring CRX	Descending	2005-363T22:02	Dec29	Thu	3	17	0	r = 37.052 Rs (2235328 km)
S17	19	OTM-048	~APO	2006-002T20:22	Jan02	Mon	7	13	4	D/L start, burn ~6h later. Backup D/L 004T04:17
S17	20	Apoapse		2006-005T14:09	Jan05	Thu	10	10	3	Per = 23.4 d, inc = 0.4 deg, r = 48.276 Rs, phase = 94 deg
S17	20	OTM-049	20TI-3	2006-012T03:23	Jan12	Thu	16	3	9	D/L start, burn ~6h later. Backup D/L 013T03:23
S17	20	TOST	Segment	2006-014T13:38	Jan14	Sat	19	1	2	TOST_020TI_T10 (2d); TOST Segment 020TI (T10)
S17	20	20TI (t) [T10]	TITAN	2006-015T11:41	Jan15	Sun	20	43	3	Inbound 2042.8 km flyby, v = 5.8 km/s, phase = 120 deg
S17	20	Earth OCC	TITAN	2006-015T11:49	Jan15	Sun	0	43	3	Egress = 2006-015T12:03 (14 min)
S17	20	Sun OCC	TITAN	2006-015T11:50	Jan15	Sun	0	43	3	Egress = 2006-015T12:03 (13 min)
S17	20	SOST	Segment	2006-016T12:05	Jan16	Mon	1	42	4	SOST_020 (3d); SOST Rev 20
S17	20	Ring CRX	Ascending	2006-017T06:24	Jan17	Tue	2	41	5	r = 5.590 Rs (337258 km)
S17	20	Periapse		2006-017T06:58	Jan17	Tue	2	41	5	R = 5.580 Rs, lat = 0 deg, phase = 73 deg
S17	20	OTM-050	20TI+3	2006-018T02:37	Jan18	Wed	3	40	6	D/L start, burn ~6h later. Backup D/L 019T02:45
S17	20	XD	Segment	2006-019T11:59	Jan19	Thu	4	39	1	XD_020_021 (36d); Cross Discipline Segment Outbound 20 - Inbound 21
S18	20	S18 Begins		2006-027T04:03	Jan27	Fri	12	31	9	S18 Sequence. Duration = 43 d
S18	20	OTM-051	~APO	2006-033T01:53	Feb02	Thu	18	25	15	D/L start, burn ~6h later. Backup D/L 034T01:38
S18	20	Ring CRX	Descending	2006-033T09:30	Feb02	Thu	18	25	0	r = 66.721 Rs (4025274 km)
S18	21	Apoapse		2006-036T20:58	Feb05	Sun	21	21	4	Per = 39.2 d, inc = 0.4 deg, r = 68.151 Rs, phase = 107 deg
S18	21	OTM-052	21TI-2	2006-055T00:26	Feb24	Fri	40	3	22	D/L start, burn ~6h later. Backup D/L 055T16:05
S18	21	SATURN	Segment	2006-055T09:22	Feb24	Fri	40	3	0	Saturn_021 (2d); Saturn Rev 21 Periapse
S18	21	21HE (nt)	HELENE	2006-056T04:48	Feb25	Sat	41	2	1	Inbound 67546.3 km flyby, v = 7.1 km/s, phase = 92 deg
S18	21	Ring CRX	Ascending	2006-056T10:21	Feb25	Sat	41	2	1	r = 5.587 Rs (337070 km)
S18	21	Periapse		2006-056T10:56	Feb25	Sat	41	2	1	R = 5.577 Rs, lat = 0 deg, phase = 72 deg
S18	21	TOST	Segment	2006-057T09:06	Feb26	Sun	42	1	2	TOST_021TI_T11 (2d); TOST Segment 021TI (T11)
S18	21	21TI (t) [T11]	TITAN	2006-058T08:25	Feb27	Mon	43	20	3	Outbound 1812.0 km flyby, v = 5.9 km/s, phase = 92 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S18	21	**XD**	**Segment**	2006-059T08:51	Feb28	Tue	1	19	4	XD_021_022 (18d); Cross Discipline Segment Outbound 21 - Inbound 22
S18	21	**OTM-053**	21TI+3	2006-060T23:51	Mar01	Wed	3	17	6	D/L start, burn ~6h later. Backup D/L 061T16:21
S18	21	**OTM-054**	~APO	2006-064T23:36	Mar05	Sun	7	13	4	D/L start, burn ~6h later. Backup D/L 065T15:51
S18	22	**Apoapse**		2006-068T03:35	Mar09	Thu	10	10	3	Per = 23.3 d, inc = 0.4 deg, r = 48.363 Rs, phase = 122 deg
S19	22	**S19 Begins**		2006-070T00:35	Mar11	Sat	12	8	5	S19 Sequence. Duration = 42 d
S19	22	Ring CRX	Descending	2006-071T15:21	Mar12	Sun	13	6	7	r = 45.450 Rs (2741987 km)
S19	22	**OTM-055**	22TI-3	2006-074T22:50	Mar15	Wed	17	3	10	D/L start, burn ~6h later. Backup D/L 075T22:50
S19	22	**TOST**	**Segment**	2006-077T07:49	Mar18	Sat	19	1	2	TOST_022TI_T12 (2d); TOST Segment 022TI (T12)
S19	22	**Sun OCC**	TITAN	2006-078T00:04	Mar19	Sun	20	0	3	Egress = 2006-078T00:19 (15 min)
S19	22	**22TI (t) [T12]**	**TITAN**	2006-078T00:06	Mar19	Sun	20	43	3	Inbound 1949.4 km flyby, v = 5.8 km/s, phase = 148 deg
S19	22	**Earth OCC**	TITAN	2006-078T00:06	Mar19	Sun	20	0	3	Egress = 2006-078T00:19 (14 min)
S19	22	**SATURN**	**Segment**	2006-079T00:04	Mar20	Mon	1	42	4	Saturn_022 (2d); Saturn Rev 22 Periapse (and SOST)
S19	22	Periapse		2006-079T20:05	Mar20	Mon	2	41	5	R = 5.477 Rs, lat = -0 deg, phase = 46 deg
S19	22	Ring CRX	Ascending	2006-079T22:43	Mar20	Mon	2	41	5	r = 5.691 Rs (343363 km)
S19	22	22RH (nt)	**RHEA**	2006-080T07:16	Mar21	Tue	2	41	5	Outbound 82000.5 km flyby, v = 5.3 km/s, phase = 137 deg
S19	22	**OTM-056**	22TI+3	2006-080T22:19	Mar21	Tue	3	40	6	D/L start, burn ~6h later. Backup D/L 081T22:19
S19	22	**XD**	**Segment**	2006-081T07:19	Mar22	Wed	3	40	0	XD_022_023 (36d); Cross Discipline Segment Outbound 22 - Inbound 23
S19	22	**OTM-057**	~APO	2006-095T21:32	Apr05	Wed	18	25	15	D/L start, burn ~6h later. Backup D/L 096T21:17
S19	23	**Apoapse**		2006-099T10:05	Apr09	Sun	21	21	4	Per = 39.2 d, inc = 0.4 deg, r = 68.250 Rs, phase = 135 deg
S20	23	**S20 Begins**		2006-112T05:15	Apr22	Sat	34	9	16	S20 Sequence. Duration = 42 d
S20	23	Ring CRX	Descending	2006-112T15:50	Apr22	Sat	35	8	17	r = 45.166 Rs (2724852 km)
S20	23	**OTM-058**	23TI-3	2006-116T19:59	Apr26	Wed	39	4	21	D/L start, burn ~6h later. Backup D/L 117T19:59
S20	23	**SATURN**	**Segment**	2006-117T04:59	Apr27	Thu	39	4	0	Saturn_023 (3d); Saturn Rev 23 Periapse
S20	23	Periapse		2006-118T23:59	Apr28	Fri	41	2	2	R = 5.470 Rs, lat = -0 deg, phase = 44 deg
S20	23	Ring CRX	Ascending	2006-119T02:43	Apr29	Sat	41	2	2	r = 5.702 Rs (343979 km)
S20	23	**TOST**	**Segment**	2006-120T04:44	Apr30	Sun	42	1	3	TOST_023TI_T13 (2d); TOST Segment 023TI (T13)
S20	23	**23TI (t) [T13]**	**TITAN**	2006-120T20:58	Apr30	Sun	43	20	4	Outbound 1855.7 km flyby, v = 5.8 km/s, phase = 121 deg
S20	23	**Sun OCC**	TITAN	2006-120T21:05	Apr30	Sun	0	20	4	Egress = 2006-120T21:21 (16 min)
S20	23	**Earth OCC**	TITAN	2006-120T21:11	Apr30	Sun	0	20	4	Egress = 2006-120T21:17 (7 min)
S20	23	**XD**	**Segment**	2006-121T21:14	May01	Mon	1	19	5	XD_023_024 (18d); Cross Discipline Segment Outbound 23 - Inbound 24
S20	23	**OTM-059**	23TI+3	2006-123T19:28	May03	Wed	3	17	7	D/L start, burn ~6h later. Backup D/L 124T20:58
S20	23	**OTM-060**	~APO	2006-127T19:13	May07	Sun	7	13	4	D/L start, burn ~6h later. Backup D/L 128T11:43
S20	24	**Apoapse**		2006-130T16:31	May10	Wed	10	10	3	Per = 23.3 d, inc = 0.4 deg, r = 48.416 Rs, phase = 148 deg
S20	24	**OTM-061**	24TI-3	2006-137T18:41	May17	Wed	17	3	10	D/L start, burn ~6h later. Backup D/L 138T18:41
S20	24	**TOST**	**Segment**	2006-139T19:56	May19	Fri	19	1	2	TOST_024TI_T14 (2d); TOST Segment 024TI (T14)
S20	24	Ring CRX	Descending	2006-140T05:31	May20	Sat	19	0	2	r = 22.703 Rs (1369692 km)
S20	24	**Sun OCC**	TITAN	2006-140T12:11	May20	Sat	20	0	3	Egress = 2006-140T12:24 (14 min)
S20	24	**Earth OCC**	TITAN	2006-140T12:12	May20	Sat	20	0	3	Egress = 2006-140T12:25 (14 min)
S20	24	**24TI (t) [T14]**	**TITAN**	2006-140T12:18	May20	Sat	20	43	3	Inbound 1879.3 km flyby, v = 5.8 km/s, phase = 163 deg
S20	24	**SATURN**	**Segment**	2006-141T19:56	May21	Sun	1	42	4	Saturn_024 (2d); Saturn Rev 24 Periapse
S20	24	Periapse		2006-142T09:01	May22	Mon	2	41	5	R = 5.452 Rs, lat = -0 deg, phase = 21 deg
S20	24	24PO (nt)	**POLYDEUCES**	2006-142T14:53	May22	Mon	2	41	5	Outbound 64089.9 km flyby, v = 6.9 km/s, phase = 19 deg
S20	24	Ring CRX	Ascending	2006-142T15:14	May22	Mon	2	41	5	r = 6.538 Rs (394422 km)
S20	24	**OTM-062**	24TI+3	2006-143T10:41	May23	Tue	3	40	6	D/L start, burn ~6h later. Backup D/L 144T18:11
S20	24	**XD**	**Segment**	2006-143T19:41	May23	Tue	3	40	0	XD_024_025 (35d); Cross-Discipline Segment Outbound 24 - Inbound 25
S21	24	**S21 Begins**		2006-154T02:39	Jun03	Sat	14	29	11	S21 Sequence. Duration = 44 d
S21	24	**OTM-063**	~APO	2006-158T17:24	Jun07	Wed	18	25	15	D/L start, burn ~6h later. Backup D/L 159T17:09
S21	25	**Apoapse**		2006-161T23:07	Jun10	Sat	21	21	3	Per = 39.2 d, inc = 0.4 deg, r = 68.286 Rs, phase = 159 deg
S21	25	**SATURN**	**Segment**	2006-179T01:07	Jun28	Wed	39	4	20	Saturn_025 (4d); Saturn Rev 25 Periapse
S21	25	**OTM-064**	25TI-3	2006-179T16:07	Jun28	Wed	39	4	21	D/L start, burn ~6h later. Backup D/L 180T08:37
S21	25	Ring CRX	Descending	2006-180T01:39	Jun29	Thu	40	3	0	r = 17.569 Rs (1059963 km)
S21	25	Periapse		2006-181T13:05	Jun30	Fri	41	2	2	R = 5.437 Rs, lat = -0 deg, phase = 20 deg
S21	25	Ring CRX	Ascending	2006-181T20:54	Jun30	Fri	41	2	2	r = 7.051 Rs (425416 km)
S21	25	**TOST**	**Segment**	2006-182T17:22	Jul01	Sat	42	1	3	TOST_025TI_T15 (2d); TOST Segment 025TI (T15)
S21	25	**Sun OCC**	TITAN	2006-183T09:19	Jul02	Sun	43	0	4	Egress = 2006-183T09:34 (15 min)
S21	25	**Earth OCC**	TITAN	2006-183T09:20	Jul02	Sun	43	0	4	Egress = 2006-183T09:35 (15 min)
S21	25	**25TI (t) [T15]**	**TITAN**	2006-183T09:21	Jul02	Sun	43	20	4	Outbound 1905.9 km flyby, v = 5.8 km/s, phase = 148 deg
S21	25	**XD**	**Segment**	2006-184T17:22	Jul03	Mon	1	18	5	XD_025_026 (17d); Cross Discipline Segment Outbound 25 - Inbound 26
S21	25	**OTM-065**	25TI+3	2006-186T15:36	Jul05	Wed	3	16	7	D/L start, burn ~6h later. Backup D/L 187T15:36
S21	25	**OTM-066**	~APO	2006-191T15:21	Jul10	Mon	8	11	5	D/L start, burn ~6h later. Backup D/L 192T15:21
S21	26	**Apoapse**		2006-193T05:18	Jul12	Wed	10	10	2	Per = 23.3 d, inc = 0.4 deg, r = 48.376 Rs, phase = 164 deg
S22	26	**S22 Begins**		2006-198T00:06	Jul17	Mon	15	5	6	S22 Sequence. Duration = 34 d
S22	26	**OTM-067**	26TI-3	2006-199T14:51	Jul18	Tue	16	3	8	D/L start, burn ~6h later. Backup D/L 200T14:51
S22	26	**TOST**	**Segment**	2006-201T23:51	Jul20	Thu	19	1	2	TOST_025TI_T16 (2d); TOST Segment 026TI (T16)
S22	26	**26TI (t) [T16]**	**TITAN**	2006-203T00:25	Jul22	Sat	20	48	3	Inbound 949.9 km flyby, v = 6.0 km/s, phase = 105 deg
S22	26	Ring CRX	Descending	2006-203T02:36	Jul22	Sat	0	48	3	r = 20.126 Rs (1214207 km)
S22	26	**RINGS**	**Segment**	2006-203T23:36	Jul22	Sat	1	47	4	RINGS_Rev_26 (4d); Rings Rev 26
S22	26	26TE (nt)	**TETHYS**	2006-204T17:18	Jul23	Sun	2	46	5	Inbound 119806.3 km flyby, v = 9.9 km/s, phase = 29 deg
S22	26	Periapse		2006-204T21:48	Jul23	Sun	2	46	5	R = 4.192 Rs, lat = -10 deg, phase = 8 deg
S22	26	26AE (nt)	**AEGAEON**	2006-204T22:46	Jul23	Sun	2	46	5	Outbound 93379.5 km flyby, v = 3.8 km/s, phase = 16 deg
S22	26	Ring CRX	Ascending	2006-205T01:15	Jul24	Mon	2	46	5	r = 4.773 Rs (287949 km)
S22	26	26TL (nt)	**TELESTO**	2006-205T01:58	Jul24	Mon	2	46	5	Outbound 44778.6 km flyby, v = 8.6 km/s, phase = 39 deg
S22	26	**OTM-068**	26TI+3	2006-205T14:30	Jul24	Mon	3	45	6	D/L start, burn ~6h later. Backup D/L 206T14:30
S22	26	**XD**	**Segment**	2006-207T23:21	Jul26	Wed	5	43	2	XD_026_027 (18d); Cross Discipline Segment Outbound 26 - Inbound 27
S22	26	**OTM-069**	~APO	2006-213T14:05	Aug01	Tue	11	37	8	D/L start, burn ~6h later. Backup D/L 214T14:05
S22	26	SEP = 3.0 deg	Conjunction	2006-216T00:00	Aug04	Fri	13	35	2	Commanding must not be required below 3.0 deg
S22	27	**Apoapse**		2006-216T21:22	Aug04	Fri	14	34	3	Per = 24.0 d, inc = 14.9 deg, r = 48.960 Rs, phase = 172 deg
S22	27	SEP = 2.0 deg	Conjunction	2006-217T06:47	Aug05	Sat	14	34	4	Plan no SSR playback below 2.0 deg
S22	27	SEP = 1.0 deg	Conjunction	2006-218T18:34	Aug06	Sun	16	32	5	Require no DSN passes below 1.0 deg
S22	27	SEP = 1.0 deg	Conjunction	2006-220T05:42	Aug08	Tue	17	31	7	Require no DSN passes below 1.0 deg
S22	27	SEP = 2.0 deg	Conjunction	2006-221T17:27	Aug09	Wed	19	29	8	Plan no SSR playback below 2.0 deg
S22	27	SEP = 3.0 deg	Conjunction	2006-223T00:09	Aug11	Fri	20	28	9	Commanding must not be required below 3.0 deg
S22	27	**SATURN**	**Segment**	2006-225T22:12	Aug13	Sun	23	25	12	Saturn_027 (6d); Saturn_027 Inclined
S22	27	Ring CRX	Descending	2006-227T02:13	Aug15	Tue	24	24	14	r = 19.960 Rs (1204166 km)
S22	27	Periapse		2006-228T20:53	Aug16	Wed	26	22	15	R = 4.180 Rs, lat = -10 deg, phase = 8 deg
S22	27	Ring CRX	Ascending	2006-229T00:21	Aug17	Thu	26	22	15	r = 4.766 Rs (287519 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S22	27	27HE (nt)	**HELENE**	2006-229T03:29	Aug17	Thu	26	22	16	Outbound 48728.2 km flyby, v = 7.7 km/s, phase = 122 deg
S22	27	27TI (nt)	**TITAN**	2006-230T17:50	Aug18	Fri	28	20	17	Outbound 339768.2 km flyby, v = 4.8 km/s, phase = 121 deg
S23	27	**S23 Begins**		2006-231T22:06	Aug19	Sat	29	19	18	S23 Sequence. Duration = 32 d
S23	27	**XD**	**Segment**	2006-231T22:06	Aug19	Sat	29	19	18	XD_027_028 (18d); Cross Discipline Segement Outbound 27 - Inbound 28
S23	28	**Apoapse**		2006-240T19:16	Aug28	Mon	38	10	27	Per = 23.9 d, inc = 14.9 deg, r = 48.821 Rs, phase = 172 deg
S23	28	**OTM-070**	28TI-3	2006-247T12:21	Sep04	Mon	44	3	34	D/L start, burn ~6h later. Backup D/L 248T12:06
S23	28	**TOST**	**Segment**	2006-249T21:06	Sep06	Wed	47	1	2	TOST_028TI_T17 (2d); TOST 028TI (T17) Flyby
S23	28	**28TI (t) [T17]**	**TITAN**	2006-250T20:17	Sep07	Thu	48	16	3	Inbound 999.5 km flyby, v = 6.0 km/s, phase = 45 deg
S23	28	Ring CRX	Descending	2006-250T21:22	Sep07	Thu	0	16	3	r = 20.463 Rs (1234514 km)
S23	28	**RINGS**	**Segment**	2006-251T21:06	Sep08	Fri	1	15	4	RINGS_Rev_28A (3d); Rings Rev 28 Peri
S23	28	28AT (nt)	**ATLAS**	2006-252T17:33	Sep09	Sat	2	14	5	Inbound 119822.6 km flyby, v = 15.0 km/s, phase = 47 deg
S23	28	Periapse		2006-252T17:42	Sep09	Sat	2	14	5	R = 2.957 Rs, lat = -12 deg, phase = 7 deg
S23	28	Ring CRX	Ascending	2006-252T19:06	Sep09	Sat	2	14	5	r = 3.162 Rs (190756 km)
S23	28	Methone	Dust Crossing	2006-252T19:06	Sep09	Sat	2	14	5	Egress at 2006-252T19:06 (1 min); protection = none.
S23	28	28ME (nt)	**METHONE**	2006-252T19:17	Sep09	Sat	2	14	5	Outbound 15113.6 km flyby, v = 10.2 km/s, phase = 62 deg
S23	28	28CA (nt)	**CALYPSO**	2006-252T19:24	Sep09	Sat	2	14	5	Outbound 107224.5 km flyby, v = 9.7 km/s, phase = 162 deg
S23	28	28EN (nt)	**ENCELADUS**	2006-252T20:06	Sep09	Sat	2	14	5	Outbound 39935.4 km flyby, v = 10.4 km/s, phase = 111 deg
S23	28	**OTM-071**	28TI+3	2006-253T12:00	Sep10	Sun	3	13	6	D/L start, burn ~6h later. Backup D/L 254T12:00
S23	28	**SATURN**	**Segment**	2006-254T21:00	Sep11	Mon	4	12	1	Saturn_028 (1d); Saturn 028 Inclined
S23	28	**MAG**	**Segment**	2006-255T21:00	Sep12	Tue	5	11	2	MAG_028 (2d); MAGTWT Rev 28
S23	28	**OTM-072**	~APO	2006-257T04:07	Sep14	Thu	6	10	4	D/L start, burn ~6h later. Backup D/L 257T10:22
S23	28	**Sun OCC**	RING	2006-257T17:54	Sep14	Thu	7	9	1	Egress = 2006-258T17:42 (1429 min)
S23	28	**Sun OCC**	RING	2006-257T17:54	Sep14	Thu	7	9	1	Egress = 2006-258T17:42 (1429 min)
S23	28	**RINGS**	**Segment**	2006-257T19:22	Sep14	Thu	7	9	1	RINGS_Rev_28B (3d); RINGS Rev 28 APO
S23	28	**Earth OCC**	ENCELADUS	2006-258T07:20	Sep15	Fri	7	8	1	Egress = 2006-258T07:21 (1 min)
S23	28	**Sun OCC**	SATURN	2006-258T08:29	Sep15	Fri	8	8	1	Egress = 2006-258T23:28 (900 min)
S23	28	**Earth OCC**	RING	2006-258T18:26	Sep15	Fri	8	8	2	Egress = 2006-259T21:19 (1613 min)
S23	28	**Earth OCC**	RING	2006-258T18:26	Sep15	Fri	8	8	2	Egress = 2006-259T21:19 (1613 min)
S23	28	**Earth OCC**	SATURN	2006-259T06:13	Sep16	Sat	8	8	2	Egress = 2006-260T01:25 (1153 min)
S23	28	**XD**	**Segment**	2006-260T14:07	Sep17	Sun	10	6	3	XD_028_029 (5d); Cross Discipline Segment Outbound 28 - Inbound 29
S23	29	**Apoapse**		2006-260T17:10	Sep17	Sun	10	6	4	Per = 16.0 d, inc = 24.5 deg, r = 37.571 Rs, phase = 173 deg
S23	29	**OTM-073**	29TI-3	2006-263T10:32	Sep20	Wed	13	3	6	D/L start, burn ~6h later. Backup D/L 264T11:22
S24	29	**S24 Begins**		2006-263T20:22	Sep20	Wed	13	3	0	S24 Sequence. Duration = 32 d
S24	29	**TOST**	**Segment**	2006-265T20:07	Sep22	Fri	15	1	2	TOST_029TI_T18 (2d); TOST Segment 029TI (T18)
S24	29	**29TI (t) [T18]**	**TITAN**	2006-266T18:59	Sep23	Sat	16	16	3	Inbound 959.8 km flyby, v = 6.0 km/s, phase = 90 deg
S24	29	Ring CRX	Descending	2006-266T19:55	Sep23	Sat	0	16	3	r = 20.534 Rs (1238795 km)
S24	29	**RINGS**	**Segment**	2006-267T20:00	Sep24	Sun	1	15	4	RINGS_Rev_29 (4d); RINGS Rev 29
S24	29	Periapse		2006-268T19:42	Sep25	Mon	2	14	5	R = 3.983 Rs, lat = -21 deg, phase = 7 deg
S24	29	29AE (nt)	**AEGAEON**	2006-268T20:19	Sep25	Mon	2	14	5	Outbound 107428.5 km flyby, v = 11.8 km/s, phase = 29 deg
S24	29	29ME (nt)	**METHONE**	2006-268T21:45	Sep25	Mon	2	14	5	Outbound 63839.0 km flyby, v = 10.1 km/s, phase = 39 deg
S24	29	E_ring_lg	Dust Crossing	2006-268T22:18	Sep25	Mon	2	14	5	Egress at 2006-268T22:18 (1 min); protection = none.
S24	29	Ring CRX	Ascending	2006-268T22:19	Sep25	Mon	2	14	5	r = 4.350 Rs (262433 km)
S24	29	**OTM-074**	29TI+3	2006-269T11:30	Sep26	Tue	3	13	6	D/L start, burn ~6h later. Backup D/L 270T11:30
S24	29	**XD**	**Segment**	2006-271T19:53	Sep28	Thu	5	11	2	XD_029_030 (10d); Cross Discipline Segment Outbound 29 - Inbound 30
S24	29	**OTM-075**	~APO	2006-274T03:08	Oct01	Sun	7	9	5	D/L start, burn ~6h later. Backup D/L 275T10:38
S24	30	**Apoapse**		2006-276T19:04	Oct03	Tue	10	6	3	Per = 15.9 d, inc = 37.6 deg, r = 36.521 Rs, phase = 173 deg
S24	30	**OTM-076**	30TI-3	2006-279T10:24	Oct06	Fri	13	3	5	D/L start, burn ~6h later. Backup D/L 280T10:24
S24	30	**TOST**	**Segment**	2006-281T19:24	Oct08	Sun	15	1	2	TOST_030TI_T19 (2d); TOST 030TI (T19) Flyby
S24	30	**30TI (t) [T19]**	**TITAN**	2006-282T17:30	Oct09	Mon	16	16	3	Inbound 979.7 km flyby, v = 6.0 km/s, phase = 81 deg
S24	30	Ring CRX	Descending	2006-282T18:09	Oct09	Mon	0	16	3	r = 20.615 Rs (1243731 km)
S24	30	**SATURN**	**Segment**	2006-283T19:00	Oct10	Tue	1	15	4	Saturn_030 (1d); Saturn 030 Inbound
S24	30	**RINGS**	**Segment**	2006-284T19:09	Oct11	Wed	2	14	5	RINGS_Rev_30 (4d); RINGS Rev 30
S24	30	Periapse		2006-284T22:59	Oct11	Wed	2	14	6	R = 5.507 Rs, lat = -29 deg, phase = 14 deg
S24	30	Ring CRX	Ascending	2006-285T04:14	Oct12	Thu	2	13	6	r = 6.184 Rs (373081 km)
S24	30	**OTM-077**	30TI+3	2006-285T10:10	Oct12	Thu	3	13	6	D/L start, burn ~6h later. Backup D/L 286T09:55
S24	30	**XD**	**Segment**	2006-288T18:55	Oct15	Sun	6	10	3	XD_030_031 (8d); Cross Discipline Segment Outbound 30 - Inbound 31
S24	30	**OTM-078**	~APO	2006-290T09:40	Oct17	Tue	8	8	5	D/L start, burn ~6h later. Backup D/L 291T02:10
S24	31	**Apoapse**		2006-292T22:17	Oct19	Thu	10	6	3	Per = 15.9 d, inc = 46.6 deg, r = 34.980 Rs, phase = 166 deg
S24	31	**OTM-079**	31TI-3	2006-295T09:26	Oct22	Sun	13	3	5	D/L start, burn ~6h later. Backup D/L 296T01:56
S25	31	**S25 Begins**		2006-295T18:26	Oct22	Sun	13	3	0	S25 Sequence. Duration = 33 d
S25	31	**TOST**	**Segment**	2006-296T10:56	Oct23	Mon	14	2	1	TOST_031TI_T20 (3d); TOST_031TI (T20) Flyby
S25	31	**31TI (t) [T20]**	**TITAN**	2006-298T15:58	Oct25	Wed	16	48	3	Inbound 1029.5 km flyby, v = 6.0 km/s, phase = 25 deg
S25	31	Ring CRX	Descending	2006-298T16:20	Oct25	Wed	0	48	3	r = 20.688 Rs (1248123 km)
S25	31	**RINGS**	**Segment**	2006-299T14:56	Oct26	Thu	1	47	4	RINGS_Rev_31 (3d); RINGS Rev 31
S25	31	Periapse		2006-301T00:10	Oct28	Sat	2	45	6	R = 4.656 Rs, lat = -26 deg, phase = 16 deg
S25	31	Ring CRX	Ascending	2006-301T03:09	Oct28	Sat	2	45	6	r = 4.972 Rs (299940 km)
S25	31	**SATURN**	**Segment**	2006-302T10:42	Oct29	Sun	4	44	7	Saturn_031 (2d); Saturn 031 Outbound
S25	31	**XD**	**Segment**	2006-304T17:57	Oct31	Tue	6	42	9	XD_031_032 (5d); Cross Discipline Segment Outbound 31 - Inbound 32
S25	32	**Apoapse**		2006-307T00:05	Nov03	Fri	8	39	12	Per = 12.0 d, inc = 55.0 deg, r = 28.836 Rs, phase = 164 deg
S25	32	**RINGS**	**Segment**	2006-309T17:42	Nov05	Sun	11	37	14	RINGS_Rev_32 (5d); RINGS Rev 32
S25	32	Ring CRX	Descending	2006-310T15:56	Nov06	Mon	12	36	15	r = 20.721 Rs (1250077 km)
S25	32	Periapse		2006-313T00:00	Nov09	Thu	14	33	18	R = 4.662 Rs, lat = -26 deg, phase = 16 deg
S25	32	32EN (nt)	**ENCELADUS**	2006-313T01:48	Nov09	Thu	14	33	18	Outbound 90219.9 km flyby, v = 14.0 km/s, phase = 26 deg
S25	32	Ring CRX	Ascending	2006-313T02:59	Nov09	Thu	14	33	18	r = 4.977 Rs (300289 km)
S25	32	32CA (nt)	**CALYPSO**	2006-313T03:45	Nov09	Thu	14	33	18	Outbound 116095.7 km flyby, v = 11.7 km/s, phase = 111 deg
S25	32	**OTM-080**	~PERI	2006-313T08:28	Nov09	Thu	15	33	18	D/L start, burn ~6h later. Backup D/L 314T00:58
S25	32	**SATURN**	**Segment**	2006-314T09:58	Nov10	Fri	16	32	1	Saturn_032 (2d); Saturn 032 Outbound
S25	32	**XD**	**Segment**	2006-316T17:13	Nov12	Sun	18	30	3	XD_032_033 (5d); Cross Discipline Segment Outbound 32 - Inbound 33
S25	33	**Apoapse**		2006-318T23:31	Nov14	Tue	20	28	6	Per = 12.0 d, inc = 55.0 deg, r = 28.779 Rs, phase = 164 deg
S25	33	**RINGS**	**Segment**	2006-321T16:59	Nov17	Fri	23	25	8	RINGS_Rev_33 (7d); RINGS Rev 33
S25	33	Ring CRX	Descending	2006-322T15:10	Nov18	Sat	24	24	9	r = 20.669 Rs (1246974 km)
S25	33	Periapse		2006-324T23:02	Nov20	Mon	26	22	12	R = 4.654 Rs, lat = -26 deg, phase = 16 deg
S25	33	Ring CRX	Ascending	2006-325T02:01	Nov21	Tue	26	21	12	r = 4.969 Rs (299769 km)
S25	33	33DI (nt)	**DIONE**	2006-325T02:28	Nov21	Tue	26	21	12	Outbound 74995.5 km flyby, v = 12.2 km/s, phase = 147 deg
S25	33	33TI (nt)	**TITAN**	2006-325T13:36	Nov21	Tue	27	21	12	Outbound 973181.6 km flyby, v = 8.0 km/s, phase = 78 deg
S26	33	**S26 Begins**		2006-328T16:30	Nov24	Fri	30	18	15	S26 Sequence. Duration = 42 d

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S26	33	XD	Segment	2006-328T16:30	Nov24	Fri	30	18	15	XD_033_034 (5d); Cross Discipline Segment Outbound 33 - Inbound 34
S26	33	33TI (nt)	TITAN	2006-329T13:29	Nov25	Sat	31	17	16	Outbound 925037.1 km flyby, v = 4.5 km/s, phase = 115 deg
S26	33	OTM-081	~APO	2006-330T07:15	Nov26	Sun	32	16	17	D/L start, burn ~6h later. Backup D/L 331T07:15
S26	34	Apoapse		2006-330T22:20	Nov26	Sun	32	16	1	Per = 11.9 d, inc = 55.0 deg, r = 28.754 Rs, phase = 164 deg
S26	34	RINGS	Segment	2006-333T16:16	Nov29	Wed	35	13	3	RINGS_Rev_34in (2d); RINGS Rev 34-inbound
S26	34	Ring CRX	Descending	2006-334T13:45	Nov30	Thu	36	12	4	r = 20.673 Rs (1247198 km)
S26	34	SATURN	Segment	2006-335T08:31	Dec01	Fri	37	11	5	Saturn_034 (1d); Saturn 034 Inbound
S26	34	RINGS	Segment	2006-336T08:31	Dec02	Sat	38	10	6	RINGS_Rev_34out (4d); RINGS Rev 34-periapsis and outbound
S26	34	Periapse		2006-336T21:39	Dec02	Sat	38	10	7	R = 4.655 Rs, lat = -26 deg, phase = 15 deg
S26	34	34TI (nt)	TITAN	2006-336T23:17	Dec02	Sat	38	10	7	Outbound 945244.5 km flyby, v = 12.2 km/s, phase = 159 deg
S26	34	Ring CRX	Ascending	2006-337T00:37	Dec03	Sun	38	9	7	r = 4.970 Rs (299813 km)
S26	34	34TL (nt)	TELESTO	2006-337T01:20	Dec03	Sun	38	9	7	Outbound 102514.2 km flyby, v = 12.1 km/s, phase = 111 deg
S26	34	XD	Segment	2006-340T15:47	Dec06	Wed	42	6	10	XD_034_035 (5d); Cross Discipline Segment Outbound 34 - Inbound 35
S26	35	Apoapse		2006-342T21:01	Dec08	Fri	44	4	13	Per = 12.0 d, inc = 55.0 deg, r = 28.757 Rs, phase = 165 deg
S26	35	OTM-082	35TI-3	2006-343T06:32	Dec09	Sat	45	3	13	D/L start, burn ~6h later. Backup D/L 344T06:32
S26	35	TOST	Segment	2006-345T15:17	Dec11	Mon	47	1	2	TOST_035TI_T21 (2d); TOST Segment 035TI (T21)
S26	35	35TI (t) [T21]	TITAN	2006-346T11:42	Dec12	Tue	48	16	3	Inbound 1000.0 km flyby, v = 5.9 km/s, phase = 125 deg
S26	35	Ring CRX	Descending	2006-346T12:10	Dec12	Tue	0	16	3	r = 20.713 Rs (1249588 km)
S26	35	SATURN	Segment	2006-347T12:18	Dec13	Wed	1	15	4	Saturn_035 (1d); Saturn 035 Inbound
S26	35	RINGS	Segment	2006-348T06:28	Dec14	Thu	2	14	5	RINGS_Rev_35 (4d); RINGS Rev 35
S26	35	Periapse		2006-349T00:01	Dec15	Fri	3	13	6	R = 7.606 Rs, lat = -37 deg, phase = 23 deg
S26	35	OTM-083	35TI+3	2006-349T06:03	Dec15	Fri	3	13	6	D/L start, burn ~6h later. Backup D/L 350T05:45
S26	35	Ring CRX	Ascending	2006-349T10:35	Dec15	Fri	3	13	0	r = 8.802 Rs (531024 km)
S26	35	XD	Segment	2006-352T15:03	Dec18	Mon	6	10	3	XD_035_036 (9d); Cross Discipline Segment Outbound 35 - Inbound 36
S26	35	OTM-084	~APO	2006-354T05:48	Dec20	Wed	8	8	5	D/L start, burn ~6h later. Backup D/L 355T05:49
S26	36	Apoapse		2006-356T23:09	Dec22	Fri	10	5	3	Per = 15.9 d, inc = 52.8 deg, r = 32.888 Rs, phase = 157 deg
S26	36	OTM-085	36TI-3	2006-359T05:34	Dec25	Mon	13	3	5	D/L start, burn ~6h later. Backup D/L 360T05:19
S26	36	TOST	Segment	2006-361T14:19	Dec27	Wed	15	1	2	TOST_036TI_T22 (2d); TOST Segment 036TI (T22)
S26	36	36TI (t) [T22]	TITAN	2006-362T10:05	Dec28	Thu	16	16	3	Inbound 1296.8 km flyby, v = 5.9 km/s, phase = 62 deg
S26	36	Ring CRX	Descending	2006-362T10:30	Dec28	Thu	0	16	3	r = 20.686 Rs (1247984 km)
S26	36	RINGS	Segment	2006-363T06:49	Dec29	Fri	1	15	4	RINGS_Rev_36 (6d); RINGS Rev 36
S26	36	OTM-086	36TI+3	2006-365T05:05	Dec31	Sun	3	13	6	D/L start, burn ~6h later. Backup D/L 001T05:05
S26	36	Periapse		2006-365T05:18	Dec31	Sun	3	13	0	R = 9.811 Rs, lat = -44 deg, phase = 31 deg
S26	36	Ring CRX	Ascending	2006-365T23:56	Dec31	Sun	4	12	1	r = 11.605 Rs (700137 km)
S26	36	XD	Segment	2007-004T13:50	Jan04	Thu	7	9	4	XD_036_037 (8d); Cross-Discipline Outbound 36 - Inbound 37
S26	36	OTM-087	~APO	2007-005T04:50	Jan05	Fri	8	8	5	D/L start, burn ~6h later. Backup D/L 006T04:35
S27	36	S27 Begins		2007-005T13:50	Jan05	Fri	8	8	0	S27 Sequence. Duration = 43 d
S27	37	Apoapse		2007-008T04:38	Jan08	Mon	11	5	3	Per = 15.9 d, inc = 56.6 deg, r = 30.692 Rs, phase = 149 deg
S27	37	OTM-088	37TI-3	2007-010T04:20	Jan10	Wed	13	3	5	D/L start, burn ~6h later. Backup D/L 011T04:21
S27	37	TOST	Segment	2007-012T13:34	Jan12	Fri	15	1	2	TOST_037TI_T23 (2d); TOST Segment 037TI (T23)
S27	37	37TI (t) [T23]	TITAN	2007-013T08:39	Jan13	Sat	16	16	3	Inbound 1000.3 km flyby, v = 6.0 km/s, phase = 53 deg
S27	37	Ring CRX	Descending	2007-013T08:58	Jan13	Sat	0	16	3	r = 20.714 Rs (1249678 km)
S27	37	SATURN	Segment	2007-014T13:34	Jan14	Sun	1	15	4	Saturn_037 (1d); Saturn 037 Inbound
S27	37	RINGS	Segment	2007-015T05:36	Jan15	Mon	2	14	5	RINGS_Rev_37 (6d); RINGS Rev 37
S27	37	OTM-089	37TI+3	2007-015T20:36	Jan15	Mon	2	13	6	D/L start, burn ~6h later. Backup D/L 017T03:51
S27	37	Periapse		2007-016T12:59	Jan16	Tue	3	13	1	R = 12.527 Rs, lat = -51 deg, phase = 39 deg
S27	37	Ring CRX	Ascending	2007-017T21:01	Jan17	Wed	5	11	2	r = 14.867 Rs (896900 km)
S27	37	OTM-090	~APO	2007-021T03:36	Jan21	Sun	8	8	5	D/L start, burn ~6h later. Backup D/L 022T03:36
S27	37	XD	Segment	2007-021T12:36	Jan21	Sun	8	8	0	XD_037_038 (7d); Cross Discipline Segment Outbound 37 - Inbound 38
S27	38	Apoapse		2007-024T12:19	Jan24	Wed	11	5	3	Per = 16.0 d, inc = 59.2 deg, r = 27.987 Rs, phase = 140 deg
S27	38	OTM-091	38TI-3	2007-026T03:21	Jan26	Fri	13	3	5	D/L start, burn ~6h later. Backup D/L 027T03:21
S27	38	TOST	Segment	2007-028T12:12	Jan28	Sun	15	1	2	TOST_038TI_T24 (2d); TOST Segment 038TI (T24)
S27	38	38TI (t) [T24]	TITAN	2007-029T07:16	Jan29	Mon	16	24	3	Inbound 2631.2 km flyby, v = 5.8 km/s, phase = 72 deg
S27	38	Ring CRX	Descending	2007-029T07:38	Jan29	Mon	0	24	3	r = 20.708 Rs (1249322 km)
S27	38	SATURN	Segment	2007-030T12:12	Jan30	Tue	1	23	4	Saturn_038 (7d); Saturn_038
S27	38	OTM-092	38TI+3	2007-032T02:52	Feb01	Thu	3	21	6	D/L start, burn ~6h later. Backup D/L 033T19:22
S27	38	Periapse		2007-032T09:57	Feb01	Thu	3	21	0	R = 15.572 Rs, lat = -58 deg, phase = 58 deg
S27	38	Ring CRX	Ascending	2007-035T01:08	Feb04	Sun	6	18	3	r = 19.612 Rs (1183214 km)
S27	38	38TI (nt)	TITAN	2007-036T07:42	Feb05	Mon	7	17	4	Outbound 910072.3 km flyby, v = 5.9 km/s, phase = 114 deg
S27	38	XD	Segment	2007-037T11:37	Feb06	Tue	8	16	5	XD_038_039 (8d); Cross Discipline Outbound 38 - Inbound 39
S27	38	OTM-093	~APO	2007-038T02:37	Feb07	Wed	9	15	6	D/L start, burn ~6h later. Backup D/L 039T02:22
S27	39	Apoapse		2007-041T10:53	Feb10	Sat	12	12	3	Per = 18.1 d, inc = 58.8 deg, r = 28.492 Rs, phase = 121 deg
S27	39	RINGS	Segment	2007-045T09:45	Feb14	Wed	16	8	7	RINGS_Rev_39 (7d); RINGS Rev 39
S27	39	39TI (nt)	TITAN	2007-046T03:10	Feb15	Thu	17	7	8	Inbound 867510.3 km flyby, v = 5.5 km/s, phase = 128 deg
S27	39	Ring CRX	Descending	2007-047T09:46	Feb16	Fri	18	6	9	r = 20.677 Rs (1247446 km)
S28	39	S28 Begins		2007-048T10:52	Feb17	Sat	19	5	10	S28 Sequence. Duration = 39 d
S28	39	OTM-094	39TI-3	2007-050T01:37	Feb19	Mon	21	3	12	D/L start, burn ~6h later. Backup D/L 051T01:37
S28	39	Periapse		2007-050T11:50	Feb19	Mon	21	3	0	R = 15.577 Rs, lat = -58 deg, phase = 59 deg
S28	39	TOST	Segment	2007-052T10:37	Feb21	Wed	23	1	2	TOST_039TI_T25 (2d); TOST Segment 039TI (T25)
S28	39	Earth OCC	TITAN	2007-053T03:01	Feb22	Thu	24	0	3	Egress = 2007-053T03:17 (16 min)
S28	39	Sun OCC	TITAN	2007-053T03:01	Feb22	Thu	24	0	3	Egress = 2007-053T03:17 (16 min)
S28	39	39TI (t) [T25]	TITAN	2007-053T03:12	Feb22	Thu	24	16	3	Outbound 1000.4 km flyby, v = 6.2 km/s, phase = 161 deg
S28	39	Ring CRX	Ascending	2007-053T03:18	Feb22	Thu	0	16	3	r = 19.654 Rs (1185738 km)
S28	39	XD	Segment	2007-054T10:11	Feb23	Fri	1	15	4	XD_039_040 (7d); Cross-Discipline Outbound 39 - Inbound 40
S28	39	OTM-095	39TI+3	2007-056T01:22	Feb25	Sun	3	13	6	D/L start, burn ~6h later. Backup D/L 057T01:06
S28	40	Apoapse		2007-058T07:46	Feb27	Tue	5	11	2	Per = 16.0 d, inc = 58.6 deg, r = 28.363 Rs, phase = 97 deg
S28	40	OTM-096	~APO	2007-061T00:51	Mar02	Fri	8	8	5	D/L start, burn ~6h later. Backup D/L 062T00:51
S28	40	SATURN	Segment	2007-061T09:51	Mar02	Fri	8	8	0	Saturn_040 (7d); Saturn_040 Early and Mid Inclined
S28	40	Ring CRX	Descending	2007-064T21:02	Mar05	Mon	12	4	4	r = 14.993 Rs (904502 km)
S28	40	OTM-097	40TI-3	2007-065T17:06	Mar06	Tue	13	3	5	D/L start, burn ~6h later. Backup D/L 067T00:21
S28	40	Periapse		2007-066T07:09	Mar07	Wed	13	3	1	R = 12.145 Rs, lat = -54 deg, phase = 83 deg
S28	40	TOST	Segment	2007-068T09:21	Mar09	Fri	15	1	3	TOST_040TI_T26 (2d); TOST Segment 040TI (T26)
S28	40	Earth OCC	TITAN	2007-069T01:37	Mar10	Sat	16	0	3	Egress = 2007-069T01:52 (15 min)
S28	40	Sun OCC	TITAN	2007-069T01:37	Mar10	Sat	16	0	3	Egress = 2007-069T01:52 (16 min)
S28	40	40TI (t) [T26]	TITAN	2007-069T01:49	Mar10	Sat	16	16	3	Outbound 980.6 km flyby, v = 6.2 km/s, phase = 150 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S28	40	Ring CRX	Ascending	2007-069T01:55	Mar10	Sat	0	16	3	r = 19.657 Rs (1185892 km)
S28	40	**XD**	**Segment**	2007-070T02:47	Mar11	Sun	1	15	4	XD_040_041 (8d); Cross Discipline Segment Outbound 40 - Inbound 41
S28	40	**OTM-098**	40TI+3	2007-072T00:06	Mar13	Tue	3	13	6	D/L start, burn ~6h later. Backup D/L 073T00:06
S28	41	**Apoapse**		2007-074T12:37	Mar15	Thu	5	10	3	Per = 15.9 d, inc = 56.0 deg, r = 30.793 Rs, phase = 88 deg
S28	41	**OTM-099**	~APO	2007-076T23:50	Mar17	Sat	8	8	5	D/L start, burn ~6h later. Backup D/L 077T23:35
S28	41	**RINGS**	**Segment**	2007-078T08:35	Mar19	Mon	9	7	1	RINGS_Rev_41 (6d); RINGS Rev 41
S28	41	**OTM-100**	41TI-3	2007-081T14:30	Mar22	Thu	13	3	5	D/L start, burn ~6h later. Backup D/L 082T23:20
S28	41	Ring CRX	Descending	2007-081T15:45	Mar22	Thu	13	3	0	r = 11.823 Rs (713289 km)
S28	41	Periapse		2007-082T11:57	Mar23	Fri	13	3	1	R = 9.710 Rs, lat = -47 deg, phase = 92 deg
S28	41	**TOST**	**Segment**	2007-084T08:20	Mar25	Sun	15	1	3	TOST_041TI_T27 (2d); TOST Segment 041TI_T27
S28	41	**Sun OCC**	TITAN	2007-085T00:08	Mar26	Mon	16	0	3	Egress = 2007-085T00:25 (17 min)
S28	41	**Earth OCC**	TITAN	2007-085T00:09	Mar26	Mon	16	0	3	Egress = 2007-085T00:25 (16 min)
S28	41	**41TI (t) [T27]**	**TITAN**	2007-085T00:23	Mar26	Mon	16	16	3	Outbound 1009.9 km flyby, v = 6.2 km/s, phase = 144 deg
S28	41	Ring CRX	Ascending	2007-085T00:28	Mar26	Mon	0	16	3	r = 19.661 Rs (1186145 km)
S28	41	**XD**	**Segment**	2007-086T07:22	Mar27	Tue	1	15	5	XD_041_042 (9d); Cross Discipline Outbound 41 - Inbound 42
S29	41	**S29 Begins**		2007-087T08:04	Mar28	Wed	2	14	6	S29 Sequence. Duration = 38 d
S29	41	**OTM-101**	41TI+3	2007-087T14:49	Mar28	Wed	3	13	6	D/L start, burn ~6h later. Backup D/L 088T22:49
S29	42	**Apoapse**		2007-090T17:01	Mar31	Sat	6	10	3	Per = 15.9 d, inc = 52.3 deg, r = 32.939 Rs, phase = 80 deg
S29	42	**OTM-102**	~APO	2007-092T22:34	Apr02	Mon	8	8	5	D/L start, burn ~6h later. Backup D/L 093T22:33
S29	42	**SATURN**	**Segment**	2007-095T07:33	Apr05	Thu	10	6	2	Saturn_042 (3d); Saturn_042 Early and Mid Inclined
S29	42	**OTM-103**	42TI-3	2007-097T14:48	Apr07	Sat	13	3	5	D/L start, burn ~6h later. Backup D/L 098T22:18
S29	42	**RINGS**	**Segment**	2007-097T23:48	Apr07	Sat	13	3	0	RINGS_Rev_42 (2d); RINGS Rev 42
S29	42	Ring CRX	Descending	2007-098T04:57	Apr08	Sun	13	3	1	r = 8.954 Rs (540177 km)
S29	42	Periapse		2007-098T16:21	Apr08	Sun	14	2	1	R = 7.565 Rs, lat = -39 deg, phase = 100 deg
S29	42	**TOST**	**Segment**	2007-100T07:03	Apr10	Tue	15	1	3	TOST_042TI_T28 (2d); TOST Segment 042TI (T28)
S29	42	**Sun OCC**	TITAN	2007-100T22:40	Apr10	Tue	16	0	3	Egress = 2007-100T22:59 (20 min)
S29	42	**Earth OCC**	TITAN	2007-100T22:41	Apr10	Tue	16	0	3	Egress = 2007-100T22:59 (18 min)
S29	42	**42TI (t) [T28]**	**TITAN**	2007-100T22:58	Apr10	Tue	16	16	3	Outbound 990.9 km flyby, v = 6.2 km/s, phase = 137 deg
S29	42	Ring CRX	Ascending	2007-100T23:01	Apr10	Tue	0	16	3	r = 19.666 Rs (1186423 km)
S29	42	**XD**	**Segment**	2007-102T05:57	Apr12	Thu	1	15	5	XD_042_043 (9d); Cross Discipline Segment Outbound 42 - Inbound 43
S29	42	**OTM-104**	42TI+3	2007-103T21:47	Apr13	Fri	3	13	6	D/L start, burn ~6h later. Backup D/L 104T21:47
S29	43	**Apoapse**		2007-106T20:41	Apr16	Mon	6	10	3	Per = 15.9 d, inc = 46.9 deg, r = 34.766 Rs, phase = 73 deg
S29	43	**OTM-105**	~APO	2007-108T21:32	Apr18	Wed	8	8	5	D/L start, burn ~6h later. Backup D/L 109T21:32
S29	43	**RINGS**	**Segment**	2007-111T06:16	Apr21	Sat	10	6	2	RINGS_Rev_43 (5d); RINGS Rev 43
S29	43	**OTM-106**	43TI-3	2007-113T21:16	Apr23	Mon	13	3	5	D/L start, burn ~6h later. Backup D/L 114T21:01
S29	43	**Earth OCC**	RING	2007-114T09:05	Apr24	Tue	13	3	0	Egress = 2007-114T10:26 (82 min)
S29	43	**Sun OCC**	RING	2007-114T09:47	Apr24	Tue	13	2	1	Egress = 2007-114T11:26 (99 min)
S29	43	Ring CRX	Descending	2007-114T13:53	Apr24	Tue	14	2	1	r = 6.570 Rs (396380 km)
S29	43	43DI (nt)	**DIONE**	2007-114T14:52	Apr24	Tue	14	2	1	Inbound 114225.1 km flyby, v = 11.4 km/s, phase = 69 deg
S29	43	43TL (nt)	**TELESTO**	2007-114T16:00	Apr24	Tue	14	2	1	Inbound 107375.8 km flyby, v = 11.1 km/s, phase = 99 deg
S29	43	Periapse		2007-114T20:02	Apr24	Tue	14	2	1	R = 5.738 Rs, lat = -32 deg, phase = 107 deg
S29	43	**TOST**	**Segment**	2007-116T06:01	Apr26	Thu	15	1	2	TOST_043TI_T29 (2d); TOST Segment 043TI (T29)
S29	43	**Sun OCC**	TITAN	2007-116T21:11	Apr26	Thu	16	0	3	Egress = 2007-116T21:33 (22 min)
S29	43	**Earth OCC**	TITAN	2007-116T21:12	Apr26	Thu	16	0	3	Egress = 2007-116T21:33 (21 min)
S29	43	**43TI (t) [T29]**	**TITAN**	2007-116T21:33	Apr26	Thu	16	16	3	Outbound 980.8 km flyby, v = 6.2 km/s, phase = 130 deg
S29	43	Ring CRX	Ascending	2007-116T21:35	Apr26	Thu	0	16	3	r = 19.670 Rs (1186671 km)
S29	43	**XD**	**Segment**	2007-117T22:33	Apr27	Fri	1	15	4	XD_043_044 (9d); Cross Discipline Segment Outbound 43 - Inbound 44
S29	43	**OTM-107**	43TI+3	2007-119T20:45	Apr29	Sun	3	13	6	D/L start, burn ~6h later. Backup D/L 120T20:45
S29	44	**Apoapse**		2007-122T23:23	May02	Wed	6	10	3	Per = 15.9 d, inc = 39.1 deg, r = 36.222 Rs, phase = 67 deg
S29	44	**OTM-108**	~APO	2007-124T13:00	May04	Fri	8	8	5	D/L start, burn ~6h later. Backup D/L 125T20:29
S30	44	**S30 Begins**		2007-124T22:00	May04	Fri	8	8	0	S30 Sequence. Duration = 37 d
S30	44	**RINGS**	**Segment**	2007-127T05:14	May07	Mon	10	6	3	RINGS_Rev_44 (3d); RINGS Rev 44
S30	44	**OTM-109**	44TI-3	2007-128T20:14	May08	Tue	12	4	4	D/L start, burn ~6h later. Backup D/L 129T20:14
S30	44	**SATURN**	**Segment**	2007-130T05:14	May10	Thu	13	3	1	Saturn_044 (2d); Saturn_044
S30	44	**Earth OCC**	SATURN	2007-130T14:34	May10	Thu	14	2	2	Egress = 2007-130T16:37 (124 min)
S30	44	**Earth OCC**	RING	2007-130T15:19	May10	Thu	14	2	2	Egress = 2007-130T17:52 (154 min)
S30	44	**Sun OCC**	SATURN	2007-130T15:22	May10	Thu	14	2	2	Egress = 2007-130T17:36 (135 min)
S30	44	**Sun OCC**	RING	2007-130T16:13	May10	Thu	14	2	2	Egress = 2007-130T18:17 (124 min)
S30	44	Ring CRX	Descending	2007-130T19:31	May10	Thu	14	2	2	r = 4.757 Rs (287006 km)
S30	44	Periapse		2007-130T22:46	May10	Thu	14	2	2	R = 4.285 Rs, lat = -24 deg, phase = 114 deg
S30	44	**TOST**	**Segment**	2007-132T04:59	May12	Sat	15	1	3	TOST_044TI_T30 (2d); TOST Segment 044TI_T30
S30	44	**Sun OCC**	TITAN	2007-132T19:42	May12	Sat	16	0	4	Egress = 2007-132T20:08 (27 min)
S30	44	**Earth OCC**	TITAN	2007-132T19:44	May12	Sat	16	0	4	Egress = 2007-132T20:09 (25 min)
S30	44	**44TI (t) [T30]**	**TITAN**	2007-132T20:10	May12	Sat	16	16	4	Outbound 959.2 km flyby, v = 6.2 km/s, phase = 122 deg
S30	44	Ring CRX	Ascending	2007-132T20:11	May12	Sat	0	16	4	r = 19.674 Rs (1186904 km)
S30	44	**XD**	**Segment**	2007-133T21:13	May13	Sun	1	15	5	XD_044_045 (10d); Cross Discipline Segment Outbound 44 - Inbound 45
S30	44	**OTM-110**	44TI+3	2007-135T19:43	May15	Tue	3	13	7	D/L start, burn ~6h later. Backup D/L 136T19:43
S30	45	**Apoapse**		2007-139T01:03	May19	Sat	6	10	3	Per = 15.9 d, inc = 28.2 deg, r = 37.277 Rs, phase = 61 deg
S30	45	**OTM-111**	~APO	2007-140T19:27	May20	Sun	8	8	5	D/L start, burn ~6h later. Backup D/L 141T11:42
S30	45	**SATURN**	**Segment**	2007-144T04:12	May24	Thu	11	5	3	Saturn_045 (2d); Saturn_045
S30	45	**OTM-112**	45TI-3	2007-145T19:12	May25	Fri	13	3	5	D/L start, burn ~6h later. Backup D/L 146T09:57
S30	45	**SOST**	**Segment**	2007-146T04:12	May26	Sat	13	3	0	SOST_045 (2d); SOST segment in rev 45 (non-targeteds)
S30	45	**Earth OCC**	RING	2007-146T18:43	May26	Sat	14	2	1	Egress = 2007-146T21:49 (187 min)
S30	45	**Earth OCC**	SATURN	2007-146T19:02	May26	Sat	14	2	1	Egress = 2007-146T21:27 (146 min)
S30	45	**Sun OCC**	RING	2007-146T19:36	May26	Sat	14	2	1	Egress = 2007-146T22:02 (146 min)
S30	45	**Sun OCC**	SATURN	2007-146T19:39	May26	Sat	14	2	1	Egress = 2007-146T21:56 (137 min)
S30	45	45TE (nt)	**TETHYS**	2007-146T20:47	May26	Sat	14	2	1	Inbound 102788.1 km flyby, v = 12.0 km/s, phase = 78 deg
S30	45	Pallene	Dust Crossing	2007-146T22:39	May26	Sat	14	2	1	Egress at 2007-146T22:42 (3 min); protection = none.
S30	45	Ring CRX	Descending	2007-146T22:41	May26	Sat	14	2	1	r = 3.508 Rs (211648 km)
S30	45	45EP (nt)	**EPIMETHEUS**	2007-146T23:13	May26	Sat	14	2	1	Inbound 58279.1 km flyby, v = 8.7 km/s, phase = 148 deg
S30	45	Periapse		2007-147T00:28	May27	Sun	14	2	1	R = 3.236 Rs, lat = -15 deg, phase = 119 deg
S30	45	**TOST**	**Segment**	2007-148T03:56	May28	Mon	15	1	2	TOST_045TI_T31 (2d); TOST Segment 045TI (T31)
S30	45	**Sun OCC**	TITAN	2007-148T18:09	May28	Mon	16	0	3	Egress = 2007-148T18:41 (32 min)
S30	45	**Earth OCC**	TITAN	2007-148T18:10	May28	Mon	16	0	3	Egress = 2007-148T18:42 (32 min)
S30	45	Ring CRX	Ascending	2007-148T18:36	May28	Mon	16	0	3	r = 19.590 Rs (1181873 km)
S30	45	**45TI (t) [T31]**	**TITAN**	2007-148T18:52	May28	Mon	16	16	3	Outbound 2298.6 km flyby, v = 6.1 km/s, phase = 114 deg
S30	45	**XD**	**Segment**	2007-149T21:21	May29	Tue	1	15	4	XD_045_046 (10d); Cross Discipline Segment Outbound 45 - Inbound 46

