Chapter 2 - Orbit Overview

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Introduction to Chapter 2

This chapter gives an overview of the NIMS observations in the I32 Orbit.

The text on page 3 summarizes the NIMS science objectives for I32. The NIMS calibrations are discussed on page 3. Early data return and I32 playback are also discussed on page 3.

The table on page 4 is a time-ordered listing of the NIMS Oapels for I32.

The plot on page 5 shows the geometry of the NIMS I32 observations using a north trajectory pole view projection. The plot on page 6 shows the geometry of the NIMS I32 observations during the Io Flyby using a north trajectory pole view projection. The plot on page 7 shows the geometry of the NIMS I32 calibrations.

The spreadsheet on page 8 summarizes the various inputs for the NIMS I32 Observations. The spreadsheet on pages 9 and 10 summarizes the resource usage for the NIMS I32 observations.

The table on page 11 lists various NIMS I32 observing parameters: target latitude/longitude, range, cone angle, incidence angle light), emission angle view) and phase angle.

The timeline on pages 12 through 16 shows the placement of the I32 observations for all intruments during the I32 Encounter Period.

The tapemap on page 17 shows the placement of the I32 observations on the spacecraft's tape recorder.

The timeline on pages 18 through 31 shows the preliminary I32 playback schedule.

The NIMS I32 mosaic designs are summarized on pages 32 and 33 in time-order.

NIMS I32 SCIENCE OVERVIEW

Jupiter Science

There are two Jupiter observations in I32, both recorded. These two observations are Jupiter global maps (JNGLOBAL). The mosaics were centered at 170 degrees and 10 degrees W. longitude to center the northern and southern auroras in each of the global maps.

Io Science

The I32 Io sequence design is similar to that used in I31 in response to the loss of spectral capability due to the stuck grating. The NIMS observations are mostly mapping instead of sit-and-stare spectrum building observations. NIMS and SSI did collaborate on some targets, and some ride-along behind SSI will be returned.

32INTHPELE01 - nightside swath across the Pele vent region.
32INTHLOKI01 - high resolution nightside obs. of the Loki calder region.
32INTHPELE02 - high resolution nightside obs of the Pele vent region.
32INTHERML01 - high resolution dayside obs of south polar region.
32INEMAKNG01 - dayside swath across the Emakong caldera.
32INITUPAN01 - dayside swath across the Tupan caldera.
32INICHAAC01 - dayside swath across the region including Chaac caldera.
32INHTSPOT01 - dayside two-across the region of the new I31 hotspot.
32INREGION01 - dayside seven-swath regional map, pole to pole.
32INREGION02 - dayside three-swath global map, pole to pole.

Europa Science

There are no Europa observations in I32.

Ganymede Science

There are no Ganymede observations in I32.

Callisto Science

There are no Callisto observations in I32.

Calibration

There is one NIMS calibration observation planned for I32: an RCT cal.

Early Data Return

There is one realtime observations in I32, the RCT calibration.