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S30	45	OTM-113	45TI+3	2007-151T18:41	May31	Thu	3	13	6	D/L start, burn ~6h later. Backup D/L 152T18:41
S30	46	Apoapse		2007-155T01:17	Jun04	Mon	6	10	3	Per = 16.0 d, inc = 18.0 deg, r = 37.779 Rs, phase = 58 deg
S30	46	OTM-114	~APO	2007-156T10:55	Jun05	Tue	8	8	5	D/L start, burn ~6h later. Backup D/L 157T18:25
S30	46	SATURN	Segment	2007-160T03:10	Jun09	Sat	11	5	4	Saturn_046 (2d); Saturn_046
S30	46	OTM-115	46TI-3	2007-161T18:10	Jun10	Sun	13	3	5	D/L start, burn ~6h later. Backup D/L 162T09:10
S31	46	S31 Begins		2007-162T03:10	Jun11	Mon	13	3	0	S31 Sequence. Duration = 33 d
S31	46	RINGS	Segment	2007-162T03:10	Jun11	Mon	13	3	0	RINGS_Rev_46 (2d); RINGS Rev 46
S31	46	Earth OCC	RING	2007-162T19:24	Jun11	Mon	14	2	1	Egress = 2007-162T22:52 (209 min)
S31	46	Sun OCC	RING	2007-162T20:05	Jun11	Mon	14	2	1	Egress = 2007-162T23:01 (177 min)
S31	46	Earth OCC	SATURN	2007-162T20:45	Jun11	Mon	14	2	1	Egress = 2007-162T22:47 (122 min)
S31	46	Sun OCC	SATURN	2007-162T21:08	Jun11	Mon	14	2	1	Egress = 2007-162T23:06 (119 min)
S31	46	46MI (nt)	MIMAS	2007-162T23:03	Jun11	Mon	14	2	1	Inbound 111975.3 km flyby, v = 16.7 km/s, phase = 95 deg
S31	46	G_ring	DUST HAZARD	2007-162T23:29	Jun11	Mon	14	2	1	Egress at 2007-162T23:30 (1 min); protection = HGA to ram and MEA cover closure.
S31	46	Ring CRX	Descending	2007-162T23:30	Jun11	Mon	14	2	1	r = 2.938 Rs (177239 km)
S31	46	46AT (nt)	ATLAS	2007-163T00:12	Jun12	Tue	14	2	1	Inbound 34016.6 km flyby, v = 7.5 km/s, phase = 117 deg
S31	46	46PM (nt)	PROMETHEUS	2007-163T00:19	Jun12	Tue	14	2	1	Inbound 69717.3 km flyby, v = 11.7 km/s, phase = 79 deg
S31	46	Periapse		2007-163T00:45	Jun12	Tue	14	2	1	R = 2.745 Rs, lat = -9 deg, phase = 123 deg
S31	46	46EP (nt)	EPIMETHEUS	2007-163T00:58	Jun12	Tue	14	2	1	Outbound 80596.3 km flyby, v = 10.6 km/s, phase = 144 deg
S31	46	46ME (nt)	METHONE	2007-163T02:26	Jun12	Tue	14	2	1	Outbound 61695.6 km flyby, v = 9.0 km/s, phase = 100 deg
S31	46	TOST	Segment	2007-164T02:54	Jun13	Wed	15	1	2	TOST_046TI_T32 (2d); TOST Segment 046TI (T32)
S31	46	Earth OCC	TITAN	2007-164T17:02	Jun13	Wed	16	0	3	Egress = 2007-164T17:41 (40 min)
S31	46	Sun OCC	TITAN	2007-164T17:02	Jun13	Wed	16	0	3	Egress = 2007-164T17:40 (39 min)
S31	46	Ring CRX	Ascending	2007-164T17:43	Jun13	Wed	16	0	3	r = 19.665 Rs (1186412 km)
S31	46	46TI (t) [T32]	TITAN	2007-164T17:46	Jun13	Wed	16	16	3	Outbound 964.9 km flyby, v = 6.2 km/s, phase = 107 deg
S31	46	XD	Segment	2007-165T20:47	Jun14	Thu	1	15	4	XD_046_047 (12d); Cross Discipline Segment Outbound 46 - Inbound 47
S31	46	OTM-116	46TI+3	2007-167T17:39	Jun16	Sat	3	13	6	D/L start, burn ~6h later. Backup D/L 168T17:39
S31	47	Apoapse		2007-171T01:10	Jun20	Wed	6	10	3	Per = 16.0 d, inc = 2.1 deg, r = 38.086 Rs, phase = 54 deg
S31	47	OTM-117	~APO	2007-172T17:23	Jun21	Thu	8	8	5	D/L start, burn ~6h later. Backup D/L 173T17:23
S31	47	OTM-118	47TI-3	2007-177T17:08	Jun26	Tue	13	3	5	D/L start, burn ~6h later. Backup D/L 178T08:10
S31	47	SOST	Segment	2007-178T02:08	Jun27	Wed	13	3	0	SOST_047 (2d); SOST segment in rev 47 (untargeted Tethys)
S31	47	47TE (nt)	TETHYS	2007-178T19:43	Jun27	Wed	14	2	1	Inbound 18417.8 km flyby, v = 10.6 km/s, phase = 116 deg
S31	47	Earth OCC	SATURN	2007-178T22:04	Jun27	Wed	14	2	1	Egress = 2007-178T23:23 (80 min)
S31	47	Sun OCC	SATURN	2007-178T22:10	Jun27	Wed	14	2	1	Egress = 2007-178T23:40 (90 min)
S31	47	47ME (nt)	METHONE	2007-178T22:23	Jun27	Wed	14	2	1	Inbound 22643.0 km flyby, v = 10.9 km/s, phase = 114 deg
S31	47	47MI (nt)	MIMAS	2007-178T22:48	Jun27	Wed	14	2	1	Inbound 102915.8 km flyby, v = 17.0 km/s, phase = 110 deg
S31	47	47AE (nt)	AEGAEON	2007-178T23:13	Jun27	Wed	14	2	1	Inbound 15433.9 km flyby, v = 9.4 km/s, phase = 107 deg
S31	47	G_ring	DUST HAZARD	2007-178T23:56	Jun27	Wed	14	2	1	Egress at 2007-179T00:00 (4 min); protection = HGA to ram and MEA cover closure.
S31	47	JE_ring	DUST HAZARD	2007-179T00:00	Jun28	Thu	14	2	1	Egress at 2007-179T00:21 (21 min); protection = HGA to ram and MEA cover closure.
S31	47	Ring CRX	Descending	2007-179T00:01	Jun28	Thu	14	2	1	r = 2.584 Rs (155889 km)
S31	47	47EN (nt)	ENCELADUS	2007-179T00:52	Jun28	Thu	14	2	1	Inbound 88670.3 km flyby, v = 9.3 km/s, phase = 54 deg
S31	47	Periapse		2007-179T00:54	Jun28	Thu	14	2	1	R = 2.462 Rs, lat = -1 deg, phase = 126 deg
S31	47	47PM (nt)	PROMETHEUS	2007-179T01:43	Jun28	Thu	14	2	1	Outbound 35159.7 km flyby, v = 9.1 km/s, phase = 153 deg
S31	47	47EP (nt)	EPIMETHEUS	2007-179T02:08	Jun28	Thu	14	2	1	Outbound 86621.8 km flyby, v = 15.7 km/s, phase = 153 deg
S31	47	47RH (nt)	RHEA	2007-179T12:00	Jun28	Thu	15	1	2	Outbound 104382.5 km flyby, v = 10.7 km/s, phase = 105 deg
S31	47	TOST	Segment	2007-180T02:05	Jun29	Fri	15	1	2	TOST_047TI_T33 (2d); TOST Segment 047TI (T33)
S31	47	47TI (t) [T33]	TITAN	2007-180T17:00	Jun29	Fri	16	19	3	Outbound 1932.6 km flyby, v = 6.2 km/s, phase = 96 deg
S31	47	XD	Segment	2007-182T02:35	Jul01	Sun	1	18	4	XD_047_048 (17d); Cross Discipline Segment Outbound 47 - Inbound 48
S31	47	Ring CRX	Ascending	2007-183T14:32	Jul02	Mon	3	16	6	r = 35.583 Rs (2146696 km)
S31	47	OTM-119	47TI+3	2007-184T16:37	Jul03	Tue	4	15	7	D/L start, burn ~6h later. Backup D/L 185T09:07
S31	47	OTM-120	~APO	2007-189T16:22	Jul08	Sun	9	10	5	D/L start, burn ~6h later. Backup D/L 190T08:52
S31	48	Apoapse		2007-190T10:08	Jul09	Mon	10	10	1	Per = 22.8 d, inc = 0.4 deg, r = 47.803 Rs, phase = 64 deg
S32	48	S32 Begins		2007-195T01:06	Jul14	Sat	14	5	5	S32 Sequence. Duration = 29 d
S32	48	OTM-121	48TI-3	2007-196T16:06	Jul15	Sun	16	3	7	D/L start, burn ~6h later. Backup D/L 197T15:51
S32	48	TOST	Segment	2007-199T00:51	Jul18	Wed	18	1	2	TOST_048TI_T34 (2d); TOST_048TI (T34) Flyby
S32	48	48TI (t) [T34]	TITAN	2007-200T01:11	Jul19	Thu	19	43	3	Inbound 1331.8 km flyby, v = 6.2 km/s, phase = 34 deg
S32	48	SATURN	Segment	2007-201T00:36	Jul20	Fri	1	42	4	Saturn_048 (2d); Saturn_048
S32	48	Ring CRX	Descending	2007-201T15:01	Jul20	Fri	2	42	5	r = 6.257 Rs (377507 km)
S32	48	48HE (nt)	HELENE	2007-201T17:18	Jul20	Fri	2	42	5	Inbound 38261.9 km flyby, v = 4.7 km/s, phase = 55 deg
S32	48	48TE (nt)	TETHYS	2007-201T18:16	Jul20	Fri	2	42	5	Inbound 95187.8 km flyby, v = 6.5 km/s, phase = 94 deg
S32	48	Periapse		2007-201T20:31	Jul20	Fri	2	41	5	R = 5.357 Rs, lat = -0 deg, phase = 130 deg
S32	48	OTM-122	48TI+3	2007-202T15:36	Jul21	Sat	3	41	6	D/L start, burn ~6h later. Backup D/L 203T15:36
S32	48	XD	Segment	2007-203T00:36	Jul22	Sun	3	40	0	XD_048_049 (37d); Cross Discipline Segment Outbound 48 - Inbound 49
S32	48	Ring CRX	Ascending	2007-204T04:09	Jul23	Mon	4	39	2	r = 24.108 Rs (1454449 km)
S32	48	OTM-123	~APO	2007-217T14:35	Aug05	Sun	18	26	15	D/L start, burn ~6h later. Backup D/L 218T14:35
S32	49	Apoapse		2007-221T16:46	Aug09	Thu	22	22	4	Per = 39.7 d, inc = 0.3 deg, r = 69.031 Rs, phase = 49 deg
S33	49	S33 Begins		2007-223T23:20	Aug11	Sat	24	19	6	S33 Sequence. Duration = 42 d
S33	49	SEP = 3.0 deg	Conjunction	2007-230T13:46	Aug18	Sat	31	13	13	Commanding must not be required below 3.0 deg
S33	49	SEP = 2.0 deg	Conjunction	2007-231T23:19	Aug19	Sun	32	11	14	Plan no SSR playback below 2.0 deg
S33	49	SEP = 2.0 deg	Conjunction	2007-235T17:59	Aug23	Thu	36	8	18	Plan no SSR playback below 2.0 deg
S33	49	SEP = 3.0 deg	Conjunction	2007-237T03:40	Aug25	Sat	37	6	20	Commanding must not be required below 3.0 deg
S33	49	OTM-124	49TI-3	2007-239T13:20	Aug27	Mon	40	4	22	D/L start, burn ~6h later. Backup D/L 240T13:20
S33	49	SOST	Segment	2007-239T22:20	Aug27	Mon	40	3	0	SOST_049RH (3d); SOST Rhea segment in Rev 49
S33	49	Ring CRX	Descending	2007-241T07:23	Aug29	Wed	41	2	2	r = 6.301 Rs (380129 km)
S33	49	49TE (nt)	TETHYS	2007-241T11:14	Aug29	Wed	41	2	2	Inbound 55392.9 km flyby, v = 4.8 km/s, phase = 102 deg
S33	49	Periapse		2007-241T13:03	Aug29	Wed	41	2	2	R = 5.351 Rs, lat = -0 deg, phase = 132 deg
S33	49	49RH (nt)	RHEA	2007-242T01:19	Aug30	Thu	42	1	2	Outbound 5727.2 km flyby, v = 6.7 km/s, phase = 46 deg
S33	49	TOST	Segment	2007-242T17:34	Aug30	Thu	43	1	3	TOST_049TI_T35 (2d); TOST_049TI (T35) Flyby
S33	49	49TI (t) [T35]	TITAN	2007-243T06:33	Aug31	Fri	43	10	4	Outbound 3324.2 km flyby, v = 6.1 km/s, phase = 87 deg
S33	49	XD	Segment	2007-244T16:20	Sep01	Sat	1	9	5	XD_049 (7d); Cross Discipline Segment 49
S33	49	OTM-125	49TI+2	2007-245T05:35	Sep02	Sun	2	8	6	D/L start, burn ~6h later. Backup D/L 246T13:05
S33	49	OTM-126	49IA-5	2007-248T12:50	Sep05	Wed	5	5	3	D/L start, burn ~6h later. Backup D/L 249T05:20
S33	49	OTM-127	49IA-2	2007-251T12:50	Sep08	Sat	8	2	3	D/L start, burn ~6h later. Backup D/L 252T12:45
S33	49	SOST	Segment	2007-251T21:50	Sep08	Sat	9	2	0	SOST_049IA (4d); SOST rev 49 targeted Iapetus
S33	49	49IA (t) [I1]	IAPETUS	2007-253T14:16	Sep10	Mon	10	22	2	Outbound 1621.6 km flyby, v = 2.4 km/s, phase = 59 deg
S33	49	XD	Segment	2007-255T21:35	Sep12	Wed	2	19	4	XD_049_050 (16d); Cross Discipline Segment Outbound 49 - Inbound 50
S33	49	OTM-128	49IA+3	2007-256T12:20	Sep13	Thu	3	19	5	D/L start, burn ~6h later. Backup D/L 257T12:21
S33	50	Apoapse		2007-257T11:38	Sep14	Fri	4	18	1	Per = 32.0 d, inc = 6.1 deg, r = 59.736 Rs, phase = 42 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S33	50	**OTM-129**	49IA+7	2007-260T12:21	Sep17	Mon	7	15	4	D/L start, burn ~6h later. Backup D/L 261T04:51
S34	50	**S34 Begins**		2007-265T20:51	Sep22	Sat	12	9	5	S34 Sequence. Duration = 39 d
S34	50	**OTM-130**	50TI-3	2007-271T11:36	Sep28	Fri	18	4	11	D/L start, burn ~6h later. Backup D/L 272T04:06
S34	50	**SOST**	**Segment**	2007-271T20:36	Sep28	Fri	18	3	0	SOST_050 (3d); SOST segment in rev 50 (non-targeteds)
S34	50	50DI (nt)	**DIONE**	2007-273T05:48	Sep30	Sun	20	2	2	Inbound 43433.5 km flyby, v = 5.7 km/s, phase = 49 deg
S34	50	Ring CRX	Ascending	2007-273T06:06	Sep30	Sun	20	2	2	r = 5.776 Rs (348456 km)
S34	50	**Earth OCC**	SATURN	2007-273T07:10	Sep30	Sun	20	2	2	Egress = 2007-273T08:49 (99 min)
S34	50	**Sun OCC**	SATURN	2007-273T07:15	Sep30	Sun	20	2	2	Egress = 2007-273T08:10 (56 min)
S34	50	50EN (nt)	**ENCELADUS**	2007-273T10:51	Sep30	Sun	20	2	2	Inbound 101494.2 km flyby, v = 6.5 km/s, phase = 95 deg
S34	50	Periapse		2007-273T11:29	Sep30	Sun	20	2	2	R = 4.701 Rs, lat = 5 deg, phase = 138 deg
S34	50	50TL (nt)	**TELESTO**	2007-273T15:08	Sep30	Sun	20	2	2	Outbound 75929.3 km flyby, v = 7.7 km/s, phase = 163 deg
S34	50	**TOST**	**Segment**	2007-274T12:51	Oct01	Mon	21	1	3	TOST_050TI_T36 (2d); TOST_050TI (T36) Flyby
S34	50	Ring CRX	Descending	2007-274T22:50	Oct01	Mon	21	0	3	r = 17.690 Rs (1067231 km)
S34	50	**50TI (t) [T36]**	**TITAN**	2007-275T04:43	Oct02	Tue	22	48	4	Outbound 973.0 km flyby, v = 6.3 km/s, phase = 67 deg
S34	50	Ring CRX	Ascending	2007-275T15:08	Oct02	Tue	0	47	4	r = 22.856 Rs (1378899 km)
S34	50	**XD**	**Segment**	2007-276T14:19	Oct03	Wed	1	46	5	XD_50 (3d); XD rev 50 before CDS V10
S34	50	**OTM-131**	50TI+3	2007-278T11:22	Oct05	Fri	3	45	7	D/L start, burn ~6h later. Backup D/L 279T11:07
S34	50	**V10**	**Segment**	2007-279T20:07	Oct06	Sat	5	43	1	V10_Transition (12d); CDS V10 upload
S34	51	**Apoapse**		2007-285T09:52	Oct12	Fri	10	38	7	Per = 23.8 d, inc = 5.0 deg, r = 49.165 Rs, phase = 36 deg
S34	51	**XD**	**Segment**	2007-291T19:38	Oct18	Thu	17	31	13	XD_51 (4d); XD rev 51 post CDS V10
S34	51	51HY (nt)	**HYPERION**	2007-294T15:01	Oct21	Sun	19	28	16	Inbound 121741.8 km flyby, v = 4.9 km/s, phase = 116 deg
S34	51	51TI (nt)	**TITAN**	2007-295T01:12	Oct22	Mon	20	28	17	Inbound 438394.5 km flyby, v = 4.2 km/s, phase = 30 deg
S34	51	**RINGS**	**Segment**	2007-295T19:23	Oct22	Mon	21	27	17	RINGS_Rev_51 (3d); RINGS Rev 51
S34	51	51HE (nt)	**HELENE**	2007-297T00:33	Oct24	Wed	22	26	19	Inbound 23943.1 km flyby, v = 7.7 km/s, phase = 76 deg
S34	51	**Sun OCC**	SATURN	2007-297T05:05	Oct24	Wed	22	26	19	Egress = 2007-297T06:18 (73 min)
S34	51	**Earth OCC**	SATURN	2007-297T05:14	Oct24	Wed	22	26	19	Egress = 2007-297T06:48 (94 min)
S34	51	E_ring_lg	Dust Crossing	2007-297T05:16	Oct24	Wed	22	26	19	Egress at 2007-297T05:39 (23 min); protection = none.
S34	51	Ring CRX	Descending	2007-297T05:28	Oct24	Wed	22	26	19	r = 4.184 Rs (252413 km)
S34	51	51PM (nt)	**PROMETHEUS**	2007-297T06:30	Oct24	Wed	22	26	19	Inbound 104597.4 km flyby, v = 1.5 km/s, phase = 166 deg
S34	51	Periapse		2007-297T07:56	Oct24	Wed	22	26	19	R = 3.807 Rs, lat = -3 deg, phase = 145 deg
S34	51	**XD**	**Segment**	2007-298T19:09	Oct25	Thu	24	24	20	XD_051_052 (20d); Cross Discipline Segment Outbound 51 - Inbound 52
S34	51	Ring CRX	Ascending	2007-299T10:28	Oct26	Fri	24	24	21	r = 22.606 Rs (1363833 km)
S35	51	**S35 Begins**		2007-304T18:40	Oct31	Wed	30	18	26	S35 Sequence. Duration = 44 d
S35	51	**OTM-132**	~APO	2007-305T09:40	Nov01	Thu	30	18	27	D/L start, burn ~6h later. Backup D/L 306T09:40
S35	52	**Apoapse**		2007-309T07:54	Nov05	Mon	34	14	4	Per = 24.0 d, inc = 5.0 deg, r = 49.390 Rs, phase = 35 deg
S35	52	**SOST**	**Segment**	2007-318T17:56	Nov14	Wed	44	4	13	SOST_052 (2d); SOST segment in rev 52 (non-targeteds)
S35	52	**OTM-133**	52TI-3	2007-319T08:56	Nov15	Thu	44	4	14	D/L start, burn ~6h later. Backup D/L 321T08:42
S35	52	**RINGS**	**Segment**	2007-320T17:41	Nov16	Fri	46	2	1	RINGS_Rev_52 (2d); RINGS Rev 52
S35	52	52RH (nt)	**RHEA**	2007-320T19:43	Nov16	Fri	46	2	1	Inbound 91621.1 km flyby, v = 9.3 km/s, phase = 150 deg
S35	52	**Sun OCC**	SATURN	2007-321T05:02	Nov17	Sat	46	2	2	Egress = 2007-321T06:18 (76 min)
S35	52	E_ring_lg	Dust Crossing	2007-321T05:09	Nov17	Sat	46	2	2	Egress at 2007-321T05:32 (23 min); protection = none.
S35	52	**Earth OCC**	SATURN	2007-321T05:14	Nov17	Sat	46	2	2	Egress = 2007-321T06:52 (98 min)
S35	52	Ring CRX	Descending	2007-321T05:21	Nov17	Sat	46	2	2	r = 4.191 Rs (252864 km)
S35	52	52AE (nt)	**AEGAEON**	2007-321T06:15	Nov17	Sat	46	2	2	Inbound 99721.6 km flyby, v = 3.3 km/s, phase = 150 deg
S35	52	52PA (nt)	**PANDORA**	2007-321T06:59	Nov17	Sat	46	2	2	Inbound 93408.3 km flyby, v = 1.6 km/s, phase = 163 deg
S35	52	Periapse		2007-321T07:52	Nov17	Sat	46	2	2	R = 3.801 Rs, lat = -3 deg, phase = 145 deg
S35	52	52PN (nt)	**PAN**	2007-321T08:05	Nov17	Sat	46	2	2	Outbound 96661.9 km flyby, v = 1.3 km/s, phase = 138 deg
S35	52	52EP (nt)	**EPIMETHEUS**	2007-321T09:20	Nov17	Sat	46	2	2	Outbound 99466.0 km flyby, v = 1.9 km/s, phase = 102 deg
S35	52	52CA (nt)	**CALYPSO**	2007-321T12:35	Nov17	Sat	46	2	2	Outbound 87970.0 km flyby, v = 10.5 km/s, phase = 147 deg
S35	52	**TOST**	**Segment**	2007-322T10:12	Nov18	Sun	47	1	3	TOST_052TI_T37 (2d); TOST_052TI (T37) Flyby
S35	52	**52TI (t) [T37]**	**TITAN**	2007-323T00:47	Nov19	Mon	48	16	4	Outbound 999.4 km flyby, v = 6.3 km/s, phase = 51 deg
S35	52	Ring CRX	Ascending	2007-323T04:36	Nov19	Mon	0	16	4	r = 20.832 Rs (1256788 km)
S35	52	**XD**	**Segment**	2007-324T09:57	Nov20	Tue	1	15	5	XD_052_053 (5d); Cross Discipline Segment Outbound 52 - Inbound 53
S35	52	**OTM-134**	52TI+3	2007-326T00:57	Nov22	Thu	3	13	7	D/L start, burn ~6h later. Backup D/L 327T08:28
S35	53	**Apoapse**		2007-329T07:54	Nov25	Sun	6	10	3	Per = 16.0 d, inc = 12.0 deg, r = 38.004 Rs, phase = 25 deg
S35	53	**MAG**	**Segment**	2007-329T17:13	Nov25	Sun	7	9	4	MAG_053_A (3d); MAG rev 53 doy 329
S35	53	**OTM-135**	~APO	2007-331T00:43	Nov27	Tue	8	8	5	D/L start, burn ~6h later. Backup D/L 332T07:58
S35	53	**RINGS**	**Segment**	2007-332T16:58	Nov28	Wed	10	6	2	RINGS_Rev_53in (4d); RINGS Rev 53in
S35	53	**OTM-136**	53TI-2	2007-336T07:44	Dec02	Sun	13	3	5	D/L start, burn ~6h later. Backup D/L 337T09:10
S35	53	**MAG**	**Segment**	2007-336T16:44	Dec02	Sun	14	2	0	MAG_053_B (2d); MAG rev 53 doy 336
S35	53	**Sun OCC**	RING	2007-337T04:56	Dec03	Mon	14	2	1	Egress = 2007-337T06:24 (89 min)
S35	53	**Earth OCC**	RING	2007-337T05:16	Dec03	Mon	14	2	1	Egress = 2007-337T06:30 (75 min)
S35	53	53TL (nt)	**TELESTO**	2007-337T05:23	Dec03	Mon	14	2	1	Inbound 119570.5 km flyby, v = 8.9 km/s, phase = 20 deg
S35	53	53MI (nt)	**MIMAS**	2007-337T05:26	Dec03	Mon	14	2	1	Inbound 84254.0 km flyby, v = 15.0 km/s, phase = 139 deg
S35	53	53AE (nt)	**AEGAEON**	2007-337T06:03	Dec03	Mon	14	2	1	Inbound 81097.7 km flyby, v = 15.0 km/s, phase = 131 deg
S35	53	**Sun OCC**	SATURN	2007-337T06:10	Dec03	Mon	14	2	1	Egress = 2007-337T07:33 (83 min)
S35	53	**Earth OCC**	SATURN	2007-337T06:21	Dec03	Mon	14	2	1	Egress = 2007-337T07:47 (86 min)
S35	53	G_ring	Dust Crossing	2007-337T06:41	Dec03	Mon	14	2	1	Egress at 2007-337T06:42 (1 min); protection = none.
S35	53	Ring CRX	Descending	2007-337T06:42	Dec03	Mon	14	2	1	r = 2.672 Rs (161217 km)
S35	53	53EP (nt)	**EPIMETHEUS**	2007-337T06:52	Dec03	Mon	14	2	1	Inbound 9176.0 km flyby, v = 7.6 km/s, phase = 141 deg
S35	53	Periapse		2007-337T07:40	Dec03	Mon	14	2	1	R = 2.535 Rs, lat = -6 deg, phase = 155 deg
S35	53	**TOST**	**Segment**	2007-338T09:14	Dec04	Tue	15	1	2	TOST_053TI_T38 (2d); TOST_053TI (T38) Flyby
S35	53	**53TI (t) [T38]**	**TITAN**	2007-339T00:07	Dec05	Wed	16	16	3	Outbound 1298.3 km flyby, v = 6.3 km/s, phase = 70 deg
S35	53	Ring CRX	Ascending	2007-339T02:17	Dec05	Wed	0	16	3	r = 20.329 Rs (1226457 km)
S35	53	**RINGS**	**Segment**	2007-340T09:29	Dec06	Thu	1	15	4	RINGS_Rev_53out (2d); RINGS Rev 53out
S35	53	**OTM-137**	53TI+3	2007-342T00:00	Dec08	Sat	3	13	6	D/L start, burn ~6h later. Backup D/L 343T07:30
S35	53	**MAG**	**Segment**	2007-342T09:00	Dec08	Sat	3	13	0	MAG_53_54 (6d); MAG rev 53/54
S35	54	**Apoapse**		2007-345T05:34	Dec11	Tue	6	10	3	Per = 16.0 d, inc = 26.0 deg, r = 37.492 Rs, phase = 30 deg
S35	54	**OTM-138**	~APO	2007-347T01:10	Dec13	Thu	8	8	5	D/L start, burn ~6h later. Backup D/L 348T07:00
S36	54	**S36 Begins**		2007-348T16:00	Dec14	Fri	10	6	2	S36 Sequence. Duration = 39 d
S36	54	**SATURN**	**Segment**	2007-348T16:00	Dec14	Fri	10	6	2	Saturn_054 (6d); Saturn_054
S36	54	**OTM-139**	54TI-3	2007-351T23:16	Dec17	Mon	13	3	5	D/L start, burn ~6h later. Backup D/L 353T06:46
S36	54	**Sun OCC**	RING	2007-353T02:04	Dec19	Wed	14	2	1	Egress = 2007-353T03:13 (70 min)
S36	54	**Earth OCC**	RING	2007-353T02:30	Dec19	Wed	14	2	1	Egress = 2007-353T03:20 (50 min)
S36	54	**Sun OCC**	SATURN	2007-353T03:07	Dec19	Wed	14	2	1	Egress = 2007-353T04:22 (75 min)
S36	54	**Earth OCC**	SATURN	2007-353T03:24	Dec19	Wed	14	2	1	Egress = 2007-353T04:39 (76 min)
S36	54	Ring CRX	Descending	2007-353T03:35	Dec19	Wed	14	2	1	r = 3.241 Rs (195514 km)
S36	54	Periapse		2007-353T05:04	Dec19	Wed	14	2	1	R = 3.023 Rs, lat = -13 deg, phase = 150 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S36	54	**TOST**	**Segment**	2007-354T08:16	Dec20	Thu	15	1	2	TOST_054TI_T39 (2d); TOST_054TI (T39) Flyby
S36	54	**54TI (t) [T39]**	**TITAN**	2007-354T22:58	Dec20	Thu	16	16	3	Outbound 969.5 km flyby, v = 6.3 km/s, phase = 61 deg
S36	54	Ring CRX	Ascending	2007-355T00:15	Dec21	Fri	0	16	3	r = 20.062 Rs (1210337 km)
S36	54	**MAG**	**Segment**	2007-356T08:57	Dec22	Sat	1	15	4	MAG_54_55 (10d); MAG rev 54/55
S36	54	**OTM-140**	54TI+3	2007-357T23:02	Dec23	Sun	3	13	6	D/L start, burn ~6h later. Backup D/L 359T06:17
S36	55	**Apoapse**		2007-361T01:29	Dec27	Thu	6	10	3	Per = 15.9 d, inc = 37.7 deg, r = 36.521 Rs, phase = 37 deg
S36	55	**OTM-141**	~APO	2007-363T06:02	Dec29	Sat	8	8	5	D/L start, burn ~6h later. Backup D/L 364T06:02
S36	55	**SATURN**	**Segment**	2008-001T15:03	Jan01	Tue	12	4	3	Saturn_055 (4d); Saturn_055 Periapse
S36	55	**OTM-142**	55TI-3	2008-002T22:18	Jan02	Wed	13	3	5	D/L start, burn ~6h later. Backup D/L 004T07:18
S36	55	55DI (nt)	**DIONE**	2008-003T20:13	Jan03	Thu	14	2	1	Inbound 121807.0 km flyby, v = 11.1 km/s, phase = 76 deg
S36	55	**Sun OCC**	RING	2008-003T20:28	Jan03	Thu	14	2	1	Egress = 2008-003T21:24 (57 min)
S36	55	**Earth OCC**	RING	2008-003T20:54	Jan03	Thu	14	2	1	Egress = 2008-003T21:34 (40 min)
S36	55	55PL (nt)	**PALLENE**	2008-003T21:52	Jan03	Thu	14	2	1	Inbound 105665.4 km flyby, v = 9.4 km/s, phase = 120 deg
S36	55	Ring CRX	Descending	2008-003T22:05	Jan03	Thu	14	2	1	r = 4.361 Rs (263075 km)
S36	55	55JA (nt)	**JANUS**	2008-003T22:11	Jan03	Thu	14	2	1	Inbound 118143.2 km flyby, v = 10.1 km/s, phase = 154 deg
S36	55	55DA (nt)	**DAPHNIS**	2008-003T22:50	Jan03	Thu	14	2	1	Inbound 119011.2 km flyby, v = 10.4 km/s, phase = 157 deg
S36	55	55PM (nt)	**PROMETHEUS**	2008-003T23:11	Jan03	Thu	14	2	1	Inbound 112567.1 km flyby, v = 10.5 km/s, phase = 152 deg
S36	55	55PA (nt)	**PANDORA**	2008-004T00:34	Jan04	Fri	14	2	1	Inbound 123126.8 km flyby, v = 11.3 km/s, phase = 119 deg
S36	55	Periapse		2008-004T00:48	Jan04	Fri	14	2	1	R = 3.970 Rs, lat = -22 deg, phase = 143 deg
S36	55	**TOST**	**Segment**	2008-005T05:48	Jan05	Sat	15	1	2	TOST_055TI_T40 (2d); TOST_055TI (T40) Flyby
S36	55	**55TI (t) [T40]**	**TITAN**	2008-005T21:30	Jan05	Sat	16	48	3	Outbound 1014.0 km flyby, v = 6.3 km/s, phase = 38 deg
S36	55	Ring CRX	Ascending	2008-005T22:21	Jan05	Sat	0	48	3	r = 19.934 Rs (1202592 km)
S36	55	**MAG**	**Segment**	2008-007T07:26	Jan07	Mon	1	46	4	MAG_55_56 (6d); MAG rev 55/56
S36	56	**Apoapse**		2008-009T22:55	Jan09	Wed	4	44	7	Per = 12.0 d, inc = 46.6 deg, r = 30.201 Rs, phase = 31 deg
S36	56	**RINGS**	**Segment**	2008-013T14:04	Jan13	Sun	8	40	11	RINGS_Rev_56 (6d); RINGS Rev 56
S36	56	**Sun OCC**	RING	2008-015T19:59	Jan15	Tue	10	38	13	Egress = 2008-015T20:49 (50 min)
S36	56	**Earth OCC**	RING	2008-015T20:14	Jan15	Tue	10	38	13	Egress = 2008-015T20:52 (38 min)
S36	56	**Sun OCC**	SATURN	2008-015T20:34	Jan15	Tue	10	38	13	Egress = 2008-015T21:33 (60 min)
S36	56	**Earth OCC**	SATURN	2008-015T20:55	Jan15	Tue	10	38	13	Egress = 2008-015T21:38 (43 min)
S36	56	Ring CRX	Descending	2008-015T21:04	Jan15	Tue	10	38	13	r = 3.451 Rs (208171 km)
S36	56	56ME (nt)	**METHONE**	2008-015T21:11	Jan15	Tue	10	38	13	Inbound 15618.6 km flyby, v = 13.7 km/s, phase = 142 deg
S36	56	**OTM-143**	55TI+P	2008-015T22:15	Jan15	Tue	10	38	13	D/L start, burn ~6h later. Backup D/L 016T21:19
S36	56	56PA (nt)	**PANDORA**	2008-015T22:20	Jan15	Tue	10	38	0	Inbound 95184.3 km flyby, v = 16.2 km/s, phase = 116 deg
S36	56	Periapse		2008-015T22:37	Jan15	Tue	10	38	0	R = 3.257 Rs, lat = -21 deg, phase = 149 deg
S36	56	Ring CRX	Ascending	2008-017T21:15	Jan17	Thu	12	36	2	r = 19.825 Rs (1196063 km)
S36	56	**MAG**	**Segment**	2008-019T13:49	Jan19	Sat	14	34	4	MAG_56_57 (5d); MAG rev 56/57
S36	57	**Apoapse**		2008-021T21:43	Jan21	Mon	16	32	6	Per = 11.9 d, inc = 46.6 deg, r = 30.120 Rs, phase = 31 deg
S37	57	**S37 Begins**		2008-022T13:35	Jan22	Tue	17	31	7	S37 Sequence. Duration = 25 d
S37	57	57TI (nt)	**TITAN**	2008-022T21:22	Jan22	Tue	17	31	7	Inbound 855499.6 km flyby, v = 4.5 km/s, phase = 69 deg
S37	57	**RINGS**	**Segment**	2008-024T13:20	Jan24	Thu	19	29	9	RINGS_Rev_57 (7d); RINGS Rev 57
S37	57	57TI (nt)	**TITAN**	2008-027T12:32	Jan27	Sun	22	26	12	Inbound 985542.3 km flyby, v = 9.4 km/s, phase = 60 deg
S37	57	**Sun OCC**	RING	2008-027T18:11	Jan27	Sun	22	26	12	Egress = 2008-027T18:59 (48 min)
S37	57	**Earth OCC**	RING	2008-027T18:21	Jan27	Sun	22	26	12	Egress = 2008-027T19:01 (40 min)
S37	57	**Sun OCC**	SATURN	2008-027T18:47	Jan27	Sun	22	26	12	Egress = 2008-027T19:44 (57 min)
S37	57	**Earth OCC**	SATURN	2008-027T19:03	Jan27	Sun	22	26	12	Egress = 2008-027T19:46 (43 min)
S37	57	Ring CRX	Descending	2008-027T19:14	Jan27	Sun	22	26	12	r = 3.452 Rs (208244 km)
S37	57	57AT (nt)	**ATLAS**	2008-027T19:15	Jan27	Sun	22	26	12	Inbound 75195.9 km flyby, v = 13.6 km/s, phase = 151 deg
S37	57	57EP (nt)	**EPIMETHEUS**	2008-027T20:17	Jan27	Sun	22	26	12	Inbound 89730.5 km flyby, v = 16.2 km/s, phase = 116 deg
S37	57	57PM (nt)	**PROMETHEUS**	2008-027T20:18	Jan27	Sun	22	26	12	Inbound 82364.0 km flyby, v = 15.4 km/s, phase = 125 deg
S37	57	57PA (nt)	**PANDORA**	2008-027T20:45	Jan27	Sun	22	26	12	Inbound 114391.8 km flyby, v = 17.3 km/s, phase = 109 deg
S37	57	Periapse		2008-027T20:47	Jan27	Sun	22	26	12	R = 3.257 Rs, lat = -21 deg, phase = 149 deg
S37	57	Ring CRX	Ascending	2008-029T19:10	Jan29	Tue	24	24	14	r = 19.764 Rs (1192387 km)
S37	57	**MAG**	**Segment**	2008-031T12:50	Jan31	Thu	26	22	16	MAG_57_58 (6d); MAG rev 57/58
S37	58	**Apoapse**		2008-033T20:08	Feb02	Sat	28	20	18	Per = 11.9 d, inc = 46.5 deg, r = 30.150 Rs, phase = 31 deg
S37	58	**OTM-144**	~APO	2008-036T20:06	Feb05	Tue	31	17	21	D/L start, burn ~6h later. Backup D/L 038T03:36
S37	58	**SATURN**	**Segment**	2008-037T05:06	Feb06	Wed	31	17	0	Saturn_058 (6d); Saturn_058
S37	58	**Sun OCC**	RING	2008-039T16:51	Feb08	Fri	34	14	3	Egress = 2008-039T17:37 (47 min)
S37	58	**Earth OCC**	RING	2008-039T16:56	Feb08	Fri	34	14	3	Egress = 2008-039T17:39 (43 min)
S37	58	58EP (nt)	**EPIMETHEUS**	2008-039T17:00	Feb08	Fri	34	14	3	Inbound 116981.6 km flyby, v = 13.4 km/s, phase = 121 deg
S37	58	**Sun OCC**	SATURN	2008-039T17:24	Feb08	Fri	34	14	3	Egress = 2008-039T18:23 (60 min)
S37	58	**Earth OCC**	SATURN	2008-039T17:33	Feb08	Fri	34	14	3	Egress = 2008-039T18:24 (51 min)
S37	58	Ring CRX	Descending	2008-039T17:52	Feb08	Fri	34	14	3	r = 3.461 Rs (208811 km)
S37	58	58PA (nt)	**PANDORA**	2008-039T19:23	Feb08	Fri	34	14	3	Inbound 114438.7 km flyby, v = 17.3 km/s, phase = 110 deg
S37	58	Periapse		2008-039T19:24	Feb08	Fri	34	14	3	R = 3.273 Rs, lat = -21 deg, phase = 149 deg
S37	58	58AT (nt)	**ATLAS**	2008-039T19:26	Feb08	Fri	34	14	3	Outbound 114718.7 km flyby, v = 17.2 km/s, phase = 110 deg
S37	58	Ring CRX	Ascending	2008-041T19:03	Feb10	Sun	36	12	5	r = 20.073 Rs (1211033 km)
S37	58	**MAG**	**Segment**	2008-043T12:06	Feb12	Tue	38	10	7	MAG_58_59 (6d); MAG rev 58/59
S37	59	**Apoapse**		2008-045T19:24	Feb14	Thu	40	8	9	Per = 12.0 d, inc = 47.0 deg, r = 30.236 Rs, phase = 30 deg
S38	59	**S38 Begins**		2008-047T11:51	Feb16	Sat	42	6	11	S38 Sequence. Duration = 36 d
S38	59	**SATURN**	**Segment**	2008-049T11:36	Feb18	Mon	44	4	13	Saturn_059 (4d); Saturn_059
S38	59	**OTM-145**	59TI-3	2008-050T02:36	Feb19	Tue	44	4	13	D/L start, burn ~6h later. Backup D/L 052T02:36
S38	59	**Earth OCC**	RING	2008-051T16:51	Feb20	Wed	46	2	2	Egress = 2008-051T17:36 (46 min)
S38	59	**Sun OCC**	RING	2008-051T16:51	Feb20	Wed	46	2	2	Egress = 2008-051T17:36 (46 min)
S38	59	**Sun OCC**	SATURN	2008-051T17:25	Feb20	Wed	46	2	2	Egress = 2008-051T18:21 (57 min)
S38	59	**Earth OCC**	SATURN	2008-051T17:28	Feb20	Wed	46	2	2	Egress = 2008-051T18:21 (53 min)
S38	59	Ring CRX	Descending	2008-051T17:51	Feb20	Wed	46	2	2	r = 3.459 Rs (208703 km)
S38	59	59PN (nt)	**PAN**	2008-051T17:51	Feb20	Wed	46	2	2	Inbound 79784.7 km flyby, v = 13.8 km/s, phase = 152 deg
S38	59	59PM (nt)	**PROMETHEUS**	2008-051T18:19	Feb20	Wed	46	2	2	Inbound 65853.1 km flyby, v = 14.2 km/s, phase = 152 deg
S38	59	59PA (nt)	**PANDORA**	2008-051T18:29	Feb20	Wed	46	2	2	Inbound 66345.2 km flyby, v = 14.5 km/s, phase = 145 deg
S38	59	59JA (nt)	**JANUS**	2008-051T19:08	Feb20	Wed	46	2	2	Inbound 110348.0 km flyby, v = 17.3 km/s, phase = 111 deg
S38	59	Periapse		2008-051T19:23	Feb20	Wed	46	2	2	R = 3.269 Rs, lat = -21 deg, phase = 150 deg
S38	59	**TOST**	**Segment**	2008-053T03:51	Feb22	Fri	47	1	3	TOST_059TI_T41 (2d); TOST_059TI (T41) Flyby
S38	59	**59TI (t) [T41]**	**TITAN**	2008-053T17:32	Feb22	Fri	48	19	4	Outbound 999.7 km flyby, v = 6.3 km/s, phase = 30 deg
S38	59	Ring CRX	Ascending	2008-053T18:22	Feb22	Fri	0	19	4	r = 19.908 Rs (1201040 km)
S38	59	**SATURN**	**Segment**	2008-055T11:21	Feb24	Sun	2	17	5	Saturn_059_060 (4d); Saturn Rev 59 Apoapsis
S38	60	**Apoapse**		2008-056T22:03	Feb25	Mon	3	16	7	Per = 10.6 d, inc = 56.1 deg, r = 27.074 Rs, phase = 31 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S38	60	**RINGS**	**Segment**	2008-059T10:51	Feb28	Thu	6	13	9	RINGS_Rev_60 (2d); RINGS_Rev_60
S38	60	**MAG**	**Segment**	2008-061T10:51	Mar01	Sat	8	11	11	MAG_60 (5d); MAG rev 60
S38	60	**OTM-146**	59TI+P	2008-061T16:56	Mar01	Sat	8	11	12	D/L start, burn ~6h later. Backup D/L 063T01:36
S38	60	**Earth OCC**	RING	2008-062T02:08	Mar02	Sun	8	11	0	Egress = 2008-062T02:53 (46 min)
S38	60	**Sun OCC**	RING	2008-062T02:12	Mar02	Sun	8	11	0	Egress = 2008-062T02:54 (42 min)
S38	60	**Earth OCC**	SATURN	2008-062T03:00	Mar02	Sun	8	11	0	Egress = 2008-062T03:13 (14 min)
S38	60	E_ring_lg	**DUST HAZARD**	2008-062T03:12	Mar02	Sun	8	11	0	Egress at 2008-062T03:14 (2 min); protection = MEA cover closure.
S38	60	Ring CRX	Descending	2008-062T03:13	Mar02	Sun	8	11	0	r = 3.943 Rs (237911 km)
S38	60	60DA (nt)	**DAPHNIS**	2008-062T03:45	Mar02	Sun	8	11	0	Inbound 97745.5 km flyby, v = 15.8 km/s, phase = 155 deg
S38	60	60PM (nt)	**PROMETHEUS**	2008-062T04:16	Mar02	Sun	8	11	0	Inbound 99680.5 km flyby, v = 16.3 km/s, phase = 141 deg
S38	60	Periapse		2008-062T05:04	Mar02	Sun	8	11	1	R = 3.747 Rs, lat = -23 deg, phase = 149 deg
S38	60	Ring CRX	Ascending	2008-064T08:33	Mar04	Tue	11	8	3	r = 19.987 Rs (1205797 km)
S38	60	**RINGS**	**Segment**	2008-066T10:21	Mar06	Thu	13	6	5	RINGS_Rev_60_61 (6d); RINGS Rev 60/61
S38	60	**OTM-147**	~APO	2008-067T01:21	Mar07	Fri	13	6	5	D/L start, burn ~6h later. Backup D/L 068T01:21
S38	61	**Apoapse**		2008-067T13:01	Mar07	Fri	14	5	0	Per = 10.7 d, inc = 56.1 deg, r = 27.222 Rs, phase = 31 deg
S38	61	**OTM-148**	61EN-3	2008-070T01:06	Mar10	Mon	16	3	3	D/L start, burn ~6h later. Backup D/L 071T01:06
S38	61	61TI (nt)	**TITAN**	2008-070T19:50	Mar10	Mon	17	2	1	Inbound 918311.7 km flyby, v = 6.3 km/s, phase = 124 deg
S38	61	**SOST**	**Segment**	2008-072T02:36	Mar12	Wed	18	1	2	SOST_061EN (1d); SOST segment in Rev 61 (targeted Enceladus)
S38	61	**Earth OCC**	RING	2008-072T17:57	Mar12	Wed	19	0	3	Egress = 2008-072T18:45 (48 min)
S38	61	**Sun OCC**	RING	2008-072T18:06	Mar12	Wed	19	0	3	Egress = 2008-072T18:47 (41 min)
S38	61	**Earth OCC**	SATURN	2008-072T18:43	Mar12	Wed	19	0	3	Egress = 2008-072T19:09 (26 min)
S38	61	E_ring_lg	**DUST HAZARD**	2008-072T19:05	Mar12	Wed	19	0	3	Egress at 2008-072T19:07 (2 min); protection = MEA cover closure.
S38	61	Ring CRX	Descending	2008-072T19:06	Mar12	Wed	19	0	3	r = 3.948 Rs (238198 km)
S38	61	**61EN (t) [E3]**	**ENCELADUS**	2008-072T19:06	Mar12	Wed	19	13	3	Inbound 47.9 km flyby, v = 14.4 km/s, phase = 137 deg
S38	61	**Earth OCC**	ENCELADUS	2008-072T19:06	Mar12	Wed	19	0	3	Egress = 2008-072T19:06 (1 min)
S38	61	**Sun OCC**	ENCELADUS	2008-072T19:06	Mar12	Wed	19	0	3	Egress = 2008-072T19:06 (1 min)
S38	61	61DA (nt)	**DAPHNIS**	2008-072T20:15	Mar12	Wed	0	13	3	Inbound 104055.9 km flyby, v = 16.4 km/s, phase = 139 deg
S38	61	Periapse		2008-072T20:57	Mar12	Wed	0	13	3	R = 3.751 Rs, lat = -23 deg, phase = 149 deg
S38	61	**RINGS**	**Segment**	2008-073T09:51	Mar13	Thu	1	12	3	RINGS_Rev_61_62 (12d); RINGS Rev 61/62
S38	61	**OTM-149**	61EN+1	2008-073T17:21	Mar13	Thu	1	12	4	D/L start, burn ~6h later. Backup D/L 075T00:51
S38	61	Ring CRX	Ascending	2008-075T00:16	Mar15	Sat	2	11	1	r = 19.937 Rs (1202819 km)
S38	61	**OTM-150**	~APO	2008-078T00:35	Mar18	Tue	5	8	4	D/L start, burn ~6h later. Backup D/L 079T00:35
S38	62	**Apoapse**		2008-078T04:34	Mar18	Tue	5	7	0	Per = 10.6 d, inc = 56.2 deg, r = 27.168 Rs, phase = 31 deg
S38	62	**OTM-151**	62TI-3	2008-082T16:50	Mar22	Sat	10	3	5	D/L start, burn ~6h later. Backup D/L 084T00:20
S39	62	**S39 Begins**		2008-083T01:50	Mar23	Sun	10	3	0	S39 Sequence. Duration = 27 d
S39	62	**Earth OCC**	RING	2008-083T09:08	Mar23	Sun	11	2	1	Egress = 2008-083T09:58 (50 min)
S39	62	**Sun OCC**	RING	2008-083T09:22	Mar23	Sun	11	2	1	Egress = 2008-083T10:01 (40 min)
S39	62	**Earth OCC**	SATURN	2008-083T09:51	Mar23	Sun	11	2	1	Egress = 2008-083T10:24 (33 min)
S39	62	E_ring_lg	**DUST HAZARD**	2008-083T10:19	Mar23	Sun	11	2	1	Egress at 2008-083T10:21 (2 min); protection = MEA cover closure.
S39	62	Ring CRX	Descending	2008-083T10:20	Mar23	Sun	11	2	1	r = 3.945 Rs (238020 km)
S39	62	62PL (nt)	**PALLENE**	2008-083T10:37	Mar23	Sun	11	2	1	Inbound 32685.5 km flyby, v = 15.0 km/s, phase = 135 deg
S39	62	62EP (nt)	**EPIMETHEUS**	2008-083T10:55	Mar23	Sun	11	2	1	Inbound 84178.8 km flyby, v = 15.6 km/s, phase = 152 deg
S39	62	62ME (nt)	**METHONE**	2008-083T11:24	Mar23	Sun	11	2	1	Inbound 102765.3 km flyby, v = 17.0 km/s, phase = 114 deg
S39	62	Periapse		2008-083T12:11	Mar23	Sun	11	2	1	R = 3.747 Rs, lat = -23 deg, phase = 149 deg
S39	62	**TOST**	**Segment**	2008-085T01:35	Mar25	Tue	12	1	2	TOST_062TI_T42 (2d); TOST_062TI (T42) Flyby
S39	62	**62TI (t) [T42]**	**TITAN**	2008-085T14:28	Mar25	Tue	13	48	3	Outbound 999.4 km flyby, v = 6.3 km/s, phase = 21 deg
S39	62	Ring CRX	Ascending	2008-085T15:10	Mar25	Tue	0	48	3	r = 19.859 Rs (1198064 km)
S39	62	**SATURN**	**Segment**	2008-087T01:20	Mar27	Thu	1	46	4	Saturn_062 (4d); Saturn_062/063 Apo
S39	63	**Apoapse**		2008-088T01:23	Mar28	Fri	2	45	5	Per = 9.6 d, inc = 63.1 deg, r = 24.525 Rs, phase = 31 deg
S39	63	**RINGS**	**Segment**	2008-091T08:34	Mar31	Mon	6	42	9	RINGS_Rev_63_64 (13d); RINGS Rev 63/64
S39	63	63TI (nt)	**TITAN**	2008-092T15:53	Apr01	Tue	7	41	10	Inbound 973782.7 km flyby, v = 12.9 km/s, phase = 36 deg
S39	63	**Earth OCC**	RING	2008-092T16:48	Apr01	Tue	7	41	10	Egress = 2008-092T17:39 (51 min)
S39	63	**Sun OCC**	RING	2008-092T17:07	Apr01	Tue	7	41	10	Egress = 2008-092T17:45 (38 min)
S39	63	63PL (nt)	**PALLENE**	2008-092T17:20	Apr01	Tue	7	41	10	Inbound 104465.7 km flyby, v = 14.8 km/s, phase = 123 deg
S39	63	Ring CRX	Descending	2008-092T18:09	Apr01	Tue	7	41	10	r = 4.490 Rs (270898 km)
S39	63	63AE (nt)	**AEGAEON**	2008-092T18:17	Apr01	Tue	7	41	10	Inbound 103559.2 km flyby, v = 15.9 km/s, phase = 157 deg
S39	63	63JA (nt)	**JANUS**	2008-092T19:09	Apr01	Tue	7	41	10	Inbound 117131.4 km flyby, v = 16.6 km/s, phase = 148 deg
S39	63	Periapse		2008-092T20:17	Apr01	Tue	7	41	10	R = 4.305 Rs, lat = -23 deg, phase = 149 deg
S39	63	Ring CRX	Ascending	2008-095T04:56	Apr04	Fri	10	38	13	r = 19.866 Rs (1198509 km)
S39	64	**Apoapse**		2008-097T15:15	Apr06	Sun	12	36	15	Per = 9.6 d, inc = 63.1 deg, r = 24.533 Rs, phase = 30 deg
S39	64	**OTM-152**	62TI+3d	2008-101T19:04	Apr10	Thu	16	32	19	D/L start, burn ~6h later. Backup D/L 102T22:48
S39	64	**Earth OCC**	RING	2008-102T06:42	Apr11	Fri	17	31	0	Egress = 2008-102T07:34 (52 min)
S39	64	**Sun OCC**	RING	2008-102T07:04	Apr11	Fri	17	31	1	Egress = 2008-102T07:41 (37 min)
S39	64	Ring CRX	Descending	2008-102T08:05	Apr11	Fri	17	31	1	r = 4.493 Rs (271035 km)
S39	64	64MI (nt)	**MIMAS**	2008-102T09:29	Apr11	Fri	17	31	1	Inbound 106553.0 km flyby, v = 17.1 km/s, phase = 129 deg
S39	64	Periapse		2008-102T10:13	Apr11	Fri	17	31	1	R = 4.307 Rs, lat = -23 deg, phase = 150 deg
S39	64	**SATURN**	**Segment**	2008-104T07:48	Apr13	Sun	19	29	3	Saturn_064 (6d); Saturn_064/065 Apo
S39	64	Ring CRX	Ascending	2008-104T18:44	Apr13	Sun	19	29	3	r = 19.830 Rs (1196317 km)
S39	65	**Apoapse**		2008-107T04:56	Apr16	Wed	22	26	5	Per = 9.6 d, inc = 63.1 deg, r = 24.493 Rs, phase = 30 deg
S40	65	**S40 Begins**		2008-110T07:18	Apr19	Sat	25	23	9	S40 sequence. Duration = 42 d
S40	65	**RINGS**	**Segment**	2008-110T07:18	Apr19	Sat	25	23	9	RINGS_Rev_65_66 (14d); RINGS Rev 65/66
S40	65	**Earth OCC**	RING	2008-111T20:08	Apr20	Sun	26	22	10	Egress = 2008-111T21:00 (53 min)
S40	65	**Sun OCC**	RING	2008-111T20:32	Apr20	Sun	26	22	10	Egress = 2008-111T21:08 (36 min)
S40	65	65MI (nt)	**MIMAS**	2008-111T20:44	Apr20	Sun	26	22	10	Inbound 116382.2 km flyby, v = 15.6 km/s, phase = 135 deg
S40	65	Ring CRX	Descending	2008-111T21:31	Apr20	Sun	26	22	10	r = 4.487 Rs (270725 km)
S40	65	65TL (nt)	**TELESTO**	2008-111T21:47	Apr20	Sun	26	22	10	Inbound 77619.0 km flyby, v = 15.5 km/s, phase = 88 deg
S40	65	65EP (nt)	**EPIMETHEUS**	2008-111T22:34	Apr20	Sun	26	21	10	Inbound 119100.9 km flyby, v = 16.8 km/s, phase = 148 deg
S40	65	Periapse		2008-111T23:39	Apr20	Sun	26	21	10	R = 4.301 Rs, lat = -23 deg, phase = 150 deg
S40	65	Ring CRX	Ascending	2008-114T08:05	Apr23	Wed	29	19	13	r = 19.816 Rs (1195507 km)
S40	66	**Apoapse**		2008-116T18:16	Apr25	Fri	31	17	15	Per = 9.6 d, inc = 63.1 deg, r = 24.485 Rs, phase = 30 deg
S40	66	**OTM-153**	~apo	2008-116T21:47	Apr25	Fri	31	17	15	D/L start, burn ~6h later. Backup D/L 117T21:47
S40	66	66TI (nt)	**TITAN**	2008-117T18:57	Apr26	Sat	32	16	1	Inbound 780171.4 km flyby, v = 5.5 km/s, phase = 94 deg
S40	66	**Earth OCC**	RING	2008-121T09:20	Apr30	Wed	36	12	4	Egress = 2008-121T10:13 (54 min)
S40	66	**Sun OCC**	RING	2008-121T09:46	Apr30	Wed	36	12	4	Egress = 2008-121T10:21 (35 min)
S40	66	66TL (nt)	**TELESTO**	2008-121T10:26	Apr30	Wed	36	12	5	Inbound 35745.3 km flyby, v = 14.5 km/s, phase = 45 deg
S40	66	Ring CRX	Descending	2008-121T10:44	Apr30	Wed	36	12	5	r = 4.480 Rs (270265 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S40	66	66PL (nt)	**PALLENE**	2008-121T11:51	Apr30	Wed	36	12	5	Inbound 93069.4 km flyby, v = 16.4 km/s, phase = 123 deg
S40	66	Periapse		2008-121T12:51	Apr30	Wed	36	12	5	R = 4.294 Rs, lat = -23 deg, phase = 150 deg
S40	66	Ring CRX	Ascending	2008-123T21:15	May02	Fri	38	10	7	r = 19.816 Rs (1195508 km)
S40	66	**SATURN**	**Segment**	2008-124T06:16	May03	Sat	39	9	7	Saturn_066 (6d); Saturn_066/067 Apo
S40	67	**Apoapse**		2008-126T07:32	May05	Mon	41	7	9	Per = 9.6 d, inc = 63.1 deg, r = 24.496 Rs, phase = 30 deg
S40	67	**OTM-154**	67TI-3d	2008-129T21:00	May08	Thu	44	4	13	D/L start, burn ~6h later. Backup D/L 130T12:00
S40	67	**RINGS**	**Segment**	2008-130T06:00	May09	Fri	45	3	0	RINGS_REV_67 (3d); RINGS_Rev_67
S40	67	**Earth OCC**	RING	2008-130T22:41	May09	Fri	45	2	1	Egress = 2008-130T23:34 (53 min)
S40	67	**Sun OCC**	RING	2008-130T23:09	May09	Fri	45	2	1	Egress = 2008-130T23:42 (34 min)
S40	67	67ME (nt)	**METHONE**	2008-130T23:36	May09	Fri	45	2	1	Inbound 95843.1 km flyby, v = 15.2 km/s, phase = 138 deg
S40	67	Ring CRX	Descending	2008-131T00:05	May10	Sat	45	2	1	r = 4.478 Rs (270164 km)
S40	67	67JA (nt)	**JANUS**	2008-131T00:06	May10	Sat	45	2	1	Inbound 120787.7 km flyby, v = 16.3 km/s, phase = 156 deg
S40	67	Periapse		2008-131T02:12	May10	Sat	45	2	1	R = 4.292 Rs, lat = -23 deg, phase = 150 deg
S40	67	**TOST**	**Segment**	2008-132T22:30	May11	Sun	47	0	3	TOST_067TI_T43 (2d); TOST_067TI (T43) Flyby
S40	67	**67TI (t) [T43]**	**TITAN**	2008-133T10:02	May12	Mon	48	16	4	Outbound 1001.4 km flyby, v = 6.3 km/s, phase = 36 deg
S40	67	Ring CRX	Ascending	2008-133T10:31	May12	Mon	0	16	4	r = 19.798 Rs (1194415 km)
S40	67	**RINGS**	**Segment**	2008-134T22:14	May13	Tue	2	14	5	RINGS_REV_67_68 (3d); RINGS_Rev_67_68
S40	68	**Apoapse**		2008-135T00:20	May14	Wed	2	14	5	Per = 8.0 d, inc = 69.3 deg, r = 22.293 Rs, phase = 24 deg
S40	68	**OTM-155**	67TI+5d	2008-137T19:20	May16	Fri	4	12	8	D/L start, burn ~6h later. Backup D/L 139T13:44
S40	68	**SATURN**	**Segment**	2008-138T04:20	May17	Sat	5	11	0	Saturn_068 (10d); Saturn_068_069
S40	68	**Earth OCC**	SATURN	2008-138T22:08	May17	Sat	6	10	1	Egress = 2008-138T23:19 (72 min)
S40	68	**Earth OCC**	RING	2008-138T22:09	May17	Sat	6	10	1	Egress = 2008-138T22:53 (45 min)
S40	68	**Sun OCC**	RING	2008-138T22:26	May17	Sat	6	10	1	Egress = 2008-138T22:56 (30 min)
S40	68	**Sun OCC**	SATURN	2008-138T22:44	May17	Sat	6	10	1	Egress = 2008-138T23:13 (30 min)
S40	68	68CA (nt)	**CALYPSO**	2008-138T23:03	May17	Sat	6	10	1	Inbound 111500.9 km flyby, v = 18.4 km/s, phase = 52 deg
S40	68	Ring CRX	Descending	2008-138T23:04	May17	Sat	6	10	1	r = 3.270 Rs (197266 km)
S40	68	68ME (nt)	**METHONE**	2008-138T23:36	May17	Sat	6	10	1	Inbound 78909.1 km flyby, v = 20.1 km/s, phase = 105 deg
S40	68	Periapse		2008-138T23:55	May17	Sat	6	10	1	R = 3.210 Rs, lat = -16 deg, phase = 156 deg
S40	68	68EP (nt)	**EPIMETHEUS**	2008-139T00:05	May18	Sun	6	10	1	Outbound 98913.1 km flyby, v = 21.5 km/s, phase = 118 deg
S40	68	Ring CRX	Ascending	2008-141T09:44	May20	Tue	8	8	4	r = 19.808 Rs (1195035 km)
S40	68	**OTM-156**	~apo	2008-142T20:13	May21	Wed	9	7	5	D/L start, burn ~6h later. Backup D/L 143T19:58
S40	69	**Apoapse**		2008-142T23:31	May21	Wed	10	6	0	Per = 8.0 d, inc = 69.3 deg, r = 22.291 Rs, phase = 24 deg
S40	69	**OTM-157**	69TI-3d	2008-145T19:58	May24	Sat	12	4	3	D/L start, burn ~6h later. Backup D/L 147T19:43
S40	69	**Earth OCC**	RING	2008-146T21:21	May25	Sun	13	2	1	Egress = 2008-146T22:05 (44 min)
S40	69	**Earth OCC**	SATURN	2008-146T21:21	May25	Sun	13	2	1	Egress = 2008-146T22:30 (70 min)
S40	69	**Sun OCC**	RING	2008-146T21:39	May25	Sun	13	2	1	Egress = 2008-146T22:08 (29 min)
S40	69	69AE (nt)	**AEGAEON**	2008-146T21:56	May25	Sun	13	2	1	Inbound 52211.8 km flyby, v = 19.0 km/s, phase = 119 deg
S40	69	**Sun OCC**	SATURN	2008-146T21:59	May25	Sun	13	2	1	Egress = 2008-146T22:22 (23 min)
S40	69	69PL (nt)	**PALLENE**	2008-146T22:06	May25	Sun	14	2	1	Inbound 28256.8 km flyby, v = 18.3 km/s, phase = 51 deg
S40	69	69AT (nt)	**ATLAS**	2008-146T22:14	May25	Sun	14	2	1	Inbound 60519.4 km flyby, v = 19.9 km/s, phase = 155 deg
S40	69	Ring CRX	Descending	2008-146T22:15	May25	Sun	14	2	1	r = 3.270 Rs (197262 km)
S40	69	69JA (nt)	**JANUS**	2008-146T22:50	May25	Sun	14	2	1	Inbound 63865.7 km flyby, v = 20.4 km/s, phase = 134 deg
S40	69	Periapse		2008-146T23:07	May25	Sun	14	2	1	R = 3.211 Rs, lat = -16 deg, phase = 156 deg
S40	69	**TOST**	**Segment**	2008-148T04:43	May27	Tue	15	1	2	TOST_069TI_T44 (3d); TOST_069TI (T44) Flyby
S40	69	**69TI (t) [T44]**	**TITAN**	2008-149T08:25	May28	Wed	16	64	4	Outbound 1400.0 km flyby, v = 6.3 km/s, phase = 21 deg
S40	69	Ring CRX	Ascending	2008-149T08:58	May28	Wed	0	64	4	r = 19.802 Rs (1194684 km)
S40	70	**Apoapse**		2008-150T09:16	May29	Thu	1	63	5	Per = 7.1 d, inc = 74.7 deg, r = 20.985 Rs, phase = 22 deg
S40	70	**RINGS**	**Segment**	2008-150T21:12	May29	Thu	2	62	5	RINGS_REV_70 (2d); RINGS_Rev_70
S41	70	**S41 Begins**		2008-152T04:27	May31	Sat	3	61	6	S41 sequence. Duration = 32 d
S41	70	**OTM-158**	69TI+4d	2008-152T18:27	May31	Sat	3	60	7	D/L start, burn ~6h later. Backup D/L 154T11:57
S41	70	**MAG**	**Segment**	2008-153T03:27	Jun01	Sun	4	60	0	MAG_70 (3d); MAG rev 70
S41	70	**Earth OCC**	SATURN	2008-153T21:33	Jun01	Sun	5	59	1	Egress = 2008-153T22:47 (74 min)
S41	70	**Earth OCC**	RING	2008-153T21:44	Jun01	Sun	5	59	1	Egress = 2008-153T22:22 (39 min)
S41	70	**Sun OCC**	SATURN	2008-153T21:53	Jun01	Sun	5	59	1	Egress = 2008-153T22:46 (53 min)
S41	70	**Sun OCC**	RING	2008-153T21:57	Jun01	Sun	5	59	1	Egress = 2008-153T22:23 (26 min)
S41	70	70PL (nt)	**PALLENE**	2008-153T22:01	Jun01	Sun	5	59	1	Inbound 115590.8 km flyby, v = 21.4 km/s, phase = 66 deg
S41	70	70JA (nt)	**JANUS**	2008-153T22:14	Jun01	Sun	5	59	1	Inbound 32923.3 km flyby, v = 22.1 km/s, phase = 109 deg
S41	70	Ring CRX	Descending	2008-153T22:26	Jun01	Sun	5	59	1	r = 2.731 Rs (164772 km)
S41	70	G_ring	**DUST HAZARD**	2008-153T22:26	Jun01	Sun	5	59	1	Egress at 2008-153T22:26 (1 min); protection = MEA cover closure.
S41	70	Periapse		2008-153T22:52	Jun01	Sun	5	59	1	R = 2.710 Rs, lat = -10 deg, phase = 158 deg
S41	70	**RINGS**	**Segment**	2008-156T04:11	Jun04	Wed	7	57	3	RINGS_REV_70_71 (4d); RINGS_Rev_70_71
S41	70	Ring CRX	Ascending	2008-156T12:25	Jun04	Wed	7	57	4	r = 19.836 Rs (1196682 km)
S41	71	**Apoapse**		2008-157T12:31	Jun05	Thu	8	56	5	Per = 7.1 d, inc = 74.7 deg, r = 20.991 Rs, phase = 22 deg
S41	71	**MAG**	**Segment**	2008-160T02:45	Jun08	Sun	11	53	7	MAG_71 (2d); MAG rev 71
S41	71	71PN (nt)	**PAN**	2008-161T00:43	Jun09	Mon	12	52	8	Inbound 116078.3 km flyby, v = 23.6 km/s, phase = 103 deg
S41	71	**Earth OCC**	SATURN	2008-161T00:52	Jun09	Mon	12	52	8	Egress = 2008-161T02:05 (73 min)
S41	71	**Earth OCC**	RING	2008-161T01:03	Jun09	Mon	12	52	8	Egress = 2008-161T01:40 (38 min)
S41	71	**Sun OCC**	SATURN	2008-161T01:13	Jun09	Mon	12	52	8	Egress = 2008-161T02:03 (51 min)
S41	71	**Sun OCC**	RING	2008-161T01:16	Jun09	Mon	12	52	8	Egress = 2008-161T01:41 (26 min)
S41	71	Ring CRX	Descending	2008-161T01:44	Jun09	Mon	12	52	8	r = 2.730 Rs (164708 km)
S41	71	G_ring	**DUST HAZARD**	2008-161T01:44	Jun09	Mon	12	52	8	Egress at 2008-161T01:44 (1 min); protection = MEA cover closure.
S41	71	Periapse		2008-161T02:09	Jun09	Mon	12	52	8	R = 2.710 Rs, lat = -10 deg, phase = 158 deg
S41	71	71PA (nt)	**PANDORA**	2008-161T02:16	Jun09	Mon	12	52	8	Outbound 64064.0 km flyby, v = 23.5 km/s, phase = 119 deg
S41	71	**RINGS**	**Segment**	2008-162T02:50	Jun10	Tue	13	51	9	RINGS_REV_71_72 (5d); RINGS_Rev_71_72
S41	71	Ring CRX	Ascending	2008-163T15:56	Jun11	Wed	14	49	11	r = 19.855 Rs (1197859 km)
S41	72	**Apoapse**		2008-164T15:44	Jun12	Thu	15	48	12	Per = 7.1 d, inc = 74.7 deg, r = 20.985 Rs, phase = 22 deg
S41	72	72TI (nt)	**TITAN**	2008-165T04:28	Jun13	Fri	16	48	12	Inbound 364575.1 km flyby, v = 5.8 km/s, phase = 88 deg
S41	72	**SATURN**	**Segment**	2008-167T03:40	Jun15	Sun	18	46	14	Saturn_072 (7d); Saturn_072_073
S41	72	**Earth OCC**	SATURN	2008-168T04:00	Jun16	Mon	19	45	15	Egress = 2008-168T05:11 (71 min)
S41	72	**Earth OCC**	RING	2008-168T04:10	Jun16	Mon	19	45	15	Egress = 2008-168T04:47 (37 min)
S41	72	**Sun OCC**	SATURN	2008-168T04:20	Jun16	Mon	19	45	15	Egress = 2008-168T05:09 (50 min)
S41	72	**Sun OCC**	RING	2008-168T04:23	Jun16	Mon	19	45	15	Egress = 2008-168T04:48 (25 min)
S41	72	Ring CRX	Descending	2008-168T04:50	Jun16	Mon	19	45	15	r = 2.713 Rs (163704 km)
S41	72	G_ring	**DUST HAZARD**	2008-168T04:50	Jun16	Mon	19	45	15	Egress at 2008-168T04:50 (1 min); protection = MEA cover closure.
S41	72	72EP (nt)	**EPIMETHEUS**	2008-168T05:00	Jun16	Mon	19	45	15	Inbound 23095.8 km flyby, v = 22.5 km/s, phase = 127 deg
S41	72	72PM (nt)	**PROMETHEUS**	2008-168T05:03	Jun16	Mon	19	45	15	Inbound 31846.0 km flyby, v = 22.8 km/s, phase = 142 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S41	72	Periapse		2008-168T05:15	Jun16	Mon	19	45	15	R = 2.694 Rs, lat = -10 deg, phase = 158 deg
S41	72	72ME (nt)	**METHONE**	2008-168T05:19	Jun16	Mon	19	45	15	Outbound 113224.3 km flyby, v = 23.3 km/s, phase = 100 deg
S41	72	Ring CRX	Ascending	2008-170T19:09	Jun18	Wed	21	42	18	r = 19.875 Rs (1199066 km)
S41	73	**Apoapse**		2008-171T18:47	Jun19	Thu	22	41	19	Per = 7.1 d, inc = 74.7 deg, r = 20.989 Rs, phase = 22 deg
S41	73	**MAG**	**Segment**	2008-174T03:09	Jun22	Sun	25	39	21	MAG_73 (2d); MAG rev 73
S41	73	**OTM-159**	~apo	2008-175T00:24	Jun23	Mon	26	38	22	D/L start, burn ~6h later. Backup D/L 175T09:24
S41	73	**Earth OCC**	SATURN	2008-175T07:07	Jun23	Mon	26	38	0	Egress = 2008-175T08:16 (69 min)
S41	73	**Earth OCC**	RING	2008-175T07:17	Jun23	Mon	26	38	0	Egress = 2008-175T07:52 (36 min)
S41	73	**Sun OCC**	SATURN	2008-175T07:26	Jun23	Mon	26	38	0	Egress = 2008-175T08:14 (48 min)
S41	73	**Sun OCC**	RING	2008-175T07:28	Jun23	Mon	26	38	0	Egress = 2008-175T07:53 (25 min)
S41	73	Ring CRX	Descending	2008-175T07:55	Jun23	Mon	26	38	0	r = 2.711 Rs (163573 km)
S41	73	G_ring	**DUST HAZARD**	2008-175T07:55	Jun23	Mon	26	38	0	Egress at 2008-175T07:55 (1 min); protection = MEA cover closure.
S41	73	73ME (nt)	**METHONE**	2008-175T08:06	Jun23	Mon	26	38	0	Inbound 55473.8 km flyby, v = 21.9 km/s, phase = 76 deg
S41	73	73PN (nt)	**PAN**	2008-175T08:18	Jun23	Mon	26	38	0	Inbound 48788.9 km flyby, v = 23.3 km/s, phase = 132 deg
S41	73	Periapse		2008-175T08:20	Jun23	Mon	26	38	0	R = 2.692 Rs, lat = -10 deg, phase = 158 deg
S41	73	**SATURN**	**Segment**	2008-175T18:24	Jun23	Mon	26	37	1	Saturn_073 (6d); Saturn_073_074
S41	73	Ring CRX	Ascending	2008-177T21:40	Jun25	Wed	29	35	3	r = 19.705 Rs (1188785 km)
S41	74	**Apoapse**		2008-178T20:45	Jun26	Thu	30	34	4	Per = 7.0 d, inc = 74.7 deg, r = 20.785 Rs, phase = 22 deg
S41	74	74TI (nt)	**TITAN**	2008-180T15:58	Jun28	Sat	31	32	6	Inbound 729791.6 km flyby, v = 7.9 km/s, phase = 107 deg
S41	74	**MAG**	**Segment**	2008-181T19:08	Jun29	Sun	32	31	7	MAG_74 (2d); MAG rev 74
S41	74	**Earth OCC**	SATURN	2008-182T07:59	Jun30	Mon	33	31	7	Egress = 2008-182T09:06 (67 min)
S41	74	**Earth OCC**	RING	2008-182T08:08	Jun30	Mon	33	31	7	Egress = 2008-182T08:42 (34 min)
S41	74	74PM (nt)	**PROMETHEUS**	2008-182T08:16	Jun30	Mon	33	31	7	Inbound 65577.1 km flyby, v = 22.6 km/s, phase = 106 deg
S41	74	**Sun OCC**	SATURN	2008-182T08:18	Jun30	Mon	33	31	7	Egress = 2008-182T09:03 (46 min)
S41	74	**Sun OCC**	RING	2008-182T08:19	Jun30	Mon	33	31	7	Egress = 2008-182T08:43 (24 min)
S41	74	Ring CRX	Descending	2008-182T08:45	Jun30	Mon	33	31	7	r = 2.708 Rs (163395 km)
S41	74	G_ring	**DUST HAZARD**	2008-182T08:45	Jun30	Mon	33	31	7	Egress at 2008-182T08:45 (1 min); protection = MEA cover closure.
S41	74	74EN (nt)	**ENCELADUS**	2008-182T08:47	Jun30	Mon	33	31	7	Inbound 83739.2 km flyby, v = 21.1 km/s, phase = 49 deg
S41	74	74JA (nt)	**JANUS**	2008-182T08:58	Jun30	Mon	33	31	7	Inbound 29622.3 km flyby, v = 22.6 km/s, phase = 124 deg
S41	74	74ME (nt)	**METHONE**	2008-182T09:05	Jun30	Mon	33	31	7	Inbound 84849.9 km flyby, v = 22.5 km/s, phase = 92 deg
S41	74	Periapse		2008-182T09:09	Jun30	Mon	33	31	7	R = 2.689 Rs, lat = -10 deg, phase = 158 deg
S41	74	74AE (nt)	**AEGAEON**	2008-182T09:21	Jun30	Mon	33	31	7	Outbound 95502.8 km flyby, v = 23.7 km/s, phase = 107 deg
S41	74	74AT (nt)	**ATLAS**	2008-182T09:22	Jun30	Mon	33	31	7	Outbound 73450.8 km flyby, v = 24.0 km/s, phase = 119 deg
S42	74	**END OF PRIME MISSION**		2008-183T19:08	Jul01	Tue	34	29	9	End of prime mission / start of Equinox mission (2008-2010)
S42	74	**S42 Begins**		2008-183T19:08	Jul01	Tue	34	29	9	S42 sequence. Duration = 40 d
S42	74	**RINGS**	**Segment**	2008-183T19:08	Jul01	Tue	34	29	9	RINGS_REV_74_75 (8d); Rings Rev 74/75
S42	74	Ring CRX	Ascending	2008-184T22:44	Jul02	Wed	36	28	10	r = 19.728 Rs (1190164 km)
S42	75	**Apoapse**		2008-185T21:33	Jul03	Thu	37	27	11	Per = 7.0 d, inc = 74.8 deg, r = 20.783 Rs, phase = 22 deg
S42	75	**Earth OCC**	SATURN	2008-189T08:50	Jul07	Mon	40	24	14	Egress = 2008-189T09:54 (65 min)
S42	75	75JA (nt)	**JANUS**	2008-189T08:57	Jul07	Mon	40	24	14	Inbound 81936.3 km flyby, v = 22.6 km/s, phase = 94 deg
S42	75	**Earth OCC**	RING	2008-189T08:58	Jul07	Mon	40	24	14	Egress = 2008-189T09:30 (33 min)
S42	75	**Sun OCC**	RING	2008-189T09:08	Jul07	Mon	40	24	14	Egress = 2008-189T09:31 (24 min)
S42	75	**Sun OCC**	SATURN	2008-189T09:08	Jul07	Mon	40	24	14	Egress = 2008-189T09:51 (44 min)
S42	75	G_ring	**DUST HAZARD**	2008-189T09:30	Jul07	Mon	40	24	14	Egress at 2008-189T09:30 (1 min); protection = MEA cover closure.
S42	75	Ring CRX	Descending	2008-189T09:34	Jul07	Mon	40	24	14	r = 2.707 Rs (163287 km)
S42	75	75PA (nt)	**PANDORA**	2008-189T09:39	Jul07	Mon	40	24	14	Inbound 22901.6 km flyby, v = 22.6 km/s, phase = 159 deg
S42	75	Periapse		2008-189T09:58	Jul07	Mon	40	24	14	R = 2.688 Rs, lat = -10 deg, phase = 158 deg
S42	75	75ME (nt)	**METHONE**	2008-189T10:03	Jul07	Mon	40	24	14	Outbound 116250.6 km flyby, v = 23.4 km/s, phase = 102 deg
S42	75	Ring CRX	Ascending	2008-191T23:47	Jul09	Wed	43	21	17	r = 19.751 Rs (1191551 km)
S42	75	**SATURN**	**Segment**	2008-192T02:07	Jul10	Thu	43	21	17	Saturn_076 (10d); Saturn_075_076_077
S42	76	**Apoapse**		2008-192T22:22	Jul10	Thu	44	20	18	Per = 7.0 d, inc = 74.8 deg, r = 20.784 Rs, phase = 22 deg
S42	76	**Earth OCC**	SATURN	2008-196T09:41	Jul14	Mon	47	17	21	Egress = 2008-196T10:43 (62 min)
S42	76	**Earth OCC**	RING	2008-196T09:48	Jul14	Mon	47	17	21	Egress = 2008-196T10:19 (31 min)
S42	76	**Sun OCC**	RING	2008-196T09:57	Jul14	Mon	47	17	21	Egress = 2008-196T10:20 (23 min)
S42	76	**Sun OCC**	SATURN	2008-196T09:58	Jul14	Mon	47	17	21	Egress = 2008-196T10:39 (42 min)
S42	76	76DA (nt)	**DAPHNIS**	2008-196T10:06	Jul14	Mon	47	17	21	Inbound 44006.3 km flyby, v = 22.6 km/s, phase = 119 deg
S42	76	76PM (nt)	**PROMETHEUS**	2008-196T10:13	Jul14	Mon	47	17	21	Inbound 32626.6 km flyby, v = 22.5 km/s, phase = 127 deg
S42	76	G_ring	**DUST HAZARD**	2008-196T10:20	Jul14	Mon	47	17	21	Egress at 2008-196T10:20 (1 min); protection = MEA cover closure.
S42	76	Ring CRX	Descending	2008-196T10:23	Jul14	Mon	47	17	21	r = 2.707 Rs (163313 km)
S42	76	76PL (nt)	**PALLENE**	2008-196T10:37	Jul14	Mon	47	17	21	Inbound 91903.1 km flyby, v = 22.1 km/s, phase = 84 deg
S42	76	Periapse		2008-196T10:46	Jul14	Mon	47	17	21	R = 2.689 Rs, lat = -10 deg, phase = 158 deg
S42	76	76TI (nt)	**TITAN**	2008-197T21:27	Jul15	Tue	49	15	23	Outbound 542890.6 km flyby, v = 8.4 km/s, phase = 127 deg
S42	76	Ring CRX	Ascending	2008-199T00:52	Jul17	Thu	50	14	24	r = 19.779 Rs (1193261 km)
S42	77	**Apoapse**		2008-199T23:12	Jul17	Thu	51	13	25	Per = 7.0 d, inc = 74.7 deg, r = 20.790 Rs, phase = 22 deg
S42	77	**RINGS**	**Segment**	2008-202T01:21	Jul20	Sun	53	11	27	RINGS_REV_77 (4d); Rings Rev 77
S42	77	**Earth OCC**	SATURN	2008-203T10:38	Jul21	Mon	54	10	28	Egress = 2008-203T11:36 (59 min)
S42	77	**Earth OCC**	RING	2008-203T10:44	Jul21	Mon	54	10	28	Egress = 2008-203T11:13 (30 min)
S42	77	**Sun OCC**	RING	2008-203T10:51	Jul21	Mon	54	10	28	Egress = 2008-203T11:14 (23 min)
S42	77	**Sun OCC**	SATURN	2008-203T10:53	Jul21	Mon	54	10	28	Egress = 2008-203T11:32 (40 min)
S42	77	77PL (nt)	**PALLENE**	2008-203T11:07	Jul21	Mon	54	10	28	Inbound 59391.5 km flyby, v = 21.0 km/s, phase = 26 deg
S42	77	77AE (nt)	**AEGAEON**	2008-203T11:12	Jul21	Mon	54	10	28	Inbound 12268.7 km flyby, v = 21.8 km/s, phase = 61 deg
S42	77	G_ring	**DUST HAZARD**	2008-203T11:15	Jul21	Mon	54	10	28	Egress at 2008-203T11:15 (1 min); protection = MEA cover closure.
S42	77	Ring CRX	Descending	2008-203T11:16	Jul21	Mon	54	10	28	r = 2.709 Rs (163459 km)
S42	77	77AT (nt)	**ATLAS**	2008-203T11:24	Jul21	Mon	54	10	28	Inbound 28114.5 km flyby, v = 22.7 km/s, phase = 155 deg
S42	77	Periapse		2008-203T11:40	Jul21	Mon	54	10	28	R = 2.692 Rs, lat = -10 deg, phase = 158 deg
S42	77	77DA (nt)	**DAPHNIS**	2008-203T12:00	Jul21	Mon	54	10	28	Outbound 85402.8 km flyby, v = 24.4 km/s, phase = 118 deg
S42	77	77PN (nt)	**PAN**	2008-203T12:04	Jul21	Mon	54	10	28	Outbound 90510.1 km flyby, v = 24.6 km/s, phase = 118 deg
S42	77	**SATURN**	**Segment**	2008-206T01:21	Jul24	Thu	57	7	31	Saturn_078 (3d); Saturn_077_078
S42	77	Ring CRX	Ascending	2008-206T02:02	Jul24	Thu	57	7	31	r = 19.806 Rs (1194896 km)
S42	78	**Apoapse**		2008-207T00:09	Jul25	Fri	58	6	32	Per = 7.0 d, inc = 74.7 deg, r = 20.794 Rs, phase = 22 deg
S42	78	**RINGS**	**Segment**	2008-209T01:06	Jul27	Sun	60	4	34	RINGS_REV_78 (3d); Rings Rev 78
S42	78	**OTM-160**	78TI-3d	2008-209T08:36	Jul27	Sun	60	4	34	D/L start, burn ~6h later. Backup D/L 210T17:00
S42	78	78PN (nt)	**PAN**	2008-210T11:25	Jul28	Mon	61	3	1	Inbound 97257.5 km flyby, v = 23.3 km/s, phase = 102 deg
S42	78	**Earth OCC**	SATURN	2008-210T11:39	Jul28	Mon	61	3	1	Egress = 2008-210T12:34 (55 min)
S42	78	**Earth OCC**	RING	2008-210T11:44	Jul28	Mon	61	3	1	Egress = 2008-210T12:11 (28 min)
S42	78	**Sun OCC**	RING	2008-210T11:50	Jul28	Mon	61	3	1	Egress = 2008-210T12:12 (22 min)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S42	78	Sun OCC	SATURN	2008-210T11:53	Jul28	Mon	61	3	1	Egress = 2008-210T12:30 (37 min)
S42	78	Ring CRX	Descending	2008-210T12:14	Jul28	Mon	61	3	1	r = 2.709 Rs (163457 km)
S42	78	G_ring	DUST HAZARD	2008-210T12:14	Jul28	Mon	61	3	1	Egress at 2008-210T12:14 (1 min); protection = MEA cover closure.
S42	78	78PM (nt)	PROMETHEUS	2008-210T12:19	Jul28	Mon	61	3	1	Inbound 24668.7 km flyby, v = 22.6 km/s, phase = 160 deg
S42	78	Periapse		2008-210T12:37	Jul28	Mon	61	3	1	R = 2.692 Rs, lat = -10 deg, phase = 158 deg
S42	78	78EP (nt)	EPIMETHEUS	2008-210T13:02	Jul28	Mon	61	3	1	Outbound 107124.7 km flyby, v = 24.6 km/s, phase = 113 deg
S42	78	TOST	Segment	2008-212T07:20	Jul30	Wed	63	1	3	TOST_78_79_T45 (2d); Titan Flyby T45
S42	78	78TI (t) [T45]	TITAN	2008-213T02:13	Jul31	Thu	64	12	4	Outbound 1613.8 km flyby, v = 6.2 km/s, phase = 49 deg
S42	78	Ring CRX	Ascending	2008-213T03:01	Jul31	Thu	0	12	4	r = 19.792 Rs (1194061 km)
S42	79	Apoapse		2008-213T19:51	Jul31	Thu	1	11	4	Per = 7.4 d, inc = 74.5 deg, r = 20.317 Rs, phase = 22 deg
S42	79	RINGS	Segment	2008-214T00:50	Aug01	Fri	1	11	5	RINGS_79_80 (10d); RINGS_79_80
S42	79	OTM-162	78TI+4d	2008-216T16:15	Aug03	Sun	4	8	7	D/L start, burn ~6h later. Backup D/L 218T08:05
S42	79	79MI (nt)	MIMAS	2008-217T10:28	Aug04	Mon	4	7	1	Inbound 121886.0 km flyby, v = 19.0 km/s, phase = 110 deg
S42	79	Earth OCC	RING	2008-217T11:09	Aug04	Mon	4	7	1	Egress = 2008-217T11:39 (30 min)
S42	79	Sun OCC	RING	2008-217T11:17	Aug04	Mon	4	7	1	Egress = 2008-217T11:41 (24 min)
S42	79	Ring CRX	Descending	2008-217T11:53	Aug04	Mon	4	7	1	r = 3.962 Rs (239026 km)
S42	79	E_ring_lg	DUST HAZARD	2008-217T11:53	Aug04	Mon	4	7	1	Egress at 2008-217T11:54 (1 min); protection = MEA cover closure.
S42	79	Periapse		2008-217T12:32	Aug04	Mon	4	7	1	R = 3.942 Rs, lat = -9 deg, phase = 158 deg
S42	79	79EP (nt)	EPIMETHEUS	2008-217T12:48	Aug04	Mon	4	7	1	Outbound 102122.0 km flyby, v = 19.9 km/s, phase = 143 deg
S42	79	Ring CRX	Ascending	2008-220T12:22	Aug07	Thu	7	4	4	r = 19.783 Rs (1193516 km)
S42	80	Apoapse		2008-221T05:08	Aug08	Fri	8	4	5	Per = 7.4 d, inc = 74.4 deg, r = 20.302 Rs, phase = 22 deg
S42	80	OTM-163	E4-3d	2008-221T15:20	Aug08	Fri	9	3	5	D/L start, burn ~6h later. Backup D/L 222T15:20
S43	80	S43 Begins		2008-224T00:20	Aug11	Mon	11	1	2	S43 sequence. Duration = 34 d
S43	80	SOST	Segment	2008-224T00:20	Aug11	Mon	11	1	2	SOST_80 (2d); E4 Flyby
S43	80	Earth OCC	RING	2008-224T20:25	Aug11	Mon	12	0	3	Egress = 2008-224T20:53 (28 min)
S43	80	Sun OCC	RING	2008-224T20:31	Aug11	Mon	12	0	3	Egress = 2008-224T20:54 (23 min)
S43	80	80ME (nt)	METHONE	2008-224T20:41	Aug11	Mon	12	0	3	Inbound 60458.8 km flyby, v = 18.4 km/s, phase = 127 deg
S43	80	E_ring_lg	DUST HAZARD	2008-224T21:05	Aug11	Mon	12	0	3	Egress at 2008-224T21:07 (2 min); protection = MEA cover closure.
S43	80	Ring CRX	Descending	2008-224T21:06	Aug11	Mon	12	0	3	r = 3.961 Rs (238973 km)
S43	80	80EN (t) [E4]	ENCELADUS	2008-224T21:06	Aug11	Mon	12	59	3	Inbound 49.4 km flyby, v = 17.7 km/s, phase = 110 deg
S43	80	Periapse		2008-224T21:45	Aug11	Mon	0	59	3	R = 3.941 Rs, lat = -9 deg, phase = 158 deg
S43	80	80MI (nt)	MIMAS	2008-224T21:48	Aug11	Mon	0	59	3	Outbound 81519.2 km flyby, v = 19.1 km/s, phase = 137 deg
S43	80	80DA (nt)	DAPHNIS	2008-224T21:56	Aug11	Mon	0	59	3	Outbound 110008.1 km flyby, v = 20.3 km/s, phase = 149 deg
S43	80	RINGS	Segment	2008-226T00:04	Aug13	Wed	1	58	4	RINGS_80_82 (10d); RINGS_80_82
S43	80	Ring CRX	Ascending	2008-227T21:32	Aug14	Thu	3	56	6	r = 19.758 Rs (1192006 km)
S43	81	Apoapse		2008-228T14:08	Aug15	Fri	4	55	7	Per = 7.4 d, inc = 74.5 deg, r = 20.269 Rs, phase = 22 deg
S43	81	81TI (nt)	TITAN	2008-228T20:47	Aug15	Fri	4	55	7	Inbound 302282.0 km flyby, v = 5.9 km/s, phase = 85 deg
S43	81	Earth OCC	RING	2008-232T05:09	Aug19	Tue	7	52	11	Egress = 2008-232T05:34 (25 min)
S43	81	Sun OCC	RING	2008-232T05:13	Aug19	Tue	7	52	11	Egress = 2008-232T05:35 (22 min)
S43	81	E_ring_lg	DUST HAZARD	2008-232T05:45	Aug19	Tue	7	52	11	Egress at 2008-232T05:46 (1 min); protection = MEA cover closure.
S43	81	Ring CRX	Descending	2008-232T05:47	Aug19	Tue	7	52	11	r = 3.935 Rs (237403 km)
S43	81	81PL (nt)	PALLENE	2008-232T06:10	Aug19	Tue	7	52	11	Inbound 43656.1 km flyby, v = 18.4 km/s, phase = 134 deg
S43	81	Periapse		2008-232T06:25	Aug19	Tue	7	52	11	R = 3.915 Rs, lat = -9 deg, phase = 158 deg
S43	81	81PN (nt)	PAN	2008-232T06:45	Aug19	Tue	7	52	11	Outbound 114580.2 km flyby, v = 20.5 km/s, phase = 146 deg
S43	81	Ring CRX	Ascending	2008-235T06:08	Aug22	Fri	10	49	14	r = 19.763 Rs (1192320 km)
S43	81	OTM-164	E4+11d	2008-235T20:49	Aug22	Fri	11	48	14	D/L start, burn ~6h later. Backup D/L 236T20:49
S43	82	Apoapse		2008-235T22:42	Aug22	Fri	11	48	0	Per = 7.4 d, inc = 74.5 deg, r = 20.272 Rs, phase = 23 deg
S43	82	MAG	Segment	2008-236T05:49	Aug23	Sat	11	48	0	MAG_82_84 (22d); MAG_82_84
S43	82	Earth OCC	RING	2008-239T13:59	Aug26	Tue	15	44	4	Egress = 2008-239T14:22 (23 min)
S43	82	Sun OCC	RING	2008-239T14:01	Aug26	Tue	15	44	4	Egress = 2008-239T14:22 (22 min)
S43	82	82AT (nt)	ATLAS	2008-239T14:08	Aug26	Tue	15	44	4	Inbound 107606.0 km flyby, v = 19.9 km/s, phase = 149 deg
S43	82	E_ring_lg	DUST HAZARD	2008-239T14:31	Aug26	Tue	15	44	4	Egress at 2008-239T14:33 (2 min); protection = MEA cover closure.
S43	82	Ring CRX	Descending	2008-239T14:34	Aug26	Tue	15	44	4	r = 3.973 Rs (239700 km)
S43	82	Periapse		2008-239T15:12	Aug26	Tue	15	44	4	R = 3.954 Rs, lat = -9 deg, phase = 157 deg
S43	82	Ring CRX	Ascending	2008-242T15:19	Aug29	Fri	18	41	7	r = 19.774 Rs (1192969 km)
S43	83	Apoapse		2008-243T07:40	Aug30	Sat	18	40	7	Per = 7.4 d, inc = 74.5 deg, r = 20.268 Rs, phase = 23 deg
S43	83	83TI (nt)	TITAN	2008-244T13:13	Aug31	Sun	20	39	9	Inbound 603197.8 km flyby, v = 6.9 km/s, phase = 97 deg
S43	83	SEP = 3.0 deg	Conjunction	2008-245T03:20	Sep01	Mon	20	39	9	Commanding must not be required below 3.0 deg
S43	83	SEP = 2.0 deg	Conjunction	2008-246T18:49	Sep02	Tue	22	37	11	Plan no SSR playback below 2.0 deg
S43	83	Earth OCC	RING	2008-246T22:57	Sep02	Tue	22	37	11	Egress = 2008-246T23:17 (21 min)
S43	83	Sun OCC	RING	2008-246T22:57	Sep02	Tue	22	37	11	Egress = 2008-246T23:17 (21 min)
S43	83	E_ring_lg	DUST HAZARD	2008-246T23:27	Sep02	Tue	22	37	11	Egress at 2008-246T23:29 (2 min); protection = MEA cover closure.
S43	83	83JA (nt)	JANUS	2008-246T23:28	Sep02	Tue	22	37	11	Inbound 86927.2 km flyby, v = 19.4 km/s, phase = 156 deg
S43	83	Ring CRX	Descending	2008-246T23:29	Sep02	Tue	22	37	11	r = 3.966 Rs (239239 km)
S43	83	Periapse		2008-247T00:07	Sep03	Wed	22	37	11	R = 3.946 Rs, lat = -9 deg, phase = 157 deg
S43	83	83ME (nt)	METHONE	2008-247T00:26	Sep03	Wed	22	37	11	Outbound 90493.7 km flyby, v = 19.2 km/s, phase = 128 deg
S43	83	SEP = 2.0 deg	Conjunction	2008-249T09:22	Sep05	Fri	25	34	14	Plan no SSR playback below 2.0 deg
S43	83	Ring CRX	Ascending	2008-250T00:17	Sep06	Sat	25	34	14	r = 19.779 Rs (1193238 km)
S43	84	Apoapse		2008-250T16:33	Sep06	Sat	26	33	15	Per = 7.4 d, inc = 74.5 deg, r = 20.267 Rs, phase = 23 deg
S43	84	SEP = 3.0 deg	Conjunction	2008-251T00:37	Sep07	Sun	26	33	15	Commanding must not be required below 3.0 deg
S43	84	Sun OCC	RING	2008-254T07:50	Sep10	Wed	29	29	18	Egress = 2008-254T08:10 (21 min)
S43	84	Earth OCC	RING	2008-254T07:53	Sep10	Wed	29	29	18	Egress = 2008-254T08:11 (19 min)
S43	84	Ring CRX	Descending	2008-254T08:21	Sep10	Wed	29	29	18	r = 3.963 Rs (239099 km)
S43	84	E_ring_lg	DUST HAZARD	2008-254T08:21	Sep10	Wed	29	29	18	Egress at 2008-254T08:22 (1 min); protection = MEA cover closure.
S43	84	84AE (nt)	AEGAEON	2008-254T08:44	Sep10	Wed	29	29	18	Inbound 74410.6 km flyby, v = 19.2 km/s, phase = 156 deg
S43	84	84EP (nt)	EPIMETHEUS	2008-254T08:51	Sep10	Wed	29	29	19	Inbound 91309.8 km flyby, v = 19.6 km/s, phase = 155 deg
S43	84	Periapse		2008-254T08:59	Sep10	Wed	29	29	19	R = 3.944 Rs, lat = -9 deg, phase = 157 deg
S43	84	Ring CRX	Ascending	2008-257T09:14	Sep13	Sat	33	26	22	r = 19.782 Rs (1193442 km)
S44	84	S44 Begins		2008-257T22:19	Sep13	Sat	33	26	22	S44 sequence. Duration = 35 d
S44	84	RINGS	Segment	2008-257T22:19	Sep13	Sat	33	26	22	RINGS_84_87 (15d); RINGS_84_87
S44	85	Apoapse		2008-258T01:24	Sep14	Sun	33	26	22	Per = 7.4 d, inc = 74.5 deg, r = 20.265 Rs, phase = 23 deg
S44	85	85TI (nt)	TITAN	2008-259T23:39	Sep15	Mon	35	24	24	Inbound 902600.5 km flyby, v = 8.7 km/s, phase = 99 deg
S44	85	85AE (nt)	AEGAEON	2008-261T16:08	Sep17	Wed	37	22	26	Inbound 108860.2 km flyby, v = 19.2 km/s, phase = 121 deg
S44	85	85PA (nt)	PANDORA	2008-261T16:36	Sep17	Wed	37	22	26	Inbound 106171.5 km flyby, v = 19.7 km/s, phase = 144 deg
S44	85	Sun OCC	RING	2008-261T16:40	Sep17	Wed	37	22	26	Egress = 2008-261T16:59 (20 min)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S44	85	Earth OCC	RING	2008-261T16:45	Sep17	Wed	37	22	26	Egress = 2008-261T17:01 (17 min)
S44	85	85MI (nt)	MIMAS	2008-261T16:50	Sep17	Wed	37	22	26	Inbound 61153.5 km flyby, v = 18.3 km/s, phase = 139 deg
S44	85	Ring CRX	Descending	2008-261T17:11	Sep17	Wed	37	22	26	r = 3.962 Rs (239034 km)
S44	85	E_ring_lg	DUST HAZARD	2008-261T17:11	Sep17	Wed	37	22	26	Egress at 2008-261T17:12 (1 min); protection = MEA cover closure.
S44	85	85CA (nt)	CALYPSO	2008-261T17:19	Sep17	Wed	37	22	26	Inbound 60875.1 km flyby, v = 17.5 km/s, phase = 45 deg
S44	85	Periapse		2008-261T17:48	Sep17	Wed	37	22	26	R = 3.943 Rs, lat = -8 deg, phase = 157 deg
S44	85	85DA (nt)	DAPHNIS	2008-261T17:56	Sep17	Wed	37	22	26	Outbound 108584.4 km flyby, v = 20.2 km/s, phase = 151 deg
S44	85	OTM-164A	E4+40	2008-264T12:49	Sep20	Sat	40	19	29	D/L start, burn ~6h later. Backup D/L 265T12:49
S44	85	Ring CRX	Ascending	2008-264T18:10	Sep20	Sat	40	19	0	r = 19.790 Rs (1193907 km)
S44	86	Apoapse		2008-265T10:12	Sep21	Sun	41	18	1	Per = 7.4 d, inc = 74.5 deg, r = 20.265 Rs, phase = 23 deg
S44	86	86TE (nt)	TETHYS	2008-269T01:24	Sep25	Thu	44	15	5	Inbound 109900.4 km flyby, v = 17.5 km/s, phase = 50 deg
S44	86	Sun OCC	RING	2008-269T01:30	Sep25	Thu	44	15	5	Egress = 2008-269T01:49 (19 min)
S44	86	Earth OCC	RING	2008-269T01:37	Sep25	Thu	44	15	5	Egress = 2008-269T01:51 (15 min)
S44	86	86AT (nt)	ATLAS	2008-269T01:41	Sep25	Thu	44	15	5	Inbound 105073.0 km flyby, v = 19.9 km/s, phase = 150 deg
S44	86	Ring CRX	Descending	2008-269T02:00	Sep25	Thu	44	15	5	r = 3.963 Rs (239067 km)
S44	86	E_ring_lg	DUST HAZARD	2008-269T02:00	Sep25	Thu	44	15	5	Egress at 2008-269T02:02 (2 min); protection = MEA cover closure.
S44	86	86PN (nt)	PAN	2008-269T02:14	Sep25	Thu	44	15	5	Inbound 105262.0 km flyby, v = 20.1 km/s, phase = 157 deg
S44	86	Periapse		2008-269T02:37	Sep25	Thu	44	15	5	R = 3.944 Rs, lat = -8 deg, phase = 157 deg
S44	86	86PL (nt)	PALLENE	2008-269T03:12	Sep25	Thu	44	15	5	Outbound 115319.6 km flyby, v = 19.3 km/s, phase = 118 deg
S44	86	Ring CRX	Ascending	2008-272T03:06	Sep28	Sun	47	12	8	r = 19.795 Rs (1194244 km)
S44	87	Apoapse		2008-272T19:02	Sep28	Sun	48	11	8	Per = 7.4 d, inc = 74.5 deg, r = 20.265 Rs, phase = 23 deg
S44	87	MAG	Segment	2008-272T21:20	Sep28	Sun	48	11	8	MAG_87 (7d); MAG_87
S44	87	OTM-165	E5-7d	2008-276T04:19	Oct02	Thu	51	8	12	D/L start, burn ~6h later. Backup D/L 277T04:35
S44	87	Sun OCC	RING	2008-276T10:22	Oct02	Thu	52	7	0	Egress = 2008-276T10:40 (19 min)
S44	87	Earth OCC	RING	2008-276T10:30	Oct02	Thu	52	7	0	Egress = 2008-276T10:42 (13 min)
S44	87	E_ring_lg	DUST HAZARD	2008-276T10:50	Oct02	Thu	52	7	0	Egress at 2008-276T10:51 (1 min); protection = MEA cover closure.
S44	87	Ring CRX	Descending	2008-276T10:51	Oct02	Thu	52	7	0	r = 3.964 Rs (239130 km)
S44	87	87TE (nt)	TETHYS	2008-276T11:03	Oct02	Thu	52	7	0	Inbound 78712.4 km flyby, v = 17.6 km/s, phase = 70 deg
S44	87	Periapse		2008-276T11:27	Oct02	Thu	52	7	0	R = 3.946 Rs, lat = -8 deg, phase = 157 deg
S44	87	87TI (nt)	TITAN	2008-277T23:03	Oct03	Fri	53	6	2	Outbound 780531.6 km flyby, v = 9.3 km/s, phase = 125 deg
S44	87	RINGS	Segment	2008-279T11:05	Oct05	Sun	55	4	3	RINGS_87_88 (3d); RINGS_87_88
S44	87	Ring CRX	Ascending	2008-279T11:51	Oct05	Sun	55	4	3	r = 19.753 Rs (1191671 km)
S44	88	Apoapse		2008-280T03:35	Oct06	Mon	55	4	4	Per = 7.3 d, inc = 74.5 deg, r = 20.212 Rs, phase = 23 deg
S44	88	OTM-166	E5-3d	2008-280T12:05	Oct06	Mon	56	3	4	D/L start, burn ~6h later. Backup D/L 281T11:50
S44	88	SOST	Segment	2008-282T20:50	Oct08	Wed	58	1	2	SOST_88 (2d); E5 Flyby
S44	88	Sun OCC	RING	2008-283T18:38	Oct09	Thu	59	0	3	Egress = 2008-283T18:56 (18 min)
S44	88	88TL (nt)	TELESTO	2008-283T18:46	Oct09	Thu	59	0	3	Inbound 67245.0 km flyby, v = 17.2 km/s, phase = 22 deg
S44	88	Earth OCC	RING	2008-283T18:49	Oct09	Thu	59	0	3	Egress = 2008-283T18:59 (11 min)
S44	88	88JA (nt)	JANUS	2008-283T18:56	Oct09	Thu	59	0	3	Inbound 89529.8 km flyby, v = 19.4 km/s, phase = 151 deg
S44	88	E_ring_lg	DUST HAZARD	2008-283T19:05	Oct09	Thu	59	0	3	Egress at 2008-283T19:07 (2 min); protection = MEA cover closure.
S44	88	Ring CRX	Descending	2008-283T19:07	Oct09	Thu	59	0	3	r = 3.964 Rs (239163 km)
S44	88	88EN (t) [E5]	ENCELADUS	2008-283T19:07	Oct09	Thu	59	22	3	Inbound 24.6 km flyby, v = 17.7 km/s, phase = 113 deg
S44	88	Earth OCC	ENCELADUS	2008-283T19:07	Oct09	Thu	59	0	3	Egress = 2008-283T19:06 (1 min)
S44	88	Sun OCC	ENCELADUS	2008-283T19:07	Oct09	Thu	59	0	3	Egress = 2008-283T19:06 (1 min)
S44	88	Periapse		2008-283T19:43	Oct09	Thu	0	22	3	R = 3.946 Rs, lat = -8 deg, phase = 157 deg
S44	88	RINGS	Segment	2008-284T20:50	Oct10	Fri	1	21	4	RINGS_88_89 (8d); RINGS_88_89
S44	88	OTM-167	E5+3d	2008-286T17:51	Oct12	Sun	3	19	6	D/L start, burn ~6h later. Backup D/L 287T11:36
S44	88	Ring CRX	Ascending	2008-286T20:06	Oct12	Sun	3	19	0	r = 19.731 Rs (1190353 km)
S44	89	Apoapse		2008-287T11:41	Oct13	Mon	4	18	1	Per = 7.3 d, inc = 74.5 deg, r = 20.183 Rs, phase = 23 deg
S44	89	Sun OCC	RING	2008-291T02:34	Oct17	Fri	7	15	4	Egress = 2008-291T02:51 (18 min)
S44	89	Earth OCC	RING	2008-291T02:46	Oct17	Fri	7	15	4	Egress = 2008-291T02:55 (9 min)
S44	89	89PL (nt)	PALLENE	2008-291T02:58	Oct17	Fri	7	15	4	Inbound 28937.6 km flyby, v = 18.1 km/s, phase = 141 deg
S44	89	E_ring_lg	DUST HAZARD	2008-291T03:00	Oct17	Fri	7	15	4	Egress at 2008-291T03:02 (2 min); protection = MEA cover closure.
S44	89	Ring CRX	Descending	2008-291T03:01	Oct17	Fri	7	15	4	r = 3.956 Rs (238643 km)
S44	89	OTM-168	~apo	2008-291T03:10	Oct17	Fri	7	15	4	D/L start, burn ~6h later. Backup D/L 291T08:25
S44	89	Periapse		2008-291T03:37	Oct17	Fri	7	15	0	R = 3.938 Rs, lat = -8 deg, phase = 156 deg
S44	89	89EP (nt)	EPIMETHEUS	2008-291T04:22	Oct17	Fri	7	15	0	Outbound 118999.5 km flyby, v = 20.3 km/s, phase = 136 deg
S45	89	S45 Begins		2008-292T20:21	Oct18	Sat	9	13	2	S45 sequence. Duration = 39 d
S45	89	RINGS	Segment	2008-292T20:21	Oct18	Sat	9	13	2	RINGS_89_91 (12d); RINGS_89_91
S45	89	89TI (nt)	TITAN	2008-293T05:25	Oct19	Sun	9	12	2	Outbound 397699.8 km flyby, v = 7.1 km/s, phase = 125 deg
S45	89	Ring CRX	Ascending	2008-294T03:50	Oct20	Mon	10	12	3	r = 19.665 Rs (1186410 km)
S45	90	Apoapse		2008-294T19:08	Oct20	Mon	11	11	4	Per = 7.3 d, inc = 74.5 deg, r = 20.104 Rs, phase = 24 deg
S45	90	90JA (nt)	JANUS	2008-298T09:14	Oct24	Fri	15	7	7	Inbound 108132.2 km flyby, v = 19.5 km/s, phase = 132 deg
S45	90	Sun OCC	RING	2008-298T09:37	Oct24	Fri	15	7	7	Egress = 2008-298T09:54 (17 min)
S45	90	Earth OCC	RING	2008-298T09:51	Oct24	Fri	15	7	7	Egress = 2008-298T09:58 (8 min)
S45	90	E_ring_lg	DUST HAZARD	2008-298T10:03	Oct24	Fri	15	7	7	Egress at 2008-298T10:05 (2 min); protection = MEA cover closure.
S45	90	Ring CRX	Descending	2008-298T10:04	Oct24	Fri	15	7	7	r = 3.965 Rs (239184 km)
S45	90	90PN (nt)	PAN	2008-298T10:08	Oct24	Fri	15	7	7	Inbound 105460.4 km flyby, v = 20.1 km/s, phase = 156 deg
S45	90	90MI (nt)	MIMAS	2008-298T10:25	Oct24	Fri	15	7	7	Inbound 57282.8 km flyby, v = 18.3 km/s, phase = 155 deg
S45	90	Periapse		2008-298T10:40	Oct24	Fri	15	7	7	R = 3.947 Rs, lat = -8 deg, phase = 156 deg
S45	90	Ring CRX	Ascending	2008-301T11:03	Oct27	Mon	18	4	10	r = 19.677 Rs (1187121 km)
S45	91	Apoapse		2008-302T02:15	Oct28	Tue	18	4	11	Per = 7.3 d, inc = 74.5 deg, r = 20.109 Rs, phase = 24 deg
S45	91	OTM-169	91TI-4d	2008-303T10:37	Oct29	Wed	20	2	12	D/L start, burn ~6h later. Backup D/L 304T10:37
S45	91	SOST	Segment	2008-304T19:37	Oct30	Thu	21	1	1	SOST_91 (3d); E6 Flyby
S45	91	91ME (nt)	METHONE	2008-305T16:02	Oct31	Fri	22	0	2	Inbound 116150.2 km flyby, v = 18.8 km/s, phase = 102 deg
S45	91	91PA (nt)	PANDORA	2008-305T16:31	Oct31	Fri	22	0	2	Inbound 111472.0 km flyby, v = 19.8 km/s, phase = 138 deg
S45	91	Sun OCC	RING	2008-305T16:49	Oct31	Fri	22	0	2	Egress = 2008-305T17:05 (16 min)
S45	91	Earth OCC	RING	2008-305T17:03	Oct31	Fri	22	0	2	Egress = 2008-305T17:09 (7 min)
S45	91	91DA (nt)	DAPHNIS	2008-305T17:14	Oct31	Fri	22	0	2	Inbound 102874.8 km flyby, v = 19.9 km/s, phase = 155 deg
S45	91	E_ring_lg	DUST HAZARD	2008-305T17:14	Oct31	Fri	22	0	2	Egress at 2008-305T17:15 (1 min); protection = MEA cover closure.
S45	91	Ring CRX	Descending	2008-305T17:15	Oct31	Fri	22	0	2	r = 3.965 Rs (239191 km)
S45	91	91EN (dt) [E6]	ENCELADUS	2008-305T17:15	Oct31	Fri	22	3	2	Inbound 169.0 km flyby, v = 17.7 km/s, phase = 110 deg
S45	91	Periapse		2008-305T17:50	Oct31	Fri	0	3	2	R = 3.948 Rs, lat = -8 deg, phase = 156 deg
S45	91	91AT (nt)	ATLAS	2008-305T18:11	Oct31	Fri	0	3	2	Outbound 112311.8 km flyby, v = 20.3 km/s, phase = 147 deg
S45	91	91EP (nt)	EPIMETHEUS	2008-305T18:35	Oct31	Fri	0	3	2	Outbound 118912.9 km flyby, v = 20.3 km/s, phase = 136 deg
S45	91	TOST	Segment	2008-307T19:22	Nov02	Sun	2	1	4	TOST_91_T46 (2d); Titan Flyby T46

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S45	91	Sun OCC	TITAN	2008-308T17:29	Nov03	Mon	3	0	5	Egress = 2008-308T17:44 (15 min)
S45	91	Earth OCC	TITAN	2008-308T17:30	Nov03	Mon	3	0	5	Egress = 2008-308T17:44 (15 min)
S45	91	91TI (dt) [T46]	TITAN	2008-308T17:35	Nov03	Mon	3	16	5	Outbound 1105.2 km flyby, v = 6.3 km/s, phase = 171 deg
S45	91	Ring CRX	Ascending	2008-308T18:08	Nov03	Mon	0	16	5	r = 19.688 Rs (1187748 km)
S45	91	RINGS	Segment	2008-309T19:08	Nov04	Tue	1	15	6	RINGS_91_93 (8d); RINGS_91_93
S45	92	Apoapse		2008-309T23:28	Nov04	Tue	1	15	7	Per = 7.9 d, inc = 70.6 deg, r = 21.147 Rs, phase = 26 deg
S45	92	OTM-170	91TI+5d	2008-313T16:23	Nov08	Sat	5	11	10	D/L start, burn ~6h later. Backup D/L 314T09:53
S45	92	Sun OCC	RING	2008-313T20:48	Nov08	Sat	5	11	0	Egress = 2008-313T21:03 (15 min)
S45	92	92PO (nt)	POLYDEUCES	2008-313T20:58	Nov08	Sat	5	11	0	Inbound 120992.6 km flyby, v = 15.3 km/s, phase = 12 deg
S45	92	Earth OCC	RING	2008-313T21:06	Nov08	Sat	5	11	0	Egress = 2008-313T21:10 (5 min)
S45	92	Ring CRX	Descending	2008-313T21:16	Nov08	Sat	5	11	0	r = 4.328 Rs (261106 km)
S45	92	E_ring_lg	Dust Crossing	2008-313T21:19	Nov08	Sat	5	11	0	Egress at 2008-313T21:21 (2 min); protection = none.
S45	92	92TL (nt)	TELESTO	2008-313T21:28	Nov08	Sat	5	11	0	Inbound 67096.7 km flyby, v = 16.4 km/s, phase = 85 deg
S45	92	92EN (nt)	ENCELADUS	2008-313T21:48	Nov08	Sat	5	11	0	Inbound 55274.0 km flyby, v = 16.9 km/s, phase = 127 deg
S45	92	Periapse		2008-313T22:32	Nov08	Sat	5	11	0	R = 4.263 Rs, lat = -15 deg, phase = 154 deg
S45	92	Ring CRX	Ascending	2008-316T16:48	Nov11	Tue	8	8	3	r = 19.821 Rs (1195793 km)
S45	92	OTM-171	~apo	2008-317T16:09	Nov12	Wed	9	7	4	D/L start, burn ~6h later. Backup D/L 318T16:09
S45	93	Apoapse		2008-317T22:29	Nov12	Wed	9	7	0	Per = 8.0 d, inc = 70.6 deg, r = 21.287 Rs, phase = 26 deg
S45	93	MAG	Segment	2008-318T01:09	Nov13	Thu	9	7	0	MAG_93 (6d); MAG_93
S45	93	OTM-172	93TI-3d	2008-321T02:09	Nov16	Sun	12	4	3	D/L start, burn ~6h later. Backup D/L 322T09:24
S45	93	Sun OCC	RING	2008-321T20:41	Nov16	Sun	13	3	1	Egress = 2008-321T20:55 (14 min)
S45	93	93TE (nt)	TETHYS	2008-321T20:42	Nov16	Sun	13	3	1	Inbound 57645.9 km flyby, v = 15.9 km/s, phase = 41 deg
S45	93	Earth OCC	RING	2008-321T20:59	Nov16	Sun	13	3	1	Egress = 2008-321T21:02 (4 min)
S45	93	E_ring_lg	Dust Crossing	2008-321T21:05	Nov16	Sun	13	3	1	Egress at 2008-321T21:07 (2 min); protection = none.
S45	93	Ring CRX	Descending	2008-321T21:08	Nov16	Sun	13	3	1	r = 4.333 Rs (261415 km)
S45	93	Periapse		2008-321T22:24	Nov16	Sun	13	3	1	R = 4.269 Rs, lat = -15 deg, phase = 154 deg
S45	93	TOST	Segment	2008-323T18:24	Nov18	Tue	15	1	3	TOST_93_94_T47 (2d); Titan Flyby T47
S45	93	93TI (t) [T47]	TITAN	2008-324T15:56	Nov19	Wed	16	16	4	Outbound 1023.4 km flyby, v = 6.3 km/s, phase = 28 deg
S45	93	Ring CRX	Ascending	2008-324T16:32	Nov19	Wed	0	16	4	r = 19.787 Rs (1193741 km)
S45	94	Apoapse		2008-325T10:17	Nov20	Thu	1	15	4	Per = 8.0 d, inc = 72.3 deg, r = 20.298 Rs, phase = 25 deg
S45	94	RINGS	Segment	2008-325T23:25	Nov20	Thu	1	15	5	RINGS_94A (6d); RINGS_94A
S45	94	OTM-173	93TI+5d	2008-328T15:25	Nov23	Sun	4	12	8	D/L start, burn ~6h later. Backup D/L 329T15:25
S45	94	Sun OCC	RING	2008-329T08:13	Nov24	Mon	5	11	1	Egress = 2008-329T08:20 (7 min)
S45	94	94HE (nt)	HELENE	2008-329T08:27	Nov24	Mon	5	11	1	Inbound 65571.0 km flyby, v = 14.3 km/s, phase = 14 deg
S45	94	Earth OCC	TETHYS	2008-329T08:37	Nov24	Mon	5	11	1	Egress = 2008-329T08:37 (1 min)
S45	94	Ring CRX	Descending	2008-329T08:42	Nov24	Mon	5	11	1	r = 5.245 Rs (316454 km)
S45	94	94TE (nt)	TETHYS	2008-329T08:46	Nov24	Mon	5	11	1	Inbound 23545.0 km flyby, v = 15.2 km/s, phase = 160 deg
S45	94	Periapse		2008-329T09:54	Nov24	Mon	5	11	1	R = 5.211 Rs, lat = -10 deg, phase = 155 deg
S46	94	S46 Begins		2008-331T17:55	Nov26	Wed	7	9	3	S46 Sequence. Duration = 44 d
S46	94	RINGS	Segment	2008-331T17:55	Nov26	Wed	7	9	3	RINGS_94B (1d); RINGS_94B
S46	94	OTM-174	~apo	2008-332T15:10	Nov27	Thu	8	8	4	D/L start, burn ~6h later. Backup D/L 333T08:56
S46	94	Ring CRX	Ascending	2008-332T15:47	Nov27	Thu	8	8	0	r = 19.788 Rs (1193810 km)
S46	94	SATURN	Segment	2008-333T00:10	Nov28	Fri	8	8	0	SATURN_94_95 (7d); SATURN_094_095
S46	95	Apoapse		2008-333T09:32	Nov28	Fri	9	7	1	Per = 8.0 d, inc = 72.3 deg, r = 20.297 Rs, phase = 25 deg
S46	95	OTM-175	95TI-3d	2008-336T14:56	Dec01	Mon	12	4	4	D/L start, burn ~6h later. Backup D/L 337T14:56
S46	95	95EN (nt)	ENCELADUS	2008-337T06:36	Dec02	Tue	13	3	1	Inbound 123745.4 km flyby, v = 15.7 km/s, phase = 115 deg
S46	95	95CA (nt)	CALYPSO	2008-337T07:18	Dec02	Tue	13	3	1	Inbound 69571.6 km flyby, v = 15.2 km/s, phase = 93 deg
S46	95	Sun OCC	RING	2008-337T07:30	Dec02	Tue	13	3	1	Egress = 2008-337T07:36 (6 min)
S46	95	Ring CRX	Descending	2008-337T07:58	Dec02	Tue	13	3	1	r = 5.245 Rs (316441 km)
S46	95	Periapse		2008-337T09:09	Dec02	Tue	13	3	1	R = 5.211 Rs, lat = -10 deg, phase = 155 deg
S46	95	TOST	Segment	2008-339T17:26	Dec04	Thu	15	1	3	TOST_95_96_T48 (2d); Titan Flyby T48
S46	95	95TI (t) [T48]	TITAN	2008-340T14:26	Dec05	Fri	16	16	4	Outbound 960.6 km flyby, v = 6.3 km/s, phase = 25 deg
S46	95	Ring CRX	Ascending	2008-340T14:57	Dec05	Fri	0	16	4	r = 19.759 Rs (1192087 km)
S46	96	Apoapse		2008-340T18:23	Dec05	Fri	0	16	4	Per = 8.0 d, inc = 73.2 deg, r = 19.779 Rs, phase = 24 deg
S46	96	RINGS	Segment	2008-341T21:27	Dec06	Sat	1	15	5	Rings_96_97 (7d); Rings_96_97
S46	96	OTM-176	95TI+4d	2008-344T14:27	Dec09	Tue	4	12	8	D/L start, burn ~6h later. Backup D/L 345T08:12
S46	96	Ring CRX	Descending	2008-344T17:52	Dec09	Tue	4	12	0	r = 5.762 Rs (347642 km)
S46	96	Periapse		2008-344T18:09	Dec09	Tue	4	12	0	R = 5.761 Rs, lat = -2 deg, phase = 155 deg
S46	96	96CA (nt)	CALYPSO	2008-344T18:40	Dec09	Tue	4	12	0	Outbound 74026.6 km flyby, v = 14.9 km/s, phase = 147 deg
S46	96	OTM-177	~apo	2008-348T14:13	Dec13	Sat	8	8	4	D/L start, burn ~6h later. Backup D/L 349T07:58
S46	96	Ring CRX	Ascending	2008-348T14:25	Dec13	Sat	8	8	0	r = 19.729 Rs (1190228 km)
S46	97	Apoapse		2008-348T17:47	Dec13	Sat	8	8	0	Per = 8.0 d, inc = 72.9 deg, r = 19.746 Rs, phase = 25 deg
S46	97	SATURN	Segment	2008-348T23:13	Dec13	Sat	8	8	0	Saturn_097 (7d); Saturn_097
S46	97	OTM-178	97TI-3d	2008-352T13:58	Dec17	Wed	12	4	4	D/L start, burn ~6h later. Backup D/L 353T23:58
S46	97	Ring CRX	Descending	2008-352T17:10	Dec17	Wed	12	4	0	r = 5.768 Rs (348004 km)
S46	97	Periapse		2008-352T17:27	Dec17	Wed	12	4	0	R = 5.767 Rs, lat = -2 deg, phase = 155 deg
S46	97	TOST	Segment	2008-355T16:29	Dec20	Sat	15	1	3	TOST_97_98_T49 (2d); Titan Flyby T49
S46	97	97TI (t) [T49]	TITAN	2008-356T13:00	Dec21	Sun	16	48	4	Outbound 970.6 km flyby, v = 6.3 km/s, phase = 83 deg
S46	98	Apoapse		2008-356T13:04	Dec21	Sun	0	48	4	Per = 9.5 d, inc = 74.7 deg, r = 19.715 Rs, phase = 25 deg
S46	98	Ring CRX	Ascending	2008-356T13:34	Dec21	Sun	0	48	4	r = 19.713 Rs (1189274 km)
S46	98	RINGS	Segment	2008-357T22:14	Dec22	Mon	1	46	5	RINGS_98 (6d); RINGS_98
S46	98	OTM-179	97TI+3d	2008-359T13:44	Dec24	Wed	3	45	7	D/L start, burn ~6h later. Backup D/L 361T23:29
S46	98	Periapse		2008-361T05:14	Dec26	Fri	5	43	2	R = 9.096 Rs, lat = 2 deg, phase = 154 deg
S46	98	Ring CRX	Descending	2008-361T05:55	Dec26	Fri	5	43	2	r = 9.098 Rs (548870 km)
S46	98	SATURN	Segment	2008-363T16:00	Dec28	Sun	7	41	4	SATURN_98_100 (12d); SATURN_098_100
S46	99	Apoapse		2008-366T00:10	Dec31	Wed	9	38	6	Per = 9.6 d, inc = 69.0 deg, r = 19.731 Rs, phase = 26 deg
S46	99	Ring CRX	Ascending	2008-366T03:15	Dec31	Wed	10	38	7	r = 19.721 Rs (1189776 km)
S46	99	Periapse		2009-004T19:05	Jan04	Sun	14	34	11	R = 9.100 Rs, lat = 2 deg, phase = 154 deg
S46	99	Ring CRX	Descending	2009-004T19:44	Jan04	Sun	14	34	11	r = 9.102 Rs (549151 km)
S46	100	Apoapse		2009-009T13:56	Jan09	Fri	19	29	16	Per = 9.6 d, inc = 69.0 deg, r = 19.726 Rs, phase = 27 deg
S47	100	S47 Begins		2009-009T15:16	Jan09	Fri	19	29	16	S47 Sequence. Duration = 39 d
S47	100	RINGS	Segment	2009-009T15:16	Jan09	Fri	19	29	16	RINGS_100 (9d); RINGS_100
S47	100	Ring CRX	Ascending	2009-009T17:05	Jan09	Fri	19	29	16	r = 19.715 Rs (1189436 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S47	100	Periapse		2009-014T08:49	Jan14	Wed	24	24	21	R = 9.099 Rs, lat = 2 deg, phase = 153 deg
S47	100	Ring CRX	Descending	2009-014T09:29	Jan14	Wed	24	24	21	r = 9.101 Rs (549056 km)
S47	100	100TI (nt)	**TITAN**	2009-014T09:29	Jan14	Wed	24	24	21	Outbound 704002.6 km flyby, v = 9.3 km/s, phase = 25 deg
S47	100	**SATURN**	**Segment**	2009-018T14:32	Jan18	Sun	28	20	25	SATURN_100_102 (12d); SATURN_100_102
S47	101	**Apoapse**		2009-019T03:41	Jan19	Mon	29	19	26	Per = 9.6 d, inc = 69.0 deg, r = 19.726 Rs, phase = 27 deg
S47	101	Ring CRX	Ascending	2009-019T06:52	Jan19	Mon	29	19	26	r = 19.715 Rs (1189427 km)
S47	101	**OTM-180**	~apo	2009-023T21:48	Jan23	Fri	33	14	30	D/L start, burn ~6h later. Backup D/L 024T21:48
S47	101	Periapse		2009-023T22:33	Jan23	Fri	33	14	0	R = 9.100 Rs, lat = 2 deg, phase = 153 deg
S47	101	Ring CRX	Descending	2009-023T23:14	Jan23	Fri	33	14	0	r = 9.103 Rs (549155 km)
S47	102	**Apoapse**		2009-028T17:06	Jan28	Wed	38	10	5	Per = 9.5 d, inc = 69.0 deg, r = 19.674 Rs, phase = 27 deg
S47	102	Ring CRX	Ascending	2009-028T20:25	Jan28	Wed	38	10	5	r = 19.663 Rs (1186244 km)
S47	102	**RINGS**	**Segment**	2009-030T06:18	Jan30	Fri	40	8	6	RINGS_102 (7d); RINGS_102
S47	102	102RH (nt)	**RHEA**	2009-033T10:45	Feb02	Mon	43	5	10	Inbound 98806.5 km flyby, v = 10.5 km/s, phase = 82 deg
S47	102	Periapse		2009-033T11:41	Feb02	Mon	43	5	10	R = 9.095 Rs, lat = 2 deg, phase = 153 deg
S47	102	Ring CRX	Descending	2009-033T12:23	Feb02	Mon	43	5	10	r = 9.098 Rs (548873 km)
S47	102	**OTM-181**	102TI-3d	2009-035T04:34	Feb04	Wed	45	3	11	D/L start, burn ~6h later. Backup D/L 036T04:19
S47	102	**TOST**	**Segment**	2009-037T13:19	Feb06	Fri	47	1	2	TOST_102_103_T50 (2d); Titan Flyby T50
S47	102	**Earth OCC**	TITAN	2009-038T08:49	Feb07	Sat	48	0	3	Egress = 2009-038T08:58 (10 min)
S47	102	**Sun OCC**	TITAN	2009-038T08:49	Feb07	Sat	48	0	3	Egress = 2009-038T08:57 (9 min)
S47	102	**102TI (t) T50**	**TITAN**	2009-038T08:51	Feb07	Sat	48	48	3	Outbound 966.8 km flyby, v = 6.3 km/s, phase = 136 deg
S47	102	Ring CRX	Ascending	2009-038T09:20	Feb07	Sat	0	48	3	r = 19.671 Rs (1186765 km)
S47	103	**Apoapse**		2009-039T02:29	Feb08	Sun	1	47	4	Per = 11.9 d, inc = 65.3 deg, r = 19.828 Rs, phase = 26 deg
S47	103	**MAG**	**Segment**	2009-039T16:19	Feb08	Sun	1	47	4	MAG_103 (9d); MAG_103
S47	103	**OTM-182**	102TI+3d	2009-041T04:04	Feb10	Tue	3	45	6	D/L start, burn ~6h later. Backup D/L 042T04:04
S47	103	Ring CRX	Descending	2009-044T17:37	Feb13	Fri	6	41	4	r = 13.647 Rs (823307 km)
S47	103	103TI (nt)	**TITAN**	2009-044T18:26	Feb13	Fri	6	41	4	Inbound 707038.9 km flyby, v = 7.7 km/s, phase = 98 deg
S47	103	Periapse		2009-045T01:41	Feb14	Sat	7	41	4	R = 13.573 Rs, lat = -14 deg, phase = 154 deg
S48	103	**S48 Begins**		2009-048T12:35	Feb17	Tue	10	38	7	S48 Sequence. Duration = 37 d
S48	103	**MAG**	**Segment**	2009-048T12:35	Feb17	Tue	10	38	7	MAG_103_104 (5d); MAG_103_104
S48	103	Ring CRX	Ascending	2009-050T07:52	Feb19	Thu	12	36	9	r = 19.669 Rs (1186646 km)
S48	104	**Apoapse**		2009-051T01:00	Feb20	Fri	13	35	10	Per = 11.9 d, inc = 65.3 deg, r = 19.825 Rs, phase = 26 deg
S48	104	**RINGS**	**Segment**	2009-053T04:50	Feb22	Sun	15	33	12	RINGS_104_105 (24d); RINGS_104_105
S48	104	Ring CRX	Descending	2009-056T16:12	Feb25	Wed	18	30	16	r = 13.657 Rs (823947 km)
S48	104	Periapse		2009-057T00:15	Feb26	Thu	19	29	16	R = 13.584 Rs, lat = -14 deg, phase = 154 deg
S48	104	Ring CRX	Ascending	2009-062T06:40	Mar03	Tue	24	24	21	r = 19.686 Rs (1187655 km)
S48	105	**Apoapse**		2009-062T23:46	Mar03	Tue	25	23	22	Per = 12.0 d, inc = 65.3 deg, r = 19.841 Rs, phase = 26 deg
S48	105	**OTM-183**	~apo	2009-068T02:20	Mar09	Mon	30	18	27	D/L start, burn ~6h later. Backup D/L 069T08:35
S48	105	Ring CRX	Descending	2009-068T15:08	Mar09	Mon	30	18	1	r = 13.659 Rs (824021 km)
S48	105	Periapse		2009-068T23:09	Mar09	Mon	31	17	1	R = 13.586 Rs, lat = -13 deg, phase = 153 deg
S48	105	Ring CRX	Ascending	2009-074T05:57	Mar15	Sun	36	12	6	r = 19.737 Rs (1190742 km)
S48	106	**Apoapse**		2009-074T22:50	Mar15	Sun	37	11	7	Per = 12.0 d, inc = 65.3 deg, r = 19.889 Rs, phase = 27 deg
S48	106	**MAG**	**Segment**	2009-077T03:05	Mar18	Wed	39	9	9	MAG_106 (8d); MAG_106
S48	106	106TI (nt)	**TITAN**	2009-080T11:51	Mar21	Sat	42	6	12	Inbound 991548.9 km flyby, v = 8.0 km/s, phase = 63 deg
S48	106	Ring CRX	Descending	2009-080T14:37	Mar21	Sat	42	6	13	r = 13.646 Rs (823279 km)
S48	106	Periapse		2009-080T22:35	Mar21	Sat	43	5	13	R = 13.574 Rs, lat = -13 deg, phase = 153 deg
S48	106	**OTM-184**	106TI-3d	2009-083T01:20	Mar24	Tue	45	3	15	D/L start, burn ~6h later. Backup D/L 084T01:05
S49	106	**S49 Begins**		2009-085T10:05	Mar26	Thu	47	1	2	S49 Sequence. Duration = 40 d
S49	106	**TOST**	**Segment**	2009-085T10:05	Mar26	Thu	47	1	2	TOST_106_107_T51 (2d); Titan Flyby T51
S49	106	**106TI (t) T51**	**TITAN**	2009-086T04:44	Mar27	Fri	48	8	3	Outbound 962.6 km flyby, v = 6.3 km/s, phase = 84 deg
S49	107	**Apoapse**		2009-086T04:52	Mar27	Fri	0	8	3	Per = 16.5 d, inc = 65.2 deg, r = 19.723 Rs, phase = 29 deg
S49	107	Ring CRX	Ascending	2009-086T05:10	Mar27	Fri	0	8	3	r = 19.722 Rs (1189837 km)
S49	107	Periapse		2009-087T05:27	Mar28	Sat	1	7	4	R = 19.668 Rs, lat = 21 deg, phase = 28 deg
S49	107	**MAG**	**Segment**	2009-087T16:50	Mar28	Sat	2	6	5	MAG_107 (6d); MAG_107
S49	107	**OTM-186**	106TI+2d	2009-088T07:05	Mar29	Sun	2	6	5	D/L start, burn ~6h later. Backup D/L 089T00:50
S49	107	**OTM-186A**	T52-3d	2009-091T00:35	Apr01	Wed	5	3	3	D/L start, burn ~6h later. Backup D/L 091T17:05
S49	107	**TOST**	**Segment**	2009-093T09:34	Apr03	Fri	7	1	2	TOST_107_108_T52 (2d); Titan Flyby T52
S49	108	**Apoapse**		2009-094T01:30	Apr04	Sat	8	0	3	Per = 16.8 d, inc = 63.3 deg, r = 20.921 Rs, phase = 151 deg
S49	108	**Earth OCC**	TITAN	2009-094T01:37	Apr04	Sat	8	0	3	Egress = 2009-094T01:46 (10 min)
S49	108	**Sun OCC**	TITAN	2009-094T01:39	Apr04	Sat	8	0	3	Egress = 2009-094T01:45 (6 min)
S49	108	**108TI (t) T52**	**TITAN**	2009-094T01:48	Apr04	Sat	8	16	3	Inbound 4146.6 km flyby, v = 5.8 km/s, phase = 151 deg
S49	108	Ring CRX	Descending	2009-094T02:10	Apr04	Sat	0	16	3	r = 20.914 Rs (1261738 km)
S49	108	**MAG**	**Segment**	2009-095T09:19	Apr05	Sun	1	15	4	MAG_108_109 (14d); MAG_108_109
S49	108	**OTM-188**	108TI+3d	2009-097T00:19	Apr07	Tue	3	13	6	D/L start, burn ~6h later. Backup D/L 098T00:04
S49	108	Periapse		2009-098T23:41	Apr08	Wed	5	11	2	R = 18.689 Rs, lat = -51 deg, phase = 76 deg
S49	108	Ring CRX	Ascending	2009-101T08:57	Apr11	Sat	7	9	4	r = 19.418 Rs (1171491 km)
S49	108	108TI (nt)	**TITAN**	2009-101T17:35	Apr11	Sat	8	8	5	Outbound 326142.9 km flyby, v = 6.0 km/s, phase = 67 deg
S49	108	**OTM-189**	~apo	2009-102T06:04	Apr12	Sun	8	8	5	D/L start, burn ~6h later. Backup D/L 102T23:49
S49	109	**Apoapse**		2009-106T23:07	Apr16	Thu	13	3	5	Per = 16.0 d, inc = 61.7 deg, r = 21.811 Rs, phase = 104 deg
S49	109	**OTM-190**	109TI-3d	2009-106T23:33	Apr16	Thu	13	3	5	D/L start, burn ~6h later. Backup D/L 107T23:33
S49	109	**TOST**	**Segment**	2009-109T08:18	Apr19	Sun	15	1	2	TOST_109_T53 (2d); Titan Flyby T53
S49	109	**Earth OCC**	TITAN	2009-110T00:07	Apr20	Mon	16	0	3	Egress = 2009-110T00:20 (13 min)
S49	109	**Sun OCC**	TITAN	2009-110T00:10	Apr20	Mon	16	0	3	Egress = 2009-110T00:18 (9 min)
S49	109	**109TI (t) T53**	**TITAN**	2009-110T00:21	Apr20	Mon	16	16	3	Inbound 3598.8 km flyby, v = 5.8 km/s, phase = 149 deg
S49	109	Ring CRX	Descending	2009-110T00:41	Apr20	Mon	0	16	3	r = 20.894 Rs (1260530 km)
S49	109	**RINGS**	**Segment**	2009-111T10:18	Apr21	Tue	1	15	4	RINGS_109 (5d); RINGS_109
S49	109	**OTM-191**	109TI+4d	2009-112T23:03	Apr22	Wed	3	13	6	D/L start, burn ~6h later. Backup D/L 113T23:03
S49	109	Periapse		2009-114T02:20	Apr24	Fri	4	12	1	R = 16.943 Rs, lat = -55 deg, phase = 84 deg
S49	109	**TOST**	**Segment**	2009-116T00:33	Apr26	Sun	6	10	3	TOST_109 (3d); Titan Non-Targeted Flyby
S49	109	Ring CRX	Ascending	2009-116T10:43	Apr26	Sun	6	10	3	r = 18.663 Rs (1125916 km)
S49	109	109TI (nt)	**TITAN**	2009-117T04:06	Apr27	Mon	7	9	4	Outbound 694946.6 km flyby, v = 6.3 km/s, phase = 64 deg
S49	109	**OTM-192**	~apo	2009-118T05:02	Apr28	Tue	8	8	5	D/L start, burn ~6h later. Backup D/L 119T05:02
S49	109	**MAG**	**Segment**	2009-118T14:02	Apr28	Tue	9	7	0	MAG_109_110 (7d); MAG_109_110

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S49	110	**Apoapse**		2009-122T01:39	May02	Sat	12	4	4	Per = 16.0 d, inc = 61.4 deg, r = 23.557 Rs, phase = 96 deg
S49	110	**OTM-193**	110TI-3d	2009-122T15:02	May02	Sat	13	3	4	D/L start, burn ~6h later. Backup D/L 123T14:46
S50	110	**S50 Begins**		2009-125T07:16	May05	Tue	15	1	3	S50 Sequence. Duration = 39 d
S50	110	**TOST**	**Segment**	2009-125T07:16	May05	Tue	15	1	3	TOST_110_T54 (2d); Titan Flyby T54
S50	110	**Earth OCC**	TITAN	2009-125T22:38	May05	Tue	16	0	3	Egress = 2009-125T22:53 (15 min)
S50	110	**Sun OCC**	TITAN	2009-125T22:40	May05	Tue	16	0	3	Egress = 2009-125T22:52 (12 min)
S50	110	**110TI (t) T54**	**TITAN**	2009-125T22:54	May05	Tue	16	16	3	Inbound 3242.4 km flyby, v = 5.8 km/s, phase = 146 deg
S50	110	Ring CRX	Descending	2009-125T23:13	May05	Tue	0	16	3	r = 20.877 Rs (1259504 km)
S50	110	**MAG**	**Segment**	2009-127T07:16	May07	Thu	1	15	5	MAG_110_111 (14d); MAG_110_111
S50	110	**OTM-194**	110TI+4d	2009-128T22:01	May08	Fri	3	13	6	D/L start, burn ~6h later. Backup D/L 129T22:01
S50	110	Periapse		2009-129T14:40	May09	Sat	4	12	1	R = 15.074 Rs, lat = -54 deg, phase = 84 deg
S50	110	Ring CRX	Ascending	2009-131T12:48	May11	Mon	6	10	3	r = 17.320 Rs (1044902 km)
S50	110	**OTM-195**	~apo	2009-134T04:00	May14	Thu	8	8	5	D/L start, burn ~6h later. Backup D/L 135T03:45
S50	111	**Apoapse**		2009-137T13:47	May17	Sun	12	4	3	Per = 15.9 d, inc = 60.7 deg, r = 25.429 Rs, phase = 96 deg
S50	111	**OTM-196**	111TI-3d	2009-138T13:45	May18	Mon	13	3	4	D/L start, burn ~6h later. Backup D/L 139T13:44
S50	111	**TOST**	**Segment**	2009-141T06:14	May21	Thu	15	1	3	TOST_111_T55 (2d); Titan Flyby T55
S50	111	**Earth OCC**	TITAN	2009-141T21:11	May21	Thu	16	0	3	Egress = 2009-141T21:29 (18 min)
S50	111	**Sun OCC**	TITAN	2009-141T21:12	May21	Thu	16	0	3	Egress = 2009-141T21:28 (17 min)
S50	111	**111TI (t) T55**	**TITAN**	2009-141T21:27	May21	Thu	16	16	3	Inbound 965.7 km flyby, v = 6.0 km/s, phase = 142 deg
S50	111	Ring CRX	Descending	2009-141T21:47	May21	Thu	0	16	3	r = 20.819 Rs (1256018 km)
S50	111	**MAG**	**Segment**	2009-143T07:59	May23	Sat	1	15	5	MAG_111_112 (14d); MAG_111_112
S50	111	**OTM-197**	111TI+4d	2009-144T20:59	May24	Sun	3	13	6	D/L start, burn ~6h later. Backup D/L 145T20:59
S50	111	Periapse		2009-145T01:26	May25	Mon	3	13	0	R = 12.168 Rs, lat = -50 deg, phase = 80 deg
S50	111	Ring CRX	Ascending	2009-146T07:02	May26	Tue	4	12	1	r = 14.400 Rs (868743 km)
S50	111	**OTM-198**	~apo	2009-150T02:58	May30	Sat	8	8	5	D/L start, burn ~6h later. Backup D/L 151T12:58
S50	112	**Apoapse**		2009-153T00:47	Jun02	Tue	11	5	3	Per = 15.9 d, inc = 58.8 deg, r = 28.335 Rs, phase = 100 deg
S50	112	**OTM-199**	112TI-3d	2009-154T12:42	Jun03	Wed	13	3	4	D/L start, burn ~6h later. Backup D/L 155T12:42
S50	112	**TOST**	**Segment**	2009-157T05:12	Jun06	Sat	15	1	3	TOST_112_T56 (2d); Titan Flyby T56
S50	112	**Earth OCC**	TITAN	2009-157T19:41	Jun06	Sat	16	0	3	Egress = 2009-157T20:01 (20 min)
S50	112	**Sun OCC**	TITAN	2009-157T19:42	Jun06	Sat	16	0	3	Egress = 2009-157T20:01 (19 min)
S50	112	**112TI (t) T56**	**TITAN**	2009-157T20:00	Jun06	Sat	16	16	3	Inbound 967.7 km flyby, v = 6.0 km/s, phase = 135 deg
S50	112	Ring CRX	Descending	2009-157T20:20	Jun06	Sat	0	16	3	r = 20.799 Rs (1254791 km)
S50	112	**RINGS**	**Segment**	2009-159T06:57	Jun08	Mon	1	14	5	RINGS_112 (5d); RINGS EQUINOX
S50	112	Periapse		2009-160T14:49	Jun09	Tue	3	13	6	R = 9.525 Rs, lat = -43 deg, phase = 75 deg
S50	112	**OTM-200**	112TI+3d	2009-161T02:12	Jun10	Wed	3	13	7	D/L start, burn ~6h later. Backup D/L 162T02:11
S50	112	Ring CRX	Ascending	2009-161T08:05	Jun10	Wed	4	12	0	r = 11.214 Rs (676556 km)
S51	112	**S51 Begins**		2009-164T04:41	Jun13	Sat	6	10	3	S51 Sequence. Duration = 41 d
S51	112	**MAG**	**Segment**	2009-164T04:41	Jun13	Sat	6	10	3	MAG_112_113 (9d); MAG_112_113
S51	112	**OTM-201**	~apo	2009-165T19:26	Jun14	Sun	8	8	5	D/L start, burn ~6h later. Backup D/L 166T19:26
S51	113	**Apoapse**		2009-168T14:10	Jun17	Wed	11	5	3	Per = 16.0 d, inc = 55.8 deg, r = 30.975 Rs, phase = 104 deg
S51	113	**OTM-202**	113TI-4d	2009-170T11:40	Jun19	Fri	13	3	5	D/L start, burn ~6h later. Backup D/L 171T11:40
S51	113	**TOST**	**Segment**	2009-173T04:10	Jun22	Mon	15	1	3	TOST_113_T57 (2d); Titan Flyby T57
S51	113	**Earth OCC**	TITAN	2009-173T18:09	Jun22	Mon	16	0	3	Egress = 2009-173T18:32 (24 min)
S51	113	**Sun OCC**	TITAN	2009-173T18:10	Jun22	Mon	16	0	3	Egress = 2009-173T18:32 (22 min)
S51	113	**113TI (t) T57**	**TITAN**	2009-173T18:33	Jun22	Mon	16	16	3	Inbound 955.1 km flyby, v = 6.0 km/s, phase = 128 deg
S51	113	Ring CRX	Descending	2009-173T18:54	Jun22	Mon	0	16	3	r = 20.775 Rs (1253347 km)
S51	113	**RINGS**	**Segment**	2009-175T05:40	Jun24	Wed	1	14	5	RINGS_113 (5d); RINGS EQUINOX
S51	113	Periapse		2009-176T05:45	Jun25	Thu	2	13	6	R = 7.213 Rs, lat = -36 deg, phase = 71 deg
S51	113	Ring CRX	Ascending	2009-176T15:07	Jun25	Thu	3	13	6	r = 8.296 Rs (500507 km)
S51	113	**OTM-203**	113TI+4d	2009-177T01:09	Jun26	Fri	3	13	7	D/L start, burn ~6h later. Backup D/L 178T01:09
S51	113	**MAG**	**Segment**	2009-180T03:39	Jun29	Mon	6	10	3	MAG_113_114 (9d); MAG_113_114
S51	113	**OTM-204**	~apo	2009-181T18:24	Jun30	Tue	8	8	5	D/L start, burn ~6h later. Backup D/L 182T18:24
S51	114	**Apoapse**		2009-184T05:06	Jul03	Fri	10	5	2	Per = 15.9 d, inc = 51.2 deg, r = 33.287 Rs, phase = 109 deg
S51	114	**OTM-205**	114TI-3d	2009-186T10:38	Jul05	Sun	13	3	5	D/L start, burn ~6h later. Backup D/L 187T10:38
S51	114	**TOST**	**Segment**	2009-189T04:00	Jul08	Wed	15	1	3	TOST_114_T58 (2d); Titan Flyby T58
S51	114	**Earth OCC**	TITAN	2009-189T16:33	Jul08	Wed	16	0	3	Egress = 2009-189T17:02 (29 min)
S51	114	**Sun OCC**	TITAN	2009-189T16:36	Jul08	Wed	16	0	3	Egress = 2009-189T17:02 (27 min)
S51	114	**114TI (t) T58**	**TITAN**	2009-189T17:04	Jul08	Wed	16	16	3	Inbound 965.8 km flyby, v = 6.0 km/s, phase = 120 deg
S51	114	Ring CRX	Descending	2009-189T17:28	Jul08	Wed	0	16	3	r = 20.744 Rs (1251481 km)
S51	114	**RINGS**	**Segment**	2009-191T04:53	Jul10	Fri	1	14	5	RINGS_114_115 (14d); RINGS EQUINOX
S51	114	Periapse		2009-191T22:10	Jul10	Fri	2	14	5	R = 5.309 Rs, lat = -28 deg, phase = 67 deg
S51	114	Ring CRX	Ascending	2009-192T02:58	Jul11	Sat	2	14	6	r = 5.932 Rs (357864 km)
S51	114	114DI (nt)	**DIONE**	2009-192T03:13	Jul11	Sat	2	14	6	Outbound 86563.3 km flyby, v = 9.2 km/s, phase = 62 deg
S51	114	**OTM-206**	114TI+4d	2009-193T10:22	Jul12	Sun	4	12	7	D/L start, burn ~6h later. Backup D/L 194T10:07
S51	114	**OTM-207**	~apo	2009-198T09:52	Jul17	Fri	9	7	5	D/L start, burn ~6h later. Backup D/L 199T09:52
S51	115	**Apoapse**		2009-199T21:29	Jul18	Sat	10	6	1	Per = 15.9 d, inc = 44.6 deg, r = 35.191 Rs, phase = 112 deg
S51	115	**OTM-208**	115TI-3d	2009-202T09:36	Jul21	Tue	13	3	4	D/L start, burn ~6h later. Backup D/L 203T09:36
S52	115	**S52 Begins**		2009-204T21:51	Jul23	Thu	15	1	3	S52 Sequence. Duration = 32 d
S52	115	**TOST**	**Segment**	2009-204T21:51	Jul23	Thu	15	1	3	TOST_115_T59 (1d); Titan Flyby T59
S52	115	**Earth OCC**	TITAN	2009-205T14:52	Jul24	Fri	16	0	3	Egress = 2009-205T15:30 (38 min)
S52	115	**Sun OCC**	TITAN	2009-205T14:56	Jul24	Fri	16	0	3	Egress = 2009-205T15:30 (34 min)
S52	115	**115TI (t) T59**	**TITAN**	2009-205T15:34	Jul24	Fri	16	16	3	Inbound 956.2 km flyby, v = 6.0 km/s, phase = 112 deg
S52	115	Ring CRX	Descending	2009-205T16:05	Jul24	Fri	0	16	3	r = 20.694 Rs (1248445 km)
S52	115	**RINGS**	**Segment**	2009-206T08:21	Jul25	Sat	1	15	4	RINGS_115_116 (15d); RINGS EQUINOX
S52	115	Periapse		2009-207T16:04	Jul26	Sun	2	14	5	R = 3.866 Rs, lat = -19 deg, phase = 65 deg
S52	115	115PM (nt)	**PROMETHEUS**	2009-207T16:19	Jul26	Sun	2	14	5	Outbound 113397.7 km flyby, v = 10.4 km/s, phase = 79 deg
S52	115	115PA (nt)	**PANDORA**	2009-207T16:49	Jul26	Sun	2	14	5	Outbound 103586.3 km flyby, v = 10.1 km/s, phase = 66 deg
S52	115	115JA (nt)	**JANUS**	2009-207T17:06	Jul26	Sun	2	14	5	Outbound 94091.0 km flyby, v = 9.9 km/s, phase = 59 deg
S52	115	115TE (nt)	**TETHYS**	2009-207T18:15	Jul26	Sun	2	14	5	Outbound 68253.7 km flyby, v = 9.5 km/s, phase = 89 deg
S52	115	E_ring_lg	Dust Crossing	2009-207T18:29	Jul26	Sun	2	14	5	Egress at 2009-207T18:33 (4 min); protection = none
S52	115	Ring CRX	Ascending	2009-207T18:31	Jul26	Sun	2	14	5	r = 4.206 Rs (253759 km)
S52	115	**OTM-209**	115TI+4d	2009-209T09:21	Jul28	Tue	4	12	7	D/L start, burn ~6h later. Backup D/L 210T09:06
S52	115	**OTM-210**	~apo	2009-213T16:35	Aug01	Sat	8	8	4	D/L start, burn ~6h later. Backup D/L 214T16:20
S52	116	**Apoapse**		2009-215T15:23	Aug03	Mon	10	6	2	Per = 15.9 d, inc = 34.8 deg, r = 36.637 Rs, phase = 115 deg
S52	116	**OTM-211**	116TI-3d	2009-218T16:05	Aug06	Thu	13	3	5	D/L start, burn ~6h later. Backup D/L 219T16:05
S52	116	**TOST**	**Segment**	2009-221T01:05	Aug09	Sun	15	1	2	TOST_116_T60 (1d); Titan Flyby T60