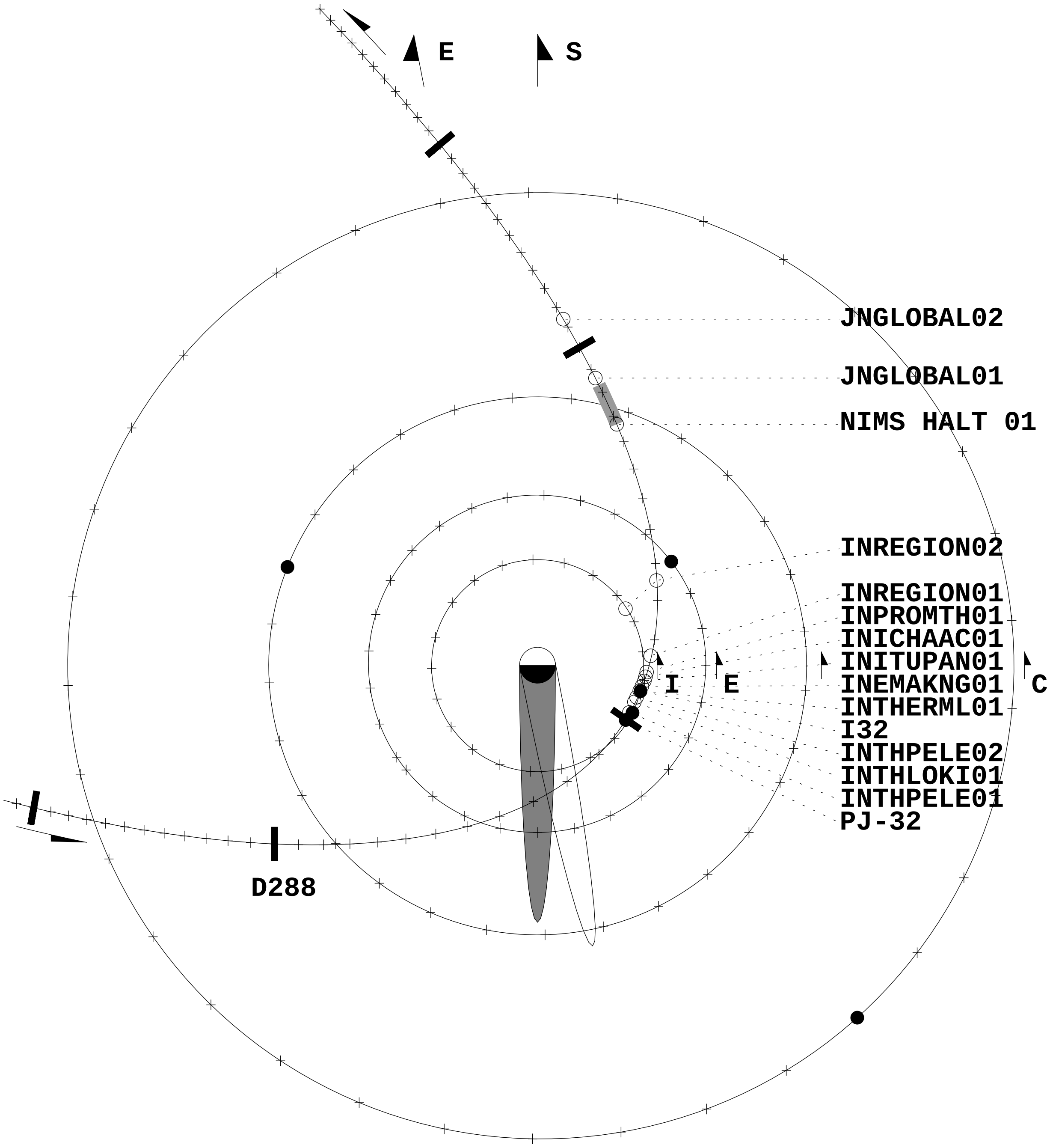
I32 Playback

I32 playback is split into two passes through the tape.

I32 Time-Ordered Listing

OAPEL	Start (UTC)	End (UTC)	Duration
32INTHPELE01	01-289/00:21:12	01-289/00:26:16	0/00:05:03
32INTHLOKI01	01-289/00:53:34	01-289/01:04:41	0/00:11:07
32INTHPELE02	01-289/01:07:43	01-289/01:14:48	0/00:07:04
32INTHERML01	01-289/01:27:56	01-289/01:31:59	0/00:04:02
32INEMAKNG01	01-289/01:41:05	01-289/01:52:12	0/00:11:07
32INITUPAN01	01-289/01:57:16	01-289/02:07:22	0/00:10:06
32INICHAAC01	01-289/02:09:24	01-289/02:19:30	0/00:10:06
32INHTSPOT01	01-289/02:23:33	01-289/02:36:42	0/00:13:08
32INREGION01	01-289/03:11:04	01-289/04:14:46	0/01:03:42
32INREGION02	01-289/07:03:38	01-289/07:37:00	0/00:33:22
32JNGLOBAL01	01-289/21:12:58	01-289/21:58:28	0/00:45:30
32JNGLOBAL02	01-290/02:46:38	01-290/03:32:08	0/00:45:30