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S52	116	Earth OCC	TITAN	2009-221T13:02	Aug09	Sun	16	0	3	Egress = 2009-221T13:56 (54 min)
S52	116	Sun OCC	TITAN	2009-221T13:09	Aug09	Sun	16	0	3	Egress = 2009-221T13:56 (48 min)
S52	116	116TI (t) T60	TITAN	2009-221T14:04	Aug09	Sun	16	16	3	Inbound 971.1 km flyby, v = 6.0 km/s, phase = 104 deg
S52	116	Ring CRX	Descending	2009-221T14:55	Aug09	Sun	0	16	3	r = 20.579 Rs (1241516 km)
S52	116	RINGS	Segment	2009-222T02:05	Aug10	Mon	1	15	3	RINGS_116_117 (15d); RINGS EQUINOX
S52	116	NORTHERN VERNAL EQUINOX		2009-223T00:25	Aug11	Tue	1	15	4	Northern vernal equinox (Sun passes northward through ring plane)
S52	116	116AT (nt)	ATLAS	2009-223T11:26	Aug11	Tue	2	14	5	Inbound 118902.8 km flyby, v = 14.4 km/s, phase = 117 deg
S52	116	Periapse		2009-223T11:37	Aug11	Tue	2	14	5	R = 2.933 Rs, lat = -11 deg, phase = 63 deg
S52	116	Ring CRX	Ascending	2009-223T12:59	Aug11	Tue	2	14	5	r = 3.131 Rs (188889 km)
S52	116	OTM-212	116TI+4d	2009-225T15:49	Aug13	Thu	4	12	7	D/L start, burn ~6h later. Backup D/L 226T15:34
S52	116	OTM-213	~apo	2009-228T08:04	Aug16	Sun	7	9	3	D/L start, burn ~6h later. Backup D/L 229T08:04
S52	117	Apoapse		2009-231T11:08	Aug19	Wed	10	6	3	Per = 16.0 d, inc = 20.8 deg, r = 37.601 Rs, phase = 117 deg
S52	117	OTM-214	117TI-3d	2009-233T21:34	Aug21	Fri	12	4	6	D/L start, burn ~6h later. Backup D/L 234T21:34
S53	117	S53 Begins		2009-237T00:04	Aug25	Tue	15	1	3	S53 Sequence. Duration = 41 d
S53	117	TOST	Segment	2009-237T00:04	Aug25	Tue	15	1	3	TOST_117_T61 (2d); Titan Flyby T61
S53	117	117TI (t) T61	TITAN	2009-237T12:52	Aug25	Tue	16	48	4	Inbound 960.7 km flyby, v = 6.0 km/s, phase = 86 deg
S53	117	Ring CRX	Descending	2009-237T14:55	Aug25	Tue	0	48	4	r = 20.194 Rs (1218295 km)
S53	117	RINGS	Segment	2009-239T02:04	Aug27	Thu	2	46	5	RINGS_117_118 (18d); RINGS EQUINOX
S53	117	117AE (nt)	AEGAEON	2009-239T09:37	Aug27	Thu	2	46	6	Inbound 106991.8 km flyby, v = 3.0 km/s, phase = 105 deg
S53	117	Periapse		2009-239T10:32	Aug27	Thu	2	46	6	R = 4.277 Rs, lat = -8 deg, phase = 76 deg
S53	117	117PL (nt)	PALLENE	2009-239T11:03	Aug27	Thu	2	46	6	Outbound 101272.0 km flyby, v = 7.5 km/s, phase = 119 deg
S53	117	117TL (nt)	TELESTO	2009-239T13:11	Aug27	Thu	2	46	6	Outbound 25200.9 km flyby, v = 5.8 km/s, phase = 86 deg
S53	117	Ring CRX	Ascending	2009-239T14:08	Aug27	Thu	2	46	6	r = 4.878 Rs (294306 km)
S53	117	OTM-215	117TI+4d	2009-241T07:19	Aug29	Sat	4	44	7	D/L start, burn ~6h later. Backup D/L 242T07:19
S53	117	OTM-216	~apo	2009-247T20:48	Sep04	Fri	10	37	7	D/L start, burn ~6h later. Backup D/L 248T20:48
S53	118	Apoapse		2009-251T10:12	Sep08	Tue	14	34	4	Per = 24.0 d, inc = 12.1 deg, r = 48.888 Rs, phase = 104 deg
S53	118	MAG	Segment	2009-256T23:03	Sep13	Sun	19	28	9	MAG_118 (6d); MAG_118
S53	118	SEP = 3.0 deg	Conjunction	2009-258T00:02	Sep15	Tue	20	27	10	Commanding must not be required below 3.0 deg
S53	118	SEP = 2.0 deg	Conjunction	2009-260T04:59	Sep17	Thu	23	25	12	Plan no SSR playback below 2.0 deg
S53	118	SEP = 2.0 deg	Conjunction	2009-261T05:05	Sep18	Fri	24	24	13	Plan no SSR playback below 2.0 deg
S53	118	Ring CRX	Descending	2009-261T14:49	Sep18	Fri	24	24	14	r = 20.011 Rs (1207288 km)
S53	118	RINGS	Segment	2009-262T22:33	Sep19	Sat	25	22	15	RINGS_118 (5d); RINGS EQUINOX
S53	118	Periapse		2009-263T09:51	Sep20	Sun	26	22	16	R = 4.270 Rs, lat = -8 deg, phase = 77 deg
S53	118	118PM (nt)	PROMETHEUS	2009-263T10:10	Sep20	Sun	26	22	16	Outbound 121149.0 km flyby, v = 2.7 km/s, phase = 73 deg
S53	118	SEP = 3.0 deg	Conjunction	2009-263T10:14	Sep20	Sun	26	22	16	Commanding must not be required below 3.0 deg
S53	118	Ring CRX	Ascending	2009-263T13:28	Sep20	Sun	26	22	16	r = 4.880 Rs (294391 km)
S53	118	118DI (nt)	DIONE	2009-263T16:51	Sep20	Sun	26	22	16	Outbound 97133.7 km flyby, v = 9.8 km/s, phase = 94 deg
S53	118	118TI (nt)	TITAN	2009-265T06:53	Sep22	Tue	28	20	17	Outbound 293865.9 km flyby, v = 4.8 km/s, phase = 113 deg
S53	118	MAG	Segment	2009-267T22:18	Sep24	Thu	30	17	20	MAG_118_119 (10d); MAG_118_119
S53	119	Apoapse		2009-275T08:03	Oct02	Fri	38	10	27	Per = 23.8 d, inc = 12.1 deg, r = 48.713 Rs, phase = 103 deg
S54	119	S54 Begins		2009-278T04:03	Oct05	Mon	41	7	30	S54 Sequence. Duration = 40 d
S54	119	MAG	Segment	2009-278T04:03	Oct05	Mon	41	7	30	MAG_119 (6d); MAG_119
S54	119	OTM-217	119TI-3d	2009-282T05:04	Oct09	Fri	45	3	34	D/L start, burn ~6h later. Backup D/L 283T05:04
S54	119	TOST	Segment	2009-284T13:49	Oct11	Sun	47	1	2	TOST_119_T62 (2d); Titan Flyby T61
S54	119	Sun OCC	TITAN	2009-285T07:39	Oct12	Mon	48	0	3	Egress = 2009-285T08:19 (41 min)
S54	119	Earth OCC	TITAN	2009-285T07:46	Oct12	Mon	48	0	3	Egress = 2009-285T08:22 (36 min)
S54	119	119TI (t) T62	TITAN	2009-285T08:36	Oct12	Mon	48	21	3	Inbound 1299.5 km flyby, v = 6.0 km/s, phase = 99 deg
S54	119	Ring CRX	Descending	2009-286T05:50	Oct13	Tue	1	20	4	r = 13.526 Rs (816010 km)
S54	119	SATURN	Segment	2009-286T13:49	Oct13	Tue	1	20	4	SATURN_119_120 (19d); SATURN_119_120
S54	119	Sun OCC	SATURN	2009-286T14:58	Oct13	Tue	1	20	4	Egress = 2009-286T19:34 (277 min)
S54	119	Earth OCC	SATURN	2009-286T15:49	Oct13	Tue	1	20	4	Egress = 2009-286T20:03 (255 min)
S54	119	119RH (nt)	RHEA	2009-286T16:55	Oct13	Tue	1	20	4	Inbound 40404.3 km flyby, v = 9.0 km/s, phase = 82 deg
S54	119	119ME (nt)	METHONE	2009-287T03:18	Oct14	Wed	2	19	5	Inbound 86106.0 km flyby, v = 11.8 km/s, phase = 39 deg
S54	119	119AT (nt)	ATLAS	2009-287T04:20	Oct14	Wed	2	19	5	Inbound 70649.9 km flyby, v = 2.9 km/s, phase = 114 deg
S54	119	119CA (nt)	CALYPSO	2009-287T04:33	Oct14	Wed	2	19	5	Inbound 100793.4 km flyby, v = 7.7 km/s, phase = 107 deg
S54	119	Periapse		2009-287T05:10	Oct14	Wed	2	19	5	R = 3.195 Rs, lat = -0 deg, phase = 70 deg
S54	119	119MI (nt)	MIMAS	2009-287T06:33	Oct14	Wed	2	19	5	Outbound 44043.7 km flyby, v = 7.8 km/s, phase = 102 deg
S54	119	Pallene	Dust Crossing	2009-287T06:57	Oct14	Wed	2	19	5	Egress at 2009-287T07:13 (16 min); protection = none
S54	119	E_ring_lg	DUST HAZARD	2009-287T07:11	Oct14	Wed	2	19	5	Egress at 2009-287T09:06 (115 min); protection = MEA cover closure
S54	119	Ring CRX	Ascending	2009-287T07:52	Oct14	Wed	2	19	5	r = 3.797 Rs (229047 km)
S54	119	119TE (nt)	TETHYS	2009-287T10:11	Oct14	Wed	2	19	5	Outbound 85103.7 km flyby, v = 11.9 km/s, phase = 76 deg
S54	119	OTM-218	119TI+3d	2009-288T18:34	Oct15	Thu	3	18	7	D/L start, burn ~6h later. Backup D/L 289T18:19
S54	119	OTM-219	~apo	2009-293T18:04	Oct20	Tue	8	13	5	D/L start, burn ~6h later. Backup D/L 294T18:04
S54	120	Apoapse		2009-296T16:59	Oct23	Fri	11	10	3	Per = 19.0 d, inc = 0.5 deg, r = 42.295 Rs, phase = 110 deg
S54	120	OTM-220	E7-3d	2009-302T17:35	Oct29	Thu	17	4	9	D/L start, burn ~6h later. Backup D/L 303T17:35
S54	120	SOST	Segment	2009-305T12:35	Nov01	Sun	20	1	3	SOST_120 (2d); E7 Flyby
S54	120	Sun OCC	SATURN	2009-305T14:35	Nov01	Sun	20	1	3	Egress = 2009-305T19:06 (272 min)
S54	120	Ring CRX	Descending	2009-305T15:06	Nov01	Sun	20	1	3	r = 9.244 Rs (557680 km)
S54	120	Earth OCC	SATURN	2009-305T16:02	Nov01	Sun	20	1	3	Egress = 2009-305T19:51 (229 min)
S54	120	120TI (nt)	TITAN	2009-305T23:57	Nov01	Sun	21	0	3	Inbound 978757.5 km flyby, v = 9.9 km/s, phase = 73 deg
S54	120	120PL (nt)	PALLENE	2009-306T02:08	Nov02	Mon	21	0	3	Inbound 93544.9 km flyby, v = 12.6 km/s, phase = 46 deg
S54	120	Periapse		2009-306T04:39	Nov02	Mon	21	0	3	R = 3.201 Rs, lat = -0 deg, phase = 70 deg
S54	120	120EP (nt)	EPIMETHEUS	2009-306T05:27	Nov02	Mon	21	0	3	Outbound 105159.2 km flyby, v = 8.0 km/s, phase = 6 deg
S54	120	E_ring_lg	DUST HAZARD	2009-306T06:39	Nov02	Mon	21	0	4	Egress at 2009-306T08:34 (116 min); protection = MEA cover closure
S54	120	120CA (nt)	CALYPSO	2009-306T06:56	Nov02	Mon	21	0	4	Outbound 86768.5 km flyby, v = 6.9 km/s, phase = 117 deg
S54	120	Earth OCC	ENCELADUS	2009-306T07:28	Nov02	Mon	21	0	4	Egress = 2009-306T07:35 (7 min)
S54	120	120EN (t) E7	ENCELADUS	2009-306T07:42	Nov02	Mon	21	19	4	Outbound 98.9 km flyby, v = 7.7 km/s, phase = 90 deg
S54	120	Ring CRX	Ascending	2009-306T08:36	Nov02	Mon	0	19	4	r = 4.355 Rs (262711 km)
S54	120	SATURN	Segment	2009-307T12:35	Nov03	Tue	1	18	5	SATURN_120_121 (10d); SATURN_120_121
S54	120	OTM-221	E7+3d	2009-309T03:20	Nov05	Thu	3	16	6	D/L start, burn ~6h later. Backup D/L 310T03:21
S54	121	Apoapse		2009-315T16:57	Nov11	Wed	9	9	7	Per = 19.0 d, inc = 0.5 deg, r = 42.367 Rs, phase = 110 deg
S54	121	OTM-222	~apo	2009-316T03:06	Nov12	Thu	10	9	7	D/L start, burn ~6h later. Backup D/L 317T10:21
S55	121	S55 Begins		2009-317T19:21	Nov13	Fri	11	7	2	S55 Sequence. Duration = 39 d
S55	121	SATURN	Segment	2009-317T19:21	Nov13	Fri	11	7	2	SATURN_121 (7d); SATURN_121
S55	121	OTM-223	E8-3d	2009-321T16:37	Nov17	Tue	15	3	6	D/L start, burn ~6h later. Backup D/L 322T16:37
S55	121	SOST	Segment	2009-324T11:37	Nov20	Fri	18	1	3	SOST_121 (2d); E8 Flyby
S55	121	Ring CRX	Descending	2009-324T15:11	Nov20	Fri	18	0	3	r = 9.490 Rs (572558 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S55	121	Sun OCC	SATURN	2009-324T15:19	Nov20	Fri	18	0	3	Egress = 2009-324T19:46 (267 min)
S55	121	Earth OCC	SATURN	2009-324T17:14	Nov20	Fri	18	0	3	Egress = 2009-324T20:41 (208 min)
S55	121	121HE (nt)	HELENE	2009-324T22:04	Nov20	Fri	19	0	3	Inbound 82627.3 km flyby, v = 6.6 km/s, phase = 105 deg
S55	121	121EN (t) E8	ENCELADUS	2009-325T02:10	Nov21	Sat	19	21	3	Inbound 1596.6 km flyby, v = 7.8 km/s, phase = 88 deg
S55	121	121PA (nt)	PANDORA	2009-325T04:45	Nov21	Sat	0	21	4	Inbound 59455.3 km flyby, v = 3.0 km/s, phase = 103 deg
S55	121	Periapse		2009-325T05:15	Nov21	Sat	0	21	4	R = 3.203 Rs, lat = -0 deg, phase = 70 deg
S55	121	E_ring_lg	DUST HAZARD	2009-325T07:15	Nov21	Sat	0	21	4	Egress at 2009-325T09:10 (116 min); protection = MEA cover closure
S55	121	121TI (nt)	TITAN	2009-325T08:30	Nov21	Sat	0	21	4	Outbound 965079.3 km flyby, v = 11.1 km/s, phase = 138 deg
S55	121	Ring CRX	Ascending	2009-325T09:06	Nov21	Sat	0	21	4	r = 4.308 Rs (259903 km)
S55	121	121CA (nt)	CALYPSO	2009-325T10:20	Nov21	Sat	0	21	4	Outbound 37051.8 km flyby, v = 10.0 km/s, phase = 78 deg
S55	121	121RH (nt)	RHEA	2009-325T17:36	Nov21	Sat	1	20	4	Outbound 24454.2 km flyby, v = 8.7 km/s, phase = 58 deg
S55	121	SATURN	Segment	2009-326T01:22	Nov22	Sun	1	20	4	SATURN_121_122 (19d); SATURN_121_122
S55	121	OTM-224	E8+2d	2009-326T16:22	Nov22	Sun	2	19	5	D/L start, burn ~6h later. Backup D/L 327T16:07
S55	122	Apoapse		2009-334T17:37	Nov30	Mon	10	11	8	Per = 19.0 d, inc = 0.5 deg, r = 42.380 Rs, phase = 109 deg
S55	122	OTM-225	~apo	2009-338T01:39	Dec04	Fri	13	8	11	D/L start, burn ~6h later. Backup D/L 339T01:39
S55	122	OTM-226	122TI-3d	2009-342T15:24	Dec08	Tue	18	3	5	D/L start, burn ~6h later. Backup D/L 343T01:24
S55	122	Ring CRX	Descending	2009-343T15:27	Dec09	Wed	19	2	1	r = 9.756 Rs (588569 km)
S55	122	Sun OCC	SATURN	2009-343T16:19	Dec09	Wed	19	2	1	Egress = 2009-343T20:41 (262 min)
S55	122	Earth OCC	SATURN	2009-343T18:32	Dec09	Wed	19	2	1	Egress = 2009-343T21:42 (191 min)
S55	122	122HE (nt)	HELENE	2009-343T22:28	Dec09	Wed	19	2	1	Inbound 31766.1 km flyby, v = 9.6 km/s, phase = 73 deg
S55	122	122PL (nt)	PALLENE	2009-344T03:34	Dec10	Thu	19	2	2	Inbound 111223.8 km flyby, v = 13.7 km/s, phase = 47 deg
S55	122	Periapse		2009-344T06:04	Dec10	Thu	19	2	2	R = 3.196 Rs, lat = -0 deg, phase = 71 deg
S55	122	E_ring_lg	DUST HAZARD	2009-344T08:04	Dec10	Thu	19	2	2	Egress at 2009-344T10:00 (115 min); protection = MEA cover closure
S55	122	Ring CRX	Ascending	2009-344T09:49	Dec10	Thu	19	2	2	r = 4.260 Rs (256984 km)
S55	122	TOST	Segment	2009-345T10:10	Dec11	Fri	20	1	3	TOST_122_T63 (3d); Titan Flyby T63
S55	122	122TI (t) T63	TITAN	2009-346T01:03	Dec12	Sat	21	16	3	Outbound 4847.5 km flyby, v = 5.7 km/s, phase = 124 deg
S55	122	Ring CRX	Descending	2009-346T16:23	Dec12	Sat	1	15	4	r = 24.336 Rs (1468214 km)
S55	122	MAG	Segment	2009-348T10:10	Dec14	Mon	2	14	6	MAG_122_123 (9d); MAG_122_123
S55	122	OTM-227	122TI+3d	2009-349T00:55	Dec15	Tue	3	13	6	D/L start, burn ~6h later. Backup D/L 350T00:55
S55	123	Apoapse		2009-352T05:55	Dec18	Fri	6	10	3	Per = 16.0 d, inc = 4.9 deg, r = 37.963 Rs, phase = 104 deg
S55	123	OTM-228	~apo	2009-354T00:41	Dec20	Sun	8	8	5	D/L start, burn ~6h later. Backup D/L 355T00:41
S56	123	S56 Begins		2009-356T23:26	Dec22	Tue	11	5	3	S56 Sequence. Duration = 32 d
S56	123	RINGS	Segment	2009-356T23:26	Dec22	Tue	11	5	3	RINGS_123 (4d); RINGS_123
S56	123	OTM-229	123TI-3d	2009-358T14:26	Dec24	Thu	13	3	5	D/L start, burn ~6h later. Backup D/L 359T07:57
S56	123	Earth OCC	RING	2009-359T19:27	Dec25	Fri	14	2	1	Egress = 2009-360T03:27 (480 min)
S56	123	Sun OCC	SATURN	2009-359T20:42	Dec25	Fri	14	2	1	Egress = 2009-360T00:12 (211 min)
S56	123	Earth OCC	SATURN	2009-359T21:39	Dec25	Fri	14	2	1	Egress = 2009-360T01:02 (203 min)
S56	123	123TE (nt)	TETHYS	2009-360T00:36	Dec26	Sat	14	2	1	Inbound 52931.2 km flyby, v = 11.8 km/s, phase = 77 deg
S56	123	G_ring	DUST HAZARD	2009-360T04:48	Dec26	Sat	14	2	2	Egress at 2009-360T04:52 (5 min); protection = MEA cover closure
S56	123	Ring CRX	Ascending	2009-360T04:50	Dec26	Sat	14	2	2	r = 2.692 Rs (162384 km)
S56	123	123PM (nt)	PROMETHEUS	2009-360T05:01	Dec26	Sat	14	2	2	Inbound 56461.3 km flyby, v = 10.5 km/s, phase = 36 deg
S56	123	Periapse		2009-360T05:41	Dec26	Sat	14	2	2	R = 2.590 Rs, lat = 2 deg, phase = 76 deg
S56	123	TOST	Segment	2009-361T09:12	Dec27	Sun	15	1	3	TOST_123_T64 (3d); Titan Flyby T64
S56	123	123TI (t) T64	TITAN	2009-362T00:17	Dec28	Mon	16	16	3	Outbound 951.3 km flyby, v = 5.9 km/s, phase = 86 deg
S56	123	Ring CRX	Descending	2009-362T02:57	Dec28	Mon	0	16	4	r = 21.038 Rs (1269207 km)
S56	123	MAG	Segment	2009-364T09:12	Dec30	Wed	2	14	6	MAG_123_124 (7d); MAG_123_124
S56	123	OTM-230	123TI+3d	2009-364T23:57	Dec30	Wed	3	13	6	D/L start, burn ~6h later. Backup D/L 001T23:58
S56	124	Apoapse		2010-003T03:50	Jan03	Sun	6	10	3	Per = 16.0 d, inc = 21.6 deg, r = 37.513 Rs, phase = 104 deg
S56	124	OTM-231	~apo	2010-004T23:43	Jan04	Mon	8	8	5	D/L start, burn ~6h later. Backup D/L 005T23:43
S56	124	RINGS	Segment	2010-006T08:43	Jan06	Wed	9	7	1	RINGS_124 (6d); RINGS_124
S56	124	OTM-232	124TI-3d	2010-009T13:29	Jan09	Sat	13	3	5	D/L start, burn ~6h later. Backup D/L 010T06:59
S56	124	Ring CRX	Ascending	2010-011T01:56	Jan11	Mon	14	2	2	r = 3.210 Rs (193680 km)
S56	124	124PA (nt)	PANDORA	2010-011T02:09	Jan11	Mon	14	2	2	Inbound 73052.8 km flyby, v = 7.1 km/s, phase = 141 deg
S56	124	124ME (nt)	METHONE	2010-011T02:25	Jan11	Mon	14	2	2	Inbound 26918.5 km flyby, v = 8.0 km/s, phase = 145 deg
S56	124	Periapse		2010-011T03:23	Jan11	Mon	14	2	2	R = 3.000 Rs, lat = 11 deg, phase = 76 deg
S56	124	124EN (nt)	ENCELADUS	2010-011T06:47	Jan11	Mon	14	2	2	Outbound 105786.6 km flyby, v = 11.4 km/s, phase = 98 deg
S56	124	124CA (nt)	CALYPSO	2010-011T08:17	Jan11	Mon	14	2	2	Outbound 113039.4 km flyby, v = 8.0 km/s, phase = 102 deg
S56	124	TOST	Segment	2010-012T08:14	Jan12	Tue	15	1	3	TOST_124_T65 (3d); Titan Flyby T65
S56	124	124TI (t) T65	TITAN	2010-012T23:11	Jan12	Tue	16	16	3	Outbound 1074.0 km flyby, v = 5.9 km/s, phase = 95 deg
S56	124	Ring CRX	Descending	2010-013T02:03	Jan13	Wed	0	16	4	r = 21.098 Rs (1272840 km)
S56	124	MAG	Segment	2010-015T08:14	Jan15	Fri	2	14	6	MAG_124_125 (8d); MAG_124_125
S56	124	OTM-233	124TI+3d	2010-015T22:59	Jan15	Fri	3	13	6	D/L start, burn ~6h later. Backup D/L 016T23:00
S56	125	Apoapse		2010-019T04:19	Jan19	Tue	6	10	3	Per = 16.0 d, inc = 5.2 deg, r = 37.977 Rs, phase = 103 deg
S56	125	OTM-234	~apo	2010-020T22:45	Jan20	Wed	8	8	5	D/L start, burn ~6h later. Backup D/L 021T22:45
S57	125	S57 Begins		2010-023T15:00	Jan23	Sat	11	5	3	S57 Sequence. Duration = 37 d
S57	125	RINGS	Segment	2010-023T15:00	Jan23	Sat	11	5	3	RINGS_125 (5d); RINGS_125
S57	125	OTM-235	125TI-3d	2010-025T12:16	Jan25	Mon	13	3	5	D/L start, burn ~6h later. Backup D/L 025T22:31
S57	125	Earth OCC	RING	2010-026T18:00	Jan26	Tue	14	2	1	Egress = 2010-027T01:43 (464 min)
S57	125	Sun OCC	SATURN	2010-026T19:15	Jan26	Tue	14	2	1	Egress = 2010-026T22:47 (213 min)
S57	125	Earth OCC	SATURN	2010-026T20:06	Jan26	Tue	14	2	1	Egress = 2010-026T23:29 (204 min)
S57	125	125TL (nt)	TELESTO	2010-027T00:30	Jan27	Wed	14	2	2	Inbound 97062.3 km flyby, v = 7.2 km/s, phase = 91 deg
S57	125	125ME (nt)	METHONE	2010-027T01:40	Jan27	Wed	14	2	2	Inbound 72084.8 km flyby, v = 14.0 km/s, phase = 60 deg
S57	125	G_ring	DUST HAZARD	2010-027T02:59	Jan27	Wed	14	2	2	Egress at 2010-027T03:03 (5 min); protection = HGA to RAM and MEA cover closure
S57	125	Ring CRX	Ascending	2010-027T03:01	Jan27	Wed	14	2	2	r = 2.740 Rs (165295 km)
S57	125	Periapse		2010-027T04:07	Jan27	Wed	14	2	2	R = 2.572 Rs, lat = 3 deg, phase = 77 deg
S57	125	125PN (nt)	PAN	2010-027T04:31	Jan27	Wed	14	2	2	Outbound 97940.9 km flyby, v = 14.8 km/s, phase = 123 deg
S57	125	125PM (nt)	PROMETHEUS	2010-027T04:36	Jan27	Wed	14	2	2	Outbound 32491.5 km flyby, v = 7.2 km/s, phase = 112 deg
S57	125	125AE (nt)	AEGAEON	2010-027T05:19	Jan27	Wed	14	2	2	Outbound 13303.2 km flyby, v = 7.4 km/s, phase = 97 deg
S57	125	125DI (nt)	DIONE	2010-027T11:47	Jan27	Wed	15	1	2	Outbound 45079.8 km flyby, v = 8.7 km/s, phase = 106 deg
S57	125	TOST	Segment	2010-028T07:16	Jan28	Thu	15	1	3	TOST_125_T66 (3d); Titan Flyby T66
S57	125	Ring CRX	Descending	2010-028T20:30	Jan28	Thu	16	0	3	r = 19.637 Rs (1184674 km)
S57	125	125TI (t) T66	TITAN	2010-028T22:29	Jan28	Thu	16	33	3	Outbound 7486.4 km flyby, v = 5.7 km/s, phase = 69 deg
S57	125	SATURN	Segment	2010-031T07:01	Jan31	Sun	2	30	6	SATURN_125_127 (30d); SATURN_125_127
S57	125	OTM-236	125TI+3d	2010-031T22:01	Jan31	Sun	3	30	6	D/L start, burn ~6h later. Backup D/L 032T22:01
S57	125	Ring CRX	Ascending	2010-032T04:15	Feb01	Mon	3	30	0	r = 35.215 Rs (2124534 km)
S57	126	Apoapse		2010-035T22:19	Feb04	Thu	7	26	4	Per = 17.5 d, inc = 0.3 deg, r = 40.258 Rs, phase = 106 deg
S57	126	Sun OCC	SATURN	2010-044T05:58	Feb13	Sat	15	17	12	Egress = 2010-044T09:39 (222 min)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S57	126	Earth OCC	SATURN	2010-044T07:09	Feb13	Sat	15	17	12	Egress = 2010-044T10:12 (184 min)
S57	126	126CA (nt)	CALYPSO	2010-044T11:45	Feb13	Sat	16	17	13	Inbound 21317.2 km flyby, v = 10.1 km/s, phase = 72 deg
S57	126	E_ring_lg	DUST HAZARD	2010-044T13:05	Feb13	Sat	16	17	13	Egress at 2010-044T14:22 (77 min); protection = MEA cover closure
S57	126	Pallene	DUST HAZARD	2010-044T14:20	Feb13	Sat	16	17	13	Egress at 2010-044T14:32 (11 min); protection = MEA cover closure
S57	126	G_ring	DUST HAZARD	2010-044T15:51	Feb13	Sat	16	17	13	Egress at 2010-044T17:08 (77 min); protection = HGA to RAM and MEA cover closure
S57	126	126EP (nt)	EPIMETHEUS	2010-044T16:16	Feb13	Sat	16	17	13	Inbound 93236.2 km flyby, v = 12.4 km/s, phase = 30 deg
S57	126	126JA (nt)	JANUS	2010-044T16:22	Feb13	Sat	16	17	13	Inbound 115085.6 km flyby, v = 14.4 km/s, phase = 29 deg
S57	126	Ring CRX	Descending	2010-044T16:23	Feb13	Sat	16	17	13	r = 2.940 Rs (177375 km)
S57	126	Periapse		2010-044T16:55	Feb13	Sat	16	17	13	R = 2.908 Rs, lat = -0 deg, phase = 74 deg
S57	126	126MI (nt)	MIMAS	2010-044T17:22	Feb13	Sat	16	17	13	Outbound 9546.7 km flyby, v = 5.8 km/s, phase = 99 deg
S57	126	126TE (nt)	TETHYS	2010-044T18:16	Feb13	Sat	16	17	13	Outbound 111974.9 km flyby, v = 8.2 km/s, phase = 114 deg
S57	126	E_ring_lg	DUST HAZARD	2010-044T19:27	Feb13	Sat	16	17	13	Egress at 2010-044T19:51 (23 min); protection = MEA cover closure
S57	126	126TI (nt)	TITAN	2010-045T22:47	Feb14	Sun	17	16	14	Outbound 650558.1 km flyby, v = 8.8 km/s, phase = 32 deg
S57	126	Ring CRX	Ascending	2010-049T13:28	Feb18	Thu	21	12	18	r = 34.745 Rs (2096188 km)
S57	127	Apoapse		2010-053T11:27	Feb22	Mon	25	8	22	Per = 17.5 d, inc = 0.3 deg, r = 40.256 Rs, phase = 106 deg
S57	127	OTM-237	~apo	2010-054T10:33	Feb23	Tue	26	7	23	D/L start, burn ~6h later. Backup D/L 055T10:18
S57	127	OTM-238	R2-3d	2010-058T10:19	Feb27	Sat	29	3	4	D/L start, burn ~6h later. Backup D/L 059T10:04
S58	127	S58 Begins		2010-060T19:04	Mar01	Mon	32	1	2	S58 Sequence. Duration = 34 d
S58	127	SOST	Segment	2010-060T19:04	Mar01	Mon	32	1	2	SOST_127 (2d); Rhea Flyby
S58	127	127RH (t) R2	RHEA	2010-061T17:41	Mar02	Tue	33	34	3	Inbound 101.5 km flyby, v = 8.6 km/s, phase = 87 deg
S58	127	Sun OCC	SATURN	2010-061T19:11	Mar02	Tue	0	34	3	Egress = 2010-061T22:49 (218 min)
S58	127	Earth OCC	SATURN	2010-061T19:51	Mar02	Tue	0	34	3	Egress = 2010-061T23:09 (199 min)
S58	127	Ring CRX	Descending	2010-062T01:50	Mar03	Wed	0	34	4	r = 4.372 Rs (263766 km)
S58	127	E_ring_lg	DUST HAZARD	2010-062T01:54	Mar03	Wed	0	34	4	Egress at 2010-062T03:30 (97 min); protection = MEA cover closure
S58	127	Pallene	DUST HAZARD	2010-062T03:29	Mar03	Wed	0	34	4	Egress at 2010-062T03:40 (12 min); protection = MEA cover closure
S58	127	127PN (nt)	PAN	2010-062T04:38	Mar03	Wed	0	33	4	Inbound 103800.7 km flyby, v = 6.0 km/s, phase = 149 deg
S58	127	Periapse		2010-062T06:02	Mar03	Wed	1	33	4	R = 2.915 Rs, lat = -0 deg, phase = 75 deg
S58	127	E_ring_lg	DUST HAZARD	2010-062T10:01	Mar03	Wed	1	33	4	Egress at 2010-062T10:11 (10 min); protection = MEA cover closure
S58	127	127CA (nt)	CALYPSO	2010-062T11:03	Mar03	Wed	1	33	4	Outbound 91754.7 km flyby, v = 12.8 km/s, phase = 77 deg
S58	127	127HE (nt)	HELENE	2010-062T13:41	Mar03	Wed	1	33	4	Outbound 1856.2 km flyby, v = 9.1 km/s, phase = 106 deg
S58	127	Ring CRX	Ascending	2010-062T15:17	Mar03	Wed	1	33	4	r = 7.130 Rs (430177 km)
S58	127	MAG	Segment	2010-063T05:04	Mar04	Thu	1	32	5	MAG_127_128 (15d); MAG_127_128
S58	127	OTM-239	R2+8d	2010-069T19:34	Mar10	Wed	8	26	11	D/L start, burn ~6h later. Backup D/L 070T19:19
S58	128	Apoapse		2010-071T01:40	Mar12	Fri	9	25	1	Per = 17.6 d, inc = 0.4 deg, r = 40.395 Rs, phase = 105 deg
S58	128	RINGS	Segment	2010-078T03:49	Mar19	Fri	16	18	8	RINGS_128 (6d); RINGS_128
S58	128	128TI (nt)	TITAN	2010-078T14:37	Mar19	Fri	17	17	9	Inbound 649737.6 km flyby, v = 8.9 km/s, phase = 119 deg
S58	128	Sun OCC	SATURN	2010-079T10:33	Mar20	Sat	18	16	10	Egress = 2010-079T14:05 (212 min)
S58	128	Earth OCC	SATURN	2010-079T10:36	Mar20	Sat	18	16	10	Egress = 2010-079T14:10 (214 min)
S58	128	128TL (nt)	TELESTO	2010-079T16:17	Mar20	Sat	18	16	10	Inbound 92973.5 km flyby, v = 12.8 km/s, phase = 72 deg
S58	128	Ring CRX	Descending	2010-079T17:02	Mar20	Sat	18	16	10	r = 4.401 Rs (265509 km)
S58	128	E_ring_lg	DUST HAZARD	2010-079T17:08	Mar20	Sat	18	16	10	Egress at 2010-079T18:45 (97 min); protection = MEA cover closure
S58	128	Pallene	DUST HAZARD	2010-079T18:43	Mar20	Sat	18	16	10	Egress at 2010-079T18:55 (11 min); protection = MEA cover closure
S58	128	128AT (nt)	ATLAS	2010-079T20:48	Mar20	Sat	18	16	10	Inbound 101206.7 km flyby, v = 9.8 km/s, phase = 137 deg
S58	128	128PM (nt)	PROMETHEUS	2010-079T21:11	Mar20	Sat	18	16	10	Inbound 40889.4 km flyby, v = 3.9 km/s, phase = 101 deg
S58	128	Periapse		2010-079T21:17	Mar20	Sat	18	16	10	R = 2.913 Rs, lat = -0 deg, phase = 75 deg
S58	128	128DA (nt)	DAPHNIS	2010-079T21:43	Mar20	Sat	18	16	10	Outbound 65414.7 km flyby, v = 5.7 km/s, phase = 22 deg
S58	128	128ME (nt)	METHONE	2010-079T23:29	Mar20	Sat	18	16	10	Outbound 52103.0 km flyby, v = 10.9 km/s, phase = 99 deg
S58	128	128PL (nt)	PALLENE	2010-080T00:03	Mar21	Sun	18	16	10	Outbound 70663.5 km flyby, v = 12.5 km/s, phase = 94 deg
S58	128	E_ring_lg	DUST HAZARD	2010-080T01:10	Mar21	Sun	18	16	10	Egress at 2010-080T01:26 (16 min); protection = MEA cover closure
S58	128	128PO (nt)	POLYDEUCES	2010-080T04:47	Mar21	Sun	18	15	10	Outbound 30029.3 km flyby, v = 10.2 km/s, phase = 70 deg
S58	128	Ring CRX	Ascending	2010-080T06:22	Mar21	Sun	19	15	10	r = 7.044 Rs (424950 km)
S58	128	SATURN	Segment	2010-084T03:34	Mar25	Thu	22	12	14	SATURN_128_129 (11d); SATURN_128_129
S58	128	OTM-240	~apo	2010-085T08:19	Mar26	Fri	24	10	16	D/L start, burn ~6h later. Backup D/L 086T18:19
S58	129	Apoapse		2010-088T17:01	Mar29	Mon	27	7	3	Per = 17.6 d, inc = 0.4 deg, r = 40.405 Rs, phase = 105 deg
S58	129	OTM-241	129TI-3d	2010-092T07:49	Apr02	Fri	31	3	7	D/L start, burn ~6h later. Backup D/L 093T07:34
S59	129	S59 Begins		2010-095T02:49	Apr05	Mon	33	1	3	S59 Sequence. Duration = 42 d
S59	129	TOST	Segment	2010-095T02:49	Apr05	Mon	33	1	3	TOST_129 T67 (2d); Titan Flyby T67
S59	129	129TI (t) T67	TITAN	2010-095T15:51	Apr05	Mon	34	2	3	Inbound 7437.5 km flyby, v = 5.7 km/s, phase = 73 deg
S59	129	SOST	Segment	2010-096T16:34	Apr06	Tue	1	1	4	SOST_129 (2d); Dione Flyby
S59	129	Earth OCC	SATURN	2010-097T00:17	Apr07	Wed	1	0	5	Egress = 2010-097T04:01 (224 min)
S59	129	Sun OCC	SATURN	2010-097T00:55	Apr07	Wed	1	0	5	Egress = 2010-097T04:15 (200 min)
S59	129	129DI (t) D2	DIONE	2010-097T05:16	Apr07	Wed	2	21	5	Inbound 505.5 km flyby, v = 8.4 km/s, phase = 79 deg
S59	129	Ring CRX	Descending	2010-097T06:00	Apr07	Wed	0	21	5	r = 5.899 Rs (355912 km)
S59	129	129CA (nt)	CALYPSO	2010-097T08:00	Apr07	Wed	0	21	5	Inbound 97950.4 km flyby, v = 11.7 km/s, phase = 69 deg
S59	129	E_ring_lg	Dust Crossing	2010-097T09:21	Apr07	Wed	0	21	5	Egress at 2010-097T10:13 (52 min); protection = none
S59	129	129EP (nt)	EPIMETHEUS	2010-097T12:46	Apr07	Wed	0	20	5	Inbound 61715.1 km flyby, v = 2.4 km/s, phase = 89 deg
S59	129	Periapse		2010-097T12:53	Apr07	Wed	0	20	5	R = 3.525 Rs, lat = -0 deg, phase = 80 deg
S59	129	129JA (nt)	JANUS	2010-097T13:44	Apr07	Wed	0	20	5	Outbound 74602.8 km flyby, v = 2.8 km/s, phase = 40 deg
S59	129	129MI (nt)	MIMAS	2010-097T13:47	Apr07	Wed	0	20	5	Outbound 97428.7 km flyby, v = 10.3 km/s, phase = 124 deg
S59	129	129TE (nt)	TETHYS	2010-097T14:58	Apr07	Wed	0	20	5	Outbound 70779.0 km flyby, v = 6.4 km/s, phase = 103 deg
S59	129	Ring CRX	Ascending	2010-097T22:32	Apr07	Wed	1	20	6	r = 7.271 Rs (438638 km)
S59	129	MAG	Segment	2010-098T10:04	Apr08	Thu	1	20	6	MAG_129_130 (19d); MAG_129_130
S59	129	OTM-242	D2+4d	2010-100T17:19	Apr10	Sat	4	17	8	D/L start, burn ~6h later. Backup D/L 101T17:19
S59	130	Apoapse		2010-107T17:20	Apr17	Sat	11	10	7	Per = 20.4 d, inc = 0.3 deg, r = 44.159 Rs, phase = 100 deg
S59	130	OTM-243	~apo	2010-108T06:33	Apr18	Sun	11	10	8	D/L start, burn ~6h later. Backup D/L 109T06:33
S59	130	OTM-244	E9-3d	2010-114T16:18	Apr24	Sat	17	3	6	D/L start, burn ~6h later. Backup D/L 115T16:18
S59	130	Ring CRX	Descending	2010-117T01:08	Apr27	Tue	20	1	2	r = 12.258 Rs (739528 km)
S59	130	SOST	Segment	2010-117T07:47	Apr27	Tue	20	1	3	SOST_130 (2d); E9 Flyby
S59	130	Earth OCC	SATURN	2010-117T08:30	Apr27	Tue	20	1	3	Egress = 2010-117T12:31 (241 min)
S59	130	Sun OCC	SATURN	2010-117T09:49	Apr27	Tue	20	1	3	Egress = 2010-117T13:07 (198 min)
S59	130	130PM (nt)	PROMETHEUS	2010-117T20:39	Apr27	Tue	21	0	3	Inbound 84504.4 km flyby, v = 1.6 km/s, phase = 116 deg
S59	130	130TL (nt)	TELESTO	2010-117T20:45	Apr27	Tue	21	0	3	Inbound 79610.9 km flyby, v = 6.7 km/s, phase = 97 deg
S59	130	130TI (nt)	TITAN	2010-117T21:09	Apr27	Tue	21	0	3	Inbound 989120.7 km flyby, v = 12.5 km/s, phase = 94 deg
S59	130	Periapse		2010-117T21:41	Apr27	Tue	21	0	3	R = 3.529 Rs, lat = -0 deg, phase = 81 deg
S59	130	E_ring_lg	Dust Crossing	2010-117T22:11	Apr27	Tue	21	0	3	Egress at 2010-118T01:12 (181 min); protection = none
S59	130	130DA (nt)	DAPHNIS	2010-117T22:42	Apr27	Tue	21	0	3	Outbound 86343.3 km flyby, v = 1.4 km/s, phase = 47 deg
S59	130	130PA (nt)	PANDORA	2010-117T23:05	Apr27	Tue	21	0	3	Outbound 91534.3 km flyby, v = 1.8 km/s, phase = 34 deg
S59	130	130PL (nt)	PALLENE	2010-117T23:46	Apr27	Tue	21	0	3	Outbound 71189.0 km flyby, v = 9.7 km/s, phase = 112 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S59	130	130PN (nt)	**PAN**	2010-117T23:53	Apr27	Tue	21	0	3	Outbound 113811.4 km flyby, v = 0.5 km/s, phase = 24 deg
S59	130	**130EN (t) E9**	**ENCELADUS**	2010-118T00:10	Apr28	Wed	21	20	3	Outbound 100.4 km flyby, v = 6.5 km/s, phase = 93 deg
S59	130	Ring CRX	Ascending	2010-118T01:22	Apr28	Wed	0	20	3	r = 4.407 Rs (265849 km)
S59	130	**SATURN**	**Segment**	2010-119T01:03	Apr29	Thu	1	19	4	SATURN_130_131 (19d); SATURN_130_131
S59	130	**OTM-245**	E9+2d	2010-119T05:47	Apr29	Thu	1	19	5	D/L start, burn ~6h later. Backup D/L 120T05:47
S59	131	**Apoapse**		2010-128T03:04	May08	Sat	10	10	9	Per = 20.5 d, inc = 0.3 deg, r = 44.287 Rs, phase = 99 deg
S59	131	**OTM-246**	~apo	2010-131T05:01	May11	Tue	13	7	12	D/L start, burn ~6h later. Backup D/L 132T05:01
S59	131	**OTM-247**	131TI-4d or TBD	2010-135T22:31	May15	Sat	18	2	5	D/L start, burn ~6h later. Backup D/L 137T04:31
S60	131	**S60 Begins**		2010-137T13:31	May17	Mon	20	1	2	S60 Sequence. Duration = 39 d
S60	131	**SOST**	**Segment**	2010-137T13:31	May17	Mon	20	1	2	SOST_131 (2d); E10 Flyby
S60	131	**Earth OCC**	SATURN	2010-137T19:03	May17	Mon	20	0	2	Egress = 2010-137T23:08 (246 min)
S60	131	**Sun OCC**	SATURN	2010-137T20:56	May17	Mon	20	0	2	Egress = 2010-137T23:59 (183 min)
S60	131	Ring CRX	Descending	2010-138T04:00	May18	Tue	20	0	2	r = 4.765 Rs (287475 km)
S60	131	E_ring_lg	Dust Crossing	2010-138T04:59	May18	Tue	20	0	2	Egress at 2010-138T07:54 (175 min); protection = none
S60	131	**131EN (t) E10**	**ENCELADUS**	2010-138T06:05	May18	Tue	20	2	2	Inbound 437.1 km flyby, v = 6.5 km/s, phase = 114 deg
S60	131	131ME (nt)	**METHONE**	2010-138T08:21	May18	Tue	0	2	2	Inbound 18325.9 km flyby, v = 4.3 km/s, phase = 75 deg
S60	131	Periapse		2010-138T08:32	May18	Tue	0	2	2	R = 3.518 Rs, lat = -0 deg, phase = 81 deg
S60	131	E_ring_lg	Dust Crossing	2010-138T09:09	May18	Tue	0	2	2	Egress at 2010-138T12:04 (175 min); protection = none
S60	131	Ring CRX	Ascending	2010-139T00:09	May19	Wed	1	1	3	r = 10.122 Rs (610652 km)
S60	131	**TOST**	**Segment**	2010-139T07:15	May19	Wed	1	1	3	TOST_131_T68 (3d); Titan Flyby T68
S60	131	**Sun OCC**	TITAN	2010-140T03:10	May20	Thu	2	0	4	Egress = 2010-140T03:13 (4 min)
S60	131	**131TI (t) T68**	**TITAN**	2010-140T03:24	May20	Thu	2	16	4	Outbound 1397.6 km flyby, v = 5.9 km/s, phase = 112 deg
S60	131	**MAG**	**Segment**	2010-142T07:00	May22	Sat	2	14	6	MAG_131_132 (7d); MAG_131_132
S60	131	**OTM-248**	131TI+3d	2010-143T04:15	May23	Sun	3	13	7	D/L start, burn ~6h later. Backup D/L 144T04:00
S60	132	**Apoapse**		2010-146T08:05	May26	Wed	6	10	3	Per = 16.0 d, inc = 12.1 deg, r = 37.791 Rs, phase = 91 deg
S60	132	**OTM-249**	~apo	2010-148T03:44	May28	Fri	8	8	5	D/L start, burn ~6h later. Backup D/L 149T03:44
S60	132	**RINGS**	**Segment**	2010-149T12:44	May29	Sat	9	7	1	RINGS_132 (6d); RINGS_132
S60	132	**OTM-250**	132TI-3d	2010-152T13:44	Jun01	Tue	12	4	4	D/L start, burn ~6h later. Backup D/L 153T13:44
S60	132	132HE (nt)	**HELENE**	2010-154T00:39	Jun03	Thu	14	2	1	Inbound 114183.0 km flyby, v = 11.7 km/s, phase = 85 deg
S60	132	132CA (nt)	**CALYPSO**	2010-154T06:11	Jun03	Thu	14	2	2	Inbound 119913.8 km flyby, v = 8.9 km/s, phase = 80 deg
S60	132	G_ring	**DUST HAZARD**	2010-154T06:23	Jun03	Thu	14	2	2	Egress at 2010-154T06:25 (2 min); protection = MEA cover closure
S60	132	Ring CRX	Descending	2010-154T06:24	Jun03	Thu	14	2	2	r = 2.950 Rs (177999 km)
S60	132	132PA (nt)	**PANDORA**	2010-154T07:16	Jun03	Thu	14	2	2	Inbound 97169.9 km flyby, v = 14.1 km/s, phase = 44 deg
S60	132	Periapse		2010-154T07:43	Jun03	Thu	14	2	2	R = 2.739 Rs, lat = -6 deg, phase = 89 deg
S60	132	132TE (nt)	**TETHYS**	2010-154T12:57	Jun03	Thu	14	2	2	Outbound 52565.9 km flyby, v = 9.6 km/s, phase = 99 deg
S60	132	132RH (nt)	**RHEA**	2010-154T20:32	Jun03	Thu	15	1	2	Outbound 69352.9 km flyby, v = 8.0 km/s, phase = 102 deg
S60	132	**TOST**	**Segment**	2010-155T12:13	Jun04	Fri	15	1	3	TOST_132_T69 (4d); Titan Flyby T69
S60	132	Ring CRX	Ascending	2010-155T21:43	Jun04	Fri	16	0	3	r = 18.762 Rs (1131938 km)
S60	132	**132TI (t) T69**	**TITAN**	2010-156T02:26	Jun05	Sat	16	16	4	Outbound 2042.4 km flyby, v = 5.8 km/s, phase = 87 deg
S60	132	Ring CRX	Descending	2010-158T04:40	Jun07	Mon	2	14	6	r = 30.876 Rs (1862752 km)
S60	132	**OTM-251**	132TI+3d	2010-158T20:43	Jun07	Mon	3	13	6	D/L start, burn ~6h later. Backup D/L 159T20:43
S60	132	**MAG**	**Segment**	2010-159T05:43	Jun08	Tue	3	13	0	MAG_132_133 (12d); MAG_132_133
S60	133	**Apoapse**		2010-162T07:28	Jun11	Fri	6	10	3	Per = 16.0 d, inc = 2.0 deg, r = 37.903 Rs, phase = 91 deg
S60	133	**OTM-252**	~apo	2010-164T02:42	Jun13	Sun	8	8	5	D/L start, burn ~6h later. Backup D/L 165T02:42
S60	133	**OTM-253**	T70-3d	2010-168T20:11	Jun17	Thu	13	3	5	D/L start, burn ~6h later. Backup D/L 169T12:41; complexes G/M
S60	133	133RH (nt)	**RHEA**	2010-169T19:50	Jun18	Fri	14	2	1	Inbound 120595.1 km flyby, v = 10.7 km/s, phase = 109 deg
S60	133	**Earth OCC**	RING	2010-169T21:09	Jun18	Fri	14	2	1	Egress = 2010-170T05:03 (474 min)
S60	133	**Earth OCC**	SATURN	2010-169T23:18	Jun18	Fri	14	2	1	Egress = 2010-170T02:35 (197 min)
S60	133	**Sun OCC**	SATURN	2010-170T00:17	Jun19	Sat	14	2	1	Egress = 2010-170T03:10 (174 min)
S60	133	G_ring	**DUST HAZARD**	2010-170T06:22	Jun19	Sat	14	2	1	Egress at 2010-170T06:34 (12 min); protection = HGA to RAM and MEA cover closure
S60	133	Ring CRX	Ascending	2010-170T06:28	Jun19	Sat	14	2	1	r = 2.670 Rs (161097 km)
S60	133	Periapse		2010-170T07:03	Jun19	Sat	14	2	1	R = 2.623 Rs, lat = 1 deg, phase = 89 deg
S60	133	133PN (nt)	**PAN**	2010-170T07:10	Jun19	Sat	14	2	1	Outbound 29331.1 km flyby, v = 5.0 km/s, phase = 115 deg
S60	133	133PO (nt)	**POLYDEUCES**	2010-170T14:09	Jun19	Sat	14	1	2	Outbound 97487.3 km flyby, v = 12.4 km/s, phase = 79 deg
S60	133	**TOST**	**Segment**	2010-171T11:11	Jun20	Sun	15	1	3	TOST_133_T70 (5d); Titan Flyby T70
S60	133	**133TI (t) T70**	**TITAN**	2010-172T01:28	Jun21	Mon	16	16	3	Outbound 878.1 km flyby, v = 5.9 km/s, phase = 82 deg
S60	133	Ring CRX	Descending	2010-172T04:16	Jun21	Mon	0	16	3	r = 20.994 Rs (1266578 km)
S60	133	**OTM-254**	T70+3d	2010-175T01:56	Jun24	Thu	3	13	6	D/L start, burn ~6h later. Backup D/L 176T12:10; complexes C/M
S61	133	**S61 Begins**		2010-176T21:10	Jun25	Fri	5	11	2	S61 Sequence. Duration = 35 d
S61	133	**MAG**	**Segment**	2010-176T21:10	Jun25	Fri	5	11	2	MAG_133_134 (8d); MAG_133_134
S61	134	**Apoapse**		2010-178T05:26	Jun27	Sun	6	10	3	Per = 16.0 d, inc = 19.1 deg, r = 37.555 Rs, phase = 92 deg
S61	134	**OTM-255**	Apo	2010-181T01:40	Jun30	Wed	9	7	6	D/L start, burn ~6h later. Backup D/L 182T01:40; complexes C/C
S61	134	**OTM-256**	T71-3d	2010-184T19:09	Jul03	Sat	13	3	4	D/L start, burn ~6h later. Backup D/L 185T11:24; complexes G/M
S61	134	**RINGS**	**Segment**	2010-185T04:09	Jul04	Sun	13	3	0	RINGS_134 (2d); Rings 134 periapse
S61	134	134CA (nt)	**CALYPSO**	2010-186T00:35	Jul05	Mon	14	2	1	Inbound 114698.4 km flyby, v = 12.7 km/s, phase = 70 deg
S61	134	134EN (nt)	**ENCELADUS**	2010-186T02:02	Jul05	Mon	14	2	1	Inbound 58192.1 km flyby, v = 11.4 km/s, phase = 58 deg
S61	134	Ring CRX	Ascending	2010-186T03:37	Jul05	Mon	14	2	1	r = 3.174 Rs (191502 km)
S61	134	134DA (nt)	**DAPHNIS**	2010-186T05:01	Jul05	Mon	14	2	1	Inbound 72648.7 km flyby, v = 9.2 km/s, phase = 48 deg
S61	134	Periapse		2010-186T05:02	Jul05	Mon	14	2	1	R = 2.967 Rs, lat = 10 deg, phase = 88 deg
S61	134	**TOST**	**Segment**	2010-187T10:09	Jul06	Tue	15	1	3	TOST_134_T71 (3d); Titan Flyby T71
S61	134	**134TI (t) T71**	**TITAN**	2010-188T00:23	Jul07	Wed	16	38	3	Outbound 1003.7 km flyby, v = 5.9 km/s, phase = 82 deg
S61	134	Ring CRX	Descending	2010-188T03:18	Jul07	Wed	0	38	3	r = 21.057 Rs (1270386 km)
S61	134	**SATURN**	**Segment**	2010-190T10:09	Jul09	Fri	2	36	6	SATURN_134_135 (17d); Saturn 134_135 apo and 135 peri
S61	134	**OTM-257**	T71+3d	2010-191T00:53	Jul10	Sat	3	35	6	D/L start, burn ~6h later. Backup D/L 192T00:53; complexes C/C
S61	135	**Apoapse**		2010-196T04:19	Jul15	Thu	8	30	5	Per = 19.9 d, inc = 4.5 deg, r = 43.516 Rs, phase = 97 deg
S61	135	**OTM-258**	Apo	2010-199T00:37	Jul18	Sun	11	27	8	D/L start, burn ~6h later. Backup D/L 200T00:22; complexes C/C
S61	135	**Sun OCC**	RING	2010-205T13:50	Jul24	Sat	18	20	7	Egress = 2010-205T20:52 (423 min)
S61	135	**Earth OCC**	SATURN	2010-205T14:42	Jul24	Sat	18	20	7	Egress = 2010-205T18:42 (241 min)
S61	135	**Sun OCC**	SATURN	2010-205T15:59	Jul24	Sat	18	20	7	Egress = 2010-205T19:44 (225 min)
S61	135	E_ring_lg	Dust Crossing	2010-206T01:07	Jul25	Sun	18	20	7	Egress at 2010-206T01:31 (24 min); protection = none
S61	135	Ring CRX	Ascending	2010-206T01:19	Jul25	Sun	18	20	7	r = 3.719 Rs (224357 km)
S61	135	Periapse		2010-206T03:14	Jul25	Sun	18	20	7	R = 3.438 Rs, lat = 3 deg, phase = 83 deg
S61	135	135PM (nt)	**PROMETHEUS**	2010-206T03:30	Jul25	Sun	18	20	7	Outbound 70067.5 km flyby, v = 2.2 km/s, phase = 70 deg
S61	135	135AT (nt)	**ATLAS**	2010-206T04:32	Jul25	Sun	18	20	7	Outbound 89566.9 km flyby, v = 2.1 km/s, phase = 37 deg
S61	135	**MAG**	**Segment**	2010-207T09:06	Jul26	Mon	19	19	8	MAG_135 (4d); MAG apo 135_136 split at S61/S62
S61	135	Ring CRX	Descending	2010-208T04:41	Jul27	Tue	20	18	9	r = 22.097 Rs (1333102 km)
S62	135	**S62 Begins**		2010-211T18:51	Jul30	Fri	24	14	13	S62 Sequence. Duration = 37 d

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S62	135	**MAG**	**Segment**	2010-211T18:51	Jul30	Fri	24	14	13	MAG_135_136 (14d); MAG apo 135_136 split at S61/S62
S62	136	**Apoapse**		2010-216T02:12	Aug04	Wed	28	10	17	Per = 19.9 d, inc = 4.7 deg, r = 43.524 Rs, phase = 97 deg
S62	136	**OTM-259**	E11-3d	2010-222T16:35	Aug10	Tue	35	3	24	D/L start, burn ~6h later. Backup D/L 223T16:35; complexes G/G
S62	136	136TI (nt)	**TITAN**	2010-223T13:35	Aug11	Wed	36	2	1	Inbound 417269.0 km flyby, v = 4.0 km/s, phase = 80 deg
S62	136	**Sun OCC**	DIONE	2010-225T03:14	Aug13	Fri	37	1	2	Egress = 2010-225T03:16 (2 min)
S62	136	**SOST**	**Segment**	2010-225T07:49	Aug13	Fri	37	1	3	SOST_136 (2d); E11 Flyby
S62	136	**Earth OCC**	RING	2010-225T11:39	Aug13	Fri	37	0	3	Egress = 2010-225T19:28 (470 min)
S62	136	**Sun OCC**	RING	2010-225T12:27	Aug13	Fri	38	0	3	Egress = 2010-225T18:05 (338 min)
S62	136	**Earth OCC**	SATURN	2010-225T12:52	Aug13	Fri	38	0	3	Egress = 2010-225T16:51 (240 min)
S62	136	**Sun OCC**	SATURN	2010-225T13:55	Aug13	Fri	38	0	3	Egress = 2010-225T17:36 (222 min)
S62	136	136DI (nt)	**DIONE**	2010-225T17:44	Aug13	Fri	38	0	3	Inbound 108754.1 km flyby, v = 11.3 km/s, phase = 84 deg
S62	136	136CA (nt)	**CALYPSO**	2010-225T20:31	Aug13	Fri	38	0	3	Inbound 22683.0 km flyby, v = 7.4 km/s, phase = 99 deg
S62	136	**136EN (t) E11**	**ENCELADUS**	2010-225T22:31	Aug13	Fri	38	42	3	Inbound 2555.2 km flyby, v = 6.8 km/s, phase = 85 deg
S62	136	E_ring_lg	Dust Crossing	2010-225T22:53	Aug13	Fri	0	42	3	Egress at 2010-225T23:17 (24 min); protection = none
S62	136	Ring CRX	Ascending	2010-225T23:05	Aug13	Fri	0	42	3	r = 3.753 Rs (226425 km)
S62	136	136EP (nt)	**EPIMETHEUS**	2010-225T23:21	Aug13	Fri	0	42	3	Inbound 101880.2 km flyby, v = 3.7 km/s, phase = 149 deg
S62	136	136AT (nt)	**ATLAS**	2010-226T00:34	Aug14	Sat	0	42	3	Inbound 74161.2 km flyby, v = 2.1 km/s, phase = 102 deg
S62	136	Periapse		2010-226T01:04	Aug14	Sat	0	42	3	R = 3.457 Rs, lat = 3 deg, phase = 83 deg
S62	136	136PA (nt)	**PANDORA**	2010-226T01:08	Aug14	Sat	0	42	3	Outbound 67744.5 km flyby, v = 2.3 km/s, phase = 78 deg
S62	136	136DA (nt)	**DAPHNIS**	2010-226T01:25	Aug14	Sat	0	42	3	Outbound 74372.1 km flyby, v = 2.0 km/s, phase = 68 deg
S62	136	136JA (nt)	**JANUS**	2010-226T02:01	Aug14	Sat	0	42	3	Outbound 79715.6 km flyby, v = 3.3 km/s, phase = 35 deg
S62	136	136PN (nt)	**PAN**	2010-226T02:05	Aug14	Sat	0	42	3	Outbound 86698.2 km flyby, v = 1.8 km/s, phase = 48 deg
S62	136	136TE (nt)	**TETHYS**	2010-226T06:03	Aug14	Sat	0	42	4	Outbound 38052.9 km flyby, v = 9.3 km/s, phase = 91 deg
S62	136	**XD**	**Segment**	2010-227T07:49	Aug15	Sun	1	40	5	XD_136_137 (18d); XD 136_137 apo
S62	136	Ring CRX	Descending	2010-228T01:05	Aug16	Mon	2	40	5	r = 21.693 Rs (1308761 km)
S62	136	**OTM-260**	E11+3d	2010-228T22:34	Aug16	Mon	3	39	6	D/L start, burn ~6h later. Backup D/L 229T22:34; complexes C/C
S62	137	**Apoapse**		2010-236T01:24	Aug24	Tue	10	32	7	Per = 20.0 d, inc = 4.6 deg, r = 43.691 Rs, phase = 97 deg
S62	137	**RINGS**	**Segment**	2010-245T00:18	Sep02	Thu	19	23	16	RINGS_137 (2d); Rings 137 periapse
S62	137	**Earth OCC**	RING	2010-245T11:21	Sep02	Thu	20	22	17	Egress = 2010-245T19:19 (478 min)
S62	137	**Earth OCC**	SATURN	2010-245T13:55	Sep02	Thu	20	22	17	Egress = 2010-245T17:47 (233 min)
S62	137	**Sun OCC**	RING	2010-245T14:08	Sep02	Thu	20	22	17	Egress = 2010-245T17:53 (225 min)
S62	137	**Sun OCC**	SATURN	2010-245T14:36	Sep02	Thu	20	22	17	Egress = 2010-245T18:13 (218 min)
S62	137	137PO (nt)	**POLYDEUCES**	2010-245T18:30	Sep02	Thu	20	22	17	Inbound 66575.6 km flyby, v = 7.0 km/s, phase = 94 deg
S62	137	137TL (nt)	**TELESTO**	2010-245T20:43	Sep02	Thu	20	22	17	Inbound 71185.6 km flyby, v = 10.8 km/s, phase = 73 deg
S62	137	**OTM-261**	Peri	2010-245T21:33	Sep02	Thu	20	22	17	D/L start, burn ~6h later. Backup D/L 246T21:33; complexes C/C
S62	137	E_ring_lg	Dust Crossing	2010-245T23:26	Sep02	Thu	20	22	0	Egress at 2010-245T23:50 (24 min); protection = none
S62	137	Ring CRX	Ascending	2010-245T23:38	Sep02	Thu	20	22	0	r = 3.767 Rs (227272 km)
S62	137	Periapse		2010-246T01:39	Sep03	Fri	20	22	0	R = 3.462 Rs, lat = 3 deg, phase = 84 deg
S62	137	137AE (nt)	**AEGAEON**	2010-246T01:51	Sep03	Fri	20	22	0	Outbound 110712.8 km flyby, v = 9.3 km/s, phase = 27 deg
S62	137	137TI (nt)	**TITAN**	2010-246T02:29	Sep03	Fri	20	22	0	Outbound 985306.2 km flyby, v = 12.5 km/s, phase = 103 deg
S62	137	137EP (nt)	**EPIMETHEUS**	2010-246T03:00	Sep03	Fri	20	22	0	Outbound 93369.8 km flyby, v = 3.9 km/s, phase = 24 deg
S62	137	137DI (nt)	**DIONE**	2010-246T09:16	Sep03	Fri	20	21	0	Outbound 39034.5 km flyby, v = 9.2 km/s, phase = 83 deg
S62	137	**SATURN**	**Segment**	2010-247T06:33	Sep04	Sat	21	21	1	SATURN_137 (2d); Saturn 137_138 apo split at S62/S63
S62	137	Ring CRX	Descending	2010-248T00:48	Sep05	Sun	22	20	2	r = 21.430 Rs (1292884 km)
S63	137	**S63 Begins**		2010-249T06:33	Sep06	Mon	23	19	3	S63 Sequence. Duration = 35 d
S63	137	**SATURN**	**Segment**	2010-249T06:33	Sep06	Mon	23	19	3	SATURN_137_138 (18d); Saturn 137_138 apo, 138 peri
S63	138	**Apoapse**		2010-256T00:46	Sep13	Mon	30	12	10	Per = 19.9 d, inc = 4.6 deg, r = 43.543 Rs, phase = 96 deg
S63	138	**OTM-261a**	Apo	2010-258T20:47	Sep15	Wed	33	9	13	D/L start, burn ~6h later. Backup D/L 259T20:47; complexes C/C
S63	138	**OTM-262**	T72-3d	2010-264T06:47	Sep21	Tue	38	3	5	D/L start, burn ~6h later. Backup D/L 264T20:32; complexes M/C
S63	138	**Earth OCC**	SATURN	2010-265T12:51	Sep22	Wed	40	2	1	Egress = 2010-265T16:30 (219 min)
S63	138	**Sun OCC**	SATURN	2010-265T13:04	Sep22	Wed	40	2	1	Egress = 2010-265T16:38 (214 min)
S63	138	**Earth OCC**	RING	2010-265T13:13	Sep22	Wed	40	2	1	Egress = 2010-265T15:28 (136 min)
S63	138	E_ring_lg	Dust Crossing	2010-265T21:45	Sep22	Wed	40	2	2	Egress at 2010-265T22:09 (24 min); protection = none
S63	138	Ring CRX	Ascending	2010-265T21:57	Sep22	Wed	40	2	2	r = 3.767 Rs (227263 km)
S63	138	Periapse		2010-265T23:59	Sep22	Wed	40	2	2	R = 3.455 Rs, lat = 3 deg, phase = 84 deg
S63	138	138EN (nt)	**ENCELADUS**	2010-266T03:07	Sep23	Thu	40	2	2	Outbound 112043.0 km flyby, v = 12.7 km/s, phase = 104 deg
S63	138	138CA (nt)	**CALYPSO**	2010-266T04:54	Sep23	Thu	40	2	2	Outbound 28935.0 km flyby, v = 8.4 km/s, phase = 86 deg
S63	138	138PO (nt)	**POLYDEUCES**	2010-266T07:26	Sep23	Thu	40	1	2	Outbound 100344.4 km flyby, v = 11.2 km/s, phase = 82 deg
S63	138	**TOST**	**Segment**	2010-267T05:17	Sep24	Fri	41	1	3	TOST_138_T72 (2d); Titan Flyby T72
S63	138	**138TI (t) T72**	**TITAN**	2010-267T18:39	Sep24	Fri	42	48	3	Outbound 8177.7 km flyby, v = 5.7 km/s, phase = 60 deg
S63	138	Ring CRX	Descending	2010-267T23:34	Sep24	Fri	0	48	4	r = 21.622 Rs (1304483 km)
S63	138	**XD**	**Segment**	2010-269T06:17	Sep26	Sun	1	46	5	XD_138_139 (15d); XD 138_139 apo split at S63/S64
S63	138	**OTM-263**	T72+3d	2010-270T20:02	Sep27	Mon	3	45	7	D/L start, burn ~6h later. Backup D/L 271T06:17; complexes C/M
S63	138	SEP = 3.0 deg	Conjunction	2010-271T11:25	Sep28	Tue	4	44	1	Commanding must not be required below 3.0 deg
S63	138	SEP = 3.0 deg	Conjunction	2010-276T09:29	Oct03	Sun	9	39	6	Commanding must not be required below 3.0 deg
S63	139	**Apoapse**		2010-277T20:48	Oct04	Mon	10	38	7	Per = 23.8 d, inc = 3.0 deg, r = 48.781 Rs, phase = 101 deg
S64	139	**END OF EQUINOX MISSION**		2010-284T04:17	Oct11	Mon	16	31	13	End of Equinox mission / start of Solstice mission (2010-2017)
S64	139	**S64 Begins**		2010-284T04:17	Oct11	Mon	16	31	13	S64 Sequence. Duration = 45 d
S64	139	**XD**	**Segment**	2010-284T04:17	Oct11	Mon	16	31	13	XD_139 (4d)
S64	139	139TI (nt)	**TITAN**	2010-287T17:07	Oct14	Thu	20	28	17	Inbound 172783.4 km flyby, v = 4.8 km/s, phase = 80 deg
S64	139	**OTM-264**	Peri	2010-287T19:02	Oct14	Thu	20	28	17	D/L start, burn ~6h later. Backup D/L 288T18:20; complexes C/C
S64	139	**SOST**	**Segment**	2010-288T04:02	Oct15	Fri	20	27	0	SOST_139 (3d); non-targ flyby
S64	139	**Sun OCC**	SATURN	2010-289T03:20	Oct16	Sat	21	26	1	Egress = 2010-289T06:32 (192 min)
S64	139	**Earth OCC**	SATURN	2010-289T04:04	Oct16	Sat	21	26	1	Egress = 2010-289T06:36 (153 min)
S64	139	139PO (nt)	**POLYDEUCES**	2010-289T10:47	Oct16	Sat	22	26	2	Inbound 115998.5 km flyby, v = 10.8 km/s, phase = 73 deg
S64	139	Ring CRX	Ascending	2010-289T14:42	Oct16	Sat	22	26	2	r = 4.647 Rs (280359 km)
S64	139	139MI (nt)	**MIMAS**	2010-289T17:32	Oct16	Sat	22	26	2	Inbound 70136.4 km flyby, v = 2.4 km/s, phase = 101 deg
S64	139	Periapse		2010-289T17:57	Oct16	Sat	22	26	2	R = 4.100 Rs, lat = 2 deg, phase = 80 deg
S64	139	139PL (nt)	**PALLENE**	2010-289T17:57	Oct16	Sat	22	26	2	Inbound 36108.2 km flyby, v = 3.5 km/s, phase = 82 deg
S64	139	139TL (nt)	**TELESTO**	2010-289T18:05	Oct16	Sat	22	26	2	Outbound 48493.9 km flyby, v = 5.5 km/s, phase = 99 deg
S64	139	139ME (nt)	**METHONE**	2010-289T18:39	Oct16	Sat	22	26	2	Outbound 105279.4 km flyby, v = 5.8 km/s, phase = 23 deg
S64	139	139AE (nt)	**AEGAEON**	2010-289T19:17	Oct16	Sat	22	26	2	Outbound 96385.5 km flyby, v = 1.9 km/s, phase = 40 deg
S64	139	139DI (nt)	**DIONE**	2010-290T01:04	Oct17	Sun	22	26	2	Outbound 31420.2 km flyby, v = 6.8 km/s, phase = 91 deg
S64	139	139RH (nt)	**RHEA**	2010-290T06:48	Oct17	Sun	23	25	2	Outbound 38482.7 km flyby, v = 7.1 km/s, phase = 100 deg
S64	139	**XD**	**Segment**	2010-291T04:02	Oct18	Mon	23	24	3	XD_139_140 (20d)
S64	139	Ring CRX	Descending	2010-291T13:17	Oct18	Mon	24	24	4	r = 20.228 Rs (1220344 km)
S64	140	**Apoapse**		2010-301T18:06	Oct28	Thu	34	14	14	Per = 24.0 d, inc = 3.0 deg, r = 49.120 Rs, phase = 100 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S64	140	**SATURN**	**Segment**	2010-311T13:04	Nov07	Sun	44	4	24	SATURN_140 (3d)
S64	140	**OTM-265**	T73-3d	2010-312T03:49	Nov08	Mon	44	3	24	D/L start, burn ~6h later. Backup D/L 313T11:19; complexes G/G
S64	140	**Sun OCC**	SATURN	2010-313T04:00	Nov09	Tue	45	2	1	Egress = 2010-313T06:54 (175 min)
S64	140	**Earth OCC**	SATURN	2010-313T05:59	Nov09	Tue	45	2	1	Egress = 2010-313T06:54 (56 min)
S64	140	140DI (nt)	**DIONE**	2010-313T10:56	Nov09	Tue	46	2	1	Inbound 99849.8 km flyby, v = 10.2 km/s, phase = 74 deg
S64	140	Ring CRX	Ascending	2010-313T14:58	Nov09	Tue	46	2	1	r = 4.658 Rs (281041 km)
S64	140	140EN (nt)	**ENCELADUS**	2010-313T16:22	Nov09	Tue	46	2	2	Inbound 44989.5 km flyby, v = 6.5 km/s, phase = 50 deg
S64	140	Periapse		2010-313T18:17	Nov09	Tue	46	2	2	R = 4.099 Rs, lat = 2 deg, phase = 80 deg
S64	140	**TOST**	**Segment**	2010-314T20:19	Nov10	Wed	47	1	3	TOST_T73 (2d); T73 flyby
S64	140	Ring CRX	Descending	2010-315T13:00	Nov11	Thu	48	0	3	r = 20.054 Rs (1209830 km)
S64	140	**140TI (t) T73**	**TITAN**	2010-315T13:37	Nov11	Thu	48	19	3	Outbound 7925.7 km flyby, v = 5.6 km/s, phase = 121 deg
S64	140	**XD**	**Segment**	2010-316T21:04	Nov12	Fri	1	18	5	XD_140_141 (12d)
S64	140	**OTM-266**	T73+3d	2010-318T17:19	Nov14	Sun	3	16	7	D/L start, burn ~6h later. Backup D/L 319T17:19; complexes C/C
S64	141	**Apoapse**		2010-324T01:57	Nov20	Sat	9	10	5	Per = 20.6 d, inc = 0.0 deg, r = 44.521 Rs, phase = 95 deg
S64	141	**OTM-267**	Apo	2010-325T17:05	Nov21	Sun	10	9	7	D/L start, burn ~6h later. Backup D/L 326T16:50; complexes C/C
S65	141	**S65 Begins**		2010-328T19:35	Nov24	Wed	13	6	3	S65 Sequence. Duration = 54 d
S65	141	**XD**	**Segment**	2010-328T19:35	Nov24	Wed	13	6	3	XD_141 (3d)
S65	141	**OTM-268**	E12-3d	2010-331T10:20	Nov27	Sat	16	3	6	D/L start, burn ~6h later. Backup D/L 332T10:21; complexes G/G
S65	141	**SOST**	**Segment**	2010-331T19:20	Nov27	Sat	16	3	0	SOST_141 (4d); E12 flyby
S65	141	141HY (nt)	**HYPERION**	2010-332T03:29	Nov28	Sun	17	2	1	Inbound 71845.8 km flyby, v = 4.9 km/s, phase = 73 deg
S65	141	141TI (nt)	**TITAN**	2010-333T06:26	Nov29	Mon	18	1	2	Inbound 926130.7 km flyby, v = 10.5 km/s, phase = 130 deg
S65	141	**Sun OCC**	SATURN	2010-333T23:58	Nov29	Mon	18	0	3	Egress = 2010-334T01:07 (69 min)
S65	141	E_ring_lg	**DUST HAZARD**	2010-334T06:05	Nov30	Tue	19	0	3	Egress at 2010-334T13:01 (416 min); protection = MEA cover closure
S65	141	141AT (nt)	**ATLAS**	2010-334T07:18	Nov30	Tue	19	0	3	Inbound 114367.5 km flyby, v = 0.7 km/s, phase = 144 deg
S65	141	Ring CRX	Ascending	2010-334T08:42	Nov30	Tue	19	0	3	r = 3.620 Rs (218396 km)
S65	141	Periapse		2010-334T09:33	Nov30	Tue	19	0	3	R = 3.567 Rs, lat = 0 deg, phase = 86 deg
S65	141	141JA (nt)	**JANUS**	2010-334T11:13	Nov30	Tue	19	0	3	Outbound 95616.2 km flyby, v = 2.4 km/s, phase = 29 deg
S65	141	**141EN (t) E12**	**ENCELADUS**	2010-334T11:54	Nov30	Tue	19	21	3	Outbound 45.8 km flyby, v = 6.3 km/s, phase = 78 deg
S65	141	**OTM-269**	E12+3d	2010-335T02:36	Dec01	Wed	1	20	4	D/L start, burn ~6h later. Backup D/L 335T16:21; complexes M/C
S65	141	**XD**	**Segment**	2010-336T01:21	Dec02	Thu	2	19	1	XD_141_142 (18d)
S65	141	Ring CRX	Descending	2010-336T23:53	Dec02	Thu	2	18	2	r = 25.456 Rs (1535769 km)
S65	141	**OTM-270**	Apo	2010-342T16:07	Dec08	Wed	8	12	8	D/L start, burn ~6h later. Backup D/L 343T15:52; complexes C/C
S65	142	**Apoapse**		2010-344T16:15	Dec10	Fri	10	10	2	Per = 20.6 d, inc = 0.1 deg, r = 44.403 Rs, phase = 94 deg
S65	142	142TI (nt)	**TITAN**	2010-350T19:57	Dec16	Thu	16	4	8	Inbound 848609.3 km flyby, v = 3.6 km/s, phase = 91 deg
S65	142	**OTM-271**	E13-3d	2010-351T15:23	Dec17	Fri	17	3	9	D/L start, burn ~6h later. Backup D/L 352T15:23; complexes C/C
S65	142	**SOST**	**Segment**	2010-354T00:23	Dec20	Mon	20	1	2	SOST_142 (2d); E13 flyby
S65	142	142TI (nt)	**TITAN**	2010-354T12:17	Dec20	Mon	20	1	3	Inbound 893286.2 km flyby, v = 6.3 km/s, phase = 46 deg
S65	142	**Sun OCC**	SATURN	2010-354T13:36	Dec20	Mon	20	0	3	Egress = 2010-354T14:12 (37 min)
S65	142	142DI (nt)	**DIONE**	2010-354T16:51	Dec20	Mon	20	0	3	Inbound 100149.9 km flyby, v = 5.9 km/s, phase = 87 deg
S65	142	E_ring_lg	**DUST HAZARD**	2010-354T19:22	Dec20	Mon	20	0	3	Egress at 2010-355T02:16 (414 min); protection = MEA cover closure
S65	142	142PN (nt)	**PAN**	2010-354T20:36	Dec20	Mon	20	0	3	Inbound 115572.1 km flyby, v = 0.4 km/s, phase = 141 deg
S65	142	142PA (nt)	**PANDORA**	2010-354T20:42	Dec20	Mon	20	0	3	Inbound 109113.1 km flyby, v = 1.1 km/s, phase = 143 deg
S65	142	Ring CRX	Ascending	2010-354T21:00	Dec20	Mon	20	0	3	r = 3.812 Rs (229971 km)
S65	142	Periapse		2010-354T22:49	Dec20	Mon	20	0	3	R = 3.578 Rs, lat = 0 deg, phase = 86 deg
S65	142	142DA (nt)	**DAPHNIS**	2010-354T23:36	Dec20	Mon	20	0	3	Outbound 85020.3 km flyby, v = 1.3 km/s, phase = 61 deg
S65	142	**142EN (t) E13**	**ENCELADUS**	2010-355T01:08	Dec21	Tue	21	21	3	Outbound 48.4 km flyby, v = 6.2 km/s, phase = 89 deg
S65	142	**XD**	**Segment**	2010-356T02:23	Dec22	Wed	1	20	4	XD_142_143 (18d)
S65	142	Ring CRX	Descending	2010-356T03:06	Dec22	Wed	1	20	4	r = 15.278 Rs (921742 km)
S65	142	**OTM-272**	E13+3d	2010-358T01:09	Dec24	Fri	3	18	6	D/L start, burn ~6h later. Backup D/L 359T01:09; complexes M/M
S65	143	**Apoapse**		2010-365T07:31	Dec31	Fri	10	11	7	Per = 20.7 d, inc = 0.1 deg, r = 44.665 Rs, phase = 94 deg
S65	143	**OTM-273**	Apo	2011-001T00:40	Jan01	Sat	11	10	8	D/L start, burn ~6h later. Backup D/L 002T00:40; complexes M/M
S65	143	**OTM-274**	R3-3d	2011-008T00:26	Jan08	Sat	18	3	7	D/L start, burn ~6h later. Backup D/L 009T00:11; complexes M/M
S65	143	**SATURN**	**Segment**	2011-009T09:11	Jan09	Sun	19	2	1	SATURN_143 R3 (3d)
S65	143	E_ring_lg	**DUST HAZARD**	2011-010T12:47	Jan10	Mon	20	1	3	Egress at 2011-010T19:40 (413 min); protection = MEA cover closure
S65	143	Ring CRX	Ascending	2011-010T13:17	Jan10	Mon	21	1	3	r = 4.155 Rs (250653 km)
S65	143	143PA (nt)	**PANDORA**	2011-010T14:43	Jan10	Mon	21	1	3	Inbound 94712.8 km flyby, v = 1.5 km/s, phase = 133 deg
S65	143	Periapse		2011-010T16:14	Jan10	Mon	21	1	3	R = 3.578 Rs, lat = 0 deg, phase = 86 deg
S65	143	143ME (nt)	**METHONE**	2011-010T17:23	Jan10	Mon	21	0	3	Outbound 85742.6 km flyby, v = 9.4 km/s, phase = 127 deg
S65	143	143TI (nt)	**TITAN**	2011-011T03:19	Jan11	Tue	21	0	3	Outbound 838660.9 km flyby, v = 5.9 km/s, phase = 140 deg
S65	143	**Earth OCC**	RHEA	2011-011T04:39	Jan11	Tue	21	0	3	Egress = 2011-011T04:52 (14 min)
S65	143	**Sun OCC**	RHEA	2011-011T04:44	Jan11	Tue	21	0	3	Egress = 2011-011T04:52 (8 min)
S65	143	**143RH (t) R3**	**RHEA**	2011-011T04:53	Jan11	Tue	21	38	3	Outbound 70.4 km flyby, v = 8.0 km/s, phase = 101 deg
S65	143	**XD**	**Segment**	2011-012T17:26	Jan12	Wed	2	37	5	XD_143 (5d)
S65	143	**OTM-275**	R3+3d	2011-014T07:27	Jan14	Fri	3	35	6	D/L start, burn ~6h later. Backup D/L 015T07:27; complexes G/G
S65	143	143TI (nt)	**TITAN**	2011-014T09:20	Jan14	Fri	3	35	0	Outbound 772712.7 km flyby, v = 3.6 km/s, phase = 96 deg
S66	143	**S66 Begins**		2011-017T08:42	Jan17	Mon	6	32	3	S66 Sequence. Duration = 49 d
S66	143	**XD**	**Segment**	2011-017T08:42	Jan17	Mon	6	32	3	XD_143_144 (12d)
S66	144	**Apoapse**		2011-020T21:28	Jan20	Thu	10	29	7	Per = 20.4 d, inc = 0.3 deg, r = 44.238 Rs, phase = 93 deg
S66	144	**SOST**	**Segment**	2011-029T15:29	Jan29	Sat	18	20	15	SOST_144 (4d); non-targ flyby
S66	144	Ring CRX	Descending	2011-030T21:45	Jan30	Sun	20	19	17	r = 5.039 Rs (303988 km)
S66	144	E_ring_lg	Dust Crossing	2011-030T23:22	Jan30	Sun	20	19	17	Egress at 2011-031T01:54 (152 min); protection = none
S66	144	144EP (nt)	**EPIMETHEUS**	2011-031T02:15	Jan31	Mon	20	19	17	Inbound 68453.2 km flyby, v = 2.5 km/s, phase = 116 deg
S66	144	Periapse		2011-031T02:50	Jan31	Mon	20	19	17	R = 3.559 Rs, lat = -0 deg, phase = 87 deg
S66	144	144CA (nt)	**CALYPSO**	2011-031T03:49	Jan31	Mon	20	19	17	Outbound 77726.4 km flyby, v = 6.6 km/s, phase = 94 deg
S66	144	144PM (nt)	**PROMETHEUS**	2011-031T04:47	Jan31	Mon	20	18	17	Outbound 105546.4 km flyby, v = 1.1 km/s, phase = 33 deg
S66	144	144EN (nt)	**ENCELADUS**	2011-031T05:52	Jan31	Mon	20	18	17	Outbound 60153.8 km flyby, v = 9.6 km/s, phase = 111 deg
S66	144	144HE (nt)	**HELENE**	2011-031T10:17	Jan31	Mon	20	18	17	Outbound 27644.1 km flyby, v = 7.5 km/s, phase = 92 deg
S66	144	Ring CRX	Ascending	2011-031T17:03	Jan31	Mon	21	18	17	r = 9.456 Rs (570483 km)
S66	144	**OTM-276**	Peri	2011-031T22:44	Jan31	Mon	21	18	18	D/L start, burn ~6h later. Backup D/L 032T22:44; complexes M/M
S66	144	**MAPS**	**Segment**	2011-033T07:44	Feb02	Wed	22	16	1	MAPS_144_145 (16d)
S66	145	**Apoapse**		2011-041T08:06	Feb10	Thu	30	8	9	Per = 20.4 d, inc = 0.3 deg, r = 44.226 Rs, phase = 93 deg
S66	145	**OTM-277**	T74-3d	2011-046T11:46	Feb15	Tue	35	3	15	D/L start, burn ~6h later. Backup D/L 047T11:46; complexes C/C
S66	145	**TOST**	**Segment**	2011-048T20:31	Feb17	Thu	38	1	2	TOST_T74 (2d); T74 flyby
S66	145	**145TI (t) T74**	**TITAN**	2011-049T16:04	Feb18	Fri	38	60	3	Inbound 3651.1 km flyby, v = 5.8 km/s, phase = 62 deg
S66	145	**MAPS**	**Segment**	2011-050T20:31	Feb19	Sat	1	58	4	MAPS_145 (2d)
S66	145	Ring CRX	Descending	2011-051T04:34	Feb20	Sun	2	58	5	r = 7.228 Rs (436035 km)
S66	145	Periapse		2011-051T13:44	Feb20	Sun	2	58	5	R = 4.712 Rs, lat = -0 deg, phase = 97 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S66	145	145EN (nt)	**ENCELADUS**	2011-051T14:03	Feb20	Sun	2	58	5	Outbound 67917.5 km flyby, v = 4.2 km/s, phase = 134 deg
S66	145	145PL (nt)	**PALLENE**	2011-051T14:49	Feb20	Sun	2	58	5	Outbound 92220.0 km flyby, v = 2.7 km/s, phase = 56 deg
S66	145	145TE (nt)	**TETHYS**	2011-051T17:13	Feb20	Sun	2	57	5	Outbound 47674.3 km flyby, v = 6.7 km/s, phase = 124 deg
S66	145	Ring CRX	Ascending	2011-052T07:20	Feb21	Mon	3	57	6	r = 10.791 Rs (651043 km)
S66	145	**OTM-278**	T74+3d	2011-052T21:31	Feb21	Mon	3	56	6	D/L start, burn ~6h later. Backup D/L 053T21:16; complexes M/M
S66	145	**SATURN**	**Segment**	2011-053T06:31	Feb22	Tue	4	56	0	SATURN_145_146 (13d)
S66	145	**OTM-279**	Apo	2011-061T04:17	Mar02	Wed	12	48	8	D/L start, burn ~6h later. Backup D/L 062T04:17; complexes G/G
S66	146	**Apoapse**		2011-065T12:39	Mar06	Sun	16	44	4	Per = 27.9 d, inc = 0.4 deg, r = 54.127 Rs, phase = 83 deg
S67	146	**S67 Begins**		2011-066T13:02	Mar07	Mon	17	43	5	S67 Sequence. Duration = 49 d
S67	146	**SATURN**	**Segment**	2011-066T13:02	Mar07	Mon	17	43	5	SATURN_146 (15d)
S67	146	Ring CRX	Descending	2011-079T02:38	Mar20	Sun	29	30	18	r = 7.206 Rs (434739 km)
S67	146	Periapse		2011-079T11:45	Mar20	Sun	30	30	18	R = 4.717 Rs, lat = -0 deg, phase = 98 deg
S67	146	146TL (nt)	**TELESTO**	2011-079T12:14	Mar20	Sun	30	30	18	Outbound 10034.8 km flyby, v = 4.3 km/s, phase = 83 deg
S67	146	Ring CRX	Ascending	2011-080T05:33	Mar21	Mon	31	29	19	r = 10.870 Rs (655815 km)
S67	146	**MAPS**	**Segment**	2011-081T04:33	Mar22	Tue	32	28	20	MAPS_146_147 (27d)
S67	147	**Apoapse**		2011-093T10:51	Apr03	Sun	44	16	32	Per = 27.9 d, inc = 0.4 deg, r = 54.127 Rs, phase = 82 deg
S67	147	**OTM-280**	T75-3d	2011-105T17:48	Apr15	Fri	56	3	45	D/L start, burn ~6h later. Backup D/L 106T17:48; complexes M/M
S67	147	Ring CRX	Descending	2011-107T00:38	Apr17	Sun	57	2	1	r = 7.210 Rs (434999 km)
S67	147	147AE (nt)	**AEGAEON**	2011-107T09:12	Apr17	Sun	58	2	2	Inbound 118153.9 km flyby, v = 0.6 km/s, phase = 109 deg
S67	147	Periapse		2011-107T09:46	Apr17	Sun	58	2	2	R = 4.711 Rs, lat = -0 deg, phase = 98 deg
S67	147	147HE (nt)	**HELENE**	2011-107T13:39	Apr17	Sun	58	2	2	Outbound 69498.4 km flyby, v = 5.2 km/s, phase = 81 deg
S67	147	Ring CRX	Ascending	2011-108T03:27	Apr18	Mon	58	1	2	r = 10.827 Rs (653215 km)
S67	147	**TOST**	**Segment**	2011-108T10:18	Apr18	Mon	59	1	3	TOST_T75 (3d); T75 flyby
S67	147	**147TI (t) T75**	**TITAN**	2011-109T05:01	Apr19	Tue	60	20	3	Outbound 10052.9 km flyby, v = 5.6 km/s, phase = 101 deg
S67	147	**XD**	**Segment**	2011-111T10:03	Apr21	Thu	2	18	6	XD_147 (4d)
S67	147	**OTM-281**	T75+3d	2011-112T00:48	Apr22	Fri	3	17	6	D/L start, burn ~6h later. Backup D/L 113T00:48; complexes G/G
S68	147	**S68 Begins**		2011-115T16:03	Apr25	Mon	6	13	4	S68 Sequence. Duration = 69 d
S68	147	**XD**	**Segment**	2011-115T16:03	Apr25	Mon	6	13	4	XD_147_148 (13d)
S68	147	**OTM-282**	Apo	2011-119T00:18	Apr29	Fri	10	10	7	D/L start, burn ~6h later. Backup D/L 120T00:18; complexes G/G
S68	148	**Apoapse**		2011-119T03:06	Apr29	Fri	10	10	0	Per = 23.4 d, inc = 0.4 deg, r = 48.220 Rs, phase = 76 deg
S68	148	**OTM-283**	T76-3d	2011-125T16:17	May05	Thu	16	3	7	D/L start, burn ~6h later. Backup D/L 126T16:17; complexes M/M
S68	148	**TOST**	**Segment**	2011-128T08:47	May08	Sun	19	1	3	TOST_T76 (2d); T76 flyby
S68	148	**148TI (t) T76**	**TITAN**	2011-128T22:54	May08	Sun	20	43	3	Inbound 1872.7 km flyby, v = 5.9 km/s, phase = 47 deg
S68	148	**SATURN**	**Segment**	2011-130T10:32	May10	Tue	1	41	5	SATURN_148 (3d)
S68	148	Ring CRX	Descending	2011-130T12:10	May10	Tue	2	41	5	r = 7.535 Rs (454558 km)
S68	148	Periapse		2011-130T20:44	May10	Tue	2	41	5	R = 5.888 Rs, lat = -0 deg, phase = 118 deg
S68	148	**OTM-284**	T76+3d	2011-131T23:32	May11	Wed	3	40	6	D/L start, burn ~6h later. Backup D/L 132T23:32; complexes G/G
S68	148	Ring CRX	Ascending	2011-132T13:48	May12	Thu	4	39	1	r = 19.236 Rs (1160538 km)
S68	148	**XD**	**Segment**	2011-133T08:32	May13	Fri	4	38	1	XD_148_149 (35d)
S68	148	**OTM-285**	Apo	2011-143T22:46	May23	Mon	15	28	12	D/L start, burn ~6h later. Backup D/L 144T22:30; complexes G/G
S68	149	**Apoapse**		2011-150T10:16	May30	Mon	21	21	6	Per = 39.1 d, inc = 0.4 deg, r = 67.794 Rs, phase = 62 deg
S68	149	**End of reconstructed traj.**		2011-150T12:00	May30	Mon	22	21	7	End use of reconstructed s/c trajectory / Start use of predicted reference trajectory
S68	149	**OTM-286**	T77-3d	2011-167T20:11	Jun16	Thu	39	4	24	D/L start, burn ~6h later. Backup D/L 169T03:12; complexes M/C
S68	149	**RINGS**	**Segment**	2011-168T05:57	Jun17	Fri	39	4	0	RINGS_149 (3d)
S68	149	Ring CRX	Descending	2011-169T15:23	Jun18	Sat	41	2	2	r = 7.472 Rs (450761 km)
S68	149	149HE (nt)	**HELENE**	2011-169T19:32	Jun18	Sat	41	2	2	Inbound 6972.3 km flyby, v = 4.6 km/s, phase = 102 deg
S68	149	149TL (nt)	**TELESTO**	2011-169T23:40	Jun18	Sat	41	2	2	Inbound 62001.6 km flyby, v = 2.8 km/s, phase = 108 deg
S68	149	Periapse		2011-169T23:46	Jun18	Sat	41	2	2	R = 5.884 Rs, lat = -0 deg, phase = 119 deg
S68	149	**TOST**	**Segment**	2011-171T05:42	Jun20	Mon	42	1	3	TOST_T77 (2d); T77 flyby
S68	149	Ring CRX	Ascending	2011-171T18:00	Jun20	Mon	43	0	4	r = 19.629 Rs (1184241 km)
S68	149	**149TI (t) T77**	**TITAN**	2011-171T18:32	Jun20	Mon	43	83	4	Outbound 1358.7 km flyby, v = 5.9 km/s, phase = 73 deg
S68	149	**XD**	**Segment**	2011-173T07:42	Jun22	Wed	2	82	5	XD_149_150 (11d)
S68	149	**OTM-287**	T77+3d	2011-175T02:42	Jun24	Fri	3	80	7	D/L start, burn ~6h later. Backup D/L 176T02:42; complexes C/C
S68	150	**Apoapse**		2011-180T19:56	Jun29	Wed	9	74	6	Per = 21.7 d, inc = 0.4 deg, r = 45.646 Rs, phase = 45 deg
S69	150	**S69 Begins**		2011-184T11:10	Jul03	Sun	13	71	9	S69 Sequence. Duration = 66 d
S69	150	**XD**	**Segment**	2011-184T11:10	Jul03	Sun	13	71	9	XD_150 (6d)
S69	150	150TI (nt)	**TITAN**	2011-190T06:59	Jul09	Sat	19	65	15	Inbound 627646.6 km flyby, v = 8.8 km/s, phase = 168 deg
S69	150	**SATURN**	**Segment**	2011-190T10:54	Jul09	Sat	19	65	15	SATURN_150 (4d)
S69	150	150HE (nt)	**HELENE**	2011-191T10:46	Jul10	Sun	20	64	16	Inbound 92958.0 km flyby, v = 5.6 km/s, phase = 40 deg
S69	150	**Earth OCC**	SATURN	2011-191T11:17	Jul10	Sun	20	64	16	Egress = 2011-191T12:5 (100 min)
S69	150	**Sun OCC**	SATURN	2011-191T12:11	Jul10	Sun	20	64	16	Egress = 2011-191T13:08 (57 min)
S69	150	Ring CRX	Descending	2011-191T12:48	Jul10	Sun	20	64	16	r = 4.574 Rs (275967 km)
S69	150	E_ring_lg	Dust Crossing	2011-191T13:38	Jul10	Sun	20	64	16	Egress at 2011-191T15:52 (134 min); protection = none
S69	150	150JA (nt)	**JANUS**	2011-191T15:44	Jul10	Sun	20	63	17	Inbound 92986.3 km flyby, v = 1.0 km/s, phase = 141 deg
S69	150	150PN (nt)	**PAN**	2011-191T15:51	Jul10	Sun	20	63	17	Inbound 110205.6 km flyby, v = 0.1 km/s, phase = 138 deg
S69	150	Periapse		2011-191T16:00	Jul10	Sun	20	63	17	R = 4.039 Rs, lat = -0 deg, phase = 135 deg
S69	150	150PM (nt)	**PROMETHEUS**	2011-191T17:15	Jul10	Sun	20	63	17	Outbound 113119.5 km flyby, v = 0.2 km/s, phase = 108 deg
S69	150	Ring CRX	Ascending	2011-193T09:42	Jul12	Tue	22	62	18	r = 19.554 Rs (1179665 km)
S69	150	**XD**	**Segment**	2011-194T10:39	Jul13	Wed	23	61	19	XD_150_151 (17d)
S69	151	**Apoapse**		2011-202T12:10	Jul21	Thu	31	53	27	Per = 21.7 d, inc = 0.4 deg, r = 45.664 Rs, phase = 45 deg
S69	151	**SATURN**	**Segment**	2011-211T03:07	Jul30	Sat	39	44	36	SATURN_151_152 (26d)
S69	151	151HE (nt)	**HELENE**	2011-213T00:39	Aug01	Mon	41	42	38	Inbound 76572.3 km flyby, v = 9.6 km/s, phase = 129 deg
S69	151	**Earth OCC**	SATURN	2011-213T03:40	Aug01	Mon	41	42	38	Egress = 2011-213T05:11 (91 min)
S69	151	**Sun OCC**	SATURN	2011-213T04:31	Aug01	Mon	41	42	38	Egress = 2011-213T05:19 (49 min)
S69	151	Ring CRX	Descending	2011-213T05:00	Aug01	Mon	41	42	38	r = 4.584 Rs (276558 km)
S69	151	E_ring_lg	Dust Crossing	2011-213T05:52	Aug01	Mon	41	42	38	Egress at 2011-213T08:03 (131 min); protection = none
S69	151	151TI (nt)	**TITAN**	2011-213T07:08	Aug01	Mon	42	42	38	Inbound 983658.9 km flyby, v = 11.2 km/s, phase = 37 deg
S69	151	151TL (nt)	**TELESTO**	2011-213T08:10	Aug01	Mon	42	42	38	Inbound 50581.5 km flyby, v = 5.6 km/s, phase = 45 deg
S69	151	Periapse		2011-213T08:12	Aug01	Mon	42	42	38	R = 4.045 Rs, lat = -0 deg, phase = 135 deg
S69	151	151ME (nt)	**METHONE**	2011-213T08:41	Aug01	Mon	42	42	38	Outbound 97432.0 km flyby, v = 5.8 km/s, phase = 81 deg
S69	151	151RH (nt)	**RHEA**	2011-213T21:02	Aug01	Mon	42	41	39	Outbound 5853.5 km flyby, v = 7.7 km/s, phase = 131 deg
S69	151	Ring CRX	Ascending	2011-215T01:06	Aug03	Wed	43	40	40	r = 19.312 Rs (1165098 km)
S69	152	**Apoapse**		2011-224T06:02	Aug12	Fri	52	31	49	Per = 21.8 d, inc = 0.4 deg, r = 45.883 Rs, phase = 45 deg
S69	152	**OTM-288**	Peri	2011-234T09:04	Aug22	Mon	63	21	59	D/L start, burn ~6h later. Backup D/L 235T09:04; complexes M/M
S69	152	**Earth OCC**	SATURN	2011-234T23:42	Aug22	Mon	63	20	1	Egress = 2011-235T00:58 (77 min)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S69	152	Sun OCC	SATURN	2011-235T00:24	Aug23	Tue	63	20	1	Egress = 2011-235T01:03 (40 min)
S69	152	Ring CRX	Descending	2011-235T00:42	Aug23	Tue	63	20	1	r = 4.601 Rs (277590 km)
S69	152	E_ring_lg	Dust Crossing	2011-235T01:38	Aug23	Tue	63	20	1	Egress at 2011-235T03:44 (126 min); protection = none
S69	152	152EP (nt)	EPIMETHEUS	2011-235T03:17	Aug23	Tue	63	20	1	Inbound 95969.7 km flyby, v = 1.1 km/s, phase = 153 deg
S69	152	Periapse		2011-235T03:58	Aug23	Tue	63	20	1	R = 4.044 Rs, lat = -0 deg, phase = 136 deg
S69	152	152AT (nt)	ATLAS	2011-235T05:29	Aug23	Tue	63	20	1	Outbound 118349.1 km flyby, v = 0.1 km/s, phase = 104 deg
S69	152	152TI (nt)	TITAN	2011-236T12:11	Aug24	Wed	65	19	2	Outbound 585570.6 km flyby, v = 8.5 km/s, phase = 101 deg
S69	152	Ring CRX	Ascending	2011-236T20:35	Aug24	Wed	65	18	2	r = 19.227 Rs (1159994 km)
S69	152	XD	Segment	2011-237T01:34	Aug25	Thu	65	18	3	XD_152_153 (13d)
S69	152	152HY (nt)	HYPERION	2011-237T16:47	Aug25	Thu	66	17	3	Outbound 24979.4 km flyby, v = 5.1 km/s, phase = 107 deg
S69	152	OTM-288a	Apo	2011-244T16:03	Sep01	Thu	73	10	10	D/L start, burn ~6h later. Backup D/L 245T16:03; complexes G/G
S69	153	Apoapse		2011-246T01:48	Sep03	Sat	74	9	1	Per = 21.8 d, inc = 0.4 deg, r = 45.867 Rs, phase = 44 deg
S70	153	S70 Begins		2011-250T00:48	Sep07	Wed	78	5	5	S70 Sequence. Duration = 70 d
S70	153	XD	Segment	2011-250T00:48	Sep07	Wed	78	5	5	XD_153 (4d)
S70	153	OTM-289	T78-3d	2011-251T21:48	Sep08	Thu	80	3	7	D/L start, burn ~6h later. Backup D/L 252T21:47; complexes C/C
S70	153	TOST	Segment	2011-254T06:47	Sep11	Sun	83	1	2	TOST_T78 (2d); T78 flyby
S70	153	Earth OCC	TITAN	2011-255T02:34	Sep12	Mon	83	0	3	Egress = 2011-255T02:48 (14 min)
S70	153	Sun OCC	TITAN	2011-255T02:36	Sep12	Mon	83	0	3	Egress = 2011-255T02:49 (13 min)
S70	153	153TI (t) T78	TITAN	2011-255T02:50	Sep12	Mon	83	19	3	Inbound 5821.4 km flyby, v = 5.8 km/s, phase = 159 deg
S70	153	SOST	Segment	2011-256T07:32	Sep13	Tue	1	18	4	SOST_153 (2d); 153 flyby
S70	153	153RH (nt)	RHEA	2011-256T10:34	Sep13	Tue	1	18	5	Inbound 25416.4 km flyby, v = 8.7 km/s, phase = 141 deg
S70	153	153TE (nt)	TETHYS	2011-256T18:19	Sep13	Tue	2	18	5	Inbound 32819.4 km flyby, v = 7.3 km/s, phase = 53 deg
S70	153	E_ring_lg	DUST HAZARD	2011-256T19:06	Sep13	Tue	2	18	5	Egress at 2011-256T21:06 (119 min); protection = MEA cover closure
S70	153	Earth OCC	SATURN	2011-256T19:26	Sep13	Tue	2	18	5	Egress = 2011-256T20:48 (83 min)
S70	153	Sun OCC	SATURN	2011-256T19:42	Sep13	Tue	2	18	5	Egress = 2011-256T20:55 (73 min)
S70	153	Ring CRX	Descending	2011-256T20:28	Sep13	Tue	2	18	5	r = 3.765 Rs (227162 km)
S70	153	Pallene	DUST HAZARD	2011-256T21:03	Sep13	Tue	2	18	5	Egress at 2011-256T21:20 (17 min); protection = MEA cover closure
S70	153	153PA (nt)	PANDORA	2011-256T22:37	Sep13	Tue	2	18	5	Inbound 58109.1 km flyby, v = 2.7 km/s, phase = 154 deg
S70	153	153EN (nt)	ENCELADUS	2011-256T22:49	Sep13	Tue	2	18	5	Inbound 42217.3 km flyby, v = 6.3 km/s, phase = 51 deg
S70	153	Periapse		2011-256T23:01	Sep13	Tue	2	18	5	R = 3.231 Rs, lat = -0 deg, phase = 129 deg
S70	153	153JA (nt)	JANUS	2011-256T23:09	Sep13	Tue	2	18	5	Outbound 45579.9 km flyby, v = 3.5 km/s, phase = 109 deg
S70	153	153ME (nt)	METHONE	2011-257T00:48	Sep14	Wed	2	18	5	Outbound 119907.7 km flyby, v = 14.0 km/s, phase = 159 deg
S70	153	153PL (nt)	PALLENE	2011-257T01:21	Sep14	Wed	2	18	5	Outbound 25975.6 km flyby, v = 8.2 km/s, phase = 152 deg
S70	153	153TL (nt)	TELESTO	2011-257T03:53	Sep14	Wed	2	17	5	Outbound 23335.2 km flyby, v = 7.7 km/s, phase = 53 deg
S70	153	Ring CRX	Ascending	2011-258T00:55	Sep15	Thu	3	17	6	r = 14.417 Rs (869783 km)
S70	153	OTM-290	T78+3d	2011-258T07:47	Sep15	Thu	3	16	6	D/L start, burn ~6h later. Backup D/L 258T21:32; complexes C/C
S70	153	XD	Segment	2011-258T16:47	Sep15	Thu	4	16	0	XD_153_154 (15d)
S70	153	153HY (nt)	HYPERION	2011-259T13:23	Sep16	Fri	4	15	1	Outbound 57978.1 km flyby, v = 4.8 km/s, phase = 84 deg
S70	153	OTM-291	Apo	2011-262T21:17	Sep19	Mon	8	12	5	D/L start, burn ~6h later. Backup D/L 263T21:17; complexes C/C
S70	154	Apoapse		2011-265T19:59	Sep22	Thu	11	9	3	Per = 17.7 d, inc = 0.3 deg, r = 40.259 Rs, phase = 50 deg
S70	154	154TI (nt)	TITAN	2011-271T03:23	Sep28	Wed	16	3	8	Inbound 679829.2 km flyby, v = 3.7 km/s, phase = 43 deg
S70	154	OTM-292	E14-3d	2011-271T07:02	Sep28	Wed	16	3	8	D/L start, burn ~6h later. Backup D/L 272T07:02; complexes M/M
S70	154	154TI (nt)	TITAN	2011-273T17:19	Sep30	Fri	19	1	2	Inbound 835954.2 km flyby, v = 3.1 km/s, phase = 12 deg
S70	154	SOST	Segment	2011-273T23:17	Sep30	Fri	19	1	3	SOST_154 (3d); E14 flyby
S70	154	Ring CRX	Descending	2011-274T12:21	Oct01	Sat	19	0	3	r = 4.649 Rs (280479 km)
S70	154	E_ring_lg	DUST HAZARD	2011-274T12:59	Oct01	Sat	19	0	3	Egress at 2011-274T15:00 (121 min); protection = MEA cover closure
S70	154	Earth OCC	SATURN	2011-274T13:28	Oct01	Sat	19	0	3	Egress = 2011-274T14:42 (74 min)
S70	154	Sun OCC	SATURN	2011-274T13:35	Oct01	Sat	19	0	3	Egress = 2011-274T14:45 (71 min)
S70	154	154EN (t) E14	ENCELADUS	2011-274T13:52	Oct01	Sat	19	18	3	Inbound 99.0 km flyby, v = 7.4 km/s, phase = 102 deg
S70	154	Pallene	DUST HAZARD	2011-274T14:58	Oct01	Sat	0	18	3	Egress at 2011-274T15:15 (17 min); protection = MEA cover closure
S70	154	Periapse		2011-274T16:53	Oct01	Sat	0	18	3	R = 3.250 Rs, lat = -0 deg, phase = 130 deg
S70	154	154EP (nt)	EPIMETHEUS	2011-274T17:31	Oct01	Sat	0	18	3	Outbound 67922.0 km flyby, v = 4.2 km/s, phase = 81 deg
S70	154	E_ring_lg	DUST HAZARD	2011-274T18:45	Oct01	Sat	0	18	3	Egress at 2011-274T20:46 (121 min); protection = MEA cover closure
S70	154	154CA (nt)	CALYPSO	2011-274T21:46	Oct01	Sat	0	17	4	Outbound 124831.6 km flyby, v = 13.3 km/s, phase = 136 deg
S70	154	Ring CRX	Ascending	2011-275T04:27	Oct02	Sun	1	17	4	r = 8.224 Rs (496179 km)
S70	154	XD	Segment	2011-276T23:02	Oct03	Mon	2	15	6	XD_154_155 (15d)
S70	154	OTM-294	E14+3d	2011-277T20:17	Oct04	Tue	3	15	7	D/L start, burn ~6h later. Backup D/L 278T20:16; complexes C/C
S70	154	OTM-295	Apo	2011-282T20:01	Oct09	Sun	8	10	5	D/L start, burn ~6h later. Backup D/L 283T20:01; complexes C/C
S70	155	Apoapse		2011-283T14:41	Oct10	Mon	9	9	1	Per = 17.8 d, inc = 0.2 deg, r = 40.357 Rs, phase = 50 deg
S70	155	SEP = 3.0 deg	Conjunction	2011-284T11:32	Oct11	Tue	10	8	2	Commanding must not be required below 3.0 deg
S70	155	SEP = 3.0 deg	Conjunction	2011-289T03:32	Oct16	Sun	15	3	6	Commanding must not be required below 3.0 deg
S70	155	SOST	Segment	2011-291T14:46	Oct18	Tue	17	1	9	SOST_155 (2d); E15 flyby
S70	155	155TL (nt)	TELESTO	2011-292T07:36	Oct19	Wed	18	0	9	Inbound 25568.8 km flyby, v = 7.5 km/s, phase = 53 deg
S70	155	Ring CRX	Descending	2011-292T07:40	Oct19	Wed	18	0	9	r = 4.744 Rs (286181 km)
S70	155	E_ring_lg	DUST HAZARD	2011-292T08:30	Oct19	Wed	18	0	10	Egress at 2011-292T10:32 (122 min); protection = MEA cover closure
S70	155	Sun OCC	SATURN	2011-292T09:08	Oct19	Wed	18	0	10	Egress = 2011-292T10:15 (68 min)
S70	155	Earth OCC	SATURN	2011-292T09:13	Oct19	Wed	18	0	10	Egress = 2011-292T10:14 (62 min)
S70	155	155EN (t) E15	ENCELADUS	2011-292T09:22	Oct19	Wed	18	18	10	Inbound 1231.1 km flyby, v = 7.5 km/s, phase = 118 deg
S70	155	Pallene	DUST HAZARD	2011-292T10:30	Oct19	Wed	0	18	10	Egress at 2011-292T10:48 (18 min); protection = MEA cover closure
S70	155	Periapse		2011-292T12:24	Oct19	Wed	0	18	10	R = 3.259 Rs, lat = -0 deg, phase = 130 deg
S70	155	E_ring_lg	DUST HAZARD	2011-292T14:15	Oct19	Wed	0	18	10	Egress at 2011-292T16:17 (122 min); protection = MEA cover closure
S70	155	Ring CRX	Ascending	2011-292T23:55	Oct19	Wed	1	17	10	r = 8.205 Rs (494985 km)
S70	155	XD	Segment	2011-293T04:31	Oct20	Thu	1	17	10	XD_155_156 (17d)
S70	155	OTM-296	E15+3d	2011-293T19:31	Oct20	Thu	1	16	11	D/L start, burn ~6h later. Backup D/L 294T19:16; complexes C/C
S70	155	OTM-297	Apo	2011-301T05:17	Oct28	Fri	9	9	7	D/L start, burn ~6h later. Backup D/L 302T05:17; complexes M/M
S70	156	Apoapse		2011-301T10:11	Oct28	Fri	9	9	0	Per = 17.8 d, inc = 0.2 deg, r = 40.358 Rs, phase = 50 deg
S70	156	OTM-298	E16-3d	2011-306T18:47	Nov02	Wed	14	3	6	D/L start, burn ~6h later. Backup D/L 307T18:47; complexes C/C
S70	156	SOST	Segment	2011-309T21:17	Nov05	Sat	17	0	3	SOST_156 (2d); E16 flyby
S70	156	Ring CRX	Descending	2011-310T03:13	Nov06	Sun	18	0	3	r = 4.762 Rs (287267 km)
S70	156	E_ring_lg	DUST HAZARD	2011-310T04:05	Nov06	Sun	18	0	3	Egress at 2011-310T06:07 (122 min); protection = MEA cover closure
S70	156	Sun OCC	SATURN	2011-310T04:45	Nov06	Sun	18	0	3	Egress = 2011-310T05:49 (64 min)
S70	156	156EN (t) E16	ENCELADUS	2011-310T04:59	Nov06	Sun	18	36	3	Inbound 495.8 km flyby, v = 7.4 km/s, phase = 74 deg
S70	156	Earth OCC	SATURN	2011-310T05:02	Nov06	Sun	0	36	3	Egress = 2011-310T05:49 (48 min)
S70	156	Pallene	DUST HAZARD	2011-310T06:05	Nov06	Sun	0	36	3	Egress at 2011-310T06:23 (18 min); protection = MEA cover closure
S70	156	156ME (nt)	METHONE	2011-310T06:37	Nov06	Sun	0	36	3	Inbound 19405.8 km flyby, v = 6.3 km/s, phase = 107 deg
S70	156	Periapse		2011-310T07:58	Nov06	Sun	0	36	4	R = 3.260 Rs, lat = -0 deg, phase = 130 deg
S70	156	156PA (nt)	PANDORA	2011-310T08:58	Nov06	Sun	0	36	4	Outbound 76343.4 km flyby, v = 3.2 km/s, phase = 81 deg
S70	156	E_ring_lg	DUST HAZARD	2011-310T09:49	Nov06	Sun	0	36	4	Egress at 2011-310T11:51 (122 min); protection = MEA cover closure

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S70	156	156CA (nt)	**CALYPSO**	2011-310T10:00	Nov06	Sun	0	36	4	Outbound 86241.3 km flyby, v = 6.9 km/s, phase = 55 deg
S70	156	Ring CRX	Ascending	2011-310T19:19	Nov06	Sun	1	36	4	r = 8.117 Rs (489725 km)
S70	156	**MAPS**	**Segment**	2011-312T03:32	Nov08	Tue	2	34	5	MAPS_156_157 (8d)
S70	156	**OTM-299**	E16+3d	2011-312T18:17	Nov08	Tue	3	34	6	D/L start, burn ~6h later. Backup D/L 313T18:17; complexes C/C
S70	157	**Apoapse**		2011-319T06:13	Nov15	Tue	9	27	6	Per = 17.9 d, inc = 0.2 deg, r = 40.424 Rs, phase = 50 deg
S71	157	**S71 Begins**		2011-320T03:02	Nov16	Wed	10	26	7	S71 Sequence. Duration = 70 d
S71	157	**MAPS**	**Segment**	2011-320T03:02	Nov16	Wed	10	26	7	MAPS_157 (9d)
S71	157	157HE (nt)	**HELENE**	2011-327T21:05	Nov23	Wed	18	19	15	Inbound 103250.1 km flyby, v = 11.4 km/s, phase = 134 deg
S71	157	Ring CRX	Descending	2011-327T22:45	Nov23	Wed	18	18	15	r = 5.267 Rs (317765 km)
S71	157	**OTM-300**	Peri	2011-327T23:18	Nov23	Wed	18	18	15	D/L start, burn ~6h later. Backup D/L 329T03:33; complexes C+M/M
S71	157	E_ring_lg	**DUST HAZARD**	2011-328T00:38	Nov24	Thu	18	18	0	Egress at 2011-328T02:40 (122 min); protection = MEA cover closure. Use HGA to RAM due to OTM
S71	157	**Sun OCC**	SATURN	2011-328T01:22	Nov24	Thu	18	18	0	Egress = 2011-328T02:23 (61 min)
S71	157	**Earth OCC**	SATURN	2011-328T01:50	Nov24	Thu	18	18	0	Egress = 2011-328T02:22 (32 min)
S71	157	Pallene	**DUST HAZARD**	2011-328T02:37	Nov24	Thu	18	18	0	Egress at 2011-328T02:55 (18 min); protection = MEA cover closure. Use HGA to RAM due to OTM
S71	157	157EN (nt)	**ENCELADUS**	2011-328T03:03	Nov24	Thu	18	18	0	Inbound 34523.7 km flyby, v = 6.2 km/s, phase = 52 deg
S71	157	Periapse		2011-328T04:32	Nov24	Thu	18	18	0	R = 3.255 Rs, lat = -0 deg, phase = 130 deg
S71	157	157EP (nt)	**EPIMETHEUS**	2011-328T04:44	Nov24	Thu	18	18	0	Outbound 51251.5 km flyby, v = 3.5 km/s, phase = 103 deg
S71	157	E_ring_lg	**DUST HAZARD**	2011-328T06:23	Nov24	Thu	18	18	0	Egress at 2011-328T08:25 (121 min); protection = MEA cover closure. Use HGA to RAM due to OTM
S71	157	Ring CRX	Ascending	2011-328T13:38	Nov24	Thu	18	18	1	r = 6.990 Rs (421733 km)
S71	157	157TI (nt)	**TITAN**	2011-328T15:00	Nov24	Thu	18	18	1	Outbound 863155.9 km flyby, v = 6.1 km/s, phase = 97 deg
S71	157	**XD**	**Segment**	2011-329T12:33	Nov25	Fri	19	17	2	XD_157_158 (15d)
S71	157	157TI (nt)	**TITAN**	2011-331T23:52	Nov27	Sun	22	14	4	Outbound 748427.3 km flyby, v = 3.8 km/s, phase = 52 deg
S71	157	**OTM-300a**	Apo	2011-335T17:04	Dec01	Thu	26	11	8	D/L start, burn ~6h later. Backup D/L 336T16:49; complexes C/C
S71	158	**Apoapse**		2011-337T03:13	Dec03	Sat	27	9	1	Per = 17.9 d, inc = 0.2 deg, r = 40.497 Rs, phase = 49 deg
S71	158	**OTM-301**	T79-4d	2011-343T02:49	Dec09	Fri	33	3	7	D/L start, burn ~6h later. Backup D/L 344T02:50; complexes M/M
S71	158	**SOST**	**Segment**	2011-344T11:50	Dec10	Sat	34	2	1	SOST_158 (3d); D3 flyby
S71	158	Ring CRX	Descending	2011-345T20:15	Dec11	Sun	36	1	3	r = 5.257 Rs (317157 km)
S71	158	E_ring_lg	**DUST HAZARD**	2011-345T22:06	Dec11	Sun	36	0	3	Egress at 2011-346T00:06 (120 min); protection = MEA cover closure
S71	158	**Sun OCC**	SATURN	2011-345T22:55	Dec11	Sun	36	0	3	Egress = 2011-345T23:53 (58 min)
S71	158	**Earth OCC**	SATURN	2011-345T23:37	Dec11	Sun	36	0	3	Egress = 2011-345T23:47 (11 min)
S71	158	Pallene	**DUST HAZARD**	2011-346T00:04	Dec12	Mon	36	0	3	Egress at 2011-346T00:21 (17 min); protection = MEA cover closure
S71	158	158CA (nt)	**CALYPSO**	2011-346T00:26	Dec12	Mon	36	0	3	Inbound 91806.7 km flyby, v = 7.1 km/s, phase = 42 deg
S71	158	Periapse		2011-346T02:00	Dec12	Mon	36	0	3	R = 3.241 Rs, lat = -0 deg, phase = 131 deg
S71	158	E_ring_lg	**DUST HAZARD**	2011-346T03:54	Dec12	Mon	36	0	3	Egress at 2011-346T05:54 (120 min); protection = MEA cover closure
S71	158	158EN (nt)	**ENCELADUS**	2011-346T04:27	Dec12	Mon	36	0	3	Outbound 19907.9 km flyby, v = 6.5 km/s, phase = 41 deg
S71	158	158TE (nt)	**TETHYS**	2011-346T07:05	Dec12	Mon	36	0	3	Outbound 60603.1 km flyby, v = 10.8 km/s, phase = 139 deg
S71	158	**158DI (t) D3**	**DIONE**	2011-346T09:39	Dec12	Mon	36	1	3	Outbound 98.8 km flyby, v = 8.7 km/s, phase = 49 deg
S71	158	Ring CRX	Ascending	2011-346T11:07	Dec12	Mon	0	1	3	r = 6.994 Rs (421968 km)
S71	158	**TOST**	**Segment**	2011-347T04:05	Dec13	Tue	1	1	4	TOST_T79 (3d); T79 flyby
S71	158	**158TI (t) T79**	**TITAN**	2011-347T20:11	Dec13	Tue	1	20	5	Outbound 3585.8 km flyby, v = 5.8 km/s, phase = 100 deg
S71	158	Ring CRX	Descending	2011-348T14:22	Dec14	Wed	1	19	5	r = 24.975 Rs (1506762 km)
S71	158	**XD**	**Segment**	2011-350T11:20	Dec16	Fri	3	17	7	XD_158_159 (17d)
S71	158	**OTM-303**	T79+4d	2011-351T02:20	Dec17	Sat	3	17	8	D/L start, burn ~6h later. Backup D/L 352T02:21; complexes M/M
S71	158	**OTM-304**	Apo	2011-356T15:51	Dec22	Thu	9	11	6	D/L start, burn ~6h later. Backup D/L 357T15:51; complexes C/C
S71	159	**Apoapse**		2011-357T19:14	Dec23	Fri	10	10	1	Per = 23.5 d, inc = 0.9 deg, r = 48.124 Rs, phase = 58 deg
S71	159	**TOST**	**Segment**	2012-002T00:22	Jan02	Mon	19	1	10	TOST_T80 (2d); T80 flyby
S71	159	**159TI (t) T80**	**TITAN**	2012-002T15:14	Jan02	Mon	20	28	11	Inbound 29415.3 km flyby, v = 5.5 km/s, phase = 76 deg
S71	159	**SATURN**	**Segment**	2012-003T18:23	Jan03	Tue	1	27	12	SATURN_159_160 (21d)
S71	159	Ring CRX	Ascending	2012-003T22:03	Jan03	Tue	1	27	12	r = 9.665 Rs (583097 km)
S71	159	159HE (nt)	**HELENE**	2012-004T05:38	Jan04	Wed	2	26	13	Inbound 42191.9 km flyby, v = 8.1 km/s, phase = 112 deg
S71	159	159MI (nt)	**MIMAS**	2012-004T11:17	Jan04	Wed	2	26	13	Inbound 103426.4 km flyby, v = 2.0 km/s, phase = 161 deg
S71	159	159JA (nt)	**JANUS**	2012-004T12:21	Jan04	Wed	2	26	13	Inbound 117855.0 km flyby, v = 0.2 km/s, phase = 135 deg
S71	159	Periapse		2012-004T13:03	Jan04	Wed	2	26	13	R = 4.419 Rs, lat = 2 deg, phase = 123 deg
S71	159	Ring CRX	Descending	2012-004T21:50	Jan04	Wed	2	26	13	r = 6.966 Rs (420273 km)
S71	159	**OTM-306**	Apo	2012-016T00:39	Jan16	Mon	13	15	24	D/L start, burn ~6h later. Backup D/L 017T00:25; complexes M/M
S71	160	**Apoapse**		2012-016T15:47	Jan16	Mon	14	14	1	Per = 24.2 d, inc = 1.6 deg, r = 49.116 Rs, phase = 57 deg
S72	160	**S72 Begins**		2012-024T22:55	Jan24	Tue	22	6	9	S72 Sequence. Duration = 73 d
S72	160	**SATURN**	**Segment**	2012-024T22:55	Jan24	Tue	22	6	9	SATURN_160 (5d)
S72	160	Ring CRX	Ascending	2012-028T03:21	Jan28	Sat	26	2	12	r = 9.735 Rs (587341 km)
S72	160	Periapse		2012-028T18:30	Jan28	Sat	26	2	13	R = 4.418 Rs, lat = 2 deg, phase = 124 deg
S72	160	Ring CRX	Descending	2012-029T03:12	Jan29	Sun	26	1	13	r = 6.927 Rs (417910 km)
S72	160	**TOST**	**Segment**	2012-029T22:41	Jan29	Sun	27	1	14	TOST_T81 (2d); T81 flyby
S72	160	**160TI (t) T81**	**TITAN**	2012-030T13:40	Jan30	Mon	28	20	15	Outbound 31130.6 km flyby, v = 5.4 km/s, phase = 96 deg
S72	160	**XD**	**Segment**	2012-031T21:41	Jan31	Tue	1	18	16	XD_160_161 (18d)
S72	160	**OTM-308**	T81+4d	2012-033T23:27	Feb02	Thu	3	16	18	D/L start, burn ~6h later. Backup D/L 034T23:27; complexes M/M
S72	161	**Apoapse**		2012-040T12:16	Feb09	Thu	10	10	7	Per = 23.5 d, inc = 1.4 deg, r = 48.111 Rs, phase = 55 deg
S72	161	**OTM-309**	Apo	2012-041T06:28	Feb10	Fri	11	9	7	D/L start, burn ~6h later. Backup D/L 042T06:28; complexes G/G
S72	161	**OTM-310**	T82-3d	2012-046T22:43	Feb15	Wed	16	3	6	D/L start, burn ~6h later. Backup D/L 047T22:29; complexes M/M
S72	161	Ring CRX	Ascending	2012-048T06:23	Feb17	Fri	18	2	1	r = 32.591 Rs (1966244 km)
S72	161	**TOST**	**Segment**	2012-049T14:59	Feb18	Sat	19	1	3	TOST_T82 (2d); T82 flyby
S72	161	**Sun OCC**	TITAN	2012-050T08:31	Feb19	Sun	20	0	3	Egress = 2012-050T08:36 (5 min)
S72	161	**161TI (t) T82**	**TITAN**	2012-050T08:43	Feb19	Sun	20	37	3	Inbound 3803.3 km flyby, v = 5.8 km/s, phase = 143 deg
S72	161	**MAPS**	**Segment**	2012-051T07:44	Feb20	Mon	1	36	4	MAPS_161_162 (18d)
S72	161	161PO (nt)	**POLYDEUCES**	2012-051T22:33	Feb20	Mon	2	36	5	Inbound 90783.7 km flyby, v = 6.3 km/s, phase = 59 deg
S72	161	161TL (nt)	**TELESTO**	2012-052T01:14	Feb21	Tue	2	36	5	Inbound 55047.3 km flyby, v = 6.6 km/s, phase = 64 deg
S72	161	E_ring_lg	**DUST HAZARD**	2012-052T01:28	Feb21	Tue	2	36	5	Egress at 2012-052T03:27 (119 min); protection = MEA cover closure
S72	161	Ring CRX	Descending	2012-052T01:36	Feb21	Tue	2	36	5	r = 4.276 Rs (257985 km)
S72	161	161EN (nt)	**ENCELADUS**	2012-052T02:01	Feb21	Tue	2	36	5	Inbound 46668.7 km flyby, v = 10.1 km/s, phase = 100 deg
S72	161	161PL (nt)	**PALLENE**	2012-052T02:55	Feb21	Tue	2	36	5	Inbound 69242.1 km flyby, v = 11.0 km/s, phase = 92 deg
S72	161	Pallene	**DUST HAZARD**	2012-052T03:25	Feb21	Tue	2	36	5	Egress at 2012-052T03:29 (5 min); protection = MEA cover closure
S72	161	Periapse		2012-052T05:23	Feb21	Tue	2	36	5	R = 3.231 Rs, lat = -0 deg, phase = 117 deg
S72	161	161PA (nt)	**PANDORA**	2012-052T05:51	Feb21	Tue	2	36	5	Outbound 60384.5 km flyby, v = 2.9 km/s, phase = 87 deg
S72	161	161DI (nt)	**DIONE**	2012-052T11:10	Feb21	Tue	2	35	6	Outbound 119723.9 km flyby, v = 6.0 km/s, phase = 74 deg
S72	161	161RH (nt)	**RHEA**	2012-052T17:16	Feb21	Tue	2	35	6	Outbound 100499.4 km flyby, v = 9.9 km/s, phase = 104 deg
S72	161	Ring CRX	Ascending	2012-052T20:24	Feb21	Tue	2	35	6	r = 9.885 Rs (596344 km)
S72	161	**OTM-311**	T82+4d	2012-053T22:14	Feb22	Wed	4	34	7	D/L start, burn ~6h later. Backup D/L 054T21:59; complexes M/M

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S72	162	**Apoapse**		2012-061T03:51	Mar01	Thu	11	27	7	Per = 17.9 d, inc = 0.4 deg, r = 40.464 Rs, phase = 63 deg
S72	162	162TI (nt)	**TITAN**	2012-066T07:50	Mar06	Tue	16	21	12	Inbound 717799.5 km flyby, v = 3.7 km/s, phase = 56 deg
S72	162	162HY (nt)	**HYPERION**	2012-068T01:31	Mar08	Thu	18	20	14	Inbound 104026.7 km flyby, v = 5.5 km/s, phase = 148 deg
S72	162	**SOST**	**Segment**	2012-068T20:01	Mar08	Thu	18	19	15	SOST_162 (2d); non-targ flyby
S72	162	162TI (nt)	**TITAN**	2012-069T10:14	Mar09	Fri	19	18	15	Inbound 864022.8 km flyby, v = 4.5 km/s, phase = 16 deg
S72	162	162HE (nt)	**HELENE**	2012-069T18:49	Mar09	Fri	19	18	16	Inbound 109820.5 km flyby, v = 11.6 km/s, phase = 121 deg
S72	162	**OTM-312**	Peri	2012-069T21:01	Mar09	Fri	20	18	16	D/L start, burn ~6h later. Backup D/L 070T21:01; complexes M/M
S72	162	E_ring_lg	**DUST HAZARD**	2012-069T22:20	Mar09	Fri	20	18	0	Egress at 2012-070T00:20 (120 min); protection = MEA cover closure. Use HGA to RAM due to OTM
S72	162	Ring CRX	Descending	2012-069T22:24	Mar09	Fri	20	18	0	r = 4.308 Rs (259914 km)
S72	162	162EN (nt)	**ENCELADUS**	2012-069T23:22	Mar09	Fri	20	18	0	Inbound 9176.1 km flyby, v = 7.0 km/s, phase = 75 deg
S72	162	Periapse		2012-070T02:13	Mar10	Sat	20	18	0	R = 3.245 Rs, lat = -0 deg, phase = 117 deg
S72	162	162PM (nt)	**PROMETHEUS**	2012-070T02:30	Mar10	Sat	20	18	0	Outbound 58016.0 km flyby, v = 2.5 km/s, phase = 102 deg
S72	162	162EP (nt)	**EPIMETHEUS**	2012-070T03:29	Mar10	Sat	20	18	0	Outbound 111430.9 km flyby, v = 6.9 km/s, phase = 49 deg
S72	162	162CA (nt)	**CALYPSO**	2012-070T06:36	Mar10	Sat	20	17	0	Outbound 47337.9 km flyby, v = 6.8 km/s, phase = 63 deg
S72	162	162RH (nt)	**RHEA**	2012-070T15:03	Mar10	Sat	20	17	1	Outbound 41863.8 km flyby, v = 7.5 km/s, phase = 73 deg
S72	162	Ring CRX	Ascending	2012-070T17:12	Mar10	Sat	20	17	1	r = 9.855 Rs (594526 km)
S72	162	**XD**	**Segment**	2012-071T06:01	Mar11	Sun	21	17	1	XD_162_163 (16d)
S72	162	**OTM-312a**	Apo	2012-075T20:46	Mar15	Thu	26	12	6	D/L start, burn ~6h later. Backup D/L 076T20:31; complexes M/M
S72	163	**Apoapse**		2012-078T23:55	Mar18	Sun	29	9	3	Per = 17.8 d, inc = 0.4 deg, r = 40.349 Rs, phase = 62 deg
S72	163	**OTM-313**	E17-3d	2012-084T10:02	Mar24	Sat	34	3	9	D/L start, burn ~6h later. Backup D/L 085T09:47; complexes C/C
S72	163	**SOST**	**Segment**	2012-086T18:47	Mar26	Mon	36	1	2	SOST_163 (3d); E17 flyby
S72	163	163PO (nt)	**POLYDEUCES**	2012-087T15:54	Mar27	Tue	37	0	3	Inbound 118105.7 km flyby, v = 6.0 km/s, phase = 53 deg
S72	163	E_ring_lg	**DUST HAZARD**	2012-087T17:38	Mar27	Tue	37	0	3	Egress at 2012-087T19:39 (121 min); protection = MEA cover closure
S72	163	Ring CRX	Descending	2012-087T17:40	Mar27	Tue	37	0	3	r = 4.331 Rs (261273 km)
S72	163	**Earth OCC**	ENCELADUS	2012-087T18:28	Mar27	Tue	37	0	3	Egress = 2012-087T18:29 (2 min)
S72	163	**Sun OCC**	ENCELADUS	2012-087T18:28	Mar27	Tue	37	0	3	Egress = 2012-087T18:29 (2 min)
S72	163	**163EN (t) E17**	**ENCELADUS**	2012-087T18:30	Mar27	Tue	37	18	3	Inbound 74.0 km flyby, v = 7.5 km/s, phase = 105 deg
S72	163	Pallene	**DUST HAZARD**	2012-087T19:37	Mar27	Tue	0	18	3	Egress at 2012-087T19:37 (0 min); protection = MEA cover closure
S72	163	163PM (nt)	**PROMETHEUS**	2012-087T21:01	Mar27	Tue	0	18	3	Inbound 62913.2 km flyby, v = 2.5 km/s, phase = 145 deg
S72	163	Periapse		2012-087T21:32	Mar27	Tue	0	18	3	R = 3.253 Rs, lat = -0 deg, phase = 118 deg
S72	163	163JA (nt)	**JANUS**	2012-087T21:34	Mar27	Tue	0	18	3	Outbound 43861.6 km flyby, v = 3.2 km/s, phase = 116 deg
S72	163	163DI (nt)	**DIONE**	2012-088T05:07	Mar28	Wed	0	17	4	Outbound 43999.9 km flyby, v = 7.5 km/s, phase = 64 deg
S72	163	Ring CRX	Ascending	2012-088T12:08	Mar28	Wed	1	17	4	r = 9.682 Rs (584087 km)
S72	163	**XD**	**Segment**	2012-089T18:32	Mar29	Thu	2	16	5	XD_163_164 (8d)
S72	163	**OTM-314**	E17+4d	2012-090T19:32	Mar30	Fri	3	15	6	D/L start, burn ~6h later. Backup D/L 091T19:32; complexes M/M
S72	163	**OTM-315**	Apo	2012-096T02:47	Apr05	Thu	8	9	5	D/L start, burn ~6h later. Backup D/L 097T02:47; complexes G/G
S72	164	**Apoapse**		2012-096T19:17	Apr05	Thu	9	9	1	Per = 17.8 d, inc = 0.4 deg, r = 40.361 Rs, phase = 62 deg
S73	164	**S73 Begins**		2012-097T11:47	Apr06	Fri	10	8	1	S73 Sequence. Duration = 73 d
S73	164	**XD**	**Segment**	2012-097T11:47	Apr06	Fri	10	8	1	XD_164 (7d)
S73	164	**OTM-316**	E18-3d	2012-102T08:48	Apr11	Wed	15	3	6	D/L Start, burn ~6h later. Backup D/L 103T08:33; complexes C/C
S73	164	**SOST**	**Segment**	2012-104T17:33	Apr13	Fri	17	1	2	SOST_164 (3d); E18 flyby
S73	164	164HE (nt)	**HELENE**	2012-105T09:37	Apr14	Sat	18	0	3	Inbound 104848.6 km flyby, v = 11.5 km/s, phase = 121 deg
S73	164	164CA (nt)	**CALYPSO**	2012-105T12:44	Apr14	Sat	18	0	3	Inbound 48738.1 km flyby, v = 6.7 km/s, phase = 62 deg
S73	164	Ring CRX	Descending	2012-105T13:08	Apr14	Sat	18	0	3	r = 4.357 Rs (262867 km)
S73	164	E_ring_lg	**DUST HAZARD**	2012-105T13:10	Apr14	Sat	18	0	3	Egress at 2012-105T15:11 (121 min); protection = MEA cover closure
S73	164	**Earth OCC**	ENCELADUS	2012-105T14:00	Apr14	Sat	18	0	3	Egress = 2012-105T14:00 (1 min)
S73	164	**Sun OCC**	ENCELADUS	2012-105T14:00	Apr14	Sat	18	0	3	Egress = 2012-105T14:00 (1 min)
S73	164	**164EN (t) E18**	**ENCELADUS**	2012-105T14:02	Apr14	Sat	18	18	3	Inbound 74.0 km flyby, v = 7.5 km/s, phase = 104 deg
S73	164	Pallene	**DUST HAZARD**	2012-105T15:09	Apr14	Sat	0	18	3	Egress at 2012-105T15:12 (4 min); protection = MEA cover closure
S73	164	164PM (nt)	**PROMETHEUS**	2012-105T15:16	Apr14	Sat	0	18	3	Inbound 97622.4 km flyby, v = 2.4 km/s, phase = 166 deg
S73	164	164PA (nt)	**PANDORA**	2012-105T15:43	Apr14	Sat	0	18	3	Inbound 87233.8 km flyby, v = 3.3 km/s, phase = 167 deg
S73	164	Periapse		2012-105T17:03	Apr14	Sat	0	18	3	R = 3.253 Rs, lat = -0 deg, phase = 118 deg
S73	164	164TI (nt)	**TITAN**	2012-105T18:44	Apr14	Sat	0	18	3	Outbound 995033.5 km flyby, v = 12.5 km/s, phase = 78 deg
S73	164	164TE (nt)	**TETHYS**	2012-105T22:06	Apr14	Sat	0	17	4	Outbound 9051.6 km flyby, v = 8.7 km/s, phase = 126 deg
S73	164	Ring CRX	Ascending	2012-106T07:14	Apr15	Sun	1	17	4	r = 9.481 Rs (571982 km)
S73	164	**XD**	**Segment**	2012-107T17:18	Apr16	Mon	2	16	5	XD_164_165 (15d)
S73	164	164HY (nt)	**HYPERION**	2012-107T21:30	Apr16	Mon	2	16	6	Outbound 123216.1 km flyby, v = 5.7 km/s, phase = 87 deg
S73	164	**OTM-317**	E18+3d	2012-108T18:18	Apr17	Tue	3	15	6	D/L Start, burn ~6h later. Backup D/L 109T18:18; complexes M/M
S73	165	**Apoapse**		2012-114T14:46	Apr23	Mon	9	9	6	Per = 17.8 d, inc = 0.4 deg, r = 40.363 Rs, phase = 62 deg
S73	165	**OTM-318**	Apo	2012-115T01:33	Apr24	Tue	9	8	6	D/L Start, burn ~6h later. Backup D/L 116T01:32; complexes G/G
S73	165	**OTM-319**	E19-3d	2012-120T01:17	Apr29	Sun	14	3	5	D/L Start, burn ~6h later. Backup D/L 121T01:02; complexes G/G
S73	165	**SOST**	**Segment**	2012-122T10:02	May01	Tue	17	1	2	SOST_165 (3d); E19 flyby
S73	165	165PO (nt)	**POLYDEUCES**	2012-123T06:55	May02	Wed	18	0	3	Inbound 117986.9 km flyby, v = 6.0 km/s, phase = 53 deg
S73	165	Ring CRX	Descending	2012-123T08:38	May02	Wed	18	0	3	r = 4.358 Rs (262939 km)
S73	165	E_ring_lg	**DUST HAZARD**	2012-123T08:40	May02	Wed	18	0	3	Egress at 2012-123T10:40 (121 min); protection = MEA cover closure
S73	165	**165EN (t) E19**	**ENCELADUS**	2012-123T09:31	May02	Wed	18	20	3	Inbound 73.6 km flyby, v = 7.5 km/s, phase = 100 deg
S73	165	Pallene	**DUST HAZARD**	2012-123T10:38	May02	Wed	0	20	3	Egress at 2012-123T10:48 (10 min); protection = MEA cover closure
S73	165	Periapse		2012-123T12:34	May02	Wed	0	20	3	R = 3.245 Rs, lat = -0 deg, phase = 118 deg
S73	165	165AT (nt)	**ATLAS**	2012-123T13:54	May02	Wed	0	19	4	Outbound 84715.2 km flyby, v = 2.5 km/s, phase = 65 deg
S73	165	165DI (nt)	**DIONE**	2012-123T20:13	May02	Wed	0	19	4	Outbound 8063.4 km flyby, v = 8.5 km/s, phase = 65 deg
S73	165	165TI (nt)	**TITAN**	2012-124T01:17	May03	Thu	1	19	4	Outbound 834429.9 km flyby, v = 5.2 km/s, phase = 111 deg
S73	165	Ring CRX	Ascending	2012-124T02:40	May03	Thu	1	19	4	r = 9.454 Rs (570359 km)
S73	165	**MAPS**	**Segment**	2012-125T09:47	May04	Fri	2	18	5	MAPS_165_166 (16d)
S73	165	**OTM-320**	E19+4d	2012-127T00:47	May06	Sun	4	16	7	D/L Start, burn ~6h later. Backup D/L 128T00:32; complexes G/G
S73	165	165TI (nt)	**TITAN**	2012-127T03:41	May06	Sun	4	16	0	Outbound 699949.0 km flyby, v = 3.7 km/s, phase = 65 deg
S73	166	**Apoapse**		2012-132T09:28	May11	Fri	9	11	5	Per = 17.8 d, inc = 0.4 deg, r = 40.266 Rs, phase = 62 deg
S73	166	**OTM-321**	Apo	2012-135T00:01	May14	Mon	12	8	8	D/L Start, burn ~6h later. Backup D/L 136T00:01; complexes G/G
S73	166	**OTM-322**	T83-3d	2012-139T23:46	May18	Fri	17	3	5	D/L Start, burn ~6h later. Backup D/L 140T16:16; complexes G/M
S73	166	Ring CRX	Descending	2012-140T19:21	May19	Sat	17	2	1	r = 8.001 Rs (482694 km)
S73	166	**SOST**	**Segment**	2012-141T01:16	May20	Sun	18	2	1	SOST_166 (1d); non-targ flyby
S73	166	166TE (nt)	**TETHYS**	2012-141T02:15	May20	Sun	18	2	1	Inbound 53806.0 km flyby, v = 6.6 km/s, phase = 62 deg
S73	166	166EN (nt)	**ENCELADUS**	2012-141T03:03	May20	Sun	18	2	1	Inbound 70351.7 km flyby, v = 11.4 km/s, phase = 102 deg
S73	166	166DA (nt)	**DAPHNIS**	2012-141T03:58	May20	Sun	18	2	1	Inbound 115206.4 km flyby, v = 1.4 km/s, phase = 161 deg
S73	166	166PM (nt)	**PROMETHEUS**	2012-141T04:33	May20	Sun	18	2	1	Inbound 100888.3 km flyby, v = 2.6 km/s, phase = 164 deg
S73	166	166PN (nt)	**PAN**	2012-141T06:03	May20	Sun	18	2	1	Inbound 63573.7 km flyby, v = 2.2 km/s, phase = 137 deg
S73	166	Periapse		2012-141T06:26	May20	Sun	18	2	1	R = 3.222 Rs, lat = -0 deg, phase = 119 deg
S73	166	166ME (nt)	**METHONE**	2012-141T06:57	May20	Sun	18	2	1	Outbound 1863.1 km flyby, v = 5.1 km/s, phase = 126 deg
S73	166	166MI (nt)	**MIMAS**	2012-141T08:04	May20	Sun	18	2	1	Outbound 113321.0 km flyby, v = 13.7 km/s, phase = 148 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S73	166	E_ring_lg	**DUST HAZARD**	2012-141T08:23	May20	Sun	18	2	1	Egress at 2012-141T10:22 (118 min); protection = MEA cover closure
S73	166	166PL (nt)	**PALLENE**	2012-141T08:57	May20	Sun	18	2	1	Outbound 75138.6 km flyby, v = 11.3 km/s, phase = 142 deg
S73	166	Ring CRX	Ascending	2012-141T11:11	May20	Sun	18	2	1	r = 4.737 Rs (285806 km)
S73	166	166TL (nt)	**TELESTO**	2012-141T11:31	May20	Sun	18	2	1	Outbound 11015.1 km flyby, v = 8.9 km/s, phase = 128 deg
S73	166	**TOST**	**Segment**	2012-142T08:31	May21	Mon	19	1	2	TOST_T83 (2d); T83 flyby
S73	166	**166TI (t) T83**	**TITAN**	2012-143T01:10	May22	Tue	20	16	3	Outbound 955.0 km flyby, v = 5.9 km/s, phase = 71 deg
S73	166	Ring CRX	Descending	2012-143T03:58	May22	Tue	0	16	3	r = 20.855 Rs (1258204 km)
S73	166	**XD**	**Segment**	2012-144T02:01	May23	Wed	1	15	4	XD_166_167 (12d)
S73	166	**OTM-323**	T83+3d	2012-145T23:16	May24	Thu	3	13	6	D/L Start, burn ~6h later. Backup D/L 146T23:16; complexes G/G
S73	167	**Apoapse**		2012-149T05:16	May28	Mon	6	10	3	Per = 16.0 d, inc = 15.8 deg, r = 37.437 Rs, phase = 61 deg
S73	167	**OTM-324**	Apo	2012-150T23:00	May29	Tue	8	8	5	D/L Start, burn ~6h later. Backup D/L 151T23:00; complexes G/G
S73	167	**OTM-325**	T84-3d	2012-155T15:15	Jun03	Sun	13	3	5	D/L Start, burn ~6h later. Backup D/L 156T04:45; complexes M/C
S73	167	**RINGS**	**Segment**	2012-156T13:45	Jun04	Mon	14	2	1	RINGS_167 (2d)
S73	167	**Earth OCC**	RING	2012-156T22:32	Jun04	Mon	14	2	1	Egress = 2012-157T02:17 (225 min)
S73	167	**Sun OCC**	RING	2012-156T22:50	Jun04	Mon	14	2	1	Egress = 2012-157T02:04 (195 min)
S73	167	**Earth OCC**	SATURN	2012-157T00:02	Jun05	Tue	14	2	1	Egress = 2012-157T02:15 (134 min)
S73	167	**Sun OCC**	SATURN	2012-157T00:30	Jun05	Tue	14	2	1	Egress = 2012-157T02:25 (115 min)
S73	167	167PL (nt)	**PALLENE**	2012-157T02:32	Jun05	Tue	14	2	1	Inbound 74747.0 km flyby, v = 12.1 km/s, phase = 93 deg
S73	167	167PM (nt)	**PROMETHEUS**	2012-157T03:01	Jun05	Tue	14	2	1	Inbound 99959.3 km flyby, v = 5.7 km/s, phase = 161 deg
S73	167	Ring CRX	Ascending	2012-157T03:22	Jun05	Tue	14	2	2	r = 3.315 Rs (199979 km)
S73	167	167PA (nt)	**PANDORA**	2012-157T04:22	Jun05	Tue	14	2	2	Inbound 49932.8 km flyby, v = 5.5 km/s, phase = 126 deg
S73	167	Periapse		2012-157T04:53	Jun05	Tue	14	2	2	R = 3.097 Rs, lat = 8 deg, phase = 119 deg
S73	167	167MI (nt)	**MIMAS**	2012-157T05:08	Jun05	Tue	14	2	2	Outbound 43554.9 km flyby, v = 7.2 km/s, phase = 114 deg
S73	167	167DA (nt)	**DAPHNIS**	2012-157T05:13	Jun05	Tue	14	2	2	Outbound 75877.8 km flyby, v = 7.1 km/s, phase = 74 deg
S73	167	167AT (nt)	**ATLAS**	2012-157T05:35	Jun05	Tue	14	2	2	Outbound 100378.2 km flyby, v = 8.7 km/s, phase = 60 deg
S73	167	**TOST**	**Segment**	2012-158T07:29	Jun06	Wed	15	1	3	TOST_167 (3d); T84 flyby
S73	167	**167TI (t) T84**	**TITAN**	2012-159T00:07	Jun07	Thu	16	48	3	Outbound 959.0 km flyby, v = 5.9 km/s, phase = 75 deg
S73	167	Ring CRX	Descending	2012-159T01:30	Jun07	Thu	0	48	3	r = 20.454 Rs (1233964 km)
S73	167	**XD**	**Segment**	2012-161T07:14	Jun09	Sat	2	46	6	XD_167_168 (10d)
S73	167	**OTM-326**	T84+3d	2012-162T04:29	Jun10	Sun	3	45	7	D/L Start, burn ~6h later. Backup D/L 163T04:29; complexes C/C
S73	168	**Apoapse**		2012-169T01:46	Jun17	Sun	10	38	7	Per = 23.9 d, inc = 21.1 deg, r = 47.979 Rs, phase = 76 deg
S74	168	**S74 Begins**		2012-170T22:58	Jun18	Mon	12	36	9	S74 Sequence. Duration = 67 d
S74	168	**XD**	**Segment**	2012-170T22:58	Jun18	Mon	12	36	9	XD_168 (9d)
S74	168	**OTM-327**	Apo	2012-172T21:28	Jun20	Wed	14	34	11	D/L Start, burn ~6h later. Backup D/L 173T21:27; complexes G/G
S74	168	168TI (nt)	**TITAN**	2012-179T06:58	Jun27	Wed	20	28	6	Inbound 458662.9 km flyby, v = 5.6 km/s, phase = 97 deg
S74	168	**RINGS**	**Segment**	2012-179T22:55	Jun27	Wed	21	27	7	RINGS_168 (3d)
S74	168	**Earth OCC**	RING	2012-180T10:22	Jun28	Thu	21	26	8	Egress = 2012-180T15:16 (295 min)
S74	168	**Sun OCC**	RING	2012-180T10:33	Jun28	Thu	21	26	8	Egress = 2012-180T14:12 (220 min)
S74	168	**Earth OCC**	SATURN	2012-180T11:32	Jun28	Thu	21	26	8	Egress = 2012-180T15:01 (210 min)
S74	168	**Sun OCC**	SATURN	2012-180T13:06	Jun28	Thu	22	26	8	Egress = 2012-180T15:30 (144 min)
S74	168	Ring CRX	Ascending	2012-180T19:22	Jun28	Thu	22	26	8	r = 5.879 Rs (354706 km)
S74	168	168TE (nt)	**TETHYS**	2012-180T21:09	Jun28	Thu	22	26	8	Inbound 68473.7 km flyby, v = 7.7 km/s, phase = 80 deg
S74	168	Periapse		2012-181T00:27	Jun29	Fri	22	26	8	R = 5.063 Rs, lat = 15 deg, phase = 104 deg
S74	168	Ring CRX	Descending	2012-182T23:34	Jun30	Sat	24	24	10	r = 20.671 Rs (1247071 km)
S74	168	**MAPS**	**Segment**	2012-183T05:41	Jul01	Sun	24	24	10	MAPS_168_169 (21d)
S74	169	**Apoapse**		2012-192T23:45	Jul10	Tue	34	14	20	Per = 24.0 d, inc = 21.2 deg, r = 48.049 Rs, phase = 76 deg
S74	169	**OTM-328**	169TI-4d	2012-203T01:38	Jul21	Sat	44	4	30	D/L Start, burn ~6h later. Backup D/L 203T19:23; complexes C/G
S74	169	**RINGS**	**Segment**	2012-204T04:23	Jul22	Sun	45	3	1	RINGS_169 (2d)
S74	169	**Earth OCC**	RING	2012-204T08:45	Jul22	Sun	45	2	1	Egress = 2012-204T13:41 (296 min)
S74	169	**Sun OCC**	RING	2012-204T09:20	Jul22	Sun	45	2	1	Egress = 2012-204T12:30 (190 min)
S74	169	**Earth OCC**	SATURN	2012-204T10:12	Jul22	Sun	45	2	1	Egress = 2012-204T13:38 (206 min)
S74	169	**Sun OCC**	SATURN	2012-204T11:57	Jul22	Sun	45	2	1	Egress = 2012-204T14:03 (127 min)
S74	169	Ring CRX	Ascending	2012-204T17:56	Jul22	Sun	46	2	2	r = 5.888 Rs (355200 km)
S74	169	169HE (nt)	**HELENE**	2012-204T21:21	Jul22	Sun	46	2	2	Inbound 110967.7 km flyby, v = 6.0 km/s, phase = 91 deg
S74	169	Periapse		2012-204T23:03	Jul22	Sun	46	2	2	R = 5.062 Rs, lat = 15 deg, phase = 104 deg
S74	169	**TOST**	**Segment**	2012-205T20:38	Jul23	Mon	47	1	3	TOST_169 (2d); T85 flyby
S74	169	**169TI (t) T85**	**TITAN**	2012-206T20:03	Jul24	Tue	48	64	4	Outbound 1012.0 km flyby, v = 5.9 km/s, phase = 58 deg
S74	169	Ring CRX	Descending	2012-206T21:04	Jul24	Tue	0	64	4	r = 20.360 Rs (1228290 km)
S74	169	**XD**	**Segment**	2012-208T06:38	Jul26	Thu	1	62	5	XD_169_170 (17d)
S74	169	**OTM-329**	169TI+3d	2012-210T01:08	Jul28	Sat	3	61	7	D/L Start, burn ~6h later. Backup D/L 211T01:08; complexes C/C
S74	170	**Apoapse**		2012-215T10:52	Aug02	Thu	9	55	5	Per = 21.2 d, inc = 32.2 deg, r = 43.265 Rs, phase = 78 deg
S74	170	**OTM-330**	~Apo	2012-220T00:36	Aug07	Tue	13	51	10	D/L Start, burn ~6h later. Backup D/L 221T00:21; complexes C/C
S74	170	**RINGS**	**Segment**	2012-225T09:21	Aug12	Sun	19	45	5	RINGS_170 (2d)
S74	170	**Sun OCC**	RING	2012-225T10:28	Aug12	Sun	19	45	5	Egress = 2012-225T14:41 (254 min)
S74	170	**Earth OCC**	SATURN	2012-225T10:29	Aug12	Sun	19	45	5	Egress = 2012-225T13:31 (183 min)
S74	170	**Sun OCC**	SATURN	2012-225T11:05	Aug12	Sun	19	45	5	Egress = 2012-225T14:37 (213 min)
S74	170	**Earth OCC**	RING	2012-225T11:36	Aug12	Sun	19	45	5	Egress = 2012-225T15:03 (207 min)
S74	170	Ring CRX	Ascending	2012-225T18:56	Aug12	Sun	19	45	6	r = 6.747 Rs (407017 km)
S74	170	170TL (nt)	**TELESTO**	2012-225T21:46	Aug12	Sun	19	45	6	Inbound 92900.5 km flyby, v = 7.9 km/s, phase = 103 deg
S74	170	Periapse		2012-226T01:32	Aug13	Mon	19	45	6	R = 5.746 Rs, lat = 24 deg, phase = 103 deg
S74	170	**SATURN**	**Segment**	2012-227T19:20	Aug14	Tue	21	43	8	SATURN_170_171 (10d)
S74	170	Ring CRX	Descending	2012-228T02:31	Aug15	Wed	21	43	8	r = 20.424 Rs (1232165 km)
S74	171	**Apoapse**		2012-236T16:39	Aug23	Thu	30	34	17	Per = 21.3 d, inc = 32.2 deg, r = 43.311 Rs, phase = 77 deg
S74	171	**SATURN**	**Segment**	2012-237T18:34	Aug24	Fri	31	33	18	SATURN_171 (11d)
S75	171	**S75 Begins**		2012-238T02:19	Aug25	Sat	31	33	18	S75 Sequence. Duration = 70 d
S75	171	**Sun OCC**	RING	2012-246T16:28	Sep02	Sun	40	24	27	Egress = 2012-246T20:42 (254 min)
S75	171	**Earth OCC**	SATURN	2012-246T16:36	Sep02	Sun	40	24	27	Egress = 2012-246T20:05 (209 min)
S75	171	**Earth OCC**	RING	2012-246T17:07	Sep02	Sun	40	24	27	Egress = 2012-246T21:00 (234 min)
S75	171	**Sun OCC**	SATURN	2012-246T17:20	Sep02	Sun	40	24	27	Egress = 2012-246T20:47 (208 min)
S75	171	171TI (nt)	**TITAN**	2012-246T19:44	Sep02	Sun	40	24	27	Inbound 784735.6 km flyby, v = 7.2 km/s, phase = 39 deg
S75	171	Ring CRX	Ascending	2012-247T01:01	Sep03	Mon	40	24	27	r = 6.764 Rs (408047 km)
S75	171	Periapse		2012-247T07:39	Sep03	Mon	40	23	27	R = 5.758 Rs, lat = 24 deg, phase = 103 deg
S75	171	**XD**	**Segment**	2012-248T18:03	Sep04	Tue	42	22	29	XD_171_172 (18d)
S75	171	Ring CRX	Descending	2012-249T08:40	Sep05	Wed	43	21	29	r = 20.431 Rs (1232616 km)
S75	172	**Apoapse**		2012-257T23:17	Sep13	Thu	51	13	38	Per = 21.3 d, inc = 32.2 deg, r = 43.383 Rs, phase = 77 deg
S75	172	**RINGS**	**Segment**	2012-266T17:02	Sep22	Sat	60	4	47	RINGS_172 (3d)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S75	172	OTM-331	172TI-3d	2012-267T07:47	Sep23	Sun	60	3	47	D/L Start, burn ~6h later. Backup D/L 268T07:46; complexes M/M
S75	172	Sun OCC	RING	2012-267T23:42	Sep23	Sun	61	3	1	Egress = 2012-268T03:56 (254 min)
S75	172	Earth OCC	RING	2012-267T23:55	Sep23	Sun	61	3	1	Egress = 2012-268T04:07 (252 min)
S75	172	Earth OCC	SATURN	2012-268T00:12	Sep24	Mon	61	3	1	Egress = 2012-268T03:48 (217 min)
S75	172	Sun OCC	SATURN	2012-268T00:48	Sep24	Mon	61	3	1	Egress = 2012-268T04:10 (202 min)
S75	172	Ring CRX	Ascending	2012-268T08:20	Sep24	Mon	62	2	1	r = 6.764 Rs (408086 km)
S75	172	Periapse		2012-268T14:59	Sep24	Mon	62	2	1	R = 5.753 Rs, lat = 24 deg, phase = 103 deg
S75	172	TOST	Segment	2012-270T00:16	Sep26	Wed	63	1	3	TOST_172 (3d); T86 flyby
S75	172	172TI (t) T86	TITAN	2012-270T14:36	Sep26	Wed	64	48	3	Outbound 956.0 km flyby, v = 5.9 km/s, phase = 47 deg
S75	172	Ring CRX	Descending	2012-270T15:19	Sep26	Wed	0	48	3	r = 20.262 Rs (1222393 km)
S75	172	XD	Segment	2012-273T06:16	Sep29	Sat	3	45	6	XD_172_173 (18d)
S75	172	OTM-332	172TI+4d	2012-273T21:16	Sep29	Sat	3	45	7	D/L Start, burn ~6h later. Backup D/L 274T21:16; complexes C/C
S75	173	Apoapse		2012-280T10:19	Oct06	Sat	10	38	7	Per = 23.9 d, inc = 39.0 deg, r = 45.164 Rs, phase = 88 deg
S75	173	OTM-333	~Apo	2012-283T07:01	Oct09	Tue	13	35	9	D/L Start, burn ~6h later. Backup D/L 284T06:46; complexes M/M
S75	173	RINGS	Segment	2012-290T23:00	Oct16	Tue	20	27	8	RINGS_173 (3d)
S75	173	Earth OCC	SATURN	2012-291T05:00	Oct17	Wed	21	27	8	Egress = 2012-291T09:32 (273 min)
S75	173	Sun OCC	SATURN	2012-291T05:15	Oct17	Wed	21	27	8	Egress = 2012-291T09:51 (276 min)
S75	173	Earth OCC	RING	2012-291T05:20	Oct17	Wed	21	27	8	Egress = 2012-291T10:12 (293 min)
S75	173	Sun OCC	RING	2012-291T05:20	Oct17	Wed	21	27	8	Egress = 2012-291T10:14 (295 min)
S75	173	Ring CRX	Ascending	2012-291T18:42	Oct17	Wed	21	27	8	r = 10.018 Rs (604383 km)
S75	173	Periapse		2012-292T09:02	Oct18	Thu	22	26	9	R = 7.869 Rs, lat = 34 deg, phase = 92 deg
S75	173	XD	Segment	2012-294T05:00	Oct20	Sat	24	24	11	XD_173_174 (13d)
S75	173	Ring CRX	Descending	2012-294T12:37	Oct20	Sat	24	24	11	r = 20.240 Rs (1221103 km)
S75	173	SEP = 3.0 deg	Conjunction	2012-296T23:22	Oct22	Mon	26	21	14	Commanding must not be required below 3.0 deg
S75	173	SEP = 3.0 deg	Conjunction	2012-301T16:24	Oct27	Sat	31	17	18	Commanding must not be required below 3.0 deg
S75	174	Apoapse		2012-304T08:17	Oct30	Tue	34	14	21	Per = 24.0 d, inc = 39.0 deg, r = 45.234 Rs, phase = 88 deg
S76	174	S76 Begins		2012-307T14:30	Nov02	Fri	37	11	24	S76 Sequence. Duration = 72 d
S76	174	XD	Segment	2012-307T14:30	Nov02	Fri	37	11	24	XD_174 (7d)
S76	174	OTM-334	174TI-4d	2012-314T12:46	Nov09	Fri	44	4	31	D/L Start, burn ~6h later. Backup D/L 315T12:31; complexes G/G
S76	174	RINGS	Segment	2012-314T21:46	Nov09	Fri	44	4	0	RINGS_174 (3d)
S76	174	Earth OCC	RING	2012-315T03:05	Nov10	Sat	45	3	1	Egress = 2012-315T08:07 (302 min)
S76	174	Sun OCC	RING	2012-315T03:32	Nov10	Sat	45	3	1	Egress = 2012-315T08:31 (300 min)
S76	174	Sun OCC	SATURN	2012-315T03:52	Nov10	Sat	45	3	1	Egress = 2012-315T08:28 (276 min)
S76	174	Earth OCC	SATURN	2012-315T04:18	Nov10	Sat	45	3	1	Egress = 2012-315T08:33 (256 min)
S76	174	Ring CRX	Ascending	2012-315T17:08	Nov10	Sat	45	3	1	r = 10.028 Rs (604977 km)
S76	174	Periapse		2012-316T07:30	Nov11	Sun	46	2	2	R = 7.870 Rs, lat = 34 deg, phase = 92 deg
S76	174	TOST	Segment	2012-317T14:01	Nov12	Mon	47	1	3	TOST_174 (2d); T87 flyby
S76	174	174TI (t) T87	TITAN	2012-318T10:22	Nov13	Tue	48	16	4	Outbound 973.0 km flyby, v = 5.9 km/s, phase = 68 deg
S76	174	Ring CRX	Descending	2012-318T10:49	Nov13	Tue	0	16	4	r = 20.185 Rs (1217740 km)
S76	174	SATURN	Segment	2012-319T21:46	Nov14	Wed	1	14	5	SATURN_174_175 (14d)
S76	174	OTM-335	174TI+4d	2012-321T18:31	Nov16	Fri	3	13	7	D/L Start, burn ~6h later. Backup D/L 322T18:31; complexes C/C
S76	175	Apoapse		2012-324T02:54	Nov19	Mon	6	10	2	Per = 15.9 d, inc = 46.3 deg, r = 33.619 Rs, phase = 75 deg
S76	175	OTM-336	~Apo	2012-326T18:16	Nov21	Wed	8	8	5	D/L Start, burn ~6h later. Backup D/L 327T18:16; complexes C/C
S76	175	OTM-337	175TI-3d	2012-330T18:01	Nov25	Sun	12	4	4	D/L Start, burn ~6h later. Backup D/L 331T18:01; complexes C/C
S76	175	Earth OCC	RING	2012-331T08:57	Nov26	Mon	13	3	1	Egress = 2012-331T12:41 (225 min)
S76	175	Sun OCC	SATURN	2012-331T08:57	Nov26	Mon	13	3	1	Egress = 2012-331T12:16 (200 min)
S76	175	Earth OCC	SATURN	2012-331T09:02	Nov26	Mon	13	3	1	Egress = 2012-331T12:40 (219 min)
S76	175	Sun OCC	RING	2012-331T09:30	Nov26	Mon	13	3	1	Egress = 2012-331T12:56 (206 min)
S76	175	Ring CRX	Ascending	2012-331T17:24	Nov26	Mon	13	3	1	r = 7.978 Rs (481299 km)
S76	175	Periapse		2012-332T02:15	Nov27	Tue	14	2	1	R = 6.894 Rs, lat = 33 deg, phase = 105 deg
S76	175	TOST	Segment	2012-333T20:32	Nov28	Wed	15	1	3	TOST_175 (3d); T88 flyby
S76	175	175TI (t) T88	TITAN	2012-334T08:57	Nov29	Thu	16	80	4	Outbound 1014.0 km flyby, v = 5.9 km/s, phase = 44 deg
S76	175	Ring CRX	Descending	2012-334T09:25	Nov29	Thu	0	80	4	r = 20.179 Rs (1217428 km)
S76	175	XD	Segment	2012-337T02:47	Dec02	Sun	3	77	6	XD_175_176 (6d)
S76	175	OTM-338	175TI+4d	2012-337T17:32	Dec02	Sun	3	76	7	D/L Start, burn ~6h later. Backup D/L 338T17:32; complexes C/C
S76	176	Apoapse		2012-338T10:59	Dec03	Mon	4	76	1	Per = 13.3 d, inc = 53.0 deg, r = 28.413 Rs, phase = 70 deg
S76	176	SATURN	Segment	2012-343T02:17	Dec08	Sat	9	71	5	SATURN_176 (4d)
S76	176	Earth OCC	SATURN	2012-344T08:56	Dec09	Sun	10	70	7	Egress = 2012-344T12:26 (210 min)
S76	176	Earth OCC	RING	2012-344T09:12	Dec09	Sun	10	70	7	Egress = 2012-344T12:38 (206 min)
S76	176	Sun OCC	SATURN	2012-344T09:30	Dec09	Sun	10	70	7	Egress = 2012-344T11:28 (119 min)
S76	176	Sun OCC	RING	2012-344T09:59	Dec09	Sun	10	70	7	Egress = 2012-344T12:52 (173 min)
S76	176	Ring CRX	Ascending	2012-344T17:13	Dec09	Sun	10	69	7	r = 8.314 Rs (501610 km)
S76	176	176TI (nt)	TITAN	2012-344T23:16	Dec09	Sun	11	69	7	Inbound 906851.9 km flyby, v = 8.1 km/s, phase = 85 deg
S76	176	Periapse		2012-345T02:16	Dec10	Mon	11	69	7	R = 7.427 Rs, lat = 34 deg, phase = 110 deg
S76	176	XD	Segment	2012-347T02:03	Dec12	Wed	13	67	9	XD_176_177 (10d)
S76	176	Ring CRX	Descending	2012-347T15:52	Dec12	Wed	13	66	10	r = 20.174 Rs (1217089 km)
S76	176	176TI (nt)	TITAN	2012-350T13:50	Dec15	Sat	16	64	13	Outbound 899666.2 km flyby, v = 4.6 km/s, phase = 103 deg
S76	177	Apoapse		2012-351T17:23	Dec16	Sun	17	62	14	Per = 13.3 d, inc = 53.0 deg, r = 28.405 Rs, phase = 70 deg
S76	177	SOST	Segment	2012-357T01:34	Dec22	Sat	23	57	19	SOST_177 (2d); non-targ flyby
S76	177	Earth OCC	SATURN	2012-357T15:19	Dec22	Sat	23	56	20	Egress = 2012-357T18:52 (214 min)
S76	177	Earth OCC	RING	2012-357T15:20	Dec22	Sat	23	56	20	Egress = 2012-357T18:50 (210 min)
S76	177	Sun OCC	SATURN	2012-357T15:38	Dec22	Sat	23	56	20	Egress = 2012-357T17:58 (141 min)
S76	177	Sun OCC	RING	2012-357T16:10	Dec22	Sat	23	56	20	Egress = 2012-357T19:08 (178 min)
S76	177	177TI (nt)	TITAN	2012-357T17:28	Dec22	Sat	23	56	20	Inbound 714542.6 km flyby, v = 8.1 km/s, phase = 31 deg
S76	177	177RH (nt)	RHEA	2012-357T23:07	Dec22	Sat	24	56	20	Inbound 22880.2 km flyby, v = 9.1 km/s, phase = 43 deg
S76	177	Ring CRX	Ascending	2012-357T23:29	Dec22	Sat	24	56	20	r = 8.307 Rs (501161 km)
S76	177	Periapse		2012-358T08:30	Dec23	Sun	24	56	21	R = 7.424 Rs, lat = 34 deg, phase = 110 deg
S76	177	XD	Segment	2012-359T01:19	Dec24	Mon	25	55	21	XD_177_178 (10d)
S76	177	Ring CRX	Descending	2012-360T22:14	Dec25	Tue	27	53	23	r = 20.196 Rs (1218446 km)
S76	178	Apoapse		2012-364T23:50	Dec29	Sat	31	49	27	Per = 13.3 d, inc = 53.0 deg, r = 28.423 Rs, phase = 70 deg
S76	178	SATURN	Segment	2013-003T11:05	Jan03	Thu	35	45	32	SATURN_178 (5d)
S76	178	Earth OCC	RING	2013-004T21:53	Jan04	Fri	37	43	33	Egress = 2013-005T01:24 (212 min)
S76	178	Earth OCC	SATURN	2013-004T22:06	Jan04	Fri	37	43	33	Egress = 2013-005T01:35 (210 min)
S76	178	Sun OCC	SATURN	2013-004T22:09	Jan04	Fri	37	43	33	Egress = 2013-005T00:47 (158 min)
S76	178	Sun OCC	RING	2013-004T22:42	Jan04	Fri	37	43	33	Egress = 2013-005T01:45 (183 min)
S76	178	Ring CRX	Ascending	2013-005T06:08	Jan05	Sat	37	43	34	r = 8.317 Rs (501763 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S76	178	Periapse		2013-005T15:10	Jan05	Sat	37	42	34	R = 7.432 Rs, lat = 34 deg, phase = 111 deg
S76	178	**XD**	**Segment**	2013-008T00:21	Jan08	Tue	40	40	36	XD_178_179 (6d)
S76	178	Ring CRX	Descending	2013-008T04:57	Jan08	Tue	40	40	36	r = 20.207 Rs (1219117 km)
S76	179	**Apoapse**		2013-012T06:44	Jan12	Sat	44	36	41	Per = 13.3 d, inc = 53.0 deg, r = 28.446 Rs, phase = 69 deg
S77	179	**S77 Begins**		2013-013T17:51	Jan13	Sun	45	34	42	S77 Sequence. Duration = 72 d
S77	179	**XD**	**Segment**	2013-013T17:51	Jan13	Sun	45	34	42	XD_179 (4d)
S77	179	**RINGS**	**Segment**	2013-017T17:37	Jan17	Thu	49	30	46	RINGS_179 (4d)
S77	179	**Earth OCC**	RING	2013-018T04:54	Jan18	Fri	50	30	46	Egress = 2013-018T08:25 (212 min)
S77	179	**Sun OCC**	SATURN	2013-018T05:08	Jan18	Fri	50	30	46	Egress = 2013-018T08:00 (172 min)
S77	179	**Earth OCC**	SATURN	2013-018T05:20	Jan18	Fri	50	30	46	Egress = 2013-018T08:41 (201 min)
S77	179	**Sun OCC**	RING	2013-018T05:41	Jan18	Fri	50	30	47	Egress = 2013-018T08:48 (187 min)
S77	179	Ring CRX	Ascending	2013-018T13:13	Jan18	Fri	50	30	47	r = 8.327 Rs (502384 km)
S77	179	Periapse		2013-018T22:16	Jan18	Fri	51	29	47	R = 7.441 Rs, lat = 34 deg, phase = 111 deg
S77	179	**XD**	**Segment**	2013-021T09:53	Jan21	Mon	53	27	50	XD_179_180 (10d)
S77	179	Ring CRX	Descending	2013-021T12:07	Jan21	Mon	53	27	50	r = 20.219 Rs (1219842 km)
S77	180	**Apoapse**		2013-025T13:55	Jan25	Fri	57	23	54	Per = 13.3 d, inc = 53.0 deg, r = 28.455 Rs, phase = 69 deg
S77	180	**OTM-339**	~Peri	2013-030T14:09	Jan30	Wed	62	17	59	D/L Start, burn ~6h later. Backup D/L 031T00:24; complexes C/M
S77	180	**RINGS**	**Segment**	2013-031T09:24	Jan31	Thu	63	17	1	RINGS_180 (4d)
S77	180	**Earth OCC**	RING	2013-031T12:09	Jan31	Thu	63	17	1	Egress = 2013-031T15:39 (211 min)
S77	180	**Sun OCC**	SATURN	2013-031T12:21	Jan31	Thu	63	17	1	Egress = 2013-031T15:25 (184 min)
S77	180	**Earth OCC**	SATURN	2013-031T12:46	Jan31	Thu	63	17	1	Egress = 2013-031T15:58 (193 min)
S77	180	**Sun OCC**	RING	2013-031T12:52	Jan31	Thu	63	17	1	Egress = 2013-031T16:03 (191 min)
S77	180	Ring CRX	Ascending	2013-031T20:29	Jan31	Thu	63	16	1	r = 8.324 Rs (502211 km)
S77	180	Periapse		2013-032T05:32	Feb01	Fri	64	16	2	R = 7.439 Rs, lat = 34 deg, phase = 111 deg
S77	180	Ring CRX	Descending	2013-034T19:24	Feb03	Sun	66	13	4	r = 20.227 Rs (1220314 km)
S77	180	**XD**	**Segment**	2013-034T22:55	Feb03	Sun	67	13	4	XD_180_181 (8d)
S77	181	**Apoapse**		2013-038T21:12	Feb07	Thu	71	9	8	Per = 13.3 d, inc = 53.0 deg, r = 28.462 Rs, phase = 69 deg
S77	181	**RINGS**	**Segment**	2013-043T08:26	Feb12	Tue	75	5	13	RINGS_181 (4d)
S77	181	**OTM-340**	181TI-4d	2013-043T23:26	Feb12	Tue	76	4	13	D/L Start, burn ~6h later. Backup D/L 045T23:26; complexes M/M
S77	181	**Earth OCC**	RING	2013-044T19:30	Feb13	Wed	76	3	1	Egress = 2013-044T22:59 (209 min)
S77	181	**Sun OCC**	SATURN	2013-044T19:39	Feb13	Wed	76	3	1	Egress = 2013-044T22:51 (192 min)
S77	181	**Sun OCC**	RING	2013-044T20:08	Feb13	Wed	76	3	1	Egress = 2013-044T23:21 (194 min)
S77	181	**Earth OCC**	SATURN	2013-044T20:11	Feb13	Wed	76	3	1	Egress = 2013-044T23:18 (188 min)
S77	181	Ring CRX	Ascending	2013-045T03:47	Feb14	Thu	77	3	1	r = 8.313 Rs (501528 km)
S77	181	Periapse		2013-045T12:50	Feb14	Thu	77	3	2	R = 7.426 Rs, lat = 34 deg, phase = 111 deg
S77	181	**TOST**	**Segment**	2013-047T08:26	Feb16	Sat	79	1	3	TOST_181 (2d); T89 flyby
S77	181	**181TI (t) T89**	**TITAN**	2013-048T01:57	Feb17	Sun	80	21	4	Outbound 1978.2 km flyby, v = 5.8 km/s, phase = 35 deg
S77	181	Ring CRX	Descending	2013-048T02:23	Feb17	Sun	0	21	4	r = 20.171 Rs (1216910 km)
S77	181	**XD**	**Segment**	2013-049T08:11	Feb18	Mon	1	19	5	XD_181_182 (5d)
S77	182	**Apoapse**		2013-051T05:02	Feb20	Wed	3	18	7	Per = 12.0 d, inc = 57.1 deg, r = 25.388 Rs, phase = 64 deg
S77	182	**SATURN**	**Segment**	2013-054T15:27	Feb23	Sat	7	14	11	SATURN_182 (5d)
S77	182	**OTM-341**	~Peri	2013-055T06:12	Feb24	Sun	7	14	11	D/L Start, burn ~6h later. Backup D/L 055T22:42; complexes G/M
S77	182	**Earth OCC**	RING	2013-056T10:53	Feb25	Mon	8	12	1	Egress = 2013-056T14:18 (206 min)
S77	182	**Earth OCC**	SATURN	2013-056T11:04	Feb25	Mon	8	12	1	Egress = 2013-056T14:32 (208 min)
S77	182	**Sun OCC**	SATURN	2013-056T11:06	Feb25	Mon	8	12	1	Egress = 2013-056T13:46 (161 min)
S77	182	**Sun OCC**	RING	2013-056T11:34	Feb25	Mon	8	12	1	Egress = 2013-056T14:36 (182 min)
S77	182	182TI (nt)	**TITAN**	2013-056T17:27	Feb25	Mon	9	12	1	Inbound 707385.5 km flyby, v = 8.4 km/s, phase = 41 deg
S77	182	Ring CRX	Ascending	2013-056T19:13	Feb25	Mon	9	12	2	r = 8.753 Rs (528090 km)
S77	182	Periapse		2013-057T04:27	Feb26	Tue	9	12	2	R = 8.040 Rs, lat = 33 deg, phase = 116 deg
S77	182	**XD**	**Segment**	2013-059T21:13	Feb28	Thu	12	9	5	XD_182_183 (8d)
S77	182	Ring CRX	Descending	2013-060T01:20	Mar01	Fri	12	9	5	r = 20.203 Rs (1218828 km)
S77	182	**OTM-342**	~Apo	2013-060T22:28	Mar01	Fri	13	8	6	D/L Start, burn ~6h later. Backup D/L 061T22:28; complexes M/M
S77	183	**Apoapse**		2013-063T04:02	Mar04	Mon	15	6	2	Per = 12.0 d, inc = 57.1 deg, r = 25.408 Rs, phase = 64 deg
S77	183	**OTM-343**	183RH-3d	2013-065T11:58	Mar06	Wed	17	3	5	D/L Start, burn ~6h later. Backup D/L 066T11:59; complexes C/C
S77	183	**SOST**	**Segment**	2013-067T14:29	Mar08	Fri	20	1	2	SOST_183 (2d); R4 flyby
S77	183	**Earth OCC**	RING	2013-068T10:05	Mar09	Sat	20	0	3	Egress = 2013-068T13:29 (205 min)
S77	183	**Sun OCC**	SATURN	2013-068T10:11	Mar09	Sat	20	0	3	Egress = 2013-068T13:03 (173 min)
S77	183	**Earth OCC**	SATURN	2013-068T10:13	Mar09	Sat	20	0	3	Egress = 2013-068T13:42 (209 min)
S77	183	**Sun OCC**	RING	2013-068T10:39	Mar09	Sat	20	0	3	Egress = 2013-068T13:44 (185 min)
S77	183	**183RH (t) R4**	**RHEA**	2013-068T18:17	Mar09	Sat	21	27	3	Inbound 997.2 km flyby, v = 9.3 km/s, phase = 138 deg
S77	183	Ring CRX	Ascending	2013-068T18:22	Mar09	Sat	0	27	3	r = 8.756 Rs (528255 km)
S77	183	Periapse		2013-069T03:40	Mar10	Sun	0	27	4	R = 8.032 Rs, lat = 33 deg, phase = 116 deg
S77	183	**XD**	**Segment**	2013-069T14:29	Mar10	Sun	1	26	4	XD_183_184 (9d)
S77	183	**OTM-344**	183RH+2d	2013-070T21:44	Mar11	Mon	2	25	5	D/L Start, burn ~6h later. Backup D/L 071T21:44; complexes M/M
S77	183	Ring CRX	Descending	2013-072T00:04	Mar13	Wed	3	24	1	r = 20.133 Rs (1214640 km)
S77	184	**Apoapse**		2013-075T03:13	Mar16	Sat	6	21	4	Per = 12.0 d, inc = 57.0 deg, r = 25.405 Rs, phase = 64 deg
S77	184	**OTM-345**	~Apo	2013-075T21:30	Mar16	Sat	7	20	5	D/L Start, burn ~6h later. Backup D/L 076T21:15; complexes M/M
S77	184	**MAPS**	**Segment**	2013-078T13:45	Mar19	Tue	10	17	3	MAPS_184 (7d)
S77	184	**Sun OCC**	SATURN	2013-080T09:11	Mar21	Thu	12	16	4	Egress = 2013-080T12:14 (184 min)
S77	184	**Earth OCC**	RING	2013-080T09:13	Mar21	Thu	12	16	4	Egress = 2013-080T12:36 (204 min)
S77	184	**Earth OCC**	SATURN	2013-080T09:15	Mar21	Thu	12	16	4	Egress = 2013-080T12:46 (212 min)
S77	184	**Sun OCC**	RING	2013-080T09:38	Mar21	Thu	12	16	5	Egress = 2013-080T12:47 (189 min)
S77	184	Ring CRX	Ascending	2013-080T17:27	Mar21	Thu	12	15	5	r = 8.762 Rs (528605 km)
S77	184	Periapse		2013-081T02:46	Mar22	Fri	12	15	5	R = 8.037 Rs, lat = 33 deg, phase = 116 deg
S77	184	Ring CRX	Descending	2013-083T23:12	Mar24	Sun	15	12	8	r = 20.137 Rs (1214877 km)
S78	184	**S78 Begins**		2013-085T13:15	Mar26	Tue	17	10	10	S78 Sequence. Duration = 72 d
S78	184	**XD**	**Segment**	2013-085T13:15	Mar26	Tue	17	10	10	XD_184_185 (5d)
S78	185	**Apoapse**		2013-087T02:17	Mar28	Thu	18	9	11	Per = 12.0 d, inc = 57.0 deg, r = 25.401 Rs, phase = 64 deg
S78	185	**RINGS**	**Segment**	2013-090T13:01	Mar31	Sun	22	5	15	RINGS_185 (5d)
S78	185	**OTM-346**	185TI-4d	2013-091T10:16	Apr01	Mon	23	4	16	D/L Start, burn ~6h later. Backup D/L 093T10:01; complexes C/C
S78	185	**Sun OCC**	SATURN	2013-092T08:11	Apr02	Tue	24	4	1	Egress = 2013-092T11:22 (192 min)
S78	185	**Earth OCC**	SATURN	2013-092T08:15	Apr02	Tue	24	4	1	Egress = 2013-092T11:48 (213 min)
S78	185	**Earth OCC**	RING	2013-092T08:21	Apr02	Tue	24	4	1	Egress = 2013-092T11:42 (202 min)
S78	185	**Sun OCC**	RING	2013-092T08:37	Apr02	Tue	24	4	1	Egress = 2013-092T11:48 (192 min)
S78	185	Ring CRX	Ascending	2013-092T16:28	Apr02	Tue	24	3	1	r = 8.750 Rs (527897 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S78	185	Periapse		2013-093T01:46	Apr03	Wed	24	3	2	R = 8.025 Rs, lat = 33 deg, phase = 116 deg
S78	185	**TOST**	**Segment**	2013-095T05:01	Apr05	Fri	26	1	4	TOST_185 (2d); T90 flyby
S78	185	**185TI (t) T90**	**TITAN**	2013-095T21:44	Apr05	Fri	27	48	4	Outbound 1400.0 km flyby, v = 5.8 km/s, phase = 69 deg
S78	185	Ring CRX	Descending	2013-095T21:58	Apr05	Fri	0	48	4	r = 20.107 Rs (1213045 km)
S78	185	**XD**	**Segment**	2013-097T07:01	Apr07	Sun	1	46	6	XD_185_186 (3d)
S78	186	**Apoapse**		2013-097T17:49	Apr07	Sun	2	46	6	Per = 9.6 d, inc = 61.7 deg, r = 22.565 Rs, phase = 48 deg
S78	186	**OTM-347**	185TI+3d	2013-098T19:46	Apr08	Mon	3	45	7	D/L Start, burn ~6h later. Backup D/L 099T19:46; complexes M/M
S78	186	**RINGS**	**Segment**	2013-100T04:46	Apr10	Wed	4	44	1	RINGS_186 (5d)
S78	186	**Earth OCC**	SATURN	2013-102T03:45	Apr12	Fri	6	42	3	Egress = 2013-102T06:27 (162 min)
S78	186	**Sun OCC**	SATURN	2013-102T03:48	Apr12	Fri	6	42	3	Egress = 2013-102T06:15 (148 min)
S78	186	186TI (nt)	**TITAN**	2013-102T03:48	Apr12	Fri	6	42	3	Inbound 939361.9 km flyby, v = 10.1 km/s, phase = 50 deg
S78	186	**Earth OCC**	RING	2013-102T04:02	Apr12	Fri	6	42	3	Egress = 2013-102T06:33 (151 min)
S78	186	**Sun OCC**	RING	2013-102T04:08	Apr12	Fri	6	42	3	Egress = 2013-102T06:33 (146 min)
S78	186	186PO (nt)	**POLYDEUCES**	2013-102T07:45	Apr12	Fri	6	41	3	Inbound 115510.2 km flyby, v = 11.5 km/s, phase = 126 deg
S78	186	Ring CRX	Ascending	2013-102T08:52	Apr12	Fri	6	41	4	r = 6.462 Rs (389844 km)
S78	186	Periapse		2013-102T12:35	Apr12	Fri	7	41	4	R = 6.244 Rs, lat = 22 deg, phase = 132 deg
S78	186	**XD**	**Segment**	2013-104T18:16	Apr14	Sun	9	39	6	XD_186_187 (6d)
S78	186	Ring CRX	Descending	2013-105T11:28	Apr15	Mon	10	38	7	r = 20.116 Rs (1213576 km)
S78	187	**Apoapse**		2013-107T07:26	Apr17	Wed	11	36	8	Per = 9.6 d, inc = 61.7 deg, r = 22.575 Rs, phase = 48 deg
S78	187	**MAPS**	**Segment**	2013-110T11:32	Apr20	Sat	15	33	12	MAPS_187 (3d)
S78	187	**Earth OCC**	RHEA	2013-111T14:19	Apr21	Sun	16	32	13	Egress = 2013-111T14:19 (1 min)
S78	187	**Sun OCC**	SATURN	2013-111T17:28	Apr21	Sun	16	32	13	Egress = 2013-111T20:00 (152 min)
S78	187	**Earth OCC**	SATURN	2013-111T17:29	Apr21	Sun	16	32	13	Egress = 2013-111T20:07 (158 min)
S78	187	**Earth OCC**	RING	2013-111T17:48	Apr21	Sun	16	32	13	Egress = 2013-111T20:16 (148 min)
S78	187	**Sun OCC**	RING	2013-111T17:48	Apr21	Sun	16	32	13	Egress = 2013-111T20:15 (148 min)
S78	187	Ring CRX	Ascending	2013-111T22:34	Apr21	Sun	16	32	13	r = 6.467 Rs (390135 km)
S78	187	Periapse		2013-112T02:17	Apr22	Mon	16	32	13	R = 6.248 Rs, lat = 22 deg, phase = 132 deg
S78	187	**XD**	**Segment**	2013-113T11:32	Apr23	Tue	18	30	15	XD_187_188 (6d)
S78	187	Ring CRX	Descending	2013-115T01:13	Apr25	Thu	19	29	16	r = 20.120 Rs (1213819 km)
S78	188	**Apoapse**		2013-116T21:08	Apr26	Fri	21	27	18	Per = 9.6 d, inc = 61.7 deg, r = 22.574 Rs, phase = 48 deg
S78	188	**SATURN**	**Segment**	2013-119T11:02	Apr29	Mon	24	24	21	SATURN_188 (6d)
S78	188	**OTM-348**	~Peri	2013-120T02:02	Apr30	Tue	24	24	21	D/L Start, burn ~6h later. Backup D/L 120T18:17; complexes G/M
S78	188	**Sun OCC**	SATURN	2013-121T07:10	May01	Wed	25	22	1	Egress = 2013-121T09:44 (155 min)
S78	188	**Earth OCC**	SATURN	2013-121T07:14	May01	Wed	25	22	1	Egress = 2013-121T09:45 (151 min)
S78	188	**Sun OCC**	RING	2013-121T07:28	May01	Wed	25	22	1	Egress = 2013-121T09:57 (149 min)
S78	188	**Earth OCC**	RING	2013-121T07:35	May01	Wed	25	22	1	Egress = 2013-121T10:00 (145 min)
S78	188	Ring CRX	Ascending	2013-121T12:16	May01	Wed	26	22	1	r = 6.463 Rs (389896 km)
S78	188	188TI (nt)	**TITAN**	2013-121T13:43	May01	Wed	26	22	1	Inbound 900100.7 km flyby, v = 10.7 km/s, phase = 59 deg
S78	188	Periapse		2013-121T15:59	May01	Wed	26	22	2	R = 6.244 Rs, lat = 22 deg, phase = 132 deg
S78	188	Ring CRX	Descending	2013-124T14:54	May04	Sat	29	19	5	r = 20.119 Rs (1213791 km)
S78	188	**XD**	**Segment**	2013-125T10:32	May05	Sun	30	18	5	XD_188_189 (4d)
S78	189	**Apoapse**		2013-126T10:49	May06	Mon	31	17	6	Per = 9.6 d, inc = 61.7 deg, r = 22.575 Rs, phase = 48 deg
S78	189	189TI (nt)	**TITAN**	2013-127T16:25	May07	Tue	32	16	8	Inbound 908113.7 km flyby, v = 6.3 km/s, phase = 127 deg
S78	189	**RINGS**	**Segment**	2013-129T10:16	May09	Thu	34	14	9	RINGS_189 (5d)
S78	189	**Sun OCC**	SATURN	2013-130T20:47	May10	Fri	35	13	11	Egress = 2013-130T23:25 (158 min)
S78	189	**Earth OCC**	SATURN	2013-130T20:56	May10	Fri	35	13	11	Egress = 2013-130T23:19 (144 min)
S78	189	**Sun OCC**	RING	2013-130T21:05	May10	Fri	35	13	11	Egress = 2013-130T23:35 (150 min)
S78	189	**Earth OCC**	RING	2013-130T21:17	May10	Fri	35	13	11	Egress = 2013-130T23:39 (142 min)
S78	189	Ring CRX	Ascending	2013-131T01:55	May11	Sat	35	13	11	r = 6.459 Rs (389666 km)
S78	189	Periapse		2013-131T05:37	May11	Sat	35	12	11	R = 6.241 Rs, lat = 22 deg, phase = 132 deg
S78	189	**XD**	**Segment**	2013-134T02:16	May14	Tue	38	10	14	XD_189_190 (4d)
S78	189	Ring CRX	Descending	2013-134T04:33	May14	Tue	38	10	14	r = 20.125 Rs (1214148 km)
S78	190	**Apoapse**		2013-136T00:30	May16	Thu	40	8	16	Per = 9.6 d, inc = 61.7 deg, r = 22.583 Rs, phase = 48 deg
S78	190	**MAPS**	**Segment**	2013-138T09:31	May18	Sat	42	5	18	MAPS_190 (5d)
S78	190	**OTM-349**	190TI-4d	2013-139T06:46	May19	Sun	43	4	19	D/L Start, burn ~6h later. Backup D/L 141T06:46; complexes C/C
S78	190	**Sun OCC**	SATURN	2013-140T10:32	May20	Mon	45	3	1	Egress = 2013-140T13:12 (161 min)
S78	190	**Earth OCC**	SATURN	2013-140T10:45	May20	Mon	45	3	1	Egress = 2013-140T12:59 (134 min)
S78	190	**Sun OCC**	RING	2013-140T10:49	May20	Mon	45	3	1	Egress = 2013-140T13:20 (152 min)
S78	190	**Earth OCC**	RING	2013-140T11:06	May20	Mon	45	3	1	Egress = 2013-140T13:25 (139 min)
S78	190	Ring CRX	Ascending	2013-140T15:40	May20	Mon	45	3	1	r = 6.455 Rs (389442 km)
S78	190	Periapse		2013-140T19:22	May20	Mon	45	3	2	R = 6.237 Rs, lat = 22 deg, phase = 132 deg
S78	190	**TOST**	**Segment**	2013-143T01:46	May23	Thu	47	1	4	TOST_190 (3d); T91 flyby
S78	190	**190TI (t) T91**	**TITAN**	2013-143T17:33	May23	Thu	48	48	4	Outbound 969.8 km flyby, v = 5.9 km/s, phase = 50 deg
S78	190	Ring CRX	Descending	2013-143T18:01	May23	Thu	0	48	4	r = 20.096 Rs (1212369 km)
S78	191	**Apoapse**		2013-146T07:38	May26	Sun	3	45	7	Per = 12.0 d, inc = 59.4 deg, r = 23.188 Rs, phase = 63 deg
S78	191	**XD**	**Segment**	2013-146T09:01	May26	Sun	3	45	7	XD_191 (3d)
S78	191	**OTM-350**	190TI+4d	2013-147T00:01	May27	Mon	3	45	8	D/L Start, burn ~6h later. Backup D/L 148T00:01; complexes G/G
S78	191	**RINGS**	**Segment**	2013-149T15:01	May29	Wed	6	42	3	RINGS_191 (5d)
S78	191	**Sun OCC**	SATURN	2013-151T06:00	May31	Fri	8	40	4	Egress = 2013-151T09:53 (233 min)
S78	191	**Sun OCC**	RING	2013-151T06:21	May31	Fri	8	40	4	Egress = 2013-151T10:03 (222 min)
S78	191	**Earth OCC**	RING	2013-151T07:17	May31	Fri	8	40	4	Egress = 2013-151T10:21 (185 min)
S78	191	**Earth OCC**	SATURN	2013-151T07:20	May31	Fri	8	40	4	Egress = 2013-151T08:21 (62 min)
S78	191	191TI (nt)	**TITAN**	2013-151T13:54	May31	Fri	8	40	5	Inbound 568226.1 km flyby, v = 7.6 km/s, phase = 27 deg
S78	191	Ring CRX	Ascending	2013-151T17:10	May31	Fri	8	40	5	r = 10.980 Rs (662439 km)
S78	191	Periapse		2013-152T07:01	Jun01	Sat	9	39	5	R = 10.238 Rs, lat = 34 deg, phase = 117 deg
S78	191	**SATURN**	**Segment**	2013-154T14:45	Jun03	Mon	11	37	8	SATURN_191 (3d)
S78	191	Ring CRX	Descending	2013-155T16:53	Jun04	Tue	12	36	9	r = 20.110 Rs (1213220 km)
S79	191	**S79 Begins**		2013-158T00:45	Jun07	Fri	14	34	11	S79 Sequence. Duration = 68 d
S79	191	**SATURN**	**Segment**	2013-158T00:45	Jun07	Fri	14	34	11	SATURN_191_192 (9d)
S79	192	**Apoapse**		2013-158T06:29	Jun07	Fri	15	33	11	Per = 12.0 d, inc = 59.4 deg, r = 23.191 Rs, phase = 63 deg
S79	192	**OTM-351**	~Peri	2013-162T15:14	Jun11	Tue	19	29	16	D/L Start, burn ~6h later. Backup D/L 163T15:14; complexes M/M
S79	192	**Sun OCC**	SATURN	2013-163T04:56	Jun12	Wed	19	28	1	Egress = 2013-163T08:53 (238 min)
S79	192	**Sun OCC**	RING	2013-163T05:13	Jun12	Wed	19	28	1	Egress = 2013-163T08:57 (224 min)
S79	192	**Earth OCC**	RING	2013-163T06:22	Jun12	Wed	20	28	1	Egress = 2013-163T09:18 (176 min)
S79	192	Ring CRX	Ascending	2013-163T16:06	Jun12	Wed	20	28	1	r = 10.986 Rs (662799 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S79	192	Periapse		2013-164T05:58	Jun13	Thu	21	27	2	R = 10.244 Rs, lat = 34 deg, phase = 117 deg
S79	192	**XD**	**Segment**	2013-166T13:59	Jun15	Sat	23	25	4	XD_192_193 (7d)
S79	192	Ring CRX	Descending	2013-167T15:54	Jun16	Sun	24	24	5	r = 20.116 Rs (1213600 km)
S79	193	**Apoapse**		2013-170T05:34	Jun19	Wed	27	21	8	Per = 12.0 d, inc = 59.4 deg, r = 23.200 Rs, phase = 63 deg
S79	193	**SATURN**	**Segment**	2013-173T13:28	Jun22	Sat	30	18	11	SATURN_193 (6d)
S79	193	**Sun OCC**	SATURN	2013-175T04:06	Jun24	Mon	31	16	13	Egress = 2013-175T08:06 (240 min)
S79	193	**Sun OCC**	RING	2013-175T04:18	Jun24	Mon	31	16	13	Egress = 2013-175T08:04 (226 min)
S79	193	**Earth OCC**	RING	2013-175T05:37	Jun24	Mon	32	16	13	Egress = 2013-175T08:27 (171 min)
S79	193	Ring CRX	Ascending	2013-175T15:16	Jun24	Mon	32	16	13	r = 10.990 Rs (663014 km)
S79	193	Periapse		2013-176T05:09	Jun25	Tue	32	15	14	R = 10.246 Rs, lat = 34 deg, phase = 117 deg
S79	193	**XD**	**Segment**	2013-179T06:43	Jun28	Fri	36	12	17	XD_193_194 (6d)
S79	193	Ring CRX	Descending	2013-179T15:04	Jun28	Fri	36	12	17	r = 20.115 Rs (1213521 km)
S79	194	**Apoapse**		2013-182T04:39	Jul01	Mon	38	9	20	Per = 12.0 d, inc = 59.4 deg, r = 23.192 Rs, phase = 63 deg
S79	194	**RINGS**	**Segment**	2013-185T06:12	Jul04	Thu	42	6	23	RINGS_194 (6d)
S79	194	**Sun OCC**	SATURN	2013-187T03:09	Jul06	Sat	43	4	24	Egress = 2013-187T07:10 (241 min)
S79	194	**Sun OCC**	RING	2013-187T03:17	Jul06	Sat	43	4	25	Egress = 2013-187T07:03 (227 min)
S79	194	**Earth OCC**	RING	2013-187T04:40	Jul06	Sat	43	4	25	Egress = 2013-187T07:28 (169 min)
S79	194	Ring CRX	Ascending	2013-187T14:17	Jul06	Sat	44	4	25	r = 10.976 Rs (662201 km)
S79	194	**OTM-352**	194TI-3d	2013-188T03:26	Jul07	Sun	44	3	26	D/L Start, burn ~6h later. Backup D/L 189T03:26; complexes C/C
S79	194	Periapse		2013-188T04:09	Jul07	Sun	44	3	0	R = 10.232 Rs, lat = 34 deg, phase = 117 deg
S79	194	**TOST**	**Segment**	2013-190T22:26	Jul09	Tue	47	1	3	TOST_194 (3d); T92 flyby
S79	194	**194TI (t) T92**	**TITAN**	2013-191T13:22	Jul10	Wed	48	16	3	Outbound 964.0 km flyby, v = 5.9 km/s, phase = 46 deg
S79	194	Ring CRX	Descending	2013-191T13:45	Jul10	Wed	0	16	3	r = 20.083 Rs (1211594 km)
S79	194	**SATURN**	**Segment**	2013-194T05:41	Jul13	Sat	3	13	6	SATURN_194_195 (7d)
S79	194	**OTM-353**	194TI+4d	2013-194T20:40	Jul13	Sat	3	13	7	D/L Start, burn ~6h later. Backup D/L 195T20:40; complexes G/G
S79	195	**Apoapse**		2013-196T06:15	Jul15	Mon	5	11	1	Per = 16.0 d, inc = 56.7 deg, r = 25.136 Rs, phase = 100 deg
S79	195	**OTM-354**	~Apo	2013-199T20:25	Jul18	Thu	8	8	5	D/L Start, burn ~6h later. Backup D/L 200T12:40; complexes G/M
S79	195	**Sun OCC**	RING	2013-200T21:03	Jul19	Fri	9	7	1	Egress = 2013-201T02:24 (322 min)
S79	195	**RINGS**	**Segment**	2013-200T21:10	Jul19	Fri	9	7	1	RINGS_195 (1d)
S79	195	**Sun OCC**	SATURN	2013-200T22:09	Jul19	Fri	9	7	1	Egress = 2013-201T02:57 (289 min)
S79	195	**Earth OCC**	RING	2013-201T00:06	Jul20	Sat	9	6	1	Egress = 2013-201T03:30 (204 min)
S79	195	195TI (nt)	**TITAN**	2013-201T02:45	Jul20	Sat	10	6	1	Inbound 889473.0 km flyby, v = 6.2 km/s, phase = 111 deg
S79	195	**SATURN**	**Segment**	2013-201T21:40	Jul20	Sat	10	6	2	SATURN_195 (5d)
S79	195	Ring CRX	Ascending	2013-201T22:04	Jul20	Sat	10	6	2	r = 18.176 Rs (1096536 km)
S79	195	**OTM-355**	195TI-3d	2013-204T02:24	Jul23	Tue	13	3	4	D/L Start, burn ~6h later. Backup D/L 205T02:24; complexes C/C
S79	195	Periapse		2013-204T05:40	Jul23	Tue	13	3	0	R = 15.370 Rs, lat = 55 deg, phase = 80 deg
S79	195	**TOST**	**Segment**	2013-206T12:39	Jul25	Thu	15	1	2	TOST_195 (3d); T93 flyby
S79	195	**195TI (t) T93**	**TITAN**	2013-207T11:56	Jul26	Fri	16	48	3	Outbound 1400.0 km flyby, v = 5.8 km/s, phase = 58 deg
S79	195	Ring CRX	Descending	2013-207T12:17	Jul26	Fri	0	48	3	r = 20.066 Rs (1210561 km)
S79	195	**SATURN**	**Segment**	2013-209T11:09	Jul28	Sun	2	46	5	SATURN_195_196 (17d)
S79	195	**OTM-356**	195TI+4d	2013-211T01:53	Jul30	Tue	4	44	7	D/L Start, burn ~6h later. Backup D/L 212T01:53; complexes C/C
S79	196	**Apoapse**		2013-217T16:38	Aug05	Mon	10	38	7	Per = 23.9 d, inc = 53.4 deg, r = 34.602 Rs, phase = 152 deg
S79	196	**OTM-357**	~Apo	2013-219T01:22	Aug07	Wed	12	36	8	D/L Start, burn ~6h later. Backup D/L 220T01:22; complexes C/C
S79	196	**Earth OCC**	RING	2013-220T16:08	Aug08	Thu	13	35	2	Egress = 2013-220T22:19 (371 min)
S79	196	Ring CRX	Ascending	2013-223T00:04	Aug11	Sun	16	32	4	r = 30.033 Rs (1811892 km)
S80	196	**S80 Begins**		2013-226T09:51	Aug14	Wed	19	29	7	S80 Sequence. Duration = 70 d
S80	196	**XD**	**Segment**	2013-226T09:51	Aug14	Wed	19	29	7	XD_196_197 (28d)
S80	196	Periapse		2013-229T15:35	Aug17	Sat	22	26	11	R = 18.474 Rs, lat = 38 deg, phase = 28 deg
S80	196	Ring CRX	Descending	2013-231T09:58	Aug19	Mon	24	24	12	r = 20.105 Rs (1212908 km)
S80	197	**Apoapse**		2013-241T14:49	Aug29	Thu	34	14	23	Per = 23.9 d, inc = 53.4 deg, r = 34.610 Rs, phase = 152 deg
S80	197	**Earth OCC**	SATURN	2013-244T10:47	Sep01	Sun	37	11	25	Egress = 2013-244T19:00 (493 min)
S80	197	**Earth OCC**	RING	2013-244T11:34	Sep01	Sun	37	11	25	Egress = 2013-244T19:37 (483 min)
S80	197	Ring CRX	Ascending	2013-246T22:11	Sep03	Tue	39	8	28	r = 30.063 Rs (1813674 km)
S80	197	197TI (nt)	**TITAN**	2013-247T21:26	Sep04	Wed	40	7	29	Inbound 531399.1 km flyby, v = 4.7 km/s, phase = 126 deg
S80	197	**OTM-358**	197TI-3d	2013-251T23:18	Sep08	Sun	44	3	33	D/L Start, burn ~6h later. Backup D/L 252T23:18; complexes C/C
S80	197	Periapse		2013-253T13:48	Sep10	Tue	46	2	2	R = 18.469 Rs, lat = 37 deg, phase = 28 deg
S80	197	**TOST**	**Segment**	2013-254T08:03	Sep11	Wed	47	1	2	TOST_197 (3d); T94 flyby
S80	197	**197TI (t) T94**	**TITAN**	2013-255T07:44	Sep12	Thu	48	32	3	Outbound 1400.0 km flyby, v = 5.8 km/s, phase = 21 deg
S80	197	Ring CRX	Descending	2013-255T08:01	Sep12	Thu	0	32	3	r = 20.087 Rs (1211871 km)
S80	197	**XD**	**Segment**	2013-257T08:03	Sep14	Sat	2	30	5	XD_197_198 (28d)
S80	197	**OTM-359**	197TI+4d	2013-258T22:47	Sep15	Sun	4	28	7	D/L Start, burn ~6h later. Backup D/L 259T22:47; complexes C/C
S80	198	**Apoapse**		2013-270T15:02	Sep27	Fri	15	17	12	Per = 31.9 d, inc = 51.9 deg, r = 44.472 Rs, phase = 173 deg
S80	198	**OTM-360**	~Apo	2013-272T22:01	Sep29	Sun	18	14	14	D/L Start, burn ~6h later. Backup D/L 273T22:01; complexes C/C
S80	198	Ring CRX	Ascending	2013-273T19:22	Sep30	Mon	18	13	1	r = 43.208 Rs (2606741 km)
S80	198	**OTM-361**	198TI-3d	2013-283T21:15	Oct10	Thu	29	3	11	D/L Start, burn ~6h later. Backup D/L 284T21:15; complexes C/C
S80	198	**TOST**	**Segment**	2013-285T06:15	Oct12	Sat	30	2	1	TOST_198 (4d); T95 flyby
S80	198	Periapse		2013-286T13:40	Oct13	Sun	31	1	3	R = 19.819 Rs, lat = 14 deg, phase = 7 deg
S80	198	**198TI (t) T95**	**TITAN**	2013-287T04:56	Oct14	Mon	32	48	3	Outbound 961.0 km flyby, v = 5.9 km/s, phase = 25 deg
S80	198	Ring CRX	Descending	2013-287T05:11	Oct14	Mon	0	48	3	r = 20.069 Rs (1210774 km)
S80	198	**XD**	**Segment**	2013-289T16:00	Oct16	Wed	2	45	6	XD_198 (6d)
S80	198	**OTM-362**	198TI+3d	2013-290T07:15	Oct17	Thu	3	45	6	D/L Start, burn ~6h later. Backup D/L 291T07:15; complexes M/M
S81	198	**S81 Begins**		2013-295T23:15	Oct22	Tue	9	39	6	S81 Sequence. Duration = 66 d
S81	198	**XD**	**Segment**	2013-295T23:15	Oct22	Tue	9	39	6	XD_198_199 (37d)
S81	198	**OTM-363**	~Apo	2013-306T06:15	Nov02	Sat	19	29	16	D/L Start, burn ~6h later. Backup D/L 307T06:14; complexes M/M
S81	198	SEP = 3.0 deg	Conjunction	2013-308T03:22	Nov04	Mon	21	27	2	Commanding must not be required below 3.0 deg
S81	198	Ring CRX	Ascending	2013-309T19:00	Nov05	Tue	23	25	4	r = 64.016 Rs (3862092 km)
S81	199	**Apoapse**		2013-311T06:31	Nov07	Thu	24	24	5	Per = 47.9 d, inc = 49.7 deg, r = 64.196 Rs, phase = 155 deg
S81	199	SEP = 3.0 deg	Conjunction	2013-312T20:15	Nov08	Fri	26	22	7	Commanding must not be required below 3.0 deg
S81	199	**OTM-364**	199TI-3d	2013-331T18:45	Nov27	Wed	45	3	26	D/L Start, burn ~6h later. Backup D/L 332T18:45; complexes C/C
S81	199	**TOST**	**Segment**	2013-333T03:45	Nov29	Fri	46	2	1	TOST_199 (3d); T96 flyby
S81	199	**199TI (t) T96**	**TITAN**	2013-335T00:41	Dec01	Sun	48	32	3	Inbound 1400.0 km flyby, v = 5.8 km/s, phase = 50 deg
S81	199	Ring CRX	Descending	2013-335T00:51	Dec01	Sun	0	32	3	r = 20.064 Rs (1210433 km)
S81	199	Periapse		2013-335T22:43	Dec01	Sun	1	31	4	R = 19.523 Rs, lat = -19 deg, phase = 46 deg
S81	199	**XD**	**Segment**	2013-336T07:15	Dec02	Mon	1	31	5	XD_199_200 (26d)
S81	199	**OTM-365**	199TI+4d	2013-338T12:01	Dec04	Wed	3	28	7	D/L Start, burn ~6h later. Backup D/L 339T11:46; complexes G/G

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S81	199	Ring CRX	Ascending	2013-347T08:41	Dec13	Fri	12	20	9	r = 42.176 Rs (2544492 km)
S81	199	OTM-366	~Apo	2013-351T17:32	Dec17	Tue	17	15	13	D/L Start, burn ~6h later. Backup D/L 352T17:32; complexes C/C
S81	200	Apoapse		2013-351T21:24	Dec17	Tue	17	15	0	Per = 31.9 d, inc = 51.3 deg, r = 44.775 Rs, phase = 134 deg
S82	200	S82 Begins		2013-362T01:47	Dec28	Sat	27	5	10	S82 Sequence. Duration = 76 d
S82	200	XD	Segment	2013-362T01:47	Dec28	Sat	27	5	10	XD_200 (3d)
S82	200	OTM-367	200TI-3d	2013-363T16:48	Dec29	Sun	29	3	12	D/L Start, burn ~6h later. Backup D/L 364T16:48; complexes C/C
S82	200	TOST	Segment	2013-365T01:48	Dec31	Tue	30	2	1	TOST_200 (3d); T97 flyby
S82	200	200TI (t) T97	TITAN	2014-001T22:00	Jan01	Wed	32	32	3	Inbound 1400.0 km flyby, v = 5.8 km/s, phase = 35 deg
S82	200	Ring CRX	Descending	2014-001T22:10	Jan01	Wed	0	32	3	r = 20.064 Rs (1210451 km)
S82	200	XD	Segment	2014-003T05:48	Jan03	Fri	1	31	5	XD_200_201 (29d)
S82	200	Periapse		2014-003T11:34	Jan03	Fri	2	30	5	R = 18.176 Rs, lat = -34 deg, phase = 66 deg
S82	200	OTM-368	200TI+4d	2014-005T10:03	Jan05	Sun	4	28	7	D/L Start, burn ~6h later. Backup D/L 006T10:03; complexes G/G
S82	200	200TI (nt)	TITAN	2014-009T10:02	Jan09	Thu	8	24	4	Outbound 810301.4 km flyby, v = 4.3 km/s, phase = 169 deg
S82	200	Ring CRX	Ascending	2014-011T07:04	Jan11	Sat	9	23	6	r = 37.259 Rs (2247838 km)
S82	201	Apoapse		2014-019T10:10	Jan19	Sun	18	14	14	Per = 31.9 d, inc = 50.1 deg, r = 46.121 Rs, phase = 114 deg
S82	201	OTM-369	~Apo	2014-025T08:51	Jan25	Sat	23	8	20	D/L Start, burn ~6h later. Backup D/L 026T08:51; complexes G/G
S82	201	OTM-370	201TI-3d	2014-030T14:51	Jan30	Thu	29	3	5	D/L Start, burn ~6h later. Backup D/L 031T14:51; complexes C/C
S82	201	TOST	Segment	2014-031T23:51	Jan31	Fri	30	2	1	TOST_201 (3d); T98 flyby
S82	201	201TI (t) T98	TITAN	2014-033T19:13	Feb02	Sun	32	32	3	Inbound 1235.7 km flyby, v = 5.9 km/s, phase = 44 deg
S82	201	Ring CRX	Descending	2014-033T19:22	Feb02	Sun	0	32	3	r = 20.051 Rs (1209668 km)
S82	201	RINGS	Segment	2014-035T03:52	Feb04	Tue	1	31	5	RINGS_201 (3d)
S82	201	Periapse		2014-035T18:12	Feb04	Tue	2	30	5	R = 16.244 Rs, lat = -42 deg, phase = 83 deg
S82	201	OTM-371	201TI+3d	2014-036T08:07	Feb05	Wed	3	29	6	D/L Start, burn ~6h later. Backup D/L 037T08:07; complexes G/G
S82	201	XD	Segment	2014-037T17:07	Feb06	Thu	4	28	1	XD_201_202 (27d)
S82	201	Ring CRX	Ascending	2014-040T19:03	Feb09	Sun	7	25	4	r = 30.801 Rs (1858206 km)
S82	201	201TI (nt)	TITAN	2014-041T13:05	Feb10	Mon	8	24	5	Outbound 887333.8 km flyby, v = 4.1 km/s, phase = 134 deg
S82	201	OTM-372	~Apo	2014-048T07:24	Feb17	Mon	15	17	12	D/L Start, burn ~6h later. Backup D/L 049T07:24; complexes G/G
S82	202	Apoapse		2014-051T16:45	Feb20	Thu	18	14	3	Per = 31.9 d, inc = 48.1 deg, r = 48.048 Rs, phase = 97 deg
S82	202	OTM-373	202TI-3d	2014-062T12:56	Mar03	Mon	29	3	14	D/L Start, burn ~6h later. Backup D/L 063T12:56; complexes C/C
S82	202	TOST	Segment	2014-064T21:56	Mar05	Wed	31	1	2	TOST_202 (2d); T99 flyby
S82	202	202TI (t) T99	TITAN	2014-065T16:27	Mar06	Thu	32	32	3	Inbound 1500.0 km flyby, v = 5.8 km/s, phase = 53 deg
S82	202	Ring CRX	Descending	2014-065T16:34	Mar06	Thu	0	32	3	r = 20.047 Rs (1209434 km)
S82	202	RINGS	Segment	2014-066T21:41	Mar07	Fri	1	31	4	RINGS_202 (3d)
S82	202	Periapse		2014-067T19:26	Mar08	Sat	2	30	5	R = 14.241 Rs, lat = -44 deg, phase = 96 deg
S82	202	OTM-374	202TI+4d	2014-069T06:12	Mar10	Mon	4	28	7	D/L Start, burn ~6h later. Backup D/L 070T06:12; complexes G/G
S82	202	SATURN	Segment	2014-069T15:12	Mar10	Mon	4	28	0	SATURN_202 (3d)
S82	202	Ring CRX	Ascending	2014-071T01:27	Mar12	Wed	5	27	2	r = 24.817 Rs (1497195 km)
S83	202	S83 Begins		2014-072T21:12	Mar13	Thu	7	25	4	S83 Sequence. Duration = 72 d
S83	202	SATURN	Segment	2014-072T21:12	Mar13	Thu	7	25	4	SATURN_202_203 (24d)
S83	202	OTM-375	~Apo	2014-079T05:28	Mar20	Thu	14	18	10	D/L Start, burn ~6h later. Backup D/L 080T05:28; complexes G/G
S83	203	Apoapse		2014-083T18:02	Mar24	Mon	18	14	5	Per = 31.9 d, inc = 45.5 deg, r = 50.058 Rs, phase = 84 deg
S83	203	OTM-376	203TI-3d	2014-094T04:29	Apr04	Fri	29	3	15	D/L Start, burn ~6h later. Backup D/L 095T04:30; complexes G/G
S83	203	TOST	Segment	2014-096T19:45	Apr06	Sun	31	1	3	TOST_203 (2d); T100 flyby
S83	203	203TI (t) T100	TITAN	2014-097T13:41	Apr07	Mon	32	40	3	Inbound 963.0 km flyby, v = 5.9 km/s, phase = 60 deg
S83	203	Ring CRX	Descending	2014-097T13:50	Apr07	Mon	0	40	3	r = 20.025 Rs (1208100 km)
S83	203	SATURN	Segment	2014-098T23:15	Apr08	Tue	1	39	5	SATURN_203 (3d)
S83	203	Periapse		2014-099T16:06	Apr09	Wed	2	38	5	R = 12.373 Rs, lat = -41 deg, phase = 104 deg
S83	203	OTM-377	203TI+4d	2014-101T04:00	Apr11	Fri	4	37	7	D/L Start, burn ~6h later. Backup D/L 102T04:00; complexes G/G
S83	203	XD	Segment	2014-101T13:00	Apr11	Fri	4	36	0	XD_203_204 (32d)
S83	203	Ring CRX	Ascending	2014-101T21:26	Apr11	Fri	4	36	1	r = 20.664 Rs (1246655 km)
S83	203	OTM-378	~Apo	2014-114T03:01	Apr24	Thu	17	24	13	D/L Start, burn ~6h later. Backup D/L 115T03:01; complexes G/G
S83	204	Apoapse		2014-117T13:47	Apr27	Sun	20	20	3	Per = 35.8 d, inc = 40.7 deg, r = 57.089 Rs, phase = 77 deg
S83	204	Ring CRX	Descending	2014-133T09:12	May13	Tue	36	4	19	r = 20.018 Rs (1207676 km)
S83	204	MAPS	Segment	2014-133T10:46	May13	Tue	36	4	19	MAPS_204A (3d)
S83	204	OTM-379	204TI-3d	2014-134T01:46	May14	Wed	37	4	20	D/L Start, burn ~6h later. Backup D/L 135T01:31; complexes G/G
S83	204	Periapse		2014-135T11:30	May15	Thu	38	2	1	R = 12.375 Rs, lat = -41 deg, phase = 103 deg
S83	204	TOST	Segment	2014-136T17:01	May16	Fri	39	1	3	TOST_204 (3d); T101 flyby
S83	204	Earth OCC	TITAN	2014-137T16:10	May17	Sat	40	0	4	Egress = 2014-137T16:26 (16 min)
S83	204	Sun OCC	TITAN	2014-137T16:10	May17	Sat	40	0	4	Egress = 2014-137T16:26 (16 min)
S83	204	204TI (t) T101	TITAN	2014-137T16:12	May17	Sat	40	32	4	Outbound 2993.8 km flyby, v = 5.7 km/s, phase = 158 deg
S83	204	Ring CRX	Ascending	2014-137T16:44	May17	Sat	0	32	4	r = 20.651 Rs (1245854 km)
S83	204	MAPS	Segment	2014-139T16:46	May19	Mon	2	30	6	MAPS_204B (5d)
S83	204	OTM-380	204TI+4d	2014-141T01:16	May21	Wed	3	29	7	D/L Start, burn ~6h later. Backup D/L 142T01:16; complexes G/G
S84	204	S84 Begins		2014-144T10:01	May24	Sat	7	25	3	S84 Sequence. Duration = 68 d
S84	204	MAPS	Segment	2014-144T10:01	May24	Sat	7	25	3	MAPS_204_205 (24d)
S84	205	Apoapse		2014-151T08:37	May31	Sat	14	18	10	Per = 31.9 d, inc = 44.3 deg, r = 50.833 Rs, phase = 72 deg
S84	205	OTM-381	~Apo	2014-154T00:15	Jun03	Tue	16	16	13	D/L Start, burn ~6h later. Backup D/L 155T00:15; complexes G/G
S84	205	Ring CRX	Descending	2014-164T17:28	Jun13	Fri	27	5	11	r = 21.969 Rs (1325393 km)
S84	205	OTM-382	205TI-3d	2014-166T05:44	Jun15	Sun	29	3	12	D/L Start, burn ~6h later. Backup D/L 167T05:44; complexes C/C
S84	205	Periapse		2014-167T07:15	Jun16	Mon	30	2	1	R = 13.470 Rs, lat = -44 deg, phase = 108 deg
S84	205	TOST	Segment	2014-168T14:44	Jun17	Tue	31	1	2	TOST_205 (2d); T102 flyby
S84	205	Earth OCC	TITAN	2014-169T13:25	Jun18	Wed	32	0	3	Egress = 2014-169T13:42 (17 min)
S84	205	Sun OCC	TITAN	2014-169T13:25	Jun18	Wed	32	0	3	Egress = 2014-169T13:41 (17 min)
S84	205	205TI (t) T102	TITAN	2014-169T13:28	Jun18	Wed	32	32	3	Outbound 3658.6 km flyby, v = 5.6 km/s, phase = 165 deg
S84	205	Ring CRX	Ascending	2014-169T13:59	Jun18	Wed	0	32	3	r = 20.649 Rs (1245770 km)
S84	205	XD	Segment	2014-170T14:29	Jun19	Thu	1	31	4	XD_205_206 (27d)
S84	205	OTM-383	205TI+4d	2014-172T22:59	Jun21	Sat	3	28	7	D/L Start, burn ~6h later. Backup D/L 173T22:59; complexes G/G
S84	206	Apoapse		2014-183T06:52	Jul02	Wed	14	18	10	Per = 31.9 d, inc = 46.5 deg, r = 49.380 Rs, phase = 64 deg
S84	206	OTM-384	~Apo	2014-185T21:58	Jul04	Fri	16	16	13	D/L Start, burn ~6h later. Backup D/L 186T21:58; complexes G/G
S84	206	Ring CRX	Descending	2014-195T17:19	Jul14	Mon	26	6	10	r = 25.715 Rs (1551415 km)
S84	206	RINGS	Segment	2014-197T12:41	Jul16	Wed	28	4	12	RINGS_206 (3d)
S84	206	OTM-385	206TI-3d	2014-198T03:40	Jul17	Thu	29	3	12	D/L Start, burn ~6h later. Backup D/L 199T03:40; complexes C/C
S84	206	Periapse		2014-199T05:26	Jul18	Fri	30	2	1	R = 14.921 Rs, lat = -45 deg, phase = 116 deg
S84	206	TOST	Segment	2014-200T12:26	Jul19	Sat	31	1	2	TOST_206 (4d); T103 flyby
S84	206	Sun OCC	TITAN	2014-201T10:36	Jul20	Sun	32	0	3	Egress = 2014-201T10:52 (17 min)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S84	206	Earth OCC	TITAN	2014-201T10:37	Jul20	Sun	32	0	3	Egress = 2014-201T10:54 (17 min)
S84	206	206TI (t) T103	TITAN	2014-201T10:41	Jul20	Sun	32	32	3	Outbound 5103.2 km flyby, v = 5.6 km/s, phase = 171 deg
S84	206	Ring CRX	Ascending	2014-201T11:11	Jul20	Sun	0	32	3	r = 20.664 Rs (1246661 km)
S84	206	XD	Segment	2014-204T05:40	Jul23	Wed	3	29	6	XD_206 (8d)
S84	206	OTM-386	206TI+4d	2014-204T20:40	Jul23	Wed	3	28	7	D/L Start, burn ~6h later. Backup D/L 205T20:40; complexes G/G
S85	206	S85 Begins		2014-212T05:09	Jul31	Thu	11	21	7	S85 Sequence. Duration = 67 d
S85	206	XD	Segment	2014-212T05:09	Jul31	Thu	11	21	7	XD_206_207 (17d)
S85	207	Apoapse		2014-215T06:57	Aug03	Sun	14	18	10	Per = 31.9 d, inc = 48.0 deg, r = 48.279 Rs, phase = 56 deg
S85	207	OTM-387	~Apo	2014-221T02:08	Aug09	Sat	20	12	16	D/L Start, burn ~6h later. Backup D/L 222T02:08; complexes C/C
S85	207	207TI (nt)	TITAN	2014-225T12:08	Aug13	Wed	24	8	4	Inbound 959146.3 km flyby, v = 4.2 km/s, phase = 34 deg
S85	207	Ring CRX	Descending	2014-226T18:38	Aug14	Thu	25	7	6	r = 28.972 Rs (1747860 km)
S85	207	SATURN	Segment	2014-229T10:37	Aug17	Sun	28	4	8	SATURN_207 (3d)
S85	207	OTM-388	207TI-3d	2014-230T01:37	Aug18	Mon	29	3	9	D/L Start, burn ~6h later. Backup D/L 231T01:37; complexes C/C
S85	207	Periapse		2014-231T05:47	Aug19	Tue	30	2	1	R = 15.940 Rs, lat = -44 deg, phase = 123 deg
S85	207	TOST	Segment	2014-232T10:21	Aug20	Wed	31	1	2	TOST_207 (2d); T104 flyby
S85	207	207TI (t) T104	TITAN	2014-233T08:09	Aug21	Thu	32	32	3	Outbound 964.0 km flyby, v = 5.8 km/s, phase = 12 deg
S85	207	Ring CRX	Ascending	2014-233T08:18	Aug21	Thu	0	32	3	r = 20.455 Rs (1234035 km)
S85	207	SATURN	Segment	2014-234T13:21	Aug22	Fri	1	31	4	SATURN_207_208 (27d)
S85	207	OTM-389	207TI+4d	2014-237T01:06	Aug25	Mon	4	28	7	D/L Start, burn ~6h later. Backup D/L 238T01:06; complexes C/C
S85	208	Apoapse		2014-247T01:17	Sep04	Thu	14	18	10	Per = 31.9 d, inc = 44.6 deg, r = 50.809 Rs, phase = 73 deg
S85	208	OTM-390	~Apo	2014-250T00:19	Sep07	Sun	17	15	13	D/L Start, burn ~6h later. Backup D/L 251T00:19; complexes C/C
S85	208	Ring CRX	Descending	2014-260T08:33	Sep17	Wed	27	5	10	r = 22.262 Rs (1343096 km)
S85	208	RINGS	Segment	2014-261T08:18	Sep18	Thu	28	4	11	RINGS_208 (3d)
S85	208	OTM-391	208TI-3d	2014-261T23:33	Sep18	Thu	29	3	12	D/L Start, burn ~6h later. Backup D/L 262T23:33; complexes C/C
S85	208	Periapse		2014-262T23:53	Sep19	Fri	30	2	1	R = 13.483 Rs, lat = -44 deg, phase = 107 deg
S85	208	TOST	Segment	2014-264T08:17	Sep21	Sun	31	1	2	TOST_208 (4d); T105 flyby
S85	208	208TI (t) T105	TITAN	2014-265T05:23	Sep22	Mon	32	32	3	Outbound 1400.0 km flyby, v = 5.8 km/s, phase = 21 deg
S85	208	Ring CRX	Ascending	2014-265T05:30	Sep22	Mon	0	32	3	r = 20.455 Rs (1234028 km)
S85	208	XD	Segment	2014-268T08:02	Sep25	Thu	3	29	6	XD_208_209 (11d)
S85	208	OTM-392	208TI+4d	2014-268T23:02	Sep25	Thu	4	28	7	D/L Start, burn ~6h later. Backup D/L 269T23:02; complexes C/C
S85	209	Apoapse		2014-278T22:43	Oct05	Sun	14	18	10	Per = 31.9 d, inc = 40.3 deg, r = 52.920 Rs, phase = 86 deg
S86	209	S86 Begins		2014-279T01:01	Oct06	Mon	14	18	10	S86 Sequence. Duration = 72 d
S86	209	XD	Segment	2014-279T01:01	Oct06	Mon	14	18	10	XD_209 (14d)
S86	209	OTM-393	~Apo	2014-281T22:16	Oct08	Wed	17	15	13	D/L Start, burn ~6h later. Backup D/L 282T22:16; complexes C/C
S86	209	Ring CRX	Descending	2014-293T06:10	Oct20	Mon	28	4	11	r = 17.280 Rs (1042503 km)
S86	209	SATURN	Segment	2014-293T06:30	Oct20	Mon	28	4	11	SATURN_209 (3d)
S86	209	OTM-394	209TI-3d	2014-293T21:30	Oct20	Mon	29	3	12	D/L Start, burn ~6h later. Backup D/L 294T21:30; complexes C/C
S86	209	Periapse		2014-294T21:22	Oct21	Tue	30	2	1	R = 11.387 Rs, lat = -40 deg, phase = 94 deg
S86	209	TOST	Segment	2014-296T06:15	Oct23	Thu	31	1	2	TOST_209 (3d); T106 flyby
S86	209	209TI (t) T106	TITAN	2014-297T02:41	Oct24	Fri	32	48	3	Outbound 1013.0 km flyby, v = 5.8 km/s, phase = 31 deg
S86	209	Ring CRX	Ascending	2014-297T02:51	Oct24	Fri	0	48	3	r = 20.488 Rs (1236033 km)
S86	209	XD	Segment	2014-299T06:00	Oct26	Sun	2	46	5	XD_209_210 (42d)
S86	209	OTM-395	209TI+4d	2014-300T14:44	Oct27	Mon	4	44	7	D/L Start, burn ~6h later. Backup D/L 301T14:44; complexes G/G
S86	210	Apoapse		2014-318T23:04	Nov14	Fri	22	26	18	Per = 47.8 d, inc = 33.1 deg, r = 73.341 Rs, phase = 88 deg
S86	210	SEP = 3.0 deg	Conjunction	2014-320T00:04	Nov16	Sun	23	25	19	Commanding must not be required below 3.0 deg
S86	210	SEP = 3.0 deg	Conjunction	2014-324T23:46	Nov20	Thu	28	20	24	Commanding must not be required below 3.0 deg
S86	210	OTM-396	~Apo	2014-325T19:44	Nov21	Fri	29	19	25	D/L Start, burn ~6h later. Backup D/L 326T19:44; complexes C/C
S86	210	MAPS	Segment	2014-340T21:29	Dec06	Sat	44	4	15	MAPS_210 (3d)
S86	210	Ring CRX	Descending	2014-341T06:38	Dec07	Sun	44	4	15	r = 17.701 Rs (1067885 km)
S86	210	OTM-397	210TI-3d	2014-341T12:30	Dec07	Sun	44	3	16	D/L Start, burn ~6h later. Backup D/L 342T12:30; complexes G/G
S86	210	Periapse		2014-342T21:09	Dec08	Mon	46	2	1	R = 10.909 Rs, lat = -33 deg, phase = 92 deg
S86	210	TOST	Segment	2014-344T03:30	Dec10	Wed	47	1	3	TOST_210 (2d); T107 flyby
S86	210	210TI (t) T107	TITAN	2014-344T22:27	Dec10	Wed	48	32	3	Outbound 980.0 km flyby, v = 5.8 km/s, phase = 56 deg
S86	210	Ring CRX	Ascending	2014-344T22:35	Dec10	Wed	0	32	3	r = 20.504 Rs (1236988 km)
S86	210	XD	Segment	2014-346T05:00	Dec12	Fri	1	31	5	XD_210 (5d)
S86	210	OTM-398	210TI+3d	2014-347T18:15	Dec13	Sat	3	29	6	D/L Start, burn ~6h later. Backup D/L 348T18:15; complexes C/C
S87	210	S87 Begins		2014-351T03:15	Dec17	Wed	6	26	3	S87 Sequence. Duration = 67 d
S87	210	XD	Segment	2014-351T03:15	Dec17	Wed	6	26	3	XD_210_211 (22d)
S87	211	Apoapse		2014-358T19:16	Dec24	Wed	14	18	11	Per = 31.9 d, inc = 28.6 deg, r = 56.152 Rs, phase = 107 deg
S87	211	OTM-399	~Apo	2014-363T17:31	Dec29	Mon	19	13	16	D/L Start, burn ~6h later. Backup D/L 364T17:31; complexes C/C
S87	211	RINGS	Segment	2015-008T01:47	Jan08	Thu	28	4	9	RINGS_211 (3d)
S87	211	OTM-400	211TI-3d	2015-008T16:47	Jan08	Thu	29	3	10	D/L Start, burn ~6h later. Backup D/L 009T16:47; complexes C/C
S87	211	Ring CRX	Descending	2015-009T01:16	Jan09	Fri	29	3	0	r = 10.907 Rs (658004 km)
S87	211	Periapse		2015-009T17:55	Jan09	Fri	30	2	1	R = 8.152 Rs, lat = -26 deg, phase = 72 deg
S87	211	TOST	Segment	2015-011T01:47	Jan11	Sun	31	1	2	TOST_211 (3d); T108 flyby
S87	211	211TI (t) T108	TITAN	2015-011T19:49	Jan11	Sun	32	32	3	Outbound 970.0 km flyby, v = 5.8 km/s, phase = 46 deg
S87	211	Ring CRX	Ascending	2015-011T19:57	Jan11	Sun	0	32	3	r = 20.504 Rs (1236995 km)
S87	211	XD	Segment	2015-014T01:32	Jan14	Wed	2	30	5	XD_211_212 (26d)
S87	211	OTM-401	211TI+3d	2015-014T16:32	Jan14	Wed	3	29	6	D/L Start, burn ~6h later. Backup D/L 015T16:32; complexes C/C
S87	212	Apoapse		2015-025T18:42	Jan25	Sun	14	18	11	Per = 31.9 d, inc = 19.1 deg, r = 57.412 Rs, phase = 118 deg
S87	212	OTM-402	~Apo	2015-031T15:34	Jan31	Sat	20	12	17	D/L Start, burn ~6h later. Backup D/L 032T15:34; complexes C/C
S87	212	SATURN	Segment	2015-040T00:06	Feb09	Mon	28	4	8	SATURN_212 (3d)
S87	212	OTM-403	212TI-3d	2015-040T15:06	Feb09	Mon	29	3	9	D/L Start, burn ~6h later. Backup D/L 041T15:06; complexes C/C
S87	212	Ring CRX	Descending	2015-041T06:10	Feb10	Tue	29	2	1	r = 8.783 Rs (529875 km)
S87	212	212RH (nt)	RHEA	2015-041T06:46	Feb10	Tue	29	2	1	Inbound 46935.5 km flyby, v = 5.3 km/s, phase = 108 deg
S87	212	Periapse		2015-041T17:17	Feb10	Tue	30	2	1	R = 6.887 Rs, lat = -16 deg, phase = 62 deg
S87	212	TOST	Segment	2015-042T23:51	Feb11	Wed	31	1	2	TOST_212 (2d); T109 flyby
S87	212	212TI (t) T109	TITAN	2015-043T17:08	Feb12	Thu	32	32	3	Outbound 1200.0 km flyby, v = 5.8 km/s, phase = 55 deg
S87	212	Ring CRX	Ascending	2015-043T17:17	Feb12	Thu	0	32	3	r = 20.518 Rs (1237845 km)
S87	212	XD	Segment	2015-045T03:51	Feb14	Sat	1	30	5	XD_212 (8d)
S87	212	OTM-404	212TI+3d	2015-046T14:36	Feb15	Sun	3	29	6	D/L Start, burn ~6h later. Backup D/L 047T14:36; complexes C/C
S88	212	S88 Begins		2015-052T16:52	Feb21	Sat	9	23	6	S88 Sequence. Duration = 69 d
S88	212	XD	Segment	2015-052T16:52	Feb21	Sat	9	23	6	XD_212_213 (19d)
S88	213	Apoapse		2015-057T17:15	Feb26	Thu	14	18	11	Per = 31.9 d, inc = 8.5 deg, r = 58.094 Rs, phase = 126 deg
S88	213	OTM-405	~Apo	2015-063T13:39	Mar04	Wed	20	12	17	D/L Start, burn ~6h later. Backup D/L 064T13:39; complexes C/C

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S88	213	**RINGS**	**Segment**	2015-071T22:10	Mar12	Thu	28	4	8	RINGS_213 (3d)
S88	213	**OTM-406**	213TI-3d	2015-072T13:10	Mar13	Fri	29	3	9	D/L Start, burn ~6h later. Backup D/L 073T14:40; complexes C/C
S88	213	Ring CRX	Descending	2015-073T07:05	Mar14	Sat	30	2	1	r = 7.721 Rs (465790 km)
S88	213	213HE (nt)	**HELENE**	2015-073T11:09	Mar14	Sat	30	2	1	Inbound 58238.0 km flyby, v = 5.4 km/s, phase = 80 deg
S88	213	213CA (nt)	**CALYPSO**	2015-073T15:28	Mar14	Sat	30	2	1	Inbound 101443.0 km flyby, v = 3.3 km/s, phase = 84 deg
S88	213	Periapse		2015-073T15:49	Mar14	Sat	30	2	1	R = 6.201 Rs, lat = -7 deg, phase = 54 deg
S88	213	**TOST**	**Segment**	2015-074T21:55	Mar15	Sun	31	1	2	TOST_213 (2d); T110 flyby
S88	213	Ring CRX	Ascending	2015-075T14:12	Mar16	Mon	32	0	3	r = 20.395 Rs (1230406 km)
S88	213	**213TI (t) T110**	**TITAN**	2015-075T14:30	Mar16	Mon	32	52	3	Outbound 2274.5 km flyby, v = 5.7 km/s, phase = 70 deg
S88	213	Ring CRX	Descending	2015-076T04:06	Mar17	Tue	1	52	4	r = 24.326 Rs (1467588 km)
S88	213	**XD**	**Segment**	2015-077T02:10	Mar18	Wed	1	51	5	XD_213_214 (24d)
S88	213	**OTM-407**	213TI+3d	2015-078T12:41	Mar19	Thu	3	49	6	D/L Start, burn ~6h later. Backup D/L 079T12:41; complexes C/C
S88	214	**Apoapse**		2015-087T16:41	Mar28	Sat	12	40	9	Per = 28.0 d, inc = 0.3 deg, r = 53.437 Rs, phase = 134 deg
S88	214	**SOST**	**Segment**	2015-100T20:13	Apr10	Fri	25	27	22	SOST_214 (2d); non-targ flyby
S88	214	Ring CRX	Ascending	2015-101T11:50	Apr11	Sat	26	26	23	r = 6.331 Rs (381971 km)
S88	214	Periapse		2015-101T17:09	Apr11	Sat	26	26	23	R = 5.582 Rs, lat = 0 deg, phase = 45 deg
S88	214	214TI (nt)	**TITAN**	2015-101T17:55	Apr11	Sat	26	26	23	Outbound 899020.7 km flyby, v = 8.8 km/s, phase = 132 deg
S88	214	214TE (nt)	**TETHYS**	2015-101T17:58	Apr11	Sat	26	26	23	Outbound 52862.9 km flyby, v = 3.5 km/s, phase = 32 deg
S88	214	214DI (nt)	**DIONE**	2015-101T23:22	Apr11	Sat	26	26	23	Outbound 110133.2 km flyby, v = 8.0 km/s, phase = 28 deg
S88	214	**XD**	**Segment**	2015-102T20:13	Apr12	Sun	27	25	24	XD_214_215 (19d)
S88	214	Ring CRX	Descending	2015-104T07:50	Apr14	Tue	29	24	26	r = 25.008 Rs (1508710 km)
S88	214	**OTM-408**	~Apo	2015-110T10:29	Apr20	Mon	35	18	32	D/L Start, burn ~6h later. Backup D/L 111T10:29; complexes C/C
S88	215	**Apoapse**		2015-115T17:46	Apr25	Sat	40	12	5	Per = 28.1 d, inc = 0.3 deg, r = 53.454 Rs, phase = 135 deg
S89	215	**S89 Begins**		2015-121T18:45	May01	Fri	46	6	11	S89 Sequence. Duration = 73 d
S89	215	**XD**	**Segment**	2015-121T18:45	May01	Fri	46	6	11	XD_215 (5d)
S89	215	**OTM-409**	215TI-3d	2015-124T09:30	May04	Mon	49	4	14	D/L Start, burn ~6h later. Backup D/L 125T09:30; complexes C/C
S89	215	**TOST**	**Segment**	2015-127T04:15	May07	Thu	52	1	3	TOST_T11 (2d); T111 flyby
S89	215	**215TI (t) T111**	**TITAN**	2015-127T22:50	May07	Thu	52	40	4	Inbound 2721.5 km flyby, v = 5.7 km/s, phase = 34 deg
S89	215	**SOST**	**Segment**	2015-129T08:15	May09	Sat	1	38	5	SOST_215 (2d); non-targ flyby
S89	215	Ring CRX	Ascending	2015-129T09:43	May09	Sat	1	38	5	r = 6.633 Rs (400195 km)
S89	215	215AE (nt)	**AEGAEON**	2015-129T16:51	May09	Sat	2	38	5	Inbound 92552.2 km flyby, v = 1.6 km/s, phase = 28 deg
S89	215	215DA (nt)	**DAPHNIS**	2015-129T17:24	May09	Sat	2	38	5	Inbound 113729.3 km flyby, v = 0.1 km/s, phase = 43 deg
S89	215	215TL (nt)	**TELESTO**	2015-129T17:53	May09	Sat	2	38	5	Inbound 46450.0 km flyby, v = 5.3 km/s, phase = 126 deg
S89	215	Periapse		2015-129T18:03	May09	Sat	2	38	5	R = 4.113 Rs, lat = 0 deg, phase = 55 deg
S89	215	215PO (nt)	**POLYDEUCES**	2015-130T01:12	May10	Sun	2	38	6	Outbound 33997.8 km flyby, v = 6.6 km/s, phase = 130 deg
S89	215	Ring CRX	Descending	2015-130T06:39	May10	Sun	2	38	6	r = 8.542 Rs (515320 km)
S89	215	**OTM-410**	215TI+4d	2015-131T09:00	May11	Mon	3	36	7	D/L Start, burn ~6h later. Backup D/L 132T09:00; complexes C/C
S89	215	**SATURN**	**Segment**	2015-131T18:00	May11	Mon	4	36	0	SATURN_215_216 (19d)
S89	216	**Apoapse**		2015-139T04:31	May19	Tue	11	29	8	Per = 18.9 d, inc = 0.3 deg, r = 41.198 Rs, phase = 125 deg
S89	216	Ring CRX	Ascending	2015-148T06:33	May28	Thu	20	20	17	r = 6.646 Rs (400945 km)
S89	216	216TI (nt)	**TITAN**	2015-148T10:24	May28	Thu	20	19	17	Inbound 942020.2 km flyby, v = 9.3 km/s, phase = 147 deg
S89	216	216TL (nt)	**TELESTO**	2015-148T14:09	May28	Thu	21	19	17	Inbound 44719.8 km flyby, v = 5.3 km/s, phase = 127 deg
S89	216	Periapse		2015-148T14:54	May28	Thu	21	19	17	R = 4.125 Rs, lat = 0 deg, phase = 55 deg
S89	216	Ring CRX	Descending	2015-149T03:34	May29	Fri	21	19	18	r = 8.575 Rs (517308 km)
S89	216	**XD**	**Segment**	2015-151T02:30	May31	Sun	23	17	20	XD_216_217 (16d)
S89	216	216HY (nt)	**HYPERION**	2015-151T13:36	May31	Sun	24	16	20	Outbound 34283.8 km flyby, v = 4.3 km/s, phase = 70 deg
S89	217	**Apoapse**		2015-158T01:49	Jun07	Sun	30	10	27	Per = 18.9 d, inc = 0.3 deg, r = 41.261 Rs, phase = 126 deg
S89	217	**OTM-411**	~Apo	2015-159T07:00	Jun08	Mon	31	9	28	D/L Start, burn ~6h later. Backup D/L 160T07:00; complexes C/C
S89	217	**OTM-412**	217DI-3d	2015-164T06:45	Jun13	Sat	36	4	5	D/L Start, burn ~6h later. Backup D/L 165T06:45; complexes C/C
S89	217	**SOST**	**Segment**	2015-166T15:30	Jun15	Mon	39	1	2	SOST_217 (3d); D4 flyby
S89	217	Ring CRX	Descending	2015-167T00:00	Jun17	Wed	0	20	4	r = 7.948 Rs (479482 km)
S89	217	Ring CRX	Ascending	2015-167T04:24	Jun16	Tue	39	1	3	r = 6.641 Rs (400625 km)
S89	217	217PO (nt)	**POLYDEUCES**	2015-167T05:25	Jun16	Tue	39	1	3	Inbound 34794.3 km flyby, v = 6.6 km/s, phase = 121 deg
S89	217	217ME (nt)	**METHONE**	2015-167T11:40	Jun16	Tue	40	0	3	Inbound 109537.0 km flyby, v = 5.3 km/s, phase = 26 deg
S89	217	217PN (nt)	**PAN**	2015-167T11:56	Jun16	Tue	40	0	3	Inbound 118209.3 km flyby, v = 0.3 km/s, phase = 41 deg
S89	217	217AT (nt)	**ATLAS**	2015-167T12:30	Jun16	Tue	40	0	3	Inbound 111239.8 km flyby, v = 0.0 km/s, phase = 50 deg
S89	217	Periapse		2015-167T12:44	Jun16	Tue	40	0	3	R = 4.124 Rs, lat = 0 deg, phase = 54 deg
S89	217	217JA (nt)	**JANUS**	2015-167T13:38	Jun16	Tue	40	0	3	Outbound 101447.6 km flyby, v = 0.8 km/s, phase = 72 deg
S89	217	217TL (nt)	**TELESTO**	2015-167T13:40	Jun16	Tue	40	0	3	Outbound 44151.9 km flyby, v = 5.3 km/s, phase = 127 deg
S89	217	217TI (nt)	**TITAN**	2015-167T18:23	Jun16	Tue	40	0	3	Outbound 957886.5 km flyby, v = 8.8 km/s, phase = 97 deg
S89	217	**217DI (t) D4**	**DIONE**	2015-167T20:12	Jun16	Tue	40	20	4	Outbound 515.9 km flyby, v = 7.3 km/s, phase = 58 deg
S89	217	**MAPS**	**Segment**	2015-169T15:29	Jun18	Thu	2	19	5	MAPS_217_218 (18d)
S89	217	**OTM-413**	217DI+4d	2015-171T06:14	Jun20	Sat	3	17	7	D/L Start, burn ~6h later. Backup D/L 172T06:14; complexes C/C
S89	218	**Apoapse**		2015-176T23:56	Jun25	Thu	9	11	6	Per = 18.9 d, inc = 0.4 deg, r = 41.309 Rs, phase = 126 deg
S89	218	**OTM-414**	~Apo	2015-177T05:44	Jun26	Fri	9	11	6	D/L Start, burn ~6h later. Backup D/L 178T05:44; complexes C/C
S89	218	**OTM-415**	218TI-3d	2015-185T05:13	Jul04	Sat	17	3	8	D/L Start, burn ~6h later. Backup D/L 186T05:13; complexes C/C
S89	218	Ring CRX	Ascending	2015-186T01:58	Jul05	Sun	18	2	1	r = 7.056 Rs (425680 km)
S89	218	Periapse		2015-186T11:14	Jul05	Sun	19	2	1	R = 4.112 Rs, lat = 0 deg, phase = 54 deg
S89	218	218PN (nt)	**PAN**	2015-186T11:47	Jul05	Sun	19	2	1	Outbound 115975.0 km flyby, v = 0.3 km/s, phase = 64 deg
S89	218	218TL (nt)	**TELESTO**	2015-186T14:53	Jul05	Sun	19	2	1	Outbound 14172.5 km flyby, v = 5.8 km/s, phase = 127 deg
S89	218	Ring CRX	Descending	2015-186T22:28	Jul05	Sun	19	1	2	r = 7.931 Rs (478460 km)
S89	218	**TOST**	**Segment**	2015-187T11:32	Jul06	Mon	20	1	2	TOST_T11 (2d); T112 flyby
S89	218	**218TI (t) T112**	**TITAN**	2015-188T08:10	Jul07	Tue	20	41	3	Outbound 10953.1 km flyby, v = 5.6 km/s, phase = 78 deg
S89	218	**XD**	**Segment**	2015-189T11:24	Jul08	Wed	1	40	4	XD_218 (5d)
S89	218	**OTM-416**	218TI+3d	2015-191T04:58	Jul10	Fri	3	39	6	D/L Start, burn ~6h later. Backup D/L 192T04:43; complexes C/C
S90	218	**S90 Begins**		2015-194T13:42	Jul13	Mon	6	35	3	S90 Sequence. Duration = 70 d
S90	218	**XD**	**Segment**	2015-194T13:42	Jul13	Mon	6	35	3	XD_218_219 (12d)
S90	219	**Apoapse**		2015-197T08:20	Jul16	Thu	9	32	6	Per = 21.8 d, inc = 0.5 deg, r = 45.173 Rs, phase = 122 deg
S90	219	**MAPS**	**Segment**	2015-206T12:56	Jul25	Sat	18	23	15	MAPS_219 (3d)
S90	219	219TI (nt)	**TITAN**	2015-206T22:36	Jul25	Sat	19	23	16	Inbound 729261.1 km flyby, v = 9.2 km/s, phase = 31 deg
S90	219	Ring CRX	Ascending	2015-207T18:04	Jul26	Sun	19	22	17	r = 8.213 Rs (495469 km)
S90	219	219DI (nt)	**DIONE**	2015-208T00:56	Jul27	Mon	20	22	17	Inbound 60519.0 km flyby, v = 5.1 km/s, phase = 120 deg
S90	219	Periapse		2015-208T05:49	Jul27	Mon	20	22	17	R = 4.698 Rs, lat = 0 deg, phase = 57 deg
S90	219	219EN (nt)	**ENCELADUS**	2015-208T06:18	Jul27	Mon	20	22	17	Outbound 111418.8 km flyby, v = 6.7 km/s, phase = 24 deg
S90	219	Ring CRX	Descending	2015-208T19:00	Jul27	Mon	20	21	18	r = 8.808 Rs (531402 km)
S90	219	**XD**	**Segment**	2015-209T13:56	Jul28	Tue	21	20	18	XD_219_220 (20d)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S90	220	**Apoapse**		2015-219T03:41	Aug07	Fri	31	11	28	Per = 21.8 d, inc = 0.5 deg, r = 45.220 Rs, phase = 123 deg
S90	220	**OTM-417**	~Apo	2015-221T02:54	Aug09	Sun	33	9	30	D/L Start, burn ~6h later. Backup D/L 222T02:39; complexes C/C
S90	220	**OTM-418**	220DI-3d	2015-226T02:23	Aug14	Fri	38	4	5	D/L Start, burn ~6h later. Backup D/L 227T02:23; complexes C/C
S90	220	**SOST**	**Segment**	2015-229T04:53	Aug17	Mon	41	1	3	SOST_220 (2d); D5 flyby
S90	220	Ring CRX	Ascending	2015-229T13:41	Aug17	Mon	41	0	3	r = 8.203 Rs (494894 km)
S90	220	**220DI (t) D5**	**DIONE**	2015-229T18:33	Aug17	Mon	41	42	4	Inbound 474.2 km flyby, v = 6.4 km/s, phase = 67 deg
S90	220	220TE (nt)	**TETHYS**	2015-229T21:56	Aug17	Mon	0	42	4	Inbound 41892.0 km flyby, v = 6.3 km/s, phase = 82 deg
S90	220	220EN (nt)	**ENCELADUS**	2015-230T01:17	Aug18	Tue	0	42	4	Inbound 53165.7 km flyby, v = 3.3 km/s, phase = 78 deg
S90	220	Periapse		2015-230T01:24	Aug18	Tue	0	42	4	R = 4.704 Rs, lat = 0 deg, phase = 57 deg
S90	220	220ME (nt)	**METHONE**	2015-230T01:35	Aug18	Tue	0	42	4	Outbound 89807.7 km flyby, v = 1.6 km/s, phase = 61 deg
S90	220	220TI (nt)	**TITAN**	2015-230T01:53	Aug18	Tue	0	42	4	Outbound 960427.2 km flyby, v = 10.1 km/s, phase = 120 deg
S90	220	220HE (nt)	**HELENE**	2015-230T08:33	Aug18	Tue	1	42	4	Outbound 113493.0 km flyby, v = 9.4 km/s, phase = 46 deg
S90	220	Ring CRX	Descending	2015-230T12:45	Aug18	Tue	1	41	4	r = 8.045 Rs (485347 km)
S90	220	**SATURN**	**Segment**	2015-231T04:53	Aug19	Wed	1	41	5	SATURN_220_221 (20d)
S90	220	**OTM-419**	220DI+4d	2015-233T02:07	Aug21	Fri	3	39	7	D/L Start, burn ~6h later. Backup D/L 234T01:52; complexes C/C
S90	221	**Apoapse**		2015-240T23:29	Aug28	Fri	11	31	8	Per = 21.9 d, inc = 0.4 deg, r = 45.265 Rs, phase = 123 deg
S90	221	**OTM-420**	~Peri	2015-251T00:50	Sep08	Tue	21	21	18	D/L Start, burn ~6h later. Backup D/L 252T00:50; complexes C/C
S90	221	Ring CRX	Ascending	2015-251T08:03	Sep08	Tue	22	21	0	r = 9.000 Rs (542994 km)
S90	221	**SOST**	**Segment**	2015-251T09:50	Sep08	Tue	22	20	0	SOST_221 (3d); non-targ flyby
S90	221	221DI (nt)	**DIONE**	2015-251T14:33	Sep08	Tue	22	20	1	Inbound 41944.7 km flyby, v = 7.6 km/s, phase = 67 deg
S90	221	Periapse		2015-251T21:41	Sep08	Tue	22	20	1	R = 4.695 Rs, lat = 0 deg, phase = 56 deg
S90	221	221HE (nt)	**HELENE**	2015-252T04:53	Sep09	Wed	22	20	1	Outbound 82941.2 km flyby, v = 8.6 km/s, phase = 45 deg
S90	221	Ring CRX	Descending	2015-252T09:02	Sep09	Wed	23	20	1	r = 8.047 Rs (485470 km)
S90	221	221TI (nt)	**TITAN**	2015-253T06:21	Sep10	Thu	23	19	2	Outbound 706921.6 km flyby, v = 9.1 km/s, phase = 89 deg
S90	221	**XD**	**Segment**	2015-254T03:20	Sep11	Fri	24	18	3	XD_221_222 (10d)
S90	222	**Apoapse**		2015-262T19:28	Sep19	Sat	33	9	12	Per = 21.8 d, inc = 0.4 deg, r = 45.211 Rs, phase = 124 deg
S91	222	**S91 Begins**		2015-264T02:48	Sep21	Mon	34	8	13	S91 Sequence. Duration = 65 d
S91	222	**XD**	**Segment**	2015-264T02:48	Sep21	Mon	34	8	13	XD_222 (6d)
S91	222	**OTM-421**	222TI-4d	2015-267T23:48	Sep24	Thu	38	4	17	D/L Start, burn ~6h later. Backup D/L 268T23:33; complexes C/C
S91	222	**TOST**	**Segment**	2015-270T08:33	Sep27	Sun	41	2	2	TOST_T11 (3d); T113 flyby
S91	222	**222TI (t) T113**	**TITAN**	2015-271T21:37	Sep28	Mon	42	16	4	Inbound 1035.6 km flyby, v = 5.8 km/s, phase = 42 deg
S91	222	Ring CRX	Ascending	2015-272T22:39	Sep29	Tue	1	15	5	r = 11.041 Rs (666104 km)
S91	222	**SATURN**	**Segment**	2015-273T04:17	Sep30	Wed	1	14	5	SATURN_222 (2d)
S91	222	222DI (nt)	**DIONE**	2015-273T08:41	Sep30	Wed	1	14	5	Inbound 40826.0 km flyby, v = 10.1 km/s, phase = 63 deg
S91	222	222CA (nt)	**CALYPSO**	2015-273T11:04	Sep30	Wed	2	14	5	Inbound 43883.4 km flyby, v = 10.8 km/s, phase = 72 deg
S91	222	222MI (nt)	**MIMAS**	2015-273T14:12	Sep30	Wed	2	14	6	Inbound 64815.7 km flyby, v = 11.8 km/s, phase = 93 deg
S91	222	Periapse		2015-273T16:17	Sep30	Wed	2	14	6	R = 2.899 Rs, lat = 1 deg, phase = 69 deg
S91	222	222TE (nt)	**TETHYS**	2015-273T16:59	Sep30	Wed	2	14	6	Outbound 117361.3 km flyby, v = 8.5 km/s, phase = 106 deg
S91	222	222AE (nt)	**AEGAEON**	2015-273T17:35	Sep30	Wed	2	14	6	Outbound 79771.1 km flyby, v = 12.1 km/s, phase = 40 deg
S91	222	Pallene	**DUST HAZARD**	2015-273T18:43	Sep30	Wed	2	14	6	Egress at 2015-273T18:55 (12 min); protection = MEA cover closure
S91	222	Ring CRX	Descending	2015-273T18:48	Sep30	Wed	2	14	6	r = 3.513 Rs (211950 km)
S91	222	E_ring_lg	**DUST HAZARD**	2015-273T18:53	Sep30	Wed	2	14	6	Egress at 2015-273T20:20 (87 min); protection = MEA cover closure
S91	222	222TL (nt)	**TELESTO**	2015-273T21:15	Sep30	Wed	2	14	6	Outbound 117964.1 km flyby, v = 13.7 km/s, phase = 68 deg
S91	222	222RH (nt)	**RHEA**	2015-274T04:26	Oct01	Thu	2	13	6	Outbound 57870.6 km flyby, v = 9.3 km/s, phase = 85 deg
S91	222	**OTM-422**	222TI+2d	2015-274T23:17	Oct01	Thu	3	12	7	D/L Start, burn ~6h later. Backup D/L 275T23:17; complexes C/C
S91	222	**XD**	**Segment**	2015-275T08:17	Oct02	Fri	3	12	0	XD_222_223 (11d)
S91	222	**OTM-423**	~Apo	2015-278T23:02	Oct05	Mon	7	8	4	D/L Start, burn ~6h later. Backup D/L 279T23:02; complexes C/C
S91	223	**Apoapse**		2015-280T15:12	Oct07	Wed	9	7	2	Per = 13.9 d, inc = 0.6 deg, r = 34.070 Rs, phase = 111 deg
S91	223	**OTM-424**	223EN-3d	2015-283T22:46	Oct10	Sat	12	3	5	D/L Start, burn ~6h later. Backup D/L 284T22:46; complexes C/C
S91	223	223TI (nt)	**TITAN**	2015-286T12:43	Oct13	Tue	15	1	3	Inbound 826227.3 km flyby, v = 10.1 km/s, phase = 31 deg
S91	223	**SOST**	**Segment**	2015-286T17:31	Oct13	Tue	15	1	3	SOST_223 (3d); E20 flyby
S91	223	Ring CRX	Ascending	2015-286T23:55	Oct13	Tue	15	0	3	r = 9.488 Rs (572400 km)
S91	223	223PO (nt)	**POLYDEUCES**	2015-287T06:50	Oct14	Wed	15	0	3	Inbound 115856.2 km flyby, v = 12.3 km/s, phase = 61 deg
S91	223	**223EN (t) E20**	**ENCELADUS**	2015-287T10:42	Oct14	Wed	16	14	3	Inbound 1838.6 km flyby, v = 8.5 km/s, phase = 63 deg
S91	223	223ME (nt)	**METHONE**	2015-287T11:54	Oct14	Wed	0	14	4	Inbound 39959.6 km flyby, v = 9.9 km/s, phase = 89 deg
S91	223	223PM (nt)	**PROMETHEUS**	2015-287T13:44	Oct14	Wed	0	14	4	Inbound 120125.8 km flyby, v = 12.6 km/s, phase = 25 deg
S91	223	Periapse		2015-287T14:06	Oct14	Wed	0	14	4	R = 2.902 Rs, lat = 1 deg, phase = 69 deg
S91	223	Pallene	**DUST HAZARD**	2015-287T16:31	Oct14	Wed	0	14	4	Egress at 2015-287T16:43 (12 min); protection = MEA cover closure
S91	223	E_ring_lg	**DUST HAZARD**	2015-287T16:41	Oct14	Wed	0	14	4	Egress at 2015-287T18:19 (98 min); protection = MEA cover closure
S91	223	Ring CRX	Descending	2015-287T17:02	Oct14	Wed	0	14	4	r = 3.703 Rs (223377 km)
S91	223	223HE (nt)	**HELENE**	2015-287T20:59	Oct14	Wed	0	14	4	Outbound 117105.0 km flyby, v = 6.0 km/s, phase = 102 deg
S91	223	**XD**	**Segment**	2015-289T07:31	Oct16	Fri	2	12	5	XD_223_224 (12d)
S91	223	**OTM-426**	~Apo	2015-292T22:15	Oct19	Mon	5	9	9	D/L Start, burn ~6h later. Backup D/L 293T22:00; complexes C/C
S91	224	**Apoapse**		2015-294T13:01	Oct21	Wed	7	7	2	Per = 13.9 d, inc = 0.6 deg, r = 34.070 Rs, phase = 111 deg
S91	224	**OTM-427**	224EN-3d	2015-297T22:00	Oct24	Sat	10	4	5	D/L Start, burn ~6h later. Backup D/L 298T21:45; complexes C/C
S91	224	Ring CRX	Ascending	2015-300T21:22	Oct27	Tue	13	1	3	r = 9.660 Rs (582804 km)
S91	224	**SOST**	**Segment**	2015-301T00:30	Oct28	Wed	14	1	3	SOST_224 (2d); E21 flyby
S91	224	224PO (nt)	**POLYDEUCES**	2015-301T04:12	Oct28	Wed	14	0	3	Inbound 84470.0 km flyby, v = 7.0 km/s, phase = 116 deg
S91	224	224TL (nt)	**TELESTO**	2015-301T07:18	Oct28	Wed	14	0	3	Inbound 59686.0 km flyby, v = 6.9 km/s, phase = 113 deg
S91	224	224DA (nt)	**DAPHNIS**	2015-301T11:25	Oct28	Wed	14	0	4	Inbound 73316.0 km flyby, v = 6.3 km/s, phase = 26 deg
S91	224	Periapse		2015-301T11:56	Oct28	Wed	14	0	4	R = 2.902 Rs, lat = 1 deg, phase = 69 deg
S91	224	224PN (nt)	**PAN**	2015-301T12:32	Oct28	Wed	14	0	4	Outbound 64881.0 km flyby, v = 4.7 km/s, phase = 116 deg
S91	224	Pallene	**DUST HAZARD**	2015-301T14:21	Oct28	Wed	14	0	4	Egress at 2015-301T14:33 (12 min); protection = MEA cover closure
S91	224	E_ring_lg	**DUST HAZARD**	2015-301T14:31	Oct28	Wed	14	0	4	Egress at 2015-301T16:09 (98 min); protection = MEA cover closure
S91	224	Ring CRX	Descending	2015-301T14:50	Oct28	Wed	14	0	4	r = 3.685 Rs (222318 km)
S91	224	**Earth OCC**	ENCELADUS	2015-301T15:23	Oct28	Wed	0	0	4	Egress = 2015-301T15:23 (1 min)
S91	224	**Sun OCC**	ENCELADUS	2015-301T15:23	Oct28	Wed	0	0	4	Egress = 2015-301T15:23 (1 min)
S91	224	**224EN (t) E21**	**ENCELADUS**	2015-301T15:23	Oct28	Wed	14	16	4	Outbound 49.0 km flyby, v = 8.5 km/s, phase = 118 deg
S91	224	224HE (nt)	**HELENE**	2015-301T19:26	Oct28	Wed	0	15	4	Outbound 78794.5 km flyby, v = 11.1 km/s, phase = 77 deg
S91	224	**OTM-428**	224EN+1d	2015-301T21:45	Oct28	Wed	0	15	4	D/L Start, burn ~6h later. Backup D/L 302T21:45; complexes C/C
S91	224	224TI (nt)	**TITAN**	2015-302T14:05	Oct29	Thu	1	15	1	Outbound 800186.2 km flyby, v = 10.0 km/s, phase = 112 deg
S91	224	**MAPS**	**Segment**	2015-303T06:45	Oct30	Fri	2	14	1	MAPS_224_225 (13d)
S91	225	**Apoapse**		2015-308T10:43	Nov04	Wed	7	9	7	Per = 13.9 d, inc = 0.6 deg, r = 34.052 Rs, phase = 111 deg
S91	225	**OTM-429**	~Apo	2015-308T21:29	Nov04	Wed	7	8	7	D/L Start, burn ~6h later. Backup D/L 309T21:14; complexes C/C
S91	225	**OTM-430**	225TI-3d	2015-313T20:59	Nov09	Mon	12	3	5	D/L Start, burn ~6h later. Backup D/L 314T20:59; complexes C/C
S91	225	Ring CRX	Ascending	2015-314T18:33	Nov10	Tue	13	2	1	r = 9.837 Rs (593470 km)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S91	225	225CA (nt)	**CALYPSO**	2015-315T07:21	Nov11	Wed	14	2	1	Inbound 104479.9 km flyby, v = 7.5 km/s, phase = 122 deg
S91	225	225PN (nt)	**PAN**	2015-315T07:22	Nov11	Wed	14	2	1	Inbound 111577.4 km flyby, v = 3.6 km/s, phase = 29 deg
S91	225	Periapse		2015-315T09:30	Nov11	Wed	14	2	2	R = 2.898 Rs, lat = 0 deg, phase = 69 deg
S91	225	225PA (nt)	**PANDORA**	2015-315T09:31	Nov11	Wed	14	2	2	Outbound 107616.5 km flyby, v = 12.3 km/s, phase = 118 deg
S91	225	Pallene	**DUST HAZARD**	2015-315T11:56	Nov11	Wed	14	2	2	Egress at 2015-315T12:07 (12 min); protection = MEA cover closure
S91	225	E_ring_lg	**DUST HAZARD**	2015-315T12:05	Nov11	Wed	14	2	2	Egress at 2015-315T13:43 (98 min); protection = MEA cover closure
S91	225	Ring CRX	Descending	2015-315T12:19	Nov11	Wed	14	2	2	r = 3.653 Rs (220378 km)
S91	225	225TE (nt)	**TETHYS**	2015-315T14:42	Nov11	Wed	14	2	2	Outbound 8361.9 km flyby, v = 8.8 km/s, phase = 100 deg
S91	225	**TOST**	**Segment**	2015-316T05:59	Nov12	Thu	15	1	2	TOST_T11 (2d); T114 flyby
S91	225	**225TI (t) T114**	**TITAN**	2015-317T05:47	Nov13	Fri	16	37	3	Outbound 11919.7 km flyby, v = 5.5 km/s, phase = 92 deg
S91	225	**XD**	**Segment**	2015-318T07:29	Nov14	Sat	1	35	4	XD_225_226 (9d)
S91	225	**OTM-431**	225TI+3d	2015-319T20:29	Nov15	Sun	3	34	6	D/L Start, burn ~6h later. Backup D/L 320T20:29; complexes C/C
S91	225	Ring CRX	Ascending	2015-321T11:31	Nov17	Tue	4	32	2	r = 32.291 Rs (1948088 km)
S91	226	**Apoapse**		2015-321T18:23	Nov17	Tue	5	32	2	Per = 12.7 d, inc = 1.3 deg, r = 32.334 Rs, phase = 114 deg
S91	226	**SATURN**	**Segment**	2015-327T05:14	Nov23	Mon	10	27	7	SATURN_226 (2d)
S91	226	226TE (nt)	**TETHYS**	2015-327T21:57	Nov23	Mon	11	26	8	Inbound 17504.1 km flyby, v = 9.2 km/s, phase = 113 deg
S91	226	226AT (nt)	**ATLAS**	2015-328T02:33	Nov24	Tue	11	26	8	Inbound 104360.6 km flyby, v = 16.5 km/s, phase = 102 deg
S91	226	226DA (nt)	**DAPHNIS**	2015-328T02:35	Nov24	Tue	11	26	8	Inbound 77507.6 km flyby, v = 13.1 km/s, phase = 104 deg
S91	226	JE_ring	**DUST HAZARD**	2015-328T02:38	Nov24	Tue	11	26	8	Egress at 2015-328T03:47 (69 min); protection = HGA to RAM and MEA cover closure
S91	226	Ring CRX	Descending	2015-328T03:11	Nov24	Tue	11	26	8	r = 2.532 Rs (152758 km)
S91	226	Periapse		2015-328T03:14	Nov24	Tue	11	26	8	R = 2.532 Rs, lat = -0 deg, phase = 66 deg
S91	226	226ME (nt)	**METHONE**	2015-328T05:46	Nov24	Tue	11	26	8	Outbound 37687.0 km flyby, v = 11.6 km/s, phase = 56 deg
S92	226	**S92 Begins**		2015-329T06:08	Nov25	Wed	12	24	9	S92 Sequence. Duration = 74 d
S92	226	**XD**	**Segment**	2015-329T06:08	Nov25	Wed	12	24	9	XD_226_227 (11d)
S92	226	**OTM-432**	~Apo	2015-329T20:13	Nov25	Wed	13	24	10	D/L Start, burn ~6h later. Backup D/L 330T19:58; complexes C/C
S92	226	SEP = 3.0 deg	Conjunction	2015-331T06:14	Nov27	Fri	14	22	1	Commanding must not be required below 3.0 deg
S92	226	SEP = 2.0 deg	Conjunction	2015-332T19:43	Nov28	Sat	16	21	3	Plan no SSR playback below 2.0 deg
S92	226	Ring CRX	Ascending	2015-334T00:34	Nov30	Mon	17	20	4	r = 32.198 Rs (1942527 km)
S92	226	226TI (nt)	**TITAN**	2015-334T05:57	Nov30	Mon	17	19	4	Outbound 753128.0 km flyby, v = 4.0 km/s, phase = 113 deg
S92	227	**Apoapse**		2015-334T11:53	Nov30	Mon	17	19	5	Per = 12.7 d, inc = 1.3 deg, r = 32.316 Rs, phase = 114 deg
S92	227	SEP = 2.0 deg	Conjunction	2015-335T08:05	Dec01	Tue	18	18	5	Plan no SSR playback below 2.0 deg
S92	227	SEP = 3.0 deg	Conjunction	2015-336T21:06	Dec02	Wed	20	17	7	Commanding must not be required below 3.0 deg
S92	227	**RINGS**	**Segment**	2015-340T04:29	Dec06	Sun	23	14	10	RINGS_227 (1d)
S92	227	JE_ring	**DUST HAZARD**	2015-340T19:54	Dec06	Sun	24	13	11	Egress at 2015-340T21:02 (68 min); protection = HGA to RAM and MEA cover closure
S92	227	Ring CRX	Descending	2015-340T20:26	Dec06	Sun	24	13	11	r = 2.531 Rs (152699 km)
S92	227	Periapse		2015-340T20:31	Dec06	Sun	24	13	11	R = 2.530 Rs, lat = -0 deg, phase = 66 deg
S92	227	227EP (nt)	**EPIMETHEUS**	2015-340T20:38	Dec06	Sun	24	13	11	Outbound 2621.2 km flyby, v = 5.5 km/s, phase = 65 deg
S92	227	227AT (nt)	**ATLAS**	2015-340T20:56	Dec06	Sun	24	13	11	Outbound 21485.6 km flyby, v = 5.9 km/s, phase = 46 deg
S92	227	227PM (nt)	**PROMETHEUS**	2015-340T21:03	Dec06	Sun	24	13	11	Outbound 22201.3 km flyby, v = 6.5 km/s, phase = 45 deg
S92	227	**XD**	**Segment**	2015-341T14:14	Dec07	Mon	24	12	12	XD_227_228 (12d)
S92	227	Ring CRX	Ascending	2015-346T13:38	Dec12	Sat	29	7	17	r = 32.107 Rs (1937036 km)
S92	228	**Apoapse**		2015-347T05:23	Dec13	Sun	30	7	17	Per = 12.7 d, inc = 1.3 deg, r = 32.335 Rs, phase = 114 deg
S92	228	**OTM-433**	228EN-4d	2015-349T18:44	Dec15	Tue	33	4	20	D/L Start, burn ~6h later. Backup D/L 350T18:44; complexes C/C
S92	228	228TI (nt)	**TITAN**	2015-351T13:23	Dec17	Thu	34	2	2	Inbound 148654.4 km flyby, v = 4.7 km/s, phase = 130 deg
S92	228	**SOST**	**Segment**	2015-353T03:44	Dec19	Sat	36	1	3	SOST_228 (2d); E22 flyby
S92	228	228AE (nt)	**AEGAEON**	2015-353T12:59	Dec19	Sat	36	0	4	Inbound 2543.9 km flyby, v = 6.9 km/s, phase = 84 deg
S92	228	JE_ring	**DUST HAZARD**	2015-353T13:47	Dec19	Sat	36	0	4	Egress at 2015-353T14:31 (44 min); protection = MEA cover closure
S92	228	Ring CRX	Descending	2015-353T14:00	Dec19	Sat	36	0	4	r = 2.570 Rs (155021 km)
S92	228	Periapse		2015-353T14:09	Dec19	Sat	36	0	4	R = 2.566 Rs, lat = -0 deg, phase = 66 deg
S92	228	**228EN (t) E22**	**ENCELADUS**	2015-353T17:49	Dec19	Sat	37	27	4	Outbound 4999.0 km flyby, v = 9.5 km/s, phase = 114 deg
S92	228	228CA (nt)	**CALYPSO**	2015-353T19:11	Dec19	Sat	0	27	4	Outbound 91785.2 km flyby, v = 13.4 km/s, phase = 69 deg
S92	228	**XD**	**Segment**	2015-355T07:44	Dec21	Mon	2	26	6	XD_228_229 (10d)
S92	228	**OTM-434**	228EN+3d	2015-356T18:29	Dec22	Tue	3	24	7	D/L Start, burn ~6h later. Backup D/L 357T18:29; complexes C/C
S92	228	Ring CRX	Ascending	2015-358T21:56	Dec24	Thu	5	22	2	r = 31.872 Rs (1922851 km)
S92	229	**Apoapse**		2015-360T00:24	Dec26	Sat	6	21	3	Per = 12.9 d, inc = 1.3 deg, r = 32.509 Rs, phase = 114 deg
S92	229	**OTM-435**	~Peri	2015-363T18:00	Dec29	Tue	10	17	7	D/L Start, burn ~6h later. Backup D/L 364T18:00; complexes C/C
S92	229	**MAPS**	**Segment**	2015-365T03:00	Dec31	Thu	11	16	1	MAPS_229_230 (14d)
S92	229	229RH (nt)	**RHEA**	2015-365T22:31	Dec31	Thu	12	15	2	Inbound 24490.9 km flyby, v = 9.0 km/s, phase = 42 deg
S92	229	229AE (nt)	**AEGAEON**	2016-001T08:59	Jan01	Fri	13	15	3	Inbound 93624.6 km flyby, v = 15.7 km/s, phase = 88 deg
S92	229	229PN (nt)	**PAN**	2016-001T10:14	Jan01	Fri	13	15	3	Inbound 97039.5 km flyby, v = 14.7 km/s, phase = 107 deg
S92	229	JE_ring	**DUST HAZARD**	2016-001T10:19	Jan01	Fri	13	15	3	Egress at 2016-001T11:00 (41 min); protection = MEA cover closure
S92	229	Ring CRX	Descending	2016-001T10:28	Jan01	Fri	13	15	3	r = 2.574 Rs (155315 km)
S92	229	Periapse		2016-001T10:39	Jan01	Fri	13	15	3	R = 2.569 Rs, lat = -0 deg, phase = 66 deg
S92	229	229PA (nt)	**PANDORA**	2016-001T11:28	Jan01	Fri	13	15	3	Outbound 107833.1 km flyby, v = 16.6 km/s, phase = 36 deg
S92	229	229ME (nt)	**METHONE**	2016-001T12:10	Jan01	Fri	13	15	3	Outbound 27765.6 km flyby, v = 7.1 km/s, phase = 120 deg
S92	229	229TE (nt)	**TETHYS**	2016-001T15:52	Jan01	Fri	13	14	3	Outbound 38851.1 km flyby, v = 11.3 km/s, phase = 68 deg
S92	229	Ring CRX	Ascending	2016-006T13:16	Jan06	Wed	18	10	8	r = 31.587 Rs (1905661 km)
S92	230	**Apoapse**		2016-007T20:49	Jan07	Thu	19	8	9	Per = 12.8 d, inc = 1.3 deg, r = 32.495 Rs, phase = 114 deg
S92	230	**OTM-436**	230TI-3d	2016-012T17:16	Jan12	Tue	24	3	14	D/L Start, burn ~6h later. Backup D/L 013T17:16; complexes C/C
S92	230	230CA (nt)	**CALYPSO**	2016-014T02:03	Jan14	Thu	25	2	1	Inbound 115034.6 km flyby, v = 14.3 km/s, phase = 61 deg
S92	230	**SOST**	**Segment**	2016-014T02:16	Jan14	Thu	25	2	1	SOST_230 (1d); non-targ flyby
S92	230	230EN (nt)	**ENCELADUS**	2016-014T03:20	Jan14	Thu	25	2	1	Inbound 72221.2 km flyby, v = 13.4 km/s, phase = 70 deg
S92	230	230MI (nt)	**MIMAS**	2016-014T06:06	Jan14	Thu	26	2	2	Inbound 27543.2 km flyby, v = 7.0 km/s, phase = 105 deg
S92	230	230AT (nt)	**ATLAS**	2016-014T06:20	Jan14	Thu	26	2	2	Inbound 93367.1 km flyby, v = 14.7 km/s, phase = 103 deg
S92	230	JE_ring	**DUST HAZARD**	2016-014T06:36	Jan14	Thu	26	2	2	Egress at 2016-014T07:20 (45 min); protection = MEA cover closure
S92	230	Ring CRX	Descending	2016-014T06:45	Jan14	Thu	26	2	2	r = 2.573 Rs (155199 km)
S92	230	Periapse		2016-014T06:58	Jan14	Thu	26	2	2	R = 2.566 Rs, lat = -0 deg, phase = 66 deg
S92	230	230DA (nt)	**DAPHNIS**	2016-014T07:15	Jan14	Thu	26	2	2	Outbound 23050.6 km flyby, v = 5.4 km/s, phase = 47 deg
S92	230	230TL (nt)	**TELESTO**	2016-014T12:15	Jan14	Thu	26	2	2	Outbound 14031.0 km flyby, v = 9.3 km/s, phase = 115 deg
S92	230	**TOST**	**Segment**	2016-015T12:01	Jan15	Fri	27	1	3	TOST_T11 (2d); T115 flyby
S92	230	**230TI (t) T115**	**TITAN**	2016-016T02:21	Jan16	Sat	27	16	3	Outbound 3817.4 km flyby, v = 5.7 km/s, phase = 99 deg
S92	230	**XD**	**Segment**	2016-017T04:01	Jan17	Sun	1	15	4	XD_230_231 (11d)
S92	230	Ring CRX	Ascending	2016-017T04:44	Jan17	Sun	1	15	4	r = 26.148 Rs (1577519 km)
S92	230	**OTM-437**	230TI+3d	2016-018T17:01	Jan18	Mon	3	13	6	D/L Start, burn ~6h later. Backup D/L 019T17:01; complexes C/C
S92	231	**Apoapse**		2016-022T05:38	Jan22	Fri	6	10	4	Per = 15.9 d, inc = 2.4 deg, r = 37.003 Rs, phase = 107 deg
S92	231	**OTM-438**	~Apo	2016-023T16:47	Jan23	Sat	8	8	5	D/L Start, burn ~6h later. Backup D/L 024T16:32; complexes C/C

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S92	231	**RINGS**	**Segment**	2016-028T01:32	Jan28	Thu	12	4	4	RINGS_231 (3d)
S92	231	**OTM-439**	231TI-3d	2016-028T13:52	Jan28	Thu	12	3	5	D/L Start, burn ~6h later. Backup D/L 029T16:17; complexes C/C
S92	231	E_ring_lg	Dust Crossing	2016-030T03:23	Jan30	Sat	14	2	1	Egress at 2016-030T04:02 (40 min); protection = none
S92	231	Ring CRX	Descending	2016-030T03:43	Jan30	Sat	14	2	1	r = 3.597 Rs (217001 km)
S92	231	Pallene	Dust Crossing	2016-030T03:57	Jan30	Sat	14	2	1	Egress at 2016-030T03:58 (1 min); protection = none
S92	231	Periapse		2016-030T04:56	Jan30	Sat	14	2	2	R = 3.487 Rs, lat = -1 deg, phase = 73 deg
S92	231	231PN (nt)	**PAN**	2016-030T07:21	Jan30	Sat	14	2	2	Outbound 116653.5 km flyby, v = 0.6 km/s, phase = 129 deg
S92	231	231PO (nt)	**POLYDEUCES**	2016-030T11:12	Jan30	Sat	14	2	2	Outbound 104765.3 km flyby, v = 5.9 km/s, phase = 105 deg
S92	231	**TOST**	**Segment**	2016-031T11:02	Jan31	Sun	15	1	3	TOST_T11 (2d); T116 flyby
S92	231	**231TI (t) T116**	**TITAN**	2016-032T01:01	Feb01	Mon	16	16	3	Outbound 1400.0 km flyby, v = 5.8 km/s, phase = 120 deg
S92	231	**Earth OCC**	TITAN	2016-032T01:05	Feb01	Mon	0	16	3	Egress = 2016-032T01:33 (28 min)
S92	231	**Sun OCC**	TITAN	2016-032T01:05	Feb01	Mon	0	16	3	Egress = 2016-032T01:31 (26 min)
S92	231	Ring CRX	Ascending	2016-032T05:03	Feb01	Mon	0	16	4	r = 21.032 Rs (1268867 km)
S92	231	**XD**	**Segment**	2016-033T06:03	Feb02	Tue	1	15	5	XD_231 (5d)
S92	231	**OTM-440**	231TI+3d	2016-034T16:03	Feb03	Wed	3	13	6	D/L Start, burn ~6h later. Backup D/L 035T16:03; complexes C/C
S93	231	**S93 Begins**		2016-038T00:48	Feb07	Sun	6	10	3	S93 Sequence. Duration = 72 d
S93	231	**XD**	**Segment**	2016-038T00:48	Feb07	Sun	6	10	3	XD_231_232 (7d)
S93	232	**Apoapse**		2016-038T03:24	Feb07	Sun	6	10	3	Per = 16.0 d, inc = 16.0 deg, r = 36.724 Rs, phase = 103 deg
S93	232	**OTM-441**	~Apo	2016-039T15:49	Feb08	Mon	8	8	5	D/L Start, burn ~6h later. Backup D/L 040T15:34; complexes C/C
S93	232	**OTM-442**	232TI-3d	2016-044T15:34	Feb13	Sat	13	3	5	D/L Start, burn ~6h later. Backup D/L 045T15:19; complexes C/C
S93	232	**MAPS**	**Segment**	2016-045T00:34	Feb14	Sun	13	3	0	MAPS_232 (2d)
S93	232	232PO (nt)	**POLYDEUCES**	2016-045T20:17	Feb14	Sun	14	2	1	Inbound 77353.7 km flyby, v = 7.8 km/s, phase = 96 deg
S93	232	232TL (nt)	**TELESTO**	2016-046T00:15	Feb15	Mon	14	2	1	Inbound 48861.9 km flyby, v = 6.7 km/s, phase = 103 deg
S93	232	232EP (nt)	**EPIMETHEUS**	2016-046T00:25	Feb15	Mon	14	2	1	Inbound 116041.9 km flyby, v = 4.5 km/s, phase = 26 deg
S93	232	E_ring_lg	Dust Crossing	2016-046T00:34	Feb15	Mon	14	2	1	Egress at 2016-046T00:41 (7 min); protection = none
S93	232	Ring CRX	Descending	2016-046T00:38	Feb15	Mon	14	2	1	r = 4.122 Rs (248673 km)
S93	232	Periapse		2016-046T02:57	Feb15	Mon	14	2	1	R = 3.801 Rs, lat = -9 deg, phase = 77 deg
S93	232	232EN (nt)	**ENCELADUS**	2016-046T05:01	Feb15	Mon	14	2	2	Outbound 83951.9 km flyby, v = 8.0 km/s, phase = 74 deg
S93	232	**TOST**	**Segment**	2016-047T10:04	Feb16	Tue	15	1	3	TOST_232 (3d); T117 flyby
S93	232	**232TI (t) T117**	**TITAN**	2016-047T23:52	Feb16	Tue	16	48	3	Outbound 1018.0 km flyby, v = 5.9 km/s, phase = 122 deg
S93	232	**Sun OCC**	TITAN	2016-047T23:54	Feb16	Tue	0	48	3	Egress = 2016-048T00:11 (17 min)
S93	232	**Earth OCC**	TITAN	2016-047T23:55	Feb16	Tue	0	48	3	Egress = 2016-048T00:08 (13 min)
S93	232	Ring CRX	Ascending	2016-048T01:59	Feb17	Wed	0	48	3	r = 20.528 Rs (1238472 km)
S93	232	**XD**	**Segment**	2016-050T00:05	Feb19	Fri	2	46	5	XD_232_233 (19d)
S93	232	**OTM-443**	232TI+3d	2016-050T15:05	Feb19	Fri	3	45	6	D/L Start, burn ~6h later. Backup D/L 051T15:05; complexes C/C
S93	233	**Apoapse**		2016-058T00:09	Feb27	Sat	10	38	7	Per = 23.9 d, inc = 20.6 deg, r = 47.101 Rs, phase = 87 deg
S93	233	233TI (nt)	**TITAN**	2016-068T08:01	Mar08	Tue	20	27	18	Inbound 425883.7 km flyby, v = 6.1 km/s, phase = 76 deg
S93	233	**RINGS**	**Segment**	2016-068T22:52	Mar08	Tue	21	27	18	RINGS_233 (3d)
S93	233	Ring CRX	Descending	2016-069T15:35	Mar09	Wed	22	26	19	r = 7.126 Rs (429902 km)
S93	233	Periapse		2016-069T23:01	Mar09	Wed	22	26	19	R = 5.949 Rs, lat = -16 deg, phase = 93 deg
S93	233	**SATURN**	**Segment**	2016-071T22:53	Mar11	Fri	24	24	21	SATURN_233_234 (20d)
S93	233	Ring CRX	Ascending	2016-071T23:09	Mar11	Fri	24	24	21	r = 20.380 Rs (1229535 km)
S93	234	**Apoapse**		2016-081T22:04	Mar21	Mon	34	14	31	Per = 23.9 d, inc = 20.6 deg, r = 47.133 Rs, phase = 87 deg
S93	234	**OTM-444**	~Apo	2016-085T12:55	Mar25	Fri	38	10	35	D/L Start, burn ~6h later. Backup D/L 086T12:55; complexes C/C
S93	234	**RINGS**	**Segment**	2016-091T15:11	Mar31	Thu	44	4	6	RINGS_234 (3d)
S93	234	**OTM-445**	234TI-3d	2016-092T12:26	Apr01	Fri	45	3	7	D/L Start, burn ~6h later. Backup D/L 093T12:26; complexes C/C
S93	234	Ring CRX	Descending	2016-093T13:49	Apr02	Sat	46	2	1	r = 7.139 Rs (430723 km)
S93	234	Periapse		2016-093T21:13	Apr02	Sat	46	2	1	R = 5.978 Rs, lat = -16 deg, phase = 92 deg
S93	234	**TOST**	**Segment**	2016-094T14:26	Apr03	Sun	47	1	2	TOST_234 (2d); T118 flyby
S93	234	**Earth OCC**	TITAN	2016-095T19:47	Apr04	Mon	48	0	3	Egress = 2016-095T20:07 (21 min)
S93	234	**Sun OCC**	TITAN	2016-095T19:47	Apr04	Mon	48	0	3	Egress = 2016-095T20:07 (21 min)
S93	234	**234TI (t) T118**	**TITAN**	2016-095T19:48	Apr04	Mon	48	32	3	Outbound 990.0 km flyby, v = 5.9 km/s, phase = 138 deg
S93	234	Ring CRX	Ascending	2016-095T21:17	Apr04	Mon	0	32	3	r = 20.363 Rs (1228523 km)
S93	234	**XD**	**Segment**	2016-096T21:11	Apr05	Tue	1	31	4	XD_234_235 (13d)
S93	234	**OTM-446**	234TI+3d	2016-098T12:11	Apr07	Thu	3	29	6	D/L Start, burn ~6h later. Backup D/L 099T12:11; complexes C/C
S93	235	**Apoapse**		2016-109T18:23	Apr18	Mon	14	18	11	Per = 31.9 d, inc = 27.8 deg, r = 56.154 Rs, phase = 73 deg
S94	235	**S94 Begins**		2016-109T18:43	Apr18	Mon	14	18	11	S94 Sequence. Duration = 69 d
S94	235	**XD**	**Segment**	2016-109T18:43	Apr18	Mon	14	18	11	XD_235 (15d)
S94	235	**OTM-447**	~Apo	2016-113T11:13	Apr22	Fri	18	14	15	D/L Start, burn ~6h later. Backup D/L 114T11:13; complexes C/C
S94	235	**OTM-448**	235TI-3d	2016-124T10:29	May03	Tue	29	3	11	D/L Start, burn ~6h later. Backup D/L 125T10:29; complexes C/C
S94	235	**SATURN**	**Segment**	2016-124T19:29	May03	Tue	29	3	0	SATURN_235 (2d)
S94	235	Ring CRX	Descending	2016-125T00:14	May04	Wed	29	3	1	r = 10.917 Rs (658606 km)
S94	235	Periapse		2016-125T16:56	May04	Wed	30	2	1	R = 8.142 Rs, lat = -25 deg, phase = 107 deg
S94	235	**TOST**	**Segment**	2016-126T19:14	May05	Thu	31	1	2	TOST_235 (3d); T119 flyby
S94	235	**Earth OCC**	TITAN	2016-127T16:59	May06	Fri	32	0	3	Egress = 2016-127T17:15 (17 min)
S94	235	**Sun OCC**	TITAN	2016-127T16:59	May06	Fri	32	0	3	Egress = 2016-127T17:14 (16 min)
S94	235	**235TI (t) T119**	**TITAN**	2016-127T17:01	May06	Fri	32	32	3	Outbound 971.0 km flyby, v = 5.9 km/s, phase = 138 deg
S94	235	Ring CRX	Ascending	2016-127T18:06	May06	Fri	0	32	3	r = 20.247 Rs (1221487 km)
S94	235	**XD**	**Segment**	2016-129T19:14	May08	Sun	2	30	5	XD_235_236 (26d)
S94	235	**OTM-449**	235TI+3d	2016-130T09:59	May09	Mon	3	29	6	D/L Start, burn ~6h later. Backup D/L 131T09:59; complexes C/C
S94	236	**Apoapse**		2016-141T13:32	May20	Fri	14	18	11	Per = 31.9 d, inc = 35.3 deg, r = 54.493 Rs, phase = 64 deg
S94	236	**OTM-450**	~Apo	2016-143T09:00	May22	Sun	16	16	13	D/L Start, burn ~6h later. Backup D/L 144T09:00; complexes C/C
S94	236	**MAPS**	**Segment**	2016-155T17:15	Jun03	Fri	28	4	12	MAPS_236 (3d)
S94	236	**OTM-451**	236TI-3d	2016-156T08:15	Jun04	Sat	29	3	13	D/L Start, burn ~6h later. Backup D/L 157T08:15; complexes C/C
S94	236	Ring CRX	Descending	2016-156T09:16	Jun04	Sat	29	3	0	r = 14.083 Rs (849656 km)
S94	236	Periapse		2016-157T12:06	Jun05	Sun	30	2	1	R = 9.798 Rs, lat = -34 deg, phase = 115 deg
S94	236	**Earth OCC**	RING	2016-158T05:06	Jun06	Mon	31	1	2	Egress = 2016-158T09:57 (292 min)
S94	236	**Sun OCC**	RING	2016-158T05:11	Jun06	Mon	31	1	2	Egress = 2016-158T09:46 (275 min)
S94	236	**TOST**	**Segment**	2016-159T02:45	Jun07	Tue	31	0	3	TOST_236 (2d); T120 flyby
S94	236	**236TI (t) T120**	**TITAN**	2016-159T14:13	Jun07	Tue	32	48	3	Outbound 975.0 km flyby, v = 5.9 km/s, phase = 124 deg
S94	236	**Earth OCC**	TITAN	2016-159T14:15	Jun07	Tue	0	48	3	Egress = 2016-159T14:17 (2 min)
S94	236	**Sun OCC**	TITAN	2016-159T14:15	Jun07	Tue	0	48	3	Egress = 2016-159T14:17 (3 min)
S94	236	Ring CRX	Ascending	2016-159T15:03	Jun07	Tue	0	48	3	r = 20.167 Rs (1216675 km)
S94	236	**XD**	**Segment**	2016-161T10:30	Jun09	Thu	2	46	5	XD_236_237 (17d)
S94	236	**OTM-452**	236TI+4d	2016-163T07:45	Jun11	Sat	4	44	7	D/L Start, burn ~6h later. Backup D/L 164T07:45; complexes C/C
S94	237	**Apoapse**		2016-169T06:13	Jun17	Fri	10	38	6	Per = 23.9 d, inc = 42.4 deg, r = 42.590 Rs, phase = 66 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S95	237	**S95 Begins**		2016-178T15:44	Jun26	Sun	19	29	15	S95 Sequence. Duration = 74 d
S95	237	**RINGS**	**Segment**	2016-178T15:44	Jun26	Sun	19	29	15	RINGS_237 (4d)
S95	237	Ring CRX	Descending	2016-180T00:02	Jun28	Tue	20	27	17	r = 14.362 Rs (866470 km)
S95	237	Periapse		2016-181T04:56	Jun29	Wed	22	26	18	R = 10.447 Rs, lat = -40 deg, phase = 114 deg
S95	237	**Earth OCC**	RING	2016-182T01:42	Jun30	Thu	22	25	19	Egress = 2016-182T08:18 (397 min)
S95	237	**Sun OCC**	RING	2016-182T01:59	Jun30	Thu	22	25	19	Egress = 2016-182T08:33 (394 min)
S95	237	**Earth OCC**	SATURN	2016-182T02:37	Jun30	Thu	23	25	19	Egress = 2016-182T06:44 (248 min)
S95	237	**Sun OCC**	SATURN	2016-182T03:33	Jun30	Thu	23	25	19	Egress = 2016-182T07:42 (250 min)
S95	237	**XD**	**Segment**	2016-183T00:59	Jul01	Fri	23	24	20	XD_237_238 (19d)
S95	237	Ring CRX	Ascending	2016-183T12:25	Jul01	Fri	24	24	20	r = 20.177 Rs (1217291 km)
S95	238	**Apoapse**		2016-193T04:17	Jul11	Mon	34	14	30	Per = 24.0 d, inc = 42.3 deg, r = 42.665 Rs, phase = 67 deg
S95	238	**OTM-453**	~Apo	2016-199T05:13	Jul17	Sun	40	8	36	D/L Start, burn ~6h later. Backup D/L 200T05:13; complexes C/C
S95	238	**SATURN**	**Segment**	2016-202T07:28	Jul20	Wed	43	5	3	SATURN_238 (5d)
S95	238	Ring CRX	Descending	2016-203T22:39	Jul21	Thu	44	3	5	r = 14.372 Rs (867037 km)
S95	238	**OTM-454**	238TI-3d	2016-204T04:42	Jul22	Fri	45	3	5	D/L Start, burn ~6h later. Backup D/L 205T04:57; complexes C/C
S95	238	Periapse		2016-205T03:36	Jul23	Sat	46	2	1	R = 10.440 Rs, lat = -40 deg, phase = 113 deg
S95	238	**Earth OCC**	RING	2016-206T00:07	Jul24	Sun	46	1	2	Egress = 2016-206T06:38 (392 min)
S95	238	**Sun OCC**	RING	2016-206T00:42	Jul24	Sun	46	1	2	Egress = 2016-206T07:09 (387 min)
S95	238	**Earth OCC**	SATURN	2016-206T00:51	Jul24	Sun	46	1	2	Egress = 2016-206T04:46 (235 min)
S95	238	**Sun OCC**	SATURN	2016-206T02:28	Jul24	Sun	47	1	2	Egress = 2016-206T06:28 (240 min)
S95	238	**TOST**	**Segment**	2016-206T23:27	Jul24	Sun	47	0	3	TOST_238 (3d); T121 flyby
S95	238	**238TI (t) T121**	**TITAN**	2016-207T10:05	Jul25	Mon	48	16	3	Outbound 976.0 km flyby, v = 5.9 km/s, phase = 101 deg
S95	238	Ring CRX	Ascending	2016-207T10:45	Jul25	Mon	0	16	3	r = 20.108 Rs (1213117 km)
S95	238	**XD**	**Segment**	2016-209T13:27	Jul27	Wed	2	14	5	XD_238_239 (9d)
S95	238	**OTM-455**	238TI+3d	2016-210T04:27	Jul28	Thu	3	13	6	D/L Start, burn ~6h later. Backup D/L 211T04:27; complexes C/C
S95	239	**Apoapse**		2016-212T20:06	Jul30	Sat	5	11	3	Per = 15.9 d, inc = 48.7 deg, r = 31.208 Rs, phase = 83 deg
S95	239	**OTM-456**	~Apo	2016-215T04:11	Aug02	Tue	8	8	5	D/L Start, burn ~6h later. Backup D/L 216T04:11; complexes C/C
S95	239	**RINGS**	**Segment**	2016-218T12:56	Aug05	Fri	11	5	3	RINGS_239 (4d)
S95	239	Ring CRX	Descending	2016-220T01:58	Aug07	Sun	13	3	5	r = 11.124 Rs (671102 km)
S95	239	**OTM-457**	239TI-3d	2016-220T03:40	Aug07	Sun	13	3	5	D/L Start, burn ~6h later. Backup D/L 221T03:40; complexes C/C
S95	239	Periapse		2016-220T19:27	Aug07	Sun	13	3	1	R = 9.293 Rs, lat = -40 deg, phase = 97 deg
S95	239	**Sun OCC**	RING	2016-221T22:17	Aug08	Mon	15	1	2	Egress = 2016-222T04:47 (391 min)
S95	239	**Sun OCC**	SATURN	2016-221T22:47	Aug08	Mon	15	1	2	Egress = 2016-222T02:45 (238 min)
S95	239	**Earth OCC**	RING	2016-221T23:02	Aug08	Mon	15	1	2	Egress = 2016-222T02:54 (233 min)
S95	239	**TOST**	**Segment**	2016-222T22:25	Aug09	Tue	16	0	3	TOST_239 (2d); T122 flyby
S95	239	**239TI (t) T122**	**TITAN**	2016-223T08:38	Aug10	Wed	16	48	3	Outbound 1599.4 km flyby, v = 5.8 km/s, phase = 92 deg
S95	239	Ring CRX	Ascending	2016-223T09:14	Aug10	Wed	0	48	3	r = 20.083 Rs (1211622 km)
S95	239	**XD**	**Segment**	2016-224T12:25	Aug11	Thu	1	47	4	XD_239_240 (6d)
S95	240	**Apoapse**		2016-226T15:02	Aug13	Sat	3	45	6	Per = 12.0 d, inc = 53.5 deg, r = 25.897 Rs, phase = 102 deg
S95	240	**OTM-458**	239TI+4d	2016-227T03:10	Aug14	Sun	4	44	7	D/L Start, burn ~6h later. Backup D/L 228T03:09; complexes C/C
S95	240	**MAPS**	**Segment**	2016-230T12:09	Aug17	Wed	7	41	3	MAPS_240 (4d)
S95	240	**OTM-459**	~Peri	2016-232T02:54	Aug19	Fri	9	39	5	D/L Start, burn ~6h later. Backup D/L 233T02:54; complexes C/C
S95	240	Ring CRX	Descending	2016-232T06:11	Aug19	Fri	9	39	0	r = 8.213 Rs (495491 km)
S95	240	240TI (nt)	**TITAN**	2016-232T06:48	Aug19	Fri	9	39	0	Inbound 826333.9 km flyby, v = 8.5 km/s, phase = 110 deg
S95	240	Periapse		2016-232T14:26	Aug19	Fri	9	39	0	R = 7.523 Rs, lat = -31 deg, phase = 78 deg
S95	240	**Sun OCC**	RING	2016-233T19:46	Aug20	Sat	10	37	2	Egress = 2016-234T01:23 (337 min)
S95	240	**XD**	**Segment**	2016-234T11:54	Aug21	Sun	11	37	2	XD_240_241 (8d)
S95	240	Ring CRX	Ascending	2016-235T07:59	Aug22	Mon	12	36	3	r = 20.087 Rs (1211831 km)
S95	241	**Apoapse**		2016-238T13:51	Aug25	Thu	15	33	6	Per = 12.0 d, inc = 53.5 deg, r = 25.900 Rs, phase = 102 deg
S95	241	**RINGS**	**Segment**	2016-242T11:23	Aug29	Mon	19	29	10	RINGS_241 (6d)
S95	241	241TI (nt)	**TITAN**	2016-243T14:13	Aug30	Tue	20	28	11	Inbound 985764.2 km flyby, v = 8.0 km/s, phase = 91 deg
S95	241	Ring CRX	Descending	2016-244T05:00	Aug31	Wed	21	27	12	r = 8.214 Rs (495570 km)
S95	241	Periapse		2016-244T13:16	Aug31	Wed	21	27	12	R = 7.524 Rs, lat = -31 deg, phase = 78 deg
S95	241	**Sun OCC**	RING	2016-245T18:32	Sep01	Thu	22	25	14	Egress = 2016-246T00:21 (350 min)
S95	241	Ring CRX	Ascending	2016-247T06:49	Sep03	Sat	24	24	15	r = 20.094 Rs (1212270 km)
S95	241	**SATURN**	**Segment**	2016-248T10:52	Sep04	Sun	25	23	16	SATURN_241_242 (4d)
S95	242	**Apoapse**		2016-250T12:52	Sep06	Tue	27	21	18	Per = 12.0 d, inc = 53.5 deg, r = 25.920 Rs, phase = 102 deg
S96	242	**S96 Begins**		2016-252T10:36	Sep08	Thu	29	19	20	S96 Sequence. Duration = 76 d
S96	242	**SATURN**	**Segment**	2016-252T10:36	Sep08	Thu	29	19	20	SATURN_242 (8d)
S96	242	Ring CRX	Descending	2016-256T04:10	Sep12	Mon	33	15	24	r = 8.223 Rs (496079 km)
S96	242	Periapse		2016-256T12:28	Sep12	Mon	33	15	24	R = 7.531 Rs, lat = -31 deg, phase = 78 deg
S96	242	**Sun OCC**	RING	2016-257T17:41	Sep13	Tue	34	13	26	Egress = 2016-257T23:42 (362 min)
S96	242	**Sun OCC**	SATURN	2016-257T18:35	Sep13	Tue	34	13	26	Egress = 2016-257T19:50 (75 min)
S96	242	Ring CRX	Ascending	2016-259T06:03	Sep15	Thu	36	12	27	r = 20.097 Rs (1212468 km)
S96	242	**XD**	**Segment**	2016-260T10:05	Sep16	Fri	37	11	28	XD_242_243 (6d)
S96	243	**Apoapse**		2016-262T12:02	Sep18	Sun	39	9	30	Per = 12.0 d, inc = 53.5 deg, r = 25.916 Rs, phase = 102 deg
S96	243	**RINGS**	**Segment**	2016-266T09:34	Sep22	Thu	43	5	34	RINGS_243 (4d)
S96	243	**OTM-460**	243TI-4d	2016-267T00:34	Sep23	Fri	44	4	35	D/L Start, burn ~6h later. Backup D/L 269T00:34; complexes C/C
S96	243	Ring CRX	Descending	2016-268T03:19	Sep24	Sat	45	3	1	r = 8.212 Rs (495432 km)
S96	243	243PO (nt)	**POLYDEUCES**	2016-268T03:54	Sep24	Sat	45	3	1	Inbound 110203.4 km flyby, v = 9.4 km/s, phase = 40 deg
S96	243	Periapse		2016-268T11:36	Sep24	Sat	45	3	1	R = 7.519 Rs, lat = -31 deg, phase = 78 deg
S96	243	**Sun OCC**	RING	2016-269T16:42	Sep25	Sun	46	1	3	Egress = 2016-269T22:52 (371 min)
S96	243	**Sun OCC**	SATURN	2016-269T17:19	Sep25	Sun	46	1	3	Egress = 2016-269T19:31 (132 min)
S96	243	**TOST**	**Segment**	2016-270T09:19	Sep26	Mon	47	1	3	TOST_243 (3d); T123 flyby
S96	243	**243TI (t) T123**	**TITAN**	2016-271T04:23	Sep27	Tue	48	48	4	Outbound 1736.5 km flyby, v = 5.8 km/s, phase = 88 deg
S96	243	Ring CRX	Ascending	2016-271T04:58	Sep27	Tue	0	48	4	r = 20.067 Rs (1210641 km)
S96	244	**Apoapse**		2016-273T05:55	Sep29	Thu	2	46	6	Per = 9.6 d, inc = 57.8 deg, r = 23.218 Rs, phase = 117 deg
S96	244	**MAPS**	**Segment**	2016-273T09:18	Sep29	Thu	2	46	6	MAPS_244 (7d)
S96	244	**OTM-461**	243TI+3d	2016-274T00:03	Sep30	Fri	3	45	7	D/L Start, burn ~6h later. Backup D/L 275T00:03; complexes C/C
S96	244	244TI (nt)	**TITAN**	2016-277T17:31	Oct03	Mon	7	41	4	Inbound 876961.1 km flyby, v = 10.4 km/s, phase = 144 deg
S96	244	Ring CRX	Descending	2016-277T21:27	Oct03	Mon	7	41	4	r = 5.806 Rs (350301 km)
S96	244	244HE (nt)	**HELENE**	2016-277T21:56	Oct03	Mon	7	41	4	Inbound 106506.7 km flyby, v = 12.5 km/s, phase = 128 deg
S96	244	Periapse		2016-278T00:39	Oct04	Tue	7	41	4	R = 5.587 Rs, lat = -22 deg, phase = 63 deg
S96	244	**OTM-462**	~Peri	2016-278T23:48	Oct04	Tue	8	40	5	D/L Start, burn ~6h later. Backup D/L 279T23:47; complexes C/C
S96	244	**Sun OCC**	RING	2016-279T04:07	Oct05	Wed	8	40	0	Egress = 2016-279T09:19 (313 min)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S96	244	**XD**	**Segment**	2016-280T08:47	Oct06	Thu	9	39	1	XD_244_245 (6d)
S96	244	Ring CRX	Ascending	2016-280T18:25	Oct06	Thu	10	38	2	r = 20.075 Rs (1211154 km)
S96	245	**Apoapse**		2016-282T19:29	Oct08	Sat	12	36	4	Per = 9.6 d, inc = 57.8 deg, r = 23.229 Rs, phase = 118 deg
S96	245	**RINGS**	**Segment**	2016-286T01:47	Oct12	Wed	15	33	7	RINGS_245 (4d)
S96	245	Ring CRX	Descending	2016-287T11:07	Oct13	Thu	16	32	8	r = 5.812 Rs (350630 km)
S96	245	Periapse		2016-287T14:20	Oct13	Thu	16	31	9	R = 5.592 Rs, lat = -22 deg, phase = 62 deg
S96	245	**Sun OCC**	RING	2016-288T17:43	Oct14	Fri	18	30	10	Egress = 2016-288T23:11 (329 min)
S96	245	**XD**	**Segment**	2016-290T08:01	Oct16	Sun	19	29	11	XD_245_246 (6d)
S96	245	Ring CRX	Ascending	2016-290T08:08	Oct16	Sun	19	29	11	r = 20.077 Rs (1211241 km)
S96	246	**Apoapse**		2016-292T09:10	Oct18	Tue	21	27	13	Per = 9.6 d, inc = 57.8 deg, r = 23.228 Rs, phase = 118 deg
S96	246	**SOST**	**Segment**	2016-296T01:01	Oct22	Sat	25	23	17	SOST_246 (2d); non-targ flyby
S96	246	Ring CRX	Descending	2016-297T00:47	Oct23	Sun	26	22	18	r = 5.806 Rs (350287 km)
S96	246	246TL (nt)	**TELESTO**	2016-297T01:32	Oct23	Sun	26	22	18	Inbound 58909.9 km flyby, v = 12.1 km/s, phase = 71 deg
S96	246	Periapse		2016-297T04:00	Oct23	Sun	26	22	18	R = 5.586 Rs, lat = -22 deg, phase = 62 deg
S96	246	**Sun OCC**	RING	2016-298T07:15	Oct24	Mon	27	21	19	Egress = 2016-298T12:56 (341 min)
S96	246	**XD**	**Segment**	2016-298T07:31	Oct24	Mon	27	21	19	XD_246_247 (6d)
S96	246	Ring CRX	Ascending	2016-299T21:42	Oct25	Tue	29	19	21	r = 20.063 Rs (1210399 km)
S96	247	**Apoapse**		2016-301T22:45	Oct27	Thu	31	17	23	Per = 9.6 d, inc = 57.8 deg, r = 23.221 Rs, phase = 118 deg
S96	247	247TI (nt)	**TITAN**	2016-303T08:56	Oct29	Sat	32	16	24	Inbound 860404.8 km flyby, v = 5.6 km/s, phase = 41 deg
S96	247	**RINGS**	**Segment**	2016-304T17:00	Oct30	Sun	34	14	26	RINGS_247 (5d)
S96	247	247TL (nt)	**TELESTO**	2016-306T13:35	Nov01	Tue	35	12	28	Inbound 104063.1 km flyby, v = 11.7 km/s, phase = 22 deg
S96	247	247PO (nt)	**POLYDEUCES**	2016-306T13:38	Nov01	Tue	35	12	28	Inbound 106985.9 km flyby, v = 11.3 km/s, phase = 71 deg
S96	247	Ring CRX	Descending	2016-306T14:17	Nov01	Tue	35	12	28	r = 5.801 Rs (349960 km)
S96	247	Periapse		2016-306T17:29	Nov01	Tue	36	12	28	R = 5.581 Rs, lat = -22 deg, phase = 62 deg
S96	247	**Sun OCC**	RING	2016-307T20:38	Nov02	Wed	37	11	29	Egress = 2016-308T02:31 (354 min)
S96	247	**Earth OCC**	RING	2016-307T21:34	Nov02	Wed	37	11	29	Egress = 2016-308T00:42 (188 min)
S96	247	**XD**	**Segment**	2016-309T07:00	Nov04	Fri	38	10	30	XD_247_248 (5d)
S96	247	Ring CRX	Ascending	2016-309T11:08	Nov04	Fri	38	10	30	r = 20.062 Rs (1210329 km)
S96	248	**Apoapse**		2016-311T12:17	Nov06	Sun	40	7	33	Per = 9.6 d, inc = 57.8 deg, r = 23.230 Rs, phase = 118 deg
S96	248	**MAPS**	**Segment**	2016-313T23:59	Nov08	Tue	43	5	35	MAPS_248 (4d)
S96	248	**OTM-463**	248TI-4d	2016-314T21:29	Nov09	Wed	44	4	36	D/L Start, burn ~6h later. Backup D/L 315T21:29; complexes C/C
S96	248	Ring CRX	Descending	2016-316T03:52	Nov11	Fri	45	3	1	r = 5.799 Rs (349844 km)
S96	248	248TE (nt)	**TETHYS**	2016-316T05:17	Nov11	Fri	45	3	1	Inbound 102344.4 km flyby, v = 12.8 km/s, phase = 101 deg
S96	248	Periapse		2016-316T07:05	Nov11	Fri	45	3	1	R = 5.578 Rs, lat = -22 deg, phase = 62 deg
S96	248	**Sun OCC**	RING	2016-317T10:07	Nov12	Sat	46	2	3	Egress = 2016-317T16:11 (365 min)
S96	248	**Earth OCC**	RING	2016-317T10:32	Nov12	Sat	46	2	3	Egress = 2016-317T15:02 (271 min)
S96	248	**TOST**	**Segment**	2016-318T06:29	Nov13	Sun	47	1	3	TOST_248 (3d); T124 flyby
S96	248	**248TI (t) T124**	**TITAN**	2016-319T00:02	Nov14	Mon	48	16	4	Outbound 1581.6 km flyby, v = 5.8 km/s, phase = 80 deg
S96	248	Ring CRX	Ascending	2016-319T00:36	Nov14	Mon	0	16	4	r = 20.050 Rs (1209596 km)
S96	249	**Apoapse**		2016-320T09:11	Nov15	Tue	1	15	5	Per = 8.0 d, inc = 61.4 deg, r = 21.875 Rs, phase = 129 deg
S96	249	**SATURN**	**Segment**	2016-321T06:14	Nov16	Wed	2	14	6	SATURN_249 (7d)
S96	249	**OTM-464**	248TI+3d	2016-321T21:14	Nov16	Wed	3	13	7	D/L Start, burn ~6h later. Backup D/L 322T21:14; complexes C/C
S96	249	249MI (nt)	**MIMAS**	2016-324T07:36	Nov19	Sat	5	11	2	Inbound 47202.0 km flyby, v = 15.7 km/s, phase = 18 deg
S96	249	E_ring_lg	Dust Crossing	2016-324T07:45	Nov19	Sat	5	11	2	Egress at 2016-324T07:48 (2 min); protection = none
S96	249	Ring CRX	Descending	2016-324T07:47	Nov19	Sat	5	11	2	r = 3.677 Rs (221829 km)
S96	249	249DA (nt)	**DAPHNIS**	2016-324T08:16	Nov19	Sat	5	11	2	Inbound 86038.2 km flyby, v = 17.5 km/s, phase = 56 deg
S96	249	249ME (nt)	**METHONE**	2016-324T08:24	Nov19	Sat	5	11	2	Inbound 72424.4 km flyby, v = 17.2 km/s, phase = 103 deg
S96	249	Periapse		2016-324T08:44	Nov19	Sat	5	11	2	R = 3.622 Rs, lat = -14 deg, phase = 51 deg
S96	249	249PA (nt)	**PANDORA**	2016-324T08:44	Nov19	Sat	5	11	2	Inbound 94773.5 km flyby, v = 17.9 km/s, phase = 78 deg
S96	249	**Sun OCC**	RING	2016-325T05:38	Nov20	Sun	6	10	3	Egress = 2016-325T11:22 (345 min)
S96	249	**Earth OCC**	RING	2016-325T06:02	Nov20	Sun	6	10	3	Egress = 2016-325T10:23 (262 min)
S96	249	**OTM-465**	~Apo	2016-326T20:59	Nov21	Mon	8	8	5	D/L Start, burn ~6h later. Backup D/L 327T20:43; complexes C/C
S96	249	Ring CRX	Ascending	2016-326T23:40	Nov21	Mon	8	8	0	r = 20.055 Rs (1209937 km)
S97	249	**S97 Begins**		2016-328T05:43	Nov23	Wed	9	7	1	S97 Sequence. Duration = 66 d
S97	249	**SATURN**	**Segment**	2016-328T05:43	Nov23	Wed	9	7	1	SATURN_250 (3d)
S97	250	**Apoapse**		2016-328T08:21	Nov23	Wed	9	7	1	Per = 8.0 d, inc = 61.4 deg, r = 21.884 Rs, phase = 129 deg
S97	250	**SOST**	**Segment**	2016-331T05:43	Nov26	Sat	12	4	4	SOST_250 (3d); non-targ flyby
S97	250	**OTM-466**	250TI-3d	2016-331T20:28	Nov26	Sat	13	3	5	D/L Start, burn ~6h later. Backup D/L 332T19:15; complexes C/C
S97	250	250EP (nt)	**EPIMETHEUS**	2016-332T06:33	Nov27	Sun	13	3	0	Inbound 86128.1 km flyby, v = 16.7 km/s, phase = 10 deg
S97	250	250EN (nt)	**ENCELADUS**	2016-332T06:55	Nov27	Sun	13	3	0	Inbound 21993.1 km flyby, v = 15.6 km/s, phase = 103 deg
S97	250	E_ring_lg	Dust Crossing	2016-332T07:00	Nov27	Sun	13	3	0	Egress at 2016-332T07:02 (2 min); protection = none
S97	250	Ring CRX	Descending	2016-332T07:01	Nov27	Sun	13	3	0	r = 3.678 Rs (221884 km)
S97	250	Periapse		2016-332T07:59	Nov27	Sun	13	3	0	R = 3.622 Rs, lat = -14 deg, phase = 51 deg
S97	250	**Sun OCC**	RING	2016-333T04:46	Nov28	Mon	14	2	1	Egress = 2016-333T10:45 (359 min)
S97	250	**Earth OCC**	RING	2016-333T04:53	Nov28	Mon	14	2	1	Egress = 2016-333T10:12 (320 min)
S97	250	**TOST**	**Segment**	2016-334T05:28	Nov29	Tue	15	1	2	TOST_250 (2d); T125 flyby
S97	250	**250TI (t) T125**	**TITAN**	2016-334T22:21	Nov29	Tue	16	143	3	Outbound 3223.0 km flyby, v = 5.7 km/s, phase = 82 deg
S97	250	Ring CRX	Ascending	2016-334T22:51	Nov29	Tue	0	143	3	r = 20.052 Rs (1209720 km)
S97	251	**Apoapse**		2016-335T23:33	Nov30	Wed	1	142	4	Per = 7.2 d, inc = 63.8 deg, r = 21.268 Rs, phase = 135 deg
S97	251	**START OF F RING ORBITS**		2016-335T23:34	Nov30	Wed	1	142	4	Series of 20 orbits with periapses / ring crossings just outside F ring
S97	251	**OTM-467**	250TI+5d	2016-339T06:58	Dec04	Sun	4	139	7	D/L Start, burn ~6h later. Backup D/L 339T19:13; complexes M/C
S97	251	251ME (nt)	**METHONE**	2016-339T13:10	Dec04	Sun	5	139	0	Inbound 50541.0 km flyby, v = 19.4 km/s, phase = 110 deg
S97	251	JE_ring	**DUST HAZARD**	2016-339T13:15	Dec04	Sun	5	139	0	Egress at 2016-339T13:17 (2 min); protection = HGA to RAM and MEA cover closure
S97	251	Ring CRX	Descending	2016-339T13:16	Dec04	Sun	5	139	0	r = 2.533 Rs (152812 km)
S97	251	Periapse		2016-339T13:37	Dec04	Sun	5	139	0	R = 2.515 Rs, lat = -9 deg, phase = 45 deg
S97	251	251PN (nt)	**PAN**	2016-339T13:39	Dec04	Sun	5	139	0	Outbound 56410.7 km flyby, v = 21.6 km/s, phase = 103 deg
S97	251	**Earth OCC**	RING	2016-340T05:18	Dec05	Mon	5	138	1	Egress = 2016-340T11:16 (359 min)
S97	251	**Sun OCC**	RING	2016-340T05:20	Dec05	Mon	5	138	1	Egress = 2016-340T11:31 (371 min)
S97	251	Ring CRX	Ascending	2016-342T03:01	Dec07	Wed	7	136	3	r = 20.062 Rs (1210330 km)
S97	251	SEP = 3.0 deg	Conjunction	2016-342T12:21	Dec07	Wed	8	136	3	Commanding must not be required below 3.0 deg
S97	252	**Apoapse**		2016-343T03:46	Dec08	Thu	8	135	4	Per = 7.2 d, inc = 63.8 deg, r = 21.276 Rs, phase = 135 deg
S97	252	SEP = 2.0 deg	Conjunction	2016-343T20:25	Dec08	Thu	9	134	5	Plan no SSR playback below 2.0 deg
S97	252	252PM (nt)	**PROMETHEUS**	2016-346T16:54	Dec11	Sun	12	132	7	Inbound 104159.7 km flyby, v = 21.6 km/s, phase = 43 deg
S97	252	JE_ring	**DUST HAZARD**	2016-346T17:31	Dec11	Sun	12	132	7	Egress at 2016-346T17:33 (2 min); protection = HGA to RAM and MEA cover closure

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S97	252	252PL (nt)	**PALLENE**	2016-346T17:31	Dec11	Sun	12	132	7	Inbound 94629.0 km flyby, v = 20.3 km/s, phase = 132 deg
S97	252	Ring CRX	Descending	2016-346T17:32	Dec11	Sun	12	132	7	r = 2.533 Rs (152792 km)
S97	252	Periapse		2016-346T17:54	Dec11	Sun	12	132	7	R = 2.514 Rs, lat = -9 deg, phase = 45 deg
S97	252	SEP = 2.0 deg	Conjunction	2016-347T04:43	Dec12	Mon	12	131	8	Plan no SSR playback below 2.0 deg
S97	252	**Earth OCC**	RING	2016-347T09:23	Dec12	Mon	12	131	8	Egress = 2016-347T15:57 (395 min)
S97	252	**Sun OCC**	RING	2016-347T09:32	Dec12	Mon	12	131	8	Egress = 2016-347T15:57 (385 min)
S97	252	SEP = 3.0 deg	Conjunction	2016-348T12:24	Dec13	Tue	14	130	9	Commanding must not be required below 3.0 deg
S97	252	Ring CRX	Ascending	2016-349T07:16	Dec14	Wed	14	129	10	r = 20.058 Rs (1210070 km)
S97	253	**Apoapse**		2016-350T07:58	Dec15	Thu	15	128	11	Per = 7.2 d, inc = 63.8 deg, r = 21.270 Rs, phase = 135 deg
S97	253	253TI (nt)	**TITAN**	2016-350T21:53	Dec15	Thu	16	127	12	Inbound 343212.4 km flyby, v = 5.3 km/s, phase = 58 deg
S97	253	253AE (nt)	**AEGAEON**	2016-353T21:16	Dec18	Sun	19	124	15	Inbound 98495.2 km flyby, v = 20.7 km/s, phase = 60 deg
S97	253	JE_ring	**DUST HAZARD**	2016-353T21:35	Dec18	Sun	19	124	15	Egress at 2016-353T21:36 (2 min); protection = MEA cover closure
S97	253	Ring CRX	Descending	2016-353T21:35	Dec18	Sun	19	124	15	r = 2.514 Rs (151646 km)
S97	253	253PA (nt)	**PANDORA**	2016-353T21:41	Dec18	Sun	19	124	15	Inbound 15918.3 km flyby, v = 20.4 km/s, phase = 87 deg
S97	253	Periapse		2016-353T21:57	Dec18	Sun	19	124	15	R = 2.496 Rs, lat = -9 deg, phase = 45 deg
S97	253	253JA (nt)	**JANUS**	2016-353T22:09	Dec18	Sun	19	124	15	Outbound 109835.2 km flyby, v = 23.4 km/s, phase = 109 deg
S97	253	253PN (nt)	**PAN**	2016-353T22:13	Dec18	Sun	19	124	15	Outbound 92856.7 km flyby, v = 23.2 km/s, phase = 107 deg
S97	253	**Earth OCC**	RING	2016-354T13:09	Dec19	Mon	20	124	15	Egress = 2016-354T20:13 (425 min)
S97	253	**Sun OCC**	RING	2016-354T13:21	Dec19	Mon	20	124	15	Egress = 2016-354T20:00 (399 min)
S97	253	Ring CRX	Ascending	2016-356T11:08	Dec21	Wed	22	122	17	r = 20.049 Rs (1209546 km)
S97	254	**Apoapse**		2016-357T11:58	Dec22	Thu	23	121	18	Per = 7.2 d, inc = 63.8 deg, r = 21.273 Rs, phase = 135 deg
S97	254	**OTM-468**	~Apo	2016-358T18:58	Dec23	Fri	24	119	20	D/L Start, burn ~6h later. Backup D/L 359T18:58; complexes C/C
S97	254	254EN (nt)	**ENCELADUS**	2016-361T01:33	Dec26	Mon	26	117	2	Inbound 88378.4 km flyby, v = 19.2 km/s, phase = 135 deg
S97	254	JE_ring	**DUST HAZARD**	2016-361T01:36	Dec26	Mon	26	117	2	Egress at 2016-361T01:38 (2 min); protection = MEA cover closure
S97	254	254MI (nt)	**MIMAS**	2016-361T01:36	Dec26	Mon	26	117	2	Inbound 40958.1 km flyby, v = 19.4 km/s, phase = 114 deg
S97	254	Ring CRX	Descending	2016-361T01:37	Dec26	Mon	26	117	2	r = 2.512 Rs (151546 km)
S97	254	254AE (nt)	**AEGAEON**	2016-361T01:41	Dec26	Mon	26	117	2	Inbound 32041.7 km flyby, v = 20.2 km/s, phase = 138 deg
S97	254	Periapse		2016-361T01:59	Dec26	Mon	26	117	2	R = 2.494 Rs, lat = -9 deg, phase = 45 deg
S97	254	**Earth OCC**	RING	2016-361T17:05	Dec26	Mon	27	117	3	Egress = 2016-362T00:32 (447 min)
S97	254	**Sun OCC**	RING	2016-361T17:19	Dec26	Mon	27	117	3	Egress = 2016-362T00:09 (411 min)
S97	254	**Earth OCC**	SATURN	2016-361T18:05	Dec26	Mon	27	117	3	Egress = 2016-361T20:40 (155 min)
S97	254	Ring CRX	Ascending	2016-363T15:08	Dec28	Wed	29	115	5	r = 20.044 Rs (1209233 km)
S97	255	**Apoapse**		2016-364T15:57	Dec29	Thu	30	114	6	Per = 7.2 d, inc = 63.8 deg, r = 21.269 Rs, phase = 136 deg
S97	255	255TI (nt)	**TITAN**	2016-366T12:17	Dec31	Sat	32	112	8	Inbound 681772.2 km flyby, v = 7.2 km/s, phase = 29 deg
S97	255	JE_ring	**DUST HAZARD**	2017-002T05:32	Jan02	Mon	33	110	9	Egress at 2017-002T05:34 (2 min); protection = MEA cover closure
S97	255	Ring CRX	Descending	2017-002T05:33	Jan02	Mon	33	110	9	r = 2.508 Rs (151325 km)
S97	255	Periapse		2017-002T05:54	Jan02	Mon	33	110	9	R = 2.490 Rs, lat = -9 deg, phase = 44 deg
S97	255	255DA (nt)	**DAPHNIS**	2017-002T06:11	Jan02	Mon	33	110	9	Outbound 98414.2 km flyby, v = 23.4 km/s, phase = 107 deg
S97	255	**Earth OCC**	RING	2017-002T20:57	Jan02	Mon	34	109	10	Egress = 2017-003T04:41 (464 min)
S97	255	**Sun OCC**	RING	2017-002T21:10	Jan02	Mon	34	109	10	Egress = 2017-003T04:10 (421 min)
S97	255	**Earth OCC**	SATURN	2017-002T21:36	Jan02	Mon	34	109	10	Egress = 2017-003T01:42 (247 min)
S97	255	Ring CRX	Ascending	2017-004T19:01	Jan04	Wed	36	107	12	r = 20.041 Rs (1209055 km)
S97	256	**Apoapse**		2017-005T19:51	Jan05	Thu	37	106	13	Per = 7.2 d, inc = 63.8 deg, r = 21.267 Rs, phase = 136 deg
S97	256	256AT (nt)	**ATLAS**	2017-009T08:47	Jan09	Mon	40	103	17	Inbound 104357.4 km flyby, v = 21.8 km/s, phase = 44 deg
S97	256	256EP (nt)	**EPIMETHEUS**	2017-009T09:07	Jan09	Mon	40	103	17	Inbound 71344.5 km flyby, v = 20.6 km/s, phase = 54 deg
S97	256	JE_ring	**DUST HAZARD**	2017-009T09:25	Jan09	Mon	40	103	17	Egress at 2017-009T09:27 (2 min); protection = MEA cover closure
S97	256	Ring CRX	Descending	2017-009T09:26	Jan09	Mon	40	103	17	r = 2.506 Rs (151199 km)
S97	256	Periapse		2017-009T09:47	Jan09	Mon	40	103	17	R = 2.488 Rs, lat = -9 deg, phase = 44 deg
S97	256	256DA (nt)	**DAPHNIS**	2017-009T09:47	Jan09	Mon	40	103	17	Inbound 55380.7 km flyby, v = 21.6 km/s, phase = 104 deg
S97	256	256PM (nt)	**PROMETHEUS**	2017-009T10:00	Jan09	Mon	40	103	17	Outbound 92547.4 km flyby, v = 23.1 km/s, phase = 107 deg
S97	256	**Earth OCC**	RING	2017-010T00:50	Jan10	Tue	41	102	17	Egress = 2017-010T08:47 (477 min)
S97	256	**Sun OCC**	RING	2017-010T01:00	Jan10	Tue	41	102	17	Egress = 2017-010T08:10 (430 min)
S97	256	**Earth OCC**	SATURN	2017-010T01:22	Jan10	Tue	41	102	17	Egress = 2017-010T06:25 (304 min)
S97	256	Ring CRX	Ascending	2017-011T22:53	Jan11	Wed	43	100	19	r = 20.038 Rs (1208892 km)
S97	257	**Apoapse**		2017-012T23:43	Jan12	Thu	44	99	20	Per = 7.2 d, inc = 63.8 deg, r = 21.266 Rs, phase = 136 deg
S97	257	257JA (nt)	**JANUS**	2017-016T12:43	Jan16	Mon	48	96	24	Inbound 117699.1 km flyby, v = 21.9 km/s, phase = 49 deg
S97	257	257AT (nt)	**ATLAS**	2017-016T13:10	Jan16	Mon	48	96	24	Inbound 27753.7 km flyby, v = 20.3 km/s, phase = 31 deg
S97	257	257PL (nt)	**PALLENE**	2017-016T13:14	Jan16	Mon	48	96	24	Inbound 62780.1 km flyby, v = 19.6 km/s, phase = 149 deg
S97	257	JE_ring	**DUST HAZARD**	2017-016T13:17	Jan16	Mon	48	96	24	Egress at 2017-016T13:19 (2 min); protection = MEA cover closure
S97	257	Ring CRX	Descending	2017-016T13:18	Jan16	Mon	48	96	24	r = 2.507 Rs (151255 km)
S97	257	257DA (nt)	**DAPHNIS**	2017-016T13:22	Jan16	Mon	48	96	24	Inbound 17510.0 km flyby, v = 20.5 km/s, phase = 67 deg
S97	257	Periapse		2017-016T13:39	Jan16	Mon	48	96	24	R = 2.489 Rs, lat = -9 deg, phase = 44 deg
S97	257	**Earth OCC**	RING	2017-017T04:44	Jan17	Tue	48	95	24	Egress = 2017-017T12:50 (487 min)
S97	257	**Sun OCC**	RING	2017-017T04:50	Jan17	Tue	48	95	24	Egress = 2017-017T12:09 (439 min)
S97	257	**Earth OCC**	SATURN	2017-017T05:15	Jan17	Tue	48	95	24	Egress = 2017-017T10:59 (345 min)
S97	257	**Sun OCC**	SATURN	2017-017T06:05	Jan17	Tue	48	95	24	Egress = 2017-017T07:49 (105 min)
S97	257	257TI (nt)	**TITAN**	2017-017T18:30	Jan17	Tue	49	94	25	Outbound 724314.4 km flyby, v = 9.3 km/s, phase = 96 deg
S97	257	Ring CRX	Ascending	2017-019T02:46	Jan19	Thu	50	93	26	r = 20.042 Rs (1209136 km)
S97	258	**Apoapse**		2017-020T03:35	Jan20	Fri	51	92	27	Per = 7.2 d, inc = 63.8 deg, r = 21.267 Rs, phase = 136 deg
S97	258	258DA (nt)	**DAPHNIS**	2017-023T16:58	Jan23	Mon	55	89	31	Inbound 39076.8 km flyby, v = 20.4 km/s, phase = 37 deg
S97	258	258EN (nt)	**ENCELADUS**	2017-023T17:01	Jan23	Mon	55	89	31	Inbound 124117.2 km flyby, v = 20.2 km/s, phase = 129 deg
S97	258	JE_ring	**DUST HAZARD**	2017-023T17:10	Jan23	Mon	55	89	31	Egress at 2017-023T17:12 (2 min); protection = MEA cover closure
S97	258	Ring CRX	Descending	2017-023T17:11	Jan23	Mon	55	89	31	r = 2.507 Rs (151273 km)
S97	258	258PA (nt)	**PANDORA**	2017-023T17:18	Jan23	Mon	55	89	31	Inbound 21825.8 km flyby, v = 20.6 km/s, phase = 95 deg
S97	258	Periapse		2017-023T17:32	Jan23	Mon	55	89	31	R = 2.489 Rs, lat = -9 deg, phase = 44 deg
S97	258	258AT (nt)	**ATLAS**	2017-023T17:32	Jan23	Mon	55	89	31	Outbound 56456.2 km flyby, v = 21.6 km/s, phase = 104 deg
S97	258	**Earth OCC**	RING	2017-024T08:41	Jan24	Tue	55	88	32	Egress = 2017-024T16:54 (493 min)
S97	258	**Sun OCC**	RING	2017-024T08:42	Jan24	Tue	55	88	32	Egress = 2017-024T16:09 (447 min)
S97	258	**Earth OCC**	SATURN	2017-024T09:14	Jan24	Tue	55	88	32	Egress = 2017-024T15:26 (373 min)
S97	258	**Sun OCC**	SATURN	2017-024T09:39	Jan24	Tue	55	88	32	Egress = 2017-024T12:20 (162 min)
S97	258	Ring CRX	Ascending	2017-026T06:41	Jan26	Thu	57	86	33	r = 20.045 Rs (1209344 km)
S97	259	**Apoapse**		2017-027T07:31	Jan27	Fri	58	85	35	Per = 7.2 d, inc = 63.8 deg, r = 21.272 Rs, phase = 137 deg
S98	259	**S98 Begins**		2017-028T02:01	Jan28	Sat	59	84	35	S98 Sequence. Duration = 71 d
S98	259	259DA (nt)	**DAPHNIS**	2017-030T20:36	Jan30	Mon	62	81	38	Inbound 86077.6 km flyby, v = 21.2 km/s, phase = 44 deg
S98	259	259MI (nt)	**MIMAS**	2017-030T21:06	Jan30	Mon	62	81	38	Inbound 40650.4 km flyby, v = 19.7 km/s, phase = 111 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S98	259	JE_ring	**DUST HAZARD**	2017-030T21:07	Jan30	Mon	62	81	38	Egress at 2017-030T21:09 (2 min); protection = MEA cover closure
S98	259	259EP (nt)	**EPIMETHEUS**	2017-030T21:07	Jan30	Mon	62	81	38	Inbound 6335.9 km flyby, v = 20.1 km/s, phase = 75 deg
S98	259	Ring CRX	Descending	2017-030T21:08	Jan30	Mon	62	81	38	r = 2.509 Rs (151355 km)
S98	259	259PM (nt)	**PROMETHEUS**	2017-030T21:26	Jan30	Mon	62	81	38	Inbound 49523.2 km flyby, v = 21.4 km/s, phase = 104 deg
S98	259	Periapse		2017-030T21:29	Jan30	Mon	62	81	38	R = 2.491 Rs, lat = -9 deg, phase = 43 deg
S98	259	**Sun OCC**	RING	2017-031T12:38	Jan31	Tue	63	81	39	Egress = 2017-031T20:12 (455 min)
S98	259	**Earth OCC**	RING	2017-031T12:43	Jan31	Tue	63	81	39	Egress = 2017-031T20:59 (497 min)
S98	259	**Earth OCC**	SATURN	2017-031T13:21	Jan31	Tue	63	81	39	Egress = 2017-031T19:52 (391 min)
S98	259	**Sun OCC**	SATURN	2017-031T13:24	Jan31	Tue	63	81	39	Egress = 2017-031T16:49 (205 min)
S98	259	259TI (nt)	**TITAN**	2017-032T20:04	Feb01	Wed	64	79	40	Outbound 221020.7 km flyby, v = 6.3 km/s, phase = 91 deg
S98	259	Ring CRX	Ascending	2017-033T10:36	Feb02	Thu	65	79	41	r = 20.053 Rs (1209777 km)
S98	260	**Apoapse**		2017-034T11:39	Feb03	Fri	66	78	42	Per = 7.2 d, inc = 63.7 deg, r = 21.297 Rs, phase = 137 deg
S98	260	260PN (nt)	**PAN**	2017-038T00:52	Feb07	Tue	69	74	45	Inbound 96012.9 km flyby, v = 21.5 km/s, phase = 43 deg
S98	260	260JA (nt)	**JANUS**	2017-038T01:02	Feb07	Tue	69	74	45	Inbound 91388.6 km flyby, v = 21.0 km/s, phase = 53 deg
S98	260	JE_ring	**DUST HAZARD**	2017-038T01:29	Feb07	Tue	69	74	45	Egress at 2017-038T01:31 (2 min); protection = HGA to RAM and MEA cover closure
S98	260	Ring CRX	Descending	2017-038T01:30	Feb07	Tue	69	74	45	r = 2.528 Rs (152530 km)
S98	260	260ME (nt)	**METHONE**	2017-038T01:34	Feb07	Tue	69	74	45	Inbound 84152.1 km flyby, v = 20.7 km/s, phase = 125 deg
S98	260	Periapse		2017-038T01:52	Feb07	Tue	69	74	45	R = 2.510 Rs, lat = -9 deg, phase = 43 deg
S98	260	**Sun OCC**	RING	2017-038T17:04	Feb07	Tue	70	74	46	Egress = 2017-039T00:46 (463 min)
S98	260	**Earth OCC**	RING	2017-038T17:16	Feb07	Tue	70	74	46	Egress = 2017-039T01:33 (498 min)
S98	260	**Sun OCC**	SATURN	2017-038T17:43	Feb07	Tue	70	74	46	Egress = 2017-038T21:45 (243 min)
S98	260	**Earth OCC**	SATURN	2017-038T18:01	Feb07	Tue	70	74	46	Egress = 2017-039T00:41 (401 min)
S98	260	Ring CRX	Ascending	2017-040T15:04	Feb09	Thu	72	72	48	r = 20.061 Rs (1210272 km)
S98	261	**Apoapse**		2017-041T16:07	Feb10	Fri	73	71	49	Per = 7.2 d, inc = 63.7 deg, r = 21.304 Rs, phase = 137 deg
S98	261	261AE (nt)	**AEGAEON**	2017-045T05:46	Feb14	Tue	76	67	52	Inbound 75204.3 km flyby, v = 20.1 km/s, phase = 68 deg
S98	261	261ME (nt)	**METHONE**	2017-045T05:54	Feb14	Tue	76	67	52	Inbound 69478.2 km flyby, v = 19.5 km/s, phase = 95 deg
S98	261	JE_ring	**DUST HAZARD**	2017-045T06:00	Feb14	Tue	76	67	52	Egress at 2017-045T06:02 (2 min); protection = HGA to RAM and MEA cover closure
S98	261	Ring CRX	Descending	2017-045T06:01	Feb14	Tue	76	67	52	r = 2.529 Rs (152553 km)
S98	261	Periapse		2017-045T06:23	Feb14	Tue	76	67	52	R = 2.510 Rs, lat = -9 deg, phase = 43 deg
S98	261	**Sun OCC**	RING	2017-045T21:34	Feb14	Tue	77	66	53	Egress = 2017-046T05:22 (469 min)
S98	261	**Earth OCC**	RING	2017-045T21:53	Feb14	Tue	77	66	53	Egress = 2017-046T06:09 (497 min)
S98	261	**Sun OCC**	SATURN	2017-045T22:09	Feb14	Tue	77	66	53	Egress = 2017-046T02:39 (271 min)
S98	261	**Earth OCC**	SATURN	2017-045T22:46	Feb14	Tue	77	66	53	Egress = 2017-046T05:29 (403 min)
S98	261	Ring CRX	Ascending	2017-047T19:35	Feb16	Thu	79	64	55	r = 20.058 Rs (1210126 km)
S98	261	261TI (nt)	**TITAN**	2017-048T13:17	Feb17	Fri	80	64	56	Outbound 186410.9 km flyby, v = 5.1 km/s, phase = 77 deg
S98	262	**Apoapse**		2017-048T20:29	Feb17	Fri	80	63	56	Per = 7.2 d, inc = 63.8 deg, r = 21.296 Rs, phase = 137 deg
S98	262	262PN (nt)	**PAN**	2017-052T09:40	Feb21	Tue	83	60	60	Inbound 74051.8 km flyby, v = 21.0 km/s, phase = 43 deg
S98	262	262PM (nt)	**PROMETHEUS**	2017-052T09:43	Feb21	Tue	83	60	60	Inbound 71017.0 km flyby, v = 20.8 km/s, phase = 48 deg
S98	262	262EP (nt)	**EPIMETHEUS**	2017-052T10:04	Feb21	Tue	83	60	60	Inbound 10921.6 km flyby, v = 20.1 km/s, phase = 75 deg
S98	262	262PL (nt)	**PALLENE**	2017-052T10:04	Feb21	Tue	83	60	60	Inbound 106282.1 km flyby, v = 19.8 km/s, phase = 91 deg
S98	262	2.47_Rs_gap	**DUST HAZARD**	2017-052T10:07	Feb21	Tue	83	60	60	Egress at 2017-052T10:08 (1 min); protection = MEA cover closure
S98	262	Ring CRX	Descending	2017-052T10:07	Feb21	Tue	83	60	60	r = 2.493 Rs (150404 km)
S98	262	262AE (nt)	**AEGAEON**	2017-052T10:15	Feb21	Tue	83	60	60	Inbound 50978.6 km flyby, v = 20.7 km/s, phase = 124 deg
S98	262	Periapse		2017-052T10:28	Feb21	Tue	84	60	60	R = 2.475 Rs, lat = -9 deg, phase = 43 deg
S98	262	**Sun OCC**	RING	2017-053T01:24	Feb22	Wed	84	59	60	Egress = 2017-053T09:19 (475 min)
S98	262	**Earth OCC**	RING	2017-053T01:50	Feb22	Wed	84	59	60	Egress = 2017-053T10:04 (494 min)
S98	262	**Sun OCC**	SATURN	2017-053T01:56	Feb22	Wed	84	59	60	Egress = 2017-053T06:53 (297 min)
S98	262	**Earth OCC**	SATURN	2017-053T02:53	Feb22	Wed	84	59	60	Egress = 2017-053T09:31 (398 min)
S98	262	Ring CRX	Ascending	2017-054T23:31	Feb23	Thu	86	57	62	r = 20.057 Rs (1210059 km)
S98	263	**Apoapse**		2017-056T00:32	Feb25	Sat	87	56	63	Per = 7.2 d, inc = 63.7 deg, r = 21.302 Rs, phase = 137 deg
S98	263	263JA (nt)	**JANUS**	2017-059T13:48	Feb28	Tue	91	53	67	Inbound 92877.7 km flyby, v = 21.1 km/s, phase = 55 deg
S98	263	263PA (nt)	**PANDORA**	2017-059T13:56	Feb28	Tue	91	53	67	Inbound 54388.1 km flyby, v = 20.5 km/s, phase = 49 deg
S98	263	2.47_Rs_gap	**DUST HAZARD**	2017-059T14:13	Feb28	Tue	91	53	67	Egress at 2017-059T14:15 (1 min); protection = MEA cover closure
S98	263	Ring CRX	Descending	2017-059T14:14	Feb28	Tue	91	53	67	r = 2.492 Rs (150340 km)
S98	263	Periapse		2017-059T14:35	Feb28	Tue	91	53	67	R = 2.474 Rs, lat = -9 deg, phase = 42 deg
S98	263	**Sun OCC**	RING	2017-060T05:30	Mar01	Wed	91	52	67	Egress = 2017-060T13:30 (480 min)
S98	263	**Sun OCC**	SATURN	2017-060T06:01	Mar01	Wed	91	52	67	Egress = 2017-060T11:18 (317 min)
S98	263	**Earth OCC**	RING	2017-060T06:02	Mar01	Wed	91	52	67	Egress = 2017-060T14:13 (491 min)
S98	263	**Earth OCC**	SATURN	2017-060T07:16	Mar01	Wed	91	52	68	Egress = 2017-060T13:43 (388 min)
S98	263	Ring CRX	Ascending	2017-062T03:36	Mar03	Fri	93	50	69	r = 20.053 Rs (1209822 km)
S98	264	**Apoapse**		2017-063T04:36	Mar04	Sat	94	49	70	Per = 7.2 d, inc = 63.7 deg, r = 21.297 Rs, phase = 138 deg
S98	264	264TI (nt)	**TITAN**	2017-064T11:54	Mar05	Sun	96	48	72	Inbound 492380.0 km flyby, v = 5.9 km/s, phase = 42 deg
S98	264	264MI (nt)	**MIMAS**	2017-066T18:02	Mar07	Tue	98	46	74	Inbound 102121.4 km flyby, v = 20.7 km/s, phase = 74 deg
S98	264	264PN (nt)	**PAN**	2017-066T18:07	Mar07	Tue	98	46	74	Inbound 25230.3 km flyby, v = 20.4 km/s, phase = 26 deg
S98	264	2.47_Rs_gap	**DUST HAZARD**	2017-066T18:13	Mar07	Tue	98	46	74	Egress at 2017-066T18:14 (1 min); protection = MEA cover closure
S98	264	Ring CRX	Descending	2017-066T18:13	Mar07	Tue	98	46	74	r = 2.482 Rs (149738 km)
S98	264	Periapse		2017-066T18:34	Mar07	Tue	98	45	74	R = 2.464 Rs, lat = -9 deg, phase = 42 deg
S98	264	**Sun OCC**	RING	2017-067T09:24	Mar08	Wed	98	45	75	Egress = 2017-067T17:27 (484 min)
S98	264	**Sun OCC**	SATURN	2017-067T09:55	Mar08	Wed	98	45	75	Egress = 2017-067T15:28 (334 min)
S98	264	**Earth OCC**	RING	2017-067T10:02	Mar08	Wed	98	45	75	Egress = 2017-067T18:08 (486 min)
S98	264	**Earth OCC**	SATURN	2017-067T11:26	Mar08	Wed	99	45	75	Egress = 2017-067T17:40 (374 min)
S98	264	Ring CRX	Ascending	2017-069T07:26	Mar10	Fri	100	43	77	r = 20.042 Rs (1209128 km)
S98	265	**Apoapse**		2017-070T08:32	Mar11	Sat	101	42	78	Per = 7.2 d, inc = 63.7 deg, r = 21.295 Rs, phase = 138 deg
S98	265	2.47_Rs_gap	**DUST HAZARD**	2017-073T22:07	Mar14	Tue	105	38	81	Egress at 2017-073T22:09 (1 min); protection = MEA cover closure
S98	265	Ring CRX	Descending	2017-073T22:08	Mar14	Tue	105	38	81	r = 2.480 Rs (149618 km)
S98	265	265EP (nt)	**EPIMETHEUS**	2017-073T22:18	Mar14	Tue	105	38	81	Inbound 37953.9 km flyby, v = 21.0 km/s, phase = 113 deg
S98	265	Periapse		2017-073T22:29	Mar14	Tue	105	38	81	R = 2.462 Rs, lat = -9 deg, phase = 42 deg
S98	265	265PA (nt)	**PANDORA**	2017-073T22:47	Mar14	Tue	105	38	81	Outbound 113308.1 km flyby, v = 24.1 km/s, phase = 104 deg
S98	265	**Sun OCC**	RING	2017-074T13:18	Mar15	Wed	106	38	82	Egress = 2017-074T21:25 (487 min)
S98	265	**Sun OCC**	SATURN	2017-074T13:49	Mar15	Wed	106	38	82	Egress = 2017-074T19:37 (348 min)
S98	265	**Earth OCC**	RING	2017-074T14:01	Mar15	Wed	106	38	82	Egress = 2017-074T22:03 (482 min)
S98	265	**Earth OCC**	SATURN	2017-074T15:35	Mar15	Wed	106	38	82	Egress = 2017-074T21:34 (359 min)
S98	265	Ring CRX	Ascending	2017-076T11:19	Mar17	Fri	108	36	84	r = 20.038 Rs (1208908 km)
S98	266	**Apoapse**		2017-077T12:25	Mar18	Sat	109	35	85	Per = 7.2 d, inc = 63.7 deg, r = 21.293 Rs, phase = 138 deg
S98	266	266TI (nt)	**TITAN**	2017-079T17:41	Mar20	Mon	111	33	87	Inbound 874275.4 km flyby, v = 8.7 km/s, phase = 32 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S98	266	266JA (nt)	**JANUS**	2017-081T01:47	Mar22	Wed	112	31	88	Inbound 44119.4 km flyby, v = 20.2 km/s, phase = 64 deg
S98	266	266PL (nt)	**PALLENE**	2017-081T01:57	Mar22	Wed	112	31	88	Inbound 106706.3 km flyby, v = 20.7 km/s, phase = 122 deg
S98	266	2.47_Rs_gap	**DUST HAZARD**	2017-081T01:59	Mar22	Wed	112	31	88	Egress at 2017-081T02:00 (1 min); protection = MEA cover closure
S98	266	Ring CRX	Descending	2017-081T01:59	Mar22	Wed	112	31	88	r = 2.479 Rs (149581 km)
S98	266	Periapse		2017-081T02:20	Mar22	Wed	112	31	88	R = 2.461 Rs, lat = -9 deg, phase = 42 deg
S98	266	266PN (nt)	**PAN**	2017-081T02:21	Mar22	Wed	112	31	88	Outbound 54777.5 km flyby, v = 21.7 km/s, phase = 99 deg
S98	266	**Sun OCC**	RING	2017-081T17:10	Mar22	Wed	113	31	89	Egress = 2017-082T01:20 (490 min)
S98	266	**Sun OCC**	SATURN	2017-081T17:42	Mar22	Wed	113	31	89	Egress = 2017-081T23:43 (361 min)
S98	266	**Earth OCC**	RING	2017-081T17:57	Mar22	Wed	113	31	89	Egress = 2017-082T01:55 (478 min)
S98	266	**Earth OCC**	SATURN	2017-081T19:42	Mar22	Wed	113	30	89	Egress = 2017-082T01:23 (342 min)
S98	266	266TI (nt)	**TITAN**	2017-082T00:23	Mar23	Thu	113	30	89	Outbound 955006.6 km flyby, v = 11.3 km/s, phase = 97 deg
S98	266	Ring CRX	Ascending	2017-083T15:11	Mar24	Fri	115	29	91	r = 20.039 Rs (1208980 km)
S98	267	**Apoapse**		2017-084T16:16	Mar25	Sat	116	28	92	Per = 7.2 d, inc = 63.7 deg, r = 21.292 Rs, phase = 138 deg
S98	267	267EN (nt)	**ENCELADUS**	2017-088T05:47	Mar29	Wed	119	24	95	Inbound 93149.8 km flyby, v = 19.3 km/s, phase = 134 deg
S98	267	2.47_Rs_gap	**DUST HAZARD**	2017-088T05:49	Mar29	Wed	119	24	95	Egress at 2017-088T05:51 (1 min); protection = MEA cover closure
S98	267	Ring CRX	Descending	2017-088T05:50	Mar29	Wed	119	24	95	r = 2.478 Rs (149495 km)
S98	267	267MI (nt)	**MIMAS**	2017-088T06:08	Mar29	Wed	119	24	95	Inbound 121088.9 km flyby, v = 22.8 km/s, phase = 108 deg
S98	267	Periapse		2017-088T06:11	Mar29	Wed	119	24	95	R = 2.460 Rs, lat = -9 deg, phase = 42 deg
S98	267	**Sun OCC**	RING	2017-088T21:01	Mar29	Wed	120	23	96	Egress = 2017-089T05:13 (492 min)
S98	267	**Sun OCC**	SATURN	2017-088T21:35	Mar29	Wed	120	23	96	Egress = 2017-089T03:46 (372 min)
S98	267	**Earth OCC**	RING	2017-088T21:51	Mar29	Wed	120	23	96	Egress = 2017-089T05:45 (475 min)
S98	267	**Earth OCC**	SATURN	2017-088T23:44	Mar29	Wed	120	23	96	Egress = 2017-089T05:11 (327 min)
S98	267	Ring CRX	Ascending	2017-090T19:01	Mar31	Fri	122	21	98	r = 20.038 Rs (1208902 km)
S98	268	**Apoapse**		2017-091T20:07	Apr01	Sat	123	20	99	Per = 7.2 d, inc = 63.7 deg, r = 21.292 Rs, phase = 139 deg
S98	268	268AT (nt)	**ATLAS**	2017-095T09:17	Apr05	Wed	126	17	103	Inbound 69807.7 km flyby, v = 20.9 km/s, phase = 49 deg
S98	268	268PA (nt)	**PANDORA**	2017-095T09:30	Apr05	Wed	126	17	103	Inbound 36623.4 km flyby, v = 20.3 km/s, phase = 50 deg
S98	268	2.47_Rs_gap	**DUST HAZARD**	2017-095T09:40	Apr05	Wed	126	17	103	Egress at 2017-095T09:42 (1 min); protection = MEA cover closure
S98	268	Ring CRX	Descending	2017-095T09:41	Apr05	Wed	126	17	103	r = 2.479 Rs (149579 km)
S98	268	Periapse		2017-095T10:02	Apr05	Wed	126	17	103	R = 2.461 Rs, lat = -9 deg, phase = 41 deg
S98	268	268EP (nt)	**EPIMETHEUS**	2017-095T10:12	Apr05	Wed	126	17	103	Outbound 110691.8 km flyby, v = 23.7 km/s, phase = 103 deg
S98	268	**Sun OCC**	RING	2017-096T00:54	Apr06	Thu	127	16	103	Egress = 2017-096T09:08 (495 min)
S98	268	**Sun OCC**	SATURN	2017-096T01:30	Apr06	Thu	127	16	103	Egress = 2017-096T07:51 (381 min)
S98	268	**Earth OCC**	RING	2017-096T01:46	Apr06	Thu	127	16	103	Egress = 2017-096T09:37 (472 min)
S98	268	**Earth OCC**	SATURN	2017-096T03:47	Apr06	Thu	127	16	103	Egress = 2017-096T08:59 (312 min)
S98	268	268TI (nt)	**TITAN**	2017-096T22:19	Apr06	Thu	128	15	104	Outbound 477727.9 km flyby, v = 7.7 km/s, phase = 89 deg
S98	268	Ring CRX	Ascending	2017-097T22:53	Apr07	Fri	129	14	105	r = 20.045 Rs (1209325 km)
S99	268	**S99 Begins**		2017-098T21:55	Apr08	Sat	130	13	106	S99 Sequence. Duration = 67 d
S99	269	**Apoapse**		2017-099T00:01	Apr09	Sun	130	13	106	Per = 7.2 d, inc = 63.6 deg, r = 21.302 Rs, phase = 139 deg
S99	269	269MI (nt)	**MIMAS**	2017-102T13:27	Apr12	Wed	134	10	110	Inbound 97950.3 km flyby, v = 20.8 km/s, phase = 76 deg
S99	269	269AE (nt)	**AEGAEON**	2017-102T13:37	Apr12	Wed	134	10	110	Inbound 20761.5 km flyby, v = 19.9 km/s, phase = 120 deg
S99	269	2.47_Rs_gap	**DUST HAZARD**	2017-102T13:40	Apr12	Wed	134	10	110	Egress at 2017-102T13:41 (1 min); protection = MEA cover closure
S99	269	Ring CRX	Descending	2017-102T13:40	Apr12	Wed	134	10	110	r = 2.484 Rs (149844 km)
S99	269	269JA (nt)	**JANUS**	2017-102T13:42	Apr12	Wed	134	10	110	Inbound 8702.4 km flyby, v = 20.2 km/s, phase = 126 deg
S99	269	269AT (nt)	**ATLAS**	2017-102T13:43	Apr12	Wed	134	10	110	Inbound 13017.5 km flyby, v = 20.5 km/s, phase = 53 deg
S99	269	Periapse		2017-102T14:01	Apr12	Wed	134	10	110	R = 2.466 Rs, lat = -9 deg, phase = 41 deg
S99	269	269PM (nt)	**PROMETHEUS**	2017-102T14:10	Apr12	Wed	134	10	110	Outbound 85207.7 km flyby, v = 22.8 km/s, phase = 103 deg
S99	269	**Sun OCC**	RING	2017-103T04:56	Apr13	Thu	134	9	110	Egress = 2017-103T13:11 (496 min)
S99	269	**Sun OCC**	SATURN	2017-103T05:34	Apr13	Thu	134	9	110	Egress = 2017-103T12:03 (389 min)
S99	269	**Earth OCC**	RING	2017-103T05:48	Apr13	Thu	134	9	110	Egress = 2017-103T13:37 (470 min)
S99	269	**Earth OCC**	SATURN	2017-103T07:54	Apr13	Thu	134	9	111	Egress = 2017-103T12:56 (303 min)
S99	269	Ring CRX	Ascending	2017-105T02:55	Apr15	Sat	136	7	112	r = 20.049 Rs (1209571 km)
S99	270	**Apoapse**		2017-106T04:03	Apr16	Sun	137	6	113	Per = 7.2 d, inc = 63.6 deg, r = 21.306 Rs, phase = 139 deg
S99	270	**OTM-469**	270TI-4d	2017-108T12:11	Apr18	Tue	140	4	116	D/L Start, burn ~6h later. Backup D/L 109T12:11; complexes C/C
S99	270	2.47_Rs_gap	**DUST HAZARD**	2017-109T17:44	Apr19	Wed	141	3	1	Egress at 2017-109T17:45 (1 min); protection = MEA cover closure
S99	270	Ring CRX	Descending	2017-109T17:44	Apr19	Wed	141	3	1	r = 2.485 Rs (149908 km)
S99	270	270ME (nt)	**METHONE**	2017-109T17:47	Apr19	Wed	141	3	1	Inbound 89168.0 km flyby, v = 20.9 km/s, phase = 120 deg
S99	270	270AE (nt)	**AEGAEON**	2017-109T18:05	Apr19	Wed	141	3	1	Inbound 111086.5 km flyby, v = 22.8 km/s, phase = 105 deg
S99	270	Periapse		2017-109T18:06	Apr19	Wed	141	3	1	R = 2.467 Rs, lat = -9 deg, phase = 41 deg
S99	270	270AT (nt)	**ATLAS**	2017-109T18:12	Apr19	Wed	141	3	1	Outbound 73557.8 km flyby, v = 22.4 km/s, phase = 102 deg
S99	270	270PA (nt)	**PANDORA**	2017-109T18:25	Apr19	Wed	141	2	1	Outbound 120174.5 km flyby, v = 24.4 km/s, phase = 101 deg
S99	270	270DA (nt)	**DAPHNIS**	2017-109T18:29	Apr19	Wed	141	2	1	Outbound 117494.8 km flyby, v = 24.5 km/s, phase = 101 deg
S99	270	**Sun OCC**	RING	2017-110T09:02	Apr20	Thu	141	2	2	Egress = 2017-110T17:18 (497 min)
S99	270	**Sun OCC**	SATURN	2017-110T09:43	Apr20	Thu	141	2	2	Egress = 2017-110T16:18 (395 min)
S99	270	**Earth OCC**	RING	2017-110T09:53	Apr20	Thu	141	2	2	Egress = 2017-110T17:41 (469 min)
S99	270	**Earth OCC**	SATURN	2017-110T12:02	Apr20	Thu	142	2	2	Egress = 2017-110T16:59 (297 min)
S99	270	**270TI (t) T126**	**TITAN**	2017-112T06:20	Apr22	Sat	143	--	4	Outbound 979.0 km flyby, v = 5.8 km/s, phase = 61 deg
S99	270	Ring CRX	Ascending	2017-112T07:11	Apr22	Sat	0	--	4	r = 20.081 Rs (1211482 km)
S99	271	**Apoapse**		2017-113T04:17	Apr23	Sun	1	--	5	Per = 6.5 d, inc = 62.2 deg, r = 21.113 Rs, phase = 144 deg
S99	270	**START OF PROXIMAL ORBITS**		2017-113T04:17	Apr23	Sun	1	--	5	Series of 22 orbits with periapses / ring crossings between rings and planet
S99	271	271JA (nt)	**JANUS**	2017-116T09:32	Apr26	Wed	4	--	8	Inbound 99450.5 km flyby, v = 29.6 km/s, phase = 129 deg
S99	271	271AT (nt)	**ATLAS**	2017-116T09:40	Apr26	Wed	4	--	8	Inbound 73422.6 km flyby, v = 29.8 km/s, phase = 149 deg
S99	271	**Earth OCC**	RING	2017-116T09:42	Apr26	Wed	4	--	8	Egress = 2017-116T10:08 (27 min)
S99	271	Ring CRX	Descending	2017-116T09:42	Apr26	Wed	4	--	8	r = 1.063 Rs (64152 km)
S99	271	**Sun OCC**	RING	2017-116T09:42	Apr26	Wed	4	--	8	Egress = 2017-116T10:10 (28 min)
S99	271	Periapse		2017-116T09:45	Apr26	Wed	4	--	8	R = 1.061 Rs, lat = -5 deg, phase = 36 deg
S99	271	271DA (nt)	**DAPHNIS**	2017-116T09:47	Apr26	Wed	4	--	8	Outbound 83092.4 km flyby, v = 29.8 km/s, phase = 119 deg
S99	271	271EP (nt)	**EPIMETHEUS**	2017-116T09:50	Apr26	Wed	4	--	8	Outbound 104022.1 km flyby, v = 29.5 km/s, phase = 110 deg
S99	271	**Sun OCC**	RING	2017-116T14:14	Apr26	Wed	4	--	8	Egress = 2017-116T22:35 (501 min)
S99	271	**Earth OCC**	RING	2017-116T14:45	Apr26	Wed	4	--	8	Egress = 2017-116T22:45 (480 min)
S99	271	**Sun OCC**	SATURN	2017-116T15:18	Apr26	Wed	4	--	8	Egress = 2017-116T21:57 (400 min)
S99	271	**Earth OCC**	SATURN	2017-116T16:45	Apr26	Wed	4	--	8	Egress = 2017-116T21:58 (314 min)
S99	271	Ring CRX	Ascending	2017-118T17:53	Apr28	Fri	6	--	10	r = 20.062 Rs (1210358 km)
S99	272	**Apoapse**		2017-119T15:16	Apr29	Sat	7	--	11	Per = 6.5 d, inc = 62.2 deg, r = 21.118 Rs, phase = 144 deg
S99	272	272DA (nt)	**DAPHNIS**	2017-122T20:38	May02	Tue	11	--	14	Inbound 77501.7 km flyby, v = 29.9 km/s, phase = 140 deg
S99	272	272PM (nt)	**PROMETHEUS**	2017-122T20:43	May02	Tue	11	--	14	Inbound 75620.6 km flyby, v = 29.8 km/s, phase = 147 deg
S99	272	**Earth OCC**	RING	2017-122T20:44	May02	Tue	11	--	14	Egress = 2017-122T21:10 (27 min)

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S99	272	Ring CRX	Descending	2017-122T20:44	May02	Tue	11	--	14	r = 1.063 Rs (64131 km)
S99	272	**Sun OCC**	RING	2017-122T20:44	May02	Tue	11	--	14	Egress = 2017-122T21:11 (28 min)
S99	272	Periapse		2017-122T20:47	May02	Tue	11	--	14	R = 1.060 Rs, lat = -5 deg, phase = 36 deg
S99	272	**Sun OCC**	RING	2017-123T01:18	May03	Wed	11	--	15	Egress = 2017-123T09:35 (497 min)
S99	272	**Earth OCC**	RING	2017-123T01:49	May03	Wed	11	--	15	Egress = 2017-123T09:42 (473 min)
S99	272	**Sun OCC**	SATURN	2017-123T02:31	May03	Wed	11	--	15	Egress = 2017-123T09:04 (393 min)
S99	272	**Earth OCC**	SATURN	2017-123T04:05	May03	Wed	11	--	15	Egress = 2017-123T08:40 (275 min)
S99	272	Ring CRX	Ascending	2017-125T04:38	May05	Fri	13	--	17	r = 20.034 Rs (1208674 km)
S99	273	**Apoapse**		2017-126T02:16	May06	Sat	14	--	18	Per = 6.5 d, inc = 62.1 deg, r = 21.115 Rs, phase = 145 deg
S99	273	273TI (nt)	**TITAN**	2017-127T21:25	May07	Sun	16	--	19	Inbound 487627.1 km flyby, v = 7.1 km/s, phase = 30 deg
S99	273	273DA (nt)	**DAPHNIS**	2017-129T07:22	May09	Tue	17	--	21	Inbound 119644.6 km flyby, v = 30.1 km/s, phase = 84 deg
S99	273	273PN (nt)	**PAN**	2017-129T07:24	May09	Tue	17	--	21	Inbound 114590.7 km flyby, v = 30.5 km/s, phase = 87 deg
S99	273	**Earth OCC**	RING	2017-129T07:41	May09	Tue	17	--	21	Egress = 2017-129T08:08 (27 min)
S99	273	Ring CRX	Descending	2017-129T07:41	May09	Tue	17	--	21	r = 1.059 Rs (63899 km)
S99	273	**Sun OCC**	RING	2017-129T07:41	May09	Tue	17	--	21	Egress = 2017-129T08:09 (28 min)
S99	273	273PA (nt)	**PANDORA**	2017-129T07:41	May09	Tue	17	--	21	Inbound 78915.8 km flyby, v = 29.9 km/s, phase = 145 deg
S99	273	Periapse		2017-129T07:45	May09	Tue	17	--	21	R = 1.056 Rs, lat = -6 deg, phase = 35 deg
S99	273	**Sun OCC**	RING	2017-129T12:17	May09	Tue	17	--	21	Egress = 2017-129T20:28 (491 min)
S99	273	**Earth OCC**	RING	2017-129T12:46	May09	Tue	17	--	21	Egress = 2017-129T20:3 (466 min)
S99	273	**Sun OCC**	SATURN	2017-129T13:41	May09	Tue	17	--	21	Egress = 2017-129T19:58 (377 min)
S99	273	**Earth OCC**	SATURN	2017-129T15:21	May09	Tue	17	--	21	Egress = 2017-129T19:11 (231 min)
S99	273	273TI (nt)	**TITAN**	2017-129T22:18	May09	Tue	18	--	21	Outbound 979143.3 km flyby, v = 12.6 km/s, phase = 90 deg
S99	273	Ring CRX	Ascending	2017-131T15:14	May11	Thu	19	--	23	r = 19.993 Rs (1206206 km)
S99	274	**Apoapse**		2017-132T13:10	May12	Fri	20	--	24	Per = 6.5 d, inc = 62.2 deg, r = 21.107 Rs, phase = 145 deg
S99	274	274EP (nt)	**EPIMETHEUS**	2017-135T18:29	May15	Mon	24	--	27	Inbound 86900.0 km flyby, v = 29.8 km/s, phase = 149 deg
S99	274	**Earth OCC**	RING	2017-135T18:33	May15	Mon	24	--	27	Egress = 2017-135T18:59 (27 min)
S99	274	Ring CRX	Descending	2017-135T18:33	May15	Mon	24	--	27	r = 1.058 Rs (63848 km)
S99	274	**Sun OCC**	RING	2017-135T18:33	May15	Mon	24	--	27	Egress = 2017-135T19:00 (28 min)
S99	274	274PN (nt)	**PAN**	2017-135T18:35	May15	Mon	24	--	27	Inbound 75369.0 km flyby, v = 29.9 km/s, phase = 132 deg
S99	274	Periapse		2017-135T18:36	May15	Mon	24	--	27	R = 1.055 Rs, lat = -6 deg, phase = 35 deg
S99	274	274PM (nt)	**PROMETHEUS**	2017-135T18:38	May15	Mon	24	--	27	Outbound 86566.1 km flyby, v = 29.9 km/s, phase = 122 deg
S99	274	274AE (nt)	**AEGAEON**	2017-135T18:44	May15	Mon	24	--	27	Outbound 122962.3 km flyby, v = 29.2 km/s, phase = 111 deg
S99	274	274AT (nt)	**ATLAS**	2017-135T18:58	May15	Mon	24	--	27	Outbound 122381.5 km flyby, v = 27.6 km/s, phase = 80 deg
S99	274	**Sun OCC**	RING	2017-135T23:13	May15	Mon	24	--	27	Egress = 2017-136T07:17 (484 min)
S99	274	**Earth OCC**	RING	2017-135T23:39	May15	Mon	24	--	27	Egress = 2017-136T07:1 (459 min)
S99	274	**Sun OCC**	SATURN	2017-136T00:51	May16	Tue	24	--	28	Egress = 2017-136T06:42 (352 min)
S99	274	**Earth OCC**	SATURN	2017-136T02:38	May16	Tue	24	--	28	Egress = 2017-136T05:32 (174 min)
S99	274	Ring CRX	Ascending	2017-138T01:51	May18	Thu	26	--	30	r = 19.968 Rs (1204675 km)
S99	275	**Apoapse**		2017-139T00:02	May19	Fri	27	--	30	Per = 6.5 d, inc = 62.2 deg, r = 21.108 Rs, phase = 145 deg
S99	275	275AT (nt)	**ATLAS**	2017-142T05:17	May22	Mon	30	--	34	Inbound 86906.1 km flyby, v = 30.1 km/s, phase = 124 deg
S99	275	**Earth OCC**	RING	2017-142T05:25	May22	Mon	30	--	34	Egress = 2017-142T05:51 (27 min)
S99	275	Ring CRX	Descending	2017-142T05:25	May22	Mon	30	--	34	r = 1.059 Rs (63897 km)
S99	275	**Sun OCC**	RING	2017-142T05:25	May22	Mon	30	--	34	Egress = 2017-142T05:52 (28 min)
S99	275	Periapse		2017-142T05:29	May22	Mon	30	--	34	R = 1.056 Rs, lat = -6 deg, phase = 35 deg
S99	275	275JA (nt)	**JANUS**	2017-142T05:34	May22	Mon	30	--	34	Outbound 106568.4 km flyby, v = 29.5 km/s, phase = 112 deg
S99	275	275AE (nt)	**AEGAEON**	2017-142T05:35	May22	Mon	30	--	34	Outbound 119541.1 km flyby, v = 29.4 km/s, phase = 117 deg
S99	275	**Sun OCC**	RING	2017-142T10:10	May22	Mon	30	--	34	Egress = 2017-142T18:05 (475 min)
S99	275	**Earth OCC**	RING	2017-142T10:33	May22	Mon	30	--	34	Egress = 2017-142T18:04 (451 min)
S99	275	**Sun OCC**	SATURN	2017-142T12:08	May22	Mon	30	--	34	Egress = 2017-142T17:16 (309 min)
S99	275	**Earth OCC**	SATURN	2017-142T14:20	May22	Mon	30	--	34	Egress = 2017-142T15:29 (69 min)
S99	275	275TI (nt)	**TITAN**	2017-144T01:09	May24	Wed	32	--	36	Outbound 138385.8 km flyby, v = 6.0 km/s, phase = 69 deg
S99	275	Ring CRX	Ascending	2017-144T12:25	May24	Wed	32	--	36	r = 19.954 Rs (1203797 km)
S99	275	**NORTHERN SUMM. SOLSTICE**		2017-144T21:32	May24	Wed	33	--	36	Northern summer solstice (maximum Solar declination)
S99	276	**Apoapse**		2017-145T11:13	May25	Thu	33	--	37	Per = 6.5 d, inc = 61.9 deg, r = 21.151 Rs, phase = 146 deg
S99	276	276PA (nt)	**PANDORA**	2017-148T16:39	May28	Sun	36	--	40	Inbound 105699.1 km flyby, v = 29.7 km/s, phase = 101 deg
S99	276	**Earth OCC**	RING	2017-148T16:54	May28	Sun	36	--	40	Egress = 2017-148T17:20 (27 min)
S99	276	Ring CRX	Descending	2017-148T16:54	May28	Sun	36	--	40	r = 1.076 Rs (64906 km)
S99	276	**Sun OCC**	RING	2017-148T16:54	May28	Sun	36	--	40	Egress = 2017-148T17:20 (27 min)
S99	276	Periapse		2017-148T16:57	May28	Sun	36	--	40	R = 1.072 Rs, lat = -6 deg, phase = 34 deg
S99	276	276MI (nt)	**MIMAS**	2017-148T16:57	May28	Sun	36	--	40	Inbound 123193.7 km flyby, v = 29.8 km/s, phase = 138 deg
S99	276	276AE (nt)	**AEGAEON**	2017-148T17:06	May28	Sun	36	--	40	Outbound 124633.2 km flyby, v = 28.7 km/s, phase = 111 deg
S99	276	276PM (nt)	**PROMETHEUS**	2017-148T17:15	May28	Sun	36	--	40	Outbound 119190.1 km flyby, v = 28.0 km/s, phase = 86 deg
S99	276	**Sun OCC**	RING	2017-148T21:50	May28	Sun	37	--	40	Egress = 2017-149T05:31 (461 min)
S99	276	**Earth OCC**	RING	2017-148T22:09	May28	Sun	37	--	40	Egress = 2017-149T05:30 (441 min)
S99	276	**Sun OCC**	SATURN	2017-149T00:24	May29	Mon	37	--	41	Egress = 2017-149T04:11 (228 min)
S99	276	Ring CRX	Ascending	2017-150T23:38	May30	Tue	39	--	42	r = 19.927 Rs (1202215 km)
S99	277	**Apoapse**		2017-151T22:44	May31	Wed	40	--	43	Per = 6.5 d, inc = 61.9 deg, r = 21.156 Rs, phase = 146 deg
S99	277	277PN (nt)	**PAN**	2017-155T04:08	Jun04	Sun	43	--	47	Inbound 118609.7 km flyby, v = 30.4 km/s, phase = 78 deg
S99	277	277EP (nt)	**EPIMETHEUS**	2017-155T04:18	Jun04	Sun	43	--	47	Inbound 96804.4 km flyby, v = 29.3 km/s, phase = 127 deg
S99	277	**Earth OCC**	RING	2017-155T04:27	Jun04	Sun	43	--	47	Egress = 2017-155T04:53 (26 min)
S99	277	Ring CRX	Descending	2017-155T04:27	Jun04	Sun	43	--	47	r = 1.076 Rs (64903 km)
S99	277	**Sun OCC**	RING	2017-155T04:27	Jun04	Sun	43	--	47	Egress = 2017-155T04:53 (27 min)
S99	277	Periapse		2017-155T04:31	Jun04	Sun	43	--	47	R = 1.072 Rs, lat = -6 deg, phase = 34 deg
S99	277	277PA (nt)	**PANDORA**	2017-155T04:51	Jun04	Sun	43	--	47	Outbound 123546.8 km flyby, v = 27.3 km/s, phase = 86 deg
S99	277	**Sun OCC**	RING	2017-155T09:29	Jun04	Sun	43	--	47	Egress = 2017-155T16:56 (448 min)
S99	277	**Earth OCC**	RING	2017-155T09:43	Jun04	Sun	43	--	47	Egress = 2017-155T16:56 (434 min)
S99	277	**Sun OCC**	SATURN	2017-155T13:12	Jun04	Sun	43	--	47	Egress = 2017-155T14:25 (73 min)
S99	277	Ring CRX	Ascending	2017-157T10:52	Jun06	Tue	45	--	49	r = 19.892 Rs (1200084 km)
S99	278	**Apoapse**		2017-158T10:15	Jun07	Wed	46	--	50	Per = 6.5 d, inc = 61.9 deg, r = 21.152 Rs, phase = 146 deg
S99	278	278TI (nt)	**TITAN**	2017-159T19:58	Jun08	Thu	48	--	51	Inbound 348739.8 km flyby, v = 6.0 km/s, phase = 40 deg
S99	278	**Earth OCC**	RING	2017-161T15:55	Jun10	Sat	49	--	53	Egress = 2017-161T16:21 (27 min)
S99	278	Ring CRX	Descending	2017-161T15:55	Jun10	Sat	49	--	53	r = 1.067 Rs (64371 km)
S99	278	**Sun OCC**	RING	2017-161T15:55	Jun10	Sat	49	--	53	Egress = 2017-161T16:21 (27 min)
S99	278	Periapse		2017-161T15:58	Jun10	Sat	49	--	53	R = 1.063 Rs, lat = -6 deg, phase = 34 deg
S99	278	278PN (nt)	**PAN**	2017-161T16:00	Jun10	Sat	49	--	53	Outbound 83533.8 km flyby, v = 29.7 km/s, phase = 120 deg
S99	278	278JA (nt)	**JANUS**	2017-161T16:03	Jun10	Sat	49	--	53	Outbound 104085.5 km flyby, v = 29.4 km/s, phase = 117 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S99	278	Sun OCC	RING	2017-161T20:57	Jun10	Sat	50	--	53	Egress = 2017-162T04:09 (432 min)
S99	278	Earth OCC	RING	2017-161T21:05	Jun10	Sat	50	--	53	Egress = 2017-162T04:11 (426 min)
S99	278	Ring CRX	Ascending	2017-163T21:45	Jun12	Mon	52	--	55	r = 19.826 Rs (1196076 km)
S99	279	Apoapse		2017-164T21:38	Jun13	Tue	53	--	56	Per = 6.5 d, inc = 61.9 deg, r = 21.144 Rs, phase = 146 deg
S100	279	S100 Begins		2017-165T17:15	Jun14	Wed	53	--	57	S100 Sequence. Duration = 71 d
S100	279	279PM (nt)	PROMETHEUS	2017-168T03:02	Jun17	Sat	56	--	60	Inbound 99197.0 km flyby, v = 30.0 km/s, phase = 104 deg
S100	279	279AT (nt)	ATLAS	2017-168T03:11	Jun17	Sat	56	--	60	Inbound 73609.7 km flyby, v = 29.7 km/s, phase = 149 deg
S100	279	Earth OCC	RING	2017-168T03:14	Jun17	Sat	56	--	60	Egress = 2017-168T03:40 (27 min)
S100	279	Ring CRX	Descending	2017-168T03:14	Jun17	Sat	56	--	60	r = 1.066 Rs (64315 km)
S100	279	Sun OCC	RING	2017-168T03:14	Jun17	Sat	56	--	60	Egress = 2017-168T03:40 (27 min)
S100	279	Periapse		2017-168T03:18	Jun17	Sat	56	--	60	R = 1.062 Rs, lat = -6 deg, phase = 34 deg
S100	279	279DA (nt)	DAPHNIS	2017-168T03:33	Jun17	Sat	56	--	60	Outbound 115698.7 km flyby, v = 28.4 km/s, phase = 90 deg
S100	279	Sun OCC	RING	2017-168T08:23	Jun17	Sat	56	--	60	Egress = 2017-168T15:17 (415 min)
S100	279	Earth OCC	RING	2017-168T08:25	Jun17	Sat	56	--	60	Egress = 2017-168T15:23 (419 min)
S100	279	Ring CRX	Ascending	2017-170T08:46	Jun19	Mon	58	--	62	r = 19.790 Rs (1193958 km)
S100	280	Apoapse		2017-171T08:57	Jun20	Tue	59	--	63	Per = 6.5 d, inc = 61.9 deg, r = 21.144 Rs, phase = 146 deg
S100	280	280EP (nt)	EPIMETHEUS	2017-174T14:18	Jun23	Fri	62	--	66	Inbound 110307.2 km flyby, v = 29.2 km/s, phase = 106 deg
S100	280	Earth OCC	RING	2017-174T14:32	Jun23	Fri	62	--	66	Egress = 2017-174T14:59 (27 min)
S100	280	Ring CRX	Descending	2017-174T14:32	Jun23	Fri	62	--	66	r = 1.067 Rs (64357 km)
S100	280	Sun OCC	RING	2017-174T14:32	Jun23	Fri	62	--	66	Egress = 2017-174T14:59 (27 min)
S100	280	Periapse		2017-174T14:36	Jun23	Fri	62	--	66	R = 1.063 Rs, lat = -6 deg, phase = 34 deg
S100	280	280DA (nt)	DAPHNIS	2017-174T14:37	Jun23	Fri	62	--	66	Outbound 81602.4 km flyby, v = 29.7 km/s, phase = 131 deg
S100	280	280PA (nt)	PANDORA	2017-174T14:39	Jun23	Fri	62	--	66	Outbound 93141.7 km flyby, v = 29.6 km/s, phase = 121 deg
S100	280	Earth OCC	RING	2017-174T19:44	Jun23	Fri	63	--	66	Egress = 2017-175T02:35 (411 min)
S100	280	Sun OCC	RING	2017-174T19:50	Jun23	Fri	63	--	66	Egress = 2017-175T02:24 (395 min)
S100	280	280TI (nt)	TITAN	2017-176T00:29	Jun25	Sun	64	--	68	Outbound 337630.1 km flyby, v = 7.2 km/s, phase = 68 deg
S100	280	Ring CRX	Ascending	2017-176T19:47	Jun25	Sun	65	--	68	r = 19.764 Rs (1192352 km)
S100	281	Apoapse		2017-177T20:21	Jun26	Mon	66	--	69	Per = 6.5 d, inc = 61.8 deg, r = 21.159 Rs, phase = 147 deg
S100	281	281PN (nt)	PAN	2017-181T01:50	Jun30	Fri	69	--	73	Inbound 99097.5 km flyby, v = 30.2 km/s, phase = 95 deg
S100	281	281DA (nt)	DAPHNIS	2017-181T01:59	Jun30	Fri	69	--	73	Inbound 72750.4 km flyby, v = 29.6 km/s, phase = 146 deg
S100	281	281PM (nt)	PROMETHEUS	2017-181T02:02	Jun30	Fri	69	--	73	Inbound 74771.7 km flyby, v = 29.6 km/s, phase = 150 deg
S100	281	Earth OCC	RING	2017-181T02:03	Jun30	Fri	69	--	73	Egress = 2017-181T02:29 (27 min)
S100	281	Ring CRX	Descending	2017-181T02:03	Jun30	Fri	69	--	73	r = 1.071 Rs (64628 km)
S100	281	Sun OCC	RING	2017-181T02:03	Jun30	Fri	69	--	73	Egress = 2017-181T02:29 (27 min)
S100	281	Periapse		2017-181T02:07	Jun30	Fri	69	--	73	R = 1.067 Rs, lat = -6 deg, phase = 33 deg
S100	281	281JA (nt)	JANUS	2017-181T02:08	Jun30	Fri	69	--	73	Outbound 95763.3 km flyby, v = 29.5 km/s, phase = 132 deg
S100	281	Earth OCC	RING	2017-181T07:18	Jun30	Fri	69	--	73	Egress = 2017-181T13:59 (402 min)
S100	281	Sun OCC	RING	2017-181T07:31	Jun30	Fri	69	--	73	Egress = 2017-181T13:42 (371 min)
S100	281	Ring CRX	Ascending	2017-183T07:00	Jul02	Sun	71	--	75	r = 19.732 Rs (1190403 km)
S100	282	Apoapse		2017-184T07:55	Jul03	Mon	72	--	76	Per = 6.5 d, inc = 61.8 deg, r = 21.164 Rs, phase = 147 deg
S100	282	282DA (nt)	DAPHNIS	2017-187T13:27	Jul06	Thu	75	--	79	Inbound 92894.4 km flyby, v = 29.9 km/s, phase = 105 deg
S100	282	Earth OCC	RING	2017-187T13:38	Jul06	Thu	75	--	79	Egress = 2017-187T14:04 (27 min)
S100	282	Ring CRX	Descending	2017-187T13:38	Jul06	Thu	75	--	79	r = 1.072 Rs (64644 km)
S100	282	Sun OCC	RING	2017-187T13:38	Jul06	Thu	75	--	79	Egress = 2017-187T14:04 (26 min)
S100	282	Periapse		2017-187T13:42	Jul06	Thu	75	--	79	R = 1.067 Rs, lat = -6 deg, phase = 33 deg
S100	282	282PN (nt)	PAN	2017-187T13:51	Jul06	Thu	75	--	79	Outbound 103529.0 km flyby, v = 29.2 km/s, phase = 101 deg
S100	282	Earth OCC	RING	2017-187T18:54	Jul06	Thu	76	--	79	Egress = 2017-188T01:26 (392 min)
S100	282	Sun OCC	RING	2017-187T19:17	Jul06	Thu	76	--	79	Egress = 2017-188T01:00 (344 min)
S100	282	Ring CRX	Ascending	2017-189T18:16	Jul08	Sat	77	--	81	r = 19.691 Rs (1187987 km)
S100	283	Apoapse		2017-190T19:27	Jul09	Sun	79	--	82	Per = 6.5 d, inc = 61.9 deg, r = 21.159 Rs, phase = 147 deg
S100	283	283TI (nt)	TITAN	2017-191T14:24	Jul10	Mon	79	--	83	Inbound 248002.9 km flyby, v = 5.3 km/s, phase = 61 deg
S100	283	283EP (nt)	EPIMETHEUS	2017-194T00:48	Jul13	Thu	82	--	86	Inbound 115282.8 km flyby, v = 29.1 km/s, phase = 96 deg
S100	283	Earth OCC	RING	2017-194T01:04	Jul13	Thu	82	--	86	Egress = 2017-194T01:30 (27 min)
S100	283	Ring CRX	Descending	2017-194T01:04	Jul13	Thu	82	--	86	r = 1.056 Rs (63688 km)
S100	283	Sun OCC	RING	2017-194T01:04	Jul13	Thu	82	--	86	Egress = 2017-194T01:30 (27 min)
S100	283	283PA (nt)	PANDORA	2017-194T01:04	Jul13	Thu	82	--	86	Inbound 79035.6 km flyby, v = 29.8 km/s, phase = 149 deg
S100	283	283AT (nt)	ATLAS	2017-194T01:07	Jul13	Thu	82	--	86	Inbound 81706.4 km flyby, v = 29.8 km/s, phase = 137 deg
S100	283	Periapse		2017-194T01:08	Jul13	Thu	82	--	86	R = 1.052 Rs, lat = -7 deg, phase = 33 deg
S100	283	283PM (nt)	PROMETHEUS	2017-194T01:21	Jul13	Thu	82	--	86	Outbound 113404.1 km flyby, v = 28.6 km/s, phase = 99 deg
S100	283	Earth OCC	RING	2017-194T06:11	Jul13	Thu	82	--	86	Egress = 2017-194T12:32 (382 min)
S100	283	Sun OCC	RING	2017-194T06:43	Jul13	Thu	82	--	86	Egress = 2017-194T11:57 (315 min)
S100	283	Ring CRX	Ascending	2017-196T04:57	Jul15	Sat	84	--	88	r = 19.609 Rs (1183035 km)
S100	284	Apoapse		2017-197T06:48	Jul16	Sun	85	--	89	Per = 6.5 d, inc = 61.8 deg, r = 21.158 Rs, phase = 147 deg
S100	284	284AT (nt)	ATLAS	2017-200T12:05	Jul19	Wed	88	--	92	Inbound 119505.7 km flyby, v = 30.0 km/s, phase = 73 deg
S100	284	Earth OCC	RING	2017-200T12:25	Jul19	Wed	88	--	92	Egress = 2017-200T12:51 (27 min)
S100	284	Ring CRX	Descending	2017-200T12:25	Jul19	Wed	88	--	92	r = 1.055 Rs (63631 km)
S100	284	Sun OCC	RING	2017-200T12:25	Jul19	Wed	88	--	92	Egress = 2017-200T12:51 (27 min)
S100	284	284JA (nt)	JANUS	2017-200T12:28	Jul19	Wed	88	--	92	Inbound 93420.3 km flyby, v = 29.8 km/s, phase = 141 deg
S100	284	Periapse		2017-200T12:29	Jul19	Wed	88	--	92	R = 1.050 Rs, lat = -7 deg, phase = 33 deg
S100	284	Earth OCC	RING	2017-200T17:34	Jul19	Wed	88	--	92	Egress = 2017-200T23:44 (370 min)
S100	284	Sun OCC	RING	2017-200T18:17	Jul19	Wed	88	--	92	Egress = 2017-200T22:57 (280 min)
S100	284	Ring CRX	Ascending	2017-202T15:57	Jul21	Fri	90	--	94	r = 19.564 Rs (1180321 km)
S100	285	Apoapse		2017-203T18:08	Jul22	Sat	91	--	95	Per = 6.5 d, inc = 61.8 deg, r = 21.156 Rs, phase = 147 deg
S100	285	285TI (nt)	TITAN	2017-206T03:32	Jul25	Tue	94	--	98	Inbound 908205.7 km flyby, v = 10.3 km/s, phase = 56 deg
S100	285	285PN (nt)	PAN	2017-206T23:36	Jul25	Tue	95	--	98	Inbound 80830.2 km flyby, v = 30.1 km/s, phase = 117 deg
S100	285	Earth OCC	RING	2017-206T23:43	Jul25	Tue	95	--	98	Egress = 2017-207T00:10 (27 min)
S100	285	Ring CRX	Descending	2017-206T23:43	Jul25	Tue	95	--	98	r = 1.055 Rs (63647 km)
S100	285	Sun OCC	RING	2017-206T23:43	Jul25	Tue	95	--	98	Egress = 2017-207T00:09 (26 min)
S100	285	Periapse		2017-206T23:47	Jul25	Tue	95	--	98	R = 1.051 Rs, lat = -7 deg, phase = 33 deg
S100	285	Earth OCC	RING	2017-207T04:56	Jul26	Wed	95	--	99	Egress = 2017-207T10:52 (357 min)
S100	285	Sun OCC	RING	2017-207T05:54	Jul26	Wed	95	--	99	Egress = 2017-207T09:50 (237 min)
S100	285	285TI (nt)	TITAN	2017-208T02:27	Jul27	Thu	96	--	100	Outbound 548224.9 km flyby, v = 8.6 km/s, phase = 68 deg
S100	285	Ring CRX	Ascending	2017-209T02:56	Jul28	Fri	97	--	101	r = 19.526 Rs (1177990 km)
S100	286	Apoapse		2017-210T05:29	Jul29	Sat	98	--	102	Per = 6.5 d, inc = 61.7 deg, r = 21.162 Rs, phase = 147 deg

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S100	286	286PM (nt)	**PROMETHEUS**	2017-213T10:49	Aug01	Tue	101	--	105	Inbound 112062.0 km flyby, v = 29.9 km/s, phase = 81 deg
S100	286	286PA (nt)	**PANDORA**	2017-213T10:58	Aug01	Tue	101	--	105	Inbound 86494.9 km flyby, v = 29.8 km/s, phase = 120 deg
S100	286	**Earth OCC**	RING	2017-213T11:06	Aug01	Tue	101	--	105	Egress = 2017-213T11:33 (27 min)
S100	286	Ring CRX	Descending	2017-213T11:06	Aug01	Tue	101	--	105	r = 1.056 Rs (63725 km)
S100	286	**Sun OCC**	RING	2017-213T11:06	Aug01	Tue	101	--	105	Egress = 2017-213T11:32 (26 min)
S100	286	Periapse		2017-213T11:10	Aug01	Tue	101	--	105	R = 1.052 Rs, lat = -7 deg, phase = 34 deg
S100	286	286PN (nt)	**PAN**	2017-213T11:30	Aug01	Tue	101	--	105	Outbound 117677.7 km flyby, v = 27.7 km/s, phase = 93 deg
S100	286	**Earth OCC**	RING	2017-213T16:23	Aug01	Tue	101	--	105	Egress = 2017-213T22:04 (342 min)
S100	286	**Sun OCC**	RING	2017-213T17:41	Aug01	Tue	101	--	105	Egress = 2017-213T20:41 (180 min)
S100	286	Ring CRX	Ascending	2017-215T14:00	Aug03	Thu	103	--	107	r = 19.486 Rs (1175605 km)
S100	287	**Apoapse**		2017-216T16:53	Aug04	Fri	104	--	108	Per = 6.5 d, inc = 61.7 deg, r = 21.166 Rs, phase = 147 deg
S100	287	**Earth OCC**	RING	2017-219T22:33	Aug07	Mon	108	--	111	Egress = 2017-219T22:59 (27 min)
S100	287	Ring CRX	Descending	2017-219T22:33	Aug07	Mon	108	--	111	r = 1.057 Rs (63759 km)
S100	287	**Sun OCC**	RING	2017-219T22:33	Aug07	Mon	108	--	111	Egress = 2017-219T22:58 (26 min)
S100	287	287JA (nt)	**JANUS**	2017-219T22:34	Aug07	Mon	108	--	111	Inbound 89525.8 km flyby, v = 29.8 km/s, phase = 151 deg
S100	287	Periapse		2017-219T22:37	Aug07	Mon	108	--	111	R = 1.052 Rs, lat = -7 deg, phase = 34 deg
S100	287	287AT (nt)	**ATLAS**	2017-219T22:41	Aug07	Mon	108	--	111	Outbound 95484.0 km flyby, v = 29.6 km/s, phase = 121 deg
S100	287	287EP (nt)	**EPIMETHEUS**	2017-219T22:49	Aug07	Mon	108	--	111	Outbound 119569.2 km flyby, v = 28.6 km/s, phase = 112 deg
S100	287	**Earth OCC**	RING	2017-220T03:55	Aug08	Tue	108	--	112	Egress = 2017-220T09:18 (323 min)
S100	287	**Sun OCC**	RING	2017-220T05:50	Aug08	Tue	108	--	112	Egress = 2017-220T07:16 (87 min)
S100	287	Ring CRX	Ascending	2017-222T01:05	Aug10	Thu	110	--	114	r = 19.441 Rs (1172850 km)
S100	288	**Apoapse**		2017-223T04:15	Aug11	Fri	111	--	115	Per = 6.5 d, inc = 61.9 deg, r = 21.161 Rs, phase = 146 deg
S100	288	288TI (nt)	**TITAN**	2017-223T04:56	Aug11	Fri	111	--	115	Inbound 175334.8 km flyby, v = 5.0 km/s, phase = 82 deg
S100	288	288AT (nt)	**ATLAS**	2017-226T09:27	Aug14	Mon	114	--	118	Inbound 106194.2 km flyby, v = 30.2 km/s, phase = 84 deg
S100	288	288PM (nt)	**PROMETHEUS**	2017-226T09:37	Aug14	Mon	114	--	118	Inbound 79223.0 km flyby, v = 30.1 km/s, phase = 136 deg
S100	288	**Earth OCC**	RING	2017-226T09:42	Aug14	Mon	114	--	118	Egress = 2017-226T10:09 (28 min)
S100	288	Ring CRX	Descending	2017-226T09:42	Aug14	Mon	114	--	118	r = 1.034 Rs (62408 km)
S100	288	**Sun OCC**	RING	2017-226T09:42	Aug14	Mon	114	--	118	Egress = 2017-226T10:08 (27 min)
S100	288	Periapse		2017-226T09:46	Aug14	Mon	114	--	118	R = 1.030 Rs, lat = -7 deg, phase = 34 deg
S100	288	**Earth OCC**	RING	2017-226T14:57	Aug14	Mon	114	--	118	Egress = 2017-226T20:00 (303 min)
S100	288	Ring CRX	Ascending	2017-228T11:33	Aug16	Wed	116	--	120	r = 19.361 Rs (1168067 km)
S100	289	**Apoapse**		2017-229T15:23	Aug17	Thu	117	--	121	Per = 6.5 d, inc = 61.6 deg, r = 21.166 Rs, phase = 146 deg
S100	289	289PA (nt)	**PANDORA**	2017-232T20:33	Aug20	Sun	121	--	124	Inbound 123227.0 km flyby, v = 29.4 km/s, phase = 68 deg
S100	289	289PN (nt)	**PAN**	2017-232T20:49	Aug20	Sun	121	--	124	Inbound 76463.6 km flyby, v = 30.2 km/s, phase = 125 deg
S100	289	**Earth OCC**	RING	2017-232T20:55	Aug20	Sun	121	--	124	Egress = 2017-232T21:22 (28 min)
S100	289	Ring CRX	Descending	2017-232T20:55	Aug20	Sun	121	--	124	r = 1.034 Rs (62364 km)
S100	289	**Sun OCC**	RING	2017-232T20:55	Aug20	Sun	121	--	124	Egress = 2017-232T21:21 (27 min)
S100	289	Periapse		2017-232T20:59	Aug20	Sun	121	--	124	R = 1.029 Rs, lat = -7 deg, phase = 34 deg
S100	289	289DA (nt)	**DAPHNIS**	2017-232T21:15	Aug20	Sun	121	--	124	Outbound 114862.0 km flyby, v = 28.2 km/s, phase = 102 deg
S100	289	**Earth OCC**	RING	2017-233T02:18	Aug21	Mon	121	--	125	Egress = 2017-233T06:55 (277 min)
S100	289	Ring CRX	Ascending	2017-234T22:21	Aug22	Tue	123	--	126	r = 19.305 Rs (1164696 km)
S100	290	**Apoapse**		2017-236T02:34	Aug24	Thu	124	--	128	Per = 6.5 d, inc = 61.6 deg, r = 21.163 Rs, phase = 146 deg
S101	290	**S101 Begins**		2017-236T12:25	Aug24	Thu	124	--	128	S101 Sequence. Duration = 23 d
S101	290	290TI (nt)	**TITAN**	2017-238T06:26	Aug26	Sat	126	--	130	Inbound 736692.6 km flyby, v = 8.8 km/s, phase = 54 deg
S101	290	290JA (nt)	**JANUS**	2017-239T07:59	Aug27	Sun	127	--	131	Inbound 91098.5 km flyby, v = 30.1 km/s, phase = 138 deg
S101	290	**Earth OCC**	RING	2017-239T08:04	Aug27	Sun	127	--	131	Egress = 2017-239T08:31 (27 min)
S101	290	Ring CRX	Descending	2017-239T08:04	Aug27	Sun	127	--	131	r = 1.033 Rs (62321 km)
S101	290	**Sun OCC**	RING	2017-239T08:04	Aug27	Sun	127	--	131	Egress = 2017-239T08:30 (26 min)
S101	290	290DA (nt)	**DAPHNIS**	2017-239T08:07	Aug27	Sun	127	--	131	Inbound 80364.7 km flyby, v = 30.1 km/s, phase = 146 deg
S101	290	Periapse		2017-239T08:08	Aug27	Sun	127	--	131	R = 1.028 Rs, lat = -7 deg, phase = 34 deg
S101	290	290PM (nt)	**PROMETHEUS**	2017-239T08:08	Aug27	Sun	127	--	131	Inbound 85861.7 km flyby, v = 30.0 km/s, phase = 143 deg
S101	290	290EP (nt)	**EPIMETHEUS**	2017-239T08:09	Aug27	Sun	127	--	131	Outbound 99173.6 km flyby, v = 30.1 km/s, phase = 143 deg
S101	290	290PA (nt)	**PANDORA**	2017-239T08:13	Aug27	Sun	127	--	131	Outbound 98877.9 km flyby, v = 29.8 km/s, phase = 127 deg
S101	290	290PN (nt)	**PAN**	2017-239T08:30	Aug27	Sun	127	--	131	Outbound 118846.3 km flyby, v = 27.1 km/s, phase = 97 deg
S101	290	**Earth OCC**	RING	2017-239T13:38	Aug27	Sun	127	--	131	Egress = 2017-239T17:43 (245 min)
S101	290	290TI (nt)	**TITAN**	2017-240T05:11	Aug28	Mon	128	--	132	Outbound 743276.8 km flyby, v = 10.2 km/s, phase = 67 deg
S101	290	Ring CRX	Ascending	2017-241T09:06	Aug29	Tue	129	--	133	r = 19.251 Rs (1161418 km)
S101	291	**Apoapse**		2017-242T13:42	Aug30	Wed	130	--	134	Per = 6.5 d, inc = 61.6 deg, r = 21.162 Rs, phase = 146 deg
S101	291	291DA (nt)	**DAPHNIS**	2017-245T19:05	Sep02	Sat	134	--	137	Inbound 80664.0 km flyby, v = 30.2 km/s, phase = 120 deg
S101	291	**Earth OCC**	RING	2017-245T19:12	Sep02	Sat	134	--	137	Egress = 2017-245T19:39 (27 min)
S101	291	Ring CRX	Descending	2017-245T19:12	Sep02	Sat	134	--	137	r = 1.033 Rs (62320 km)
S101	291	**Sun OCC**	RING	2017-245T19:12	Sep02	Sat	134	--	137	Egress = 2017-245T19:38 (26 min)
S101	291	Periapse		2017-245T19:17	Sep02	Sat	134	--	137	R = 1.028 Rs, lat = -7 deg, phase = 35 deg
S101	291	291AT (nt)	**ATLAS**	2017-245T19:20	Sep02	Sat	134	--	137	Outbound 93590.2 km flyby, v = 29.9 km/s, phase = 129 deg
S101	291	**Earth OCC**	RING	2017-246T01:03	Sep03	Sun	134	--	138	Egress = 2017-246T04:26 (204 min)
S101	291	Ring CRX	Ascending	2017-247T19:53	Sep04	Mon	136	--	139	r = 19.201 Rs (1158379 km)
S101	292	**Apoapse**		2017-249T00:52	Sep06	Wed	137	--	141	Per = 6.5 d, inc = 61.6 deg, r = 21.165 Rs, phase = 145 deg
S101	292	292DA (nt)	**DAPHNIS**	2017-252T06:04	Sep09	Sat	140	--	144	Inbound 116734.6 km flyby, v = 30.2 km/s, phase = 66 deg
S101	292	292AT (nt)	**ATLAS**	2017-252T06:07	Sep09	Sat	140	--	144	Inbound 108631.3 km flyby, v = 30.2 km/s, phase = 77 deg
S101	292	**Earth OCC**	RING	2017-252T06:23	Sep09	Sat	140	--	144	Egress = 2017-252T06:50 (27 min)
S101	292	Ring CRX	Descending	2017-252T06:23	Sep09	Sat	140	--	144	r = 1.034 Rs (62366 km)
S101	292	**Sun OCC**	RING	2017-252T06:23	Sep09	Sat	140	--	144	Egress = 2017-252T06:49 (26 min)
S101	292	Periapse		2017-252T06:28	Sep09	Sat	140	--	144	R = 1.028 Rs, lat = -7 deg, phase = 35 deg
S101	292	292PM (nt)	**PROMETHEUS**	2017-252T06:43	Sep09	Sat	140	--	144	Outbound 115847.9 km flyby, v = 28.2 km/s, phase = 108 deg
S101	292	**Earth OCC**	RING	2017-252T12:39	Sep09	Sat	140	--	144	Egress = 2017-252T15:01 (143 min)
S101	292	Ring CRX	Ascending	2017-254T06:41	Sep11	Mon	142	--	146	r = 19.149 Rs (1155240 km)
S101	292	292TI (nt)	**TITAN**	2017-254T19:15	Sep11	Mon	143	--	146	Outbound 84332.9 km flyby, v = 5.2 km/s, phase = 80 deg
S101	293	**Apoapse**		2017-255T11:51	Sep12	Tue	143	--	147	Per = 6.4 d, inc = 61.5 deg, r = 21.157 Rs, phase = 145 deg
S101	293	293JA (nt)	**JANUS**	2017-258T16:49	Sep15	Fri	146	--	150	Inbound 111959.6 km flyby, v = 29.8 km/s, phase = 92 deg
S101	293	293PN (nt)	**PAN**	2017-258T16:53	Sep15	Fri	146	--	150	Inbound 91909.1 km flyby, v = 30.7 km/s, phase = 94 deg
S101	293	293PA (nt)	**PANDORA**	2017-258T16:57	Sep15	Fri	146	--	150	Inbound 87059.2 km flyby, v = 30.6 km/s, phase = 123 deg
S101	293	293EP (nt)	**EPIMETHEUS**	2017-258T16:58	Sep15	Fri	146	--	150	Inbound 92434.1 km flyby, v = 30.7 km/s, phase = 133 deg
S101	293	**END OF MISSION**		2017-258T17:03	Sep15	Fri	146	--	150	End of mission, atmospheric entry into Saturn (1.0 Rs)
S101	293	**Earth OCC**	RING	2017-258T17:04	Sep15	Fri	146	--	150	Egress = 2017-258T17:31 (28 min)
S101	293	Ring CRX	Descending	2017-258T17:04	Sep15	Fri	146	--	150	r = 0.988 Rs (59601 km)

CASSINI TOUR EVENT SUMMARY | 110818 Reference Trajectory | v4 *DST / DTT = days since / until Targ. Flyby, DSM = days since OTM*

Seq	Rev	Name	Event	Epoch (SCET)	Date	DOW	DST	DTT	DSM	Comment
S101	293	**Sun OCC**	RING	2017-258T17:04	Sep15	Fri	146	--	150	Egress = 2017-258T17:30 (27 min)
S101	293	Periapse		2017-258T17:08	Sep15	Fri	146	--	150	R = 0.983 Rs, lat = -7 deg, phase = 35 deg
S101	293	**Earth OCC**	RING	2017-258T23:24	Sep15	Fri	147	--	150	Egress = 2017-259T00:36 (73 min)