NIMS I32 OBSERVATIONS



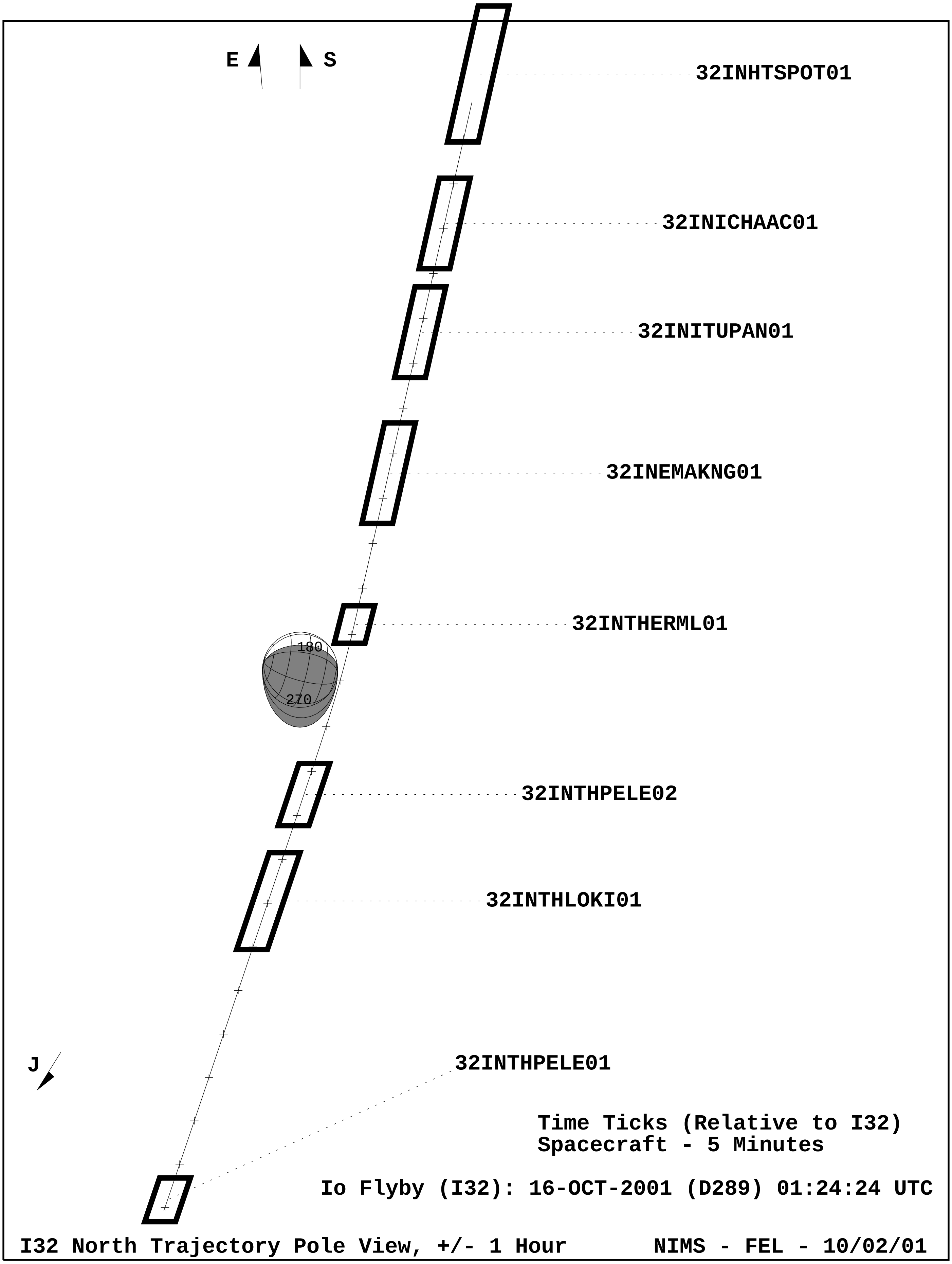
Time Ticks (Relative to PJ32)
Io - 2 Hrs
Europa - 3 Hrs
Ganymede - 6 Hrs
Callisto - 12 Hrs
Spacecraft - 2 Hrs

Io Flyby (I32): 16-OCT-2001 (D289) 01:24:24 UTC
Perijove (PJ32): 15-OCT-2001 (D288) 23:57:03 UTC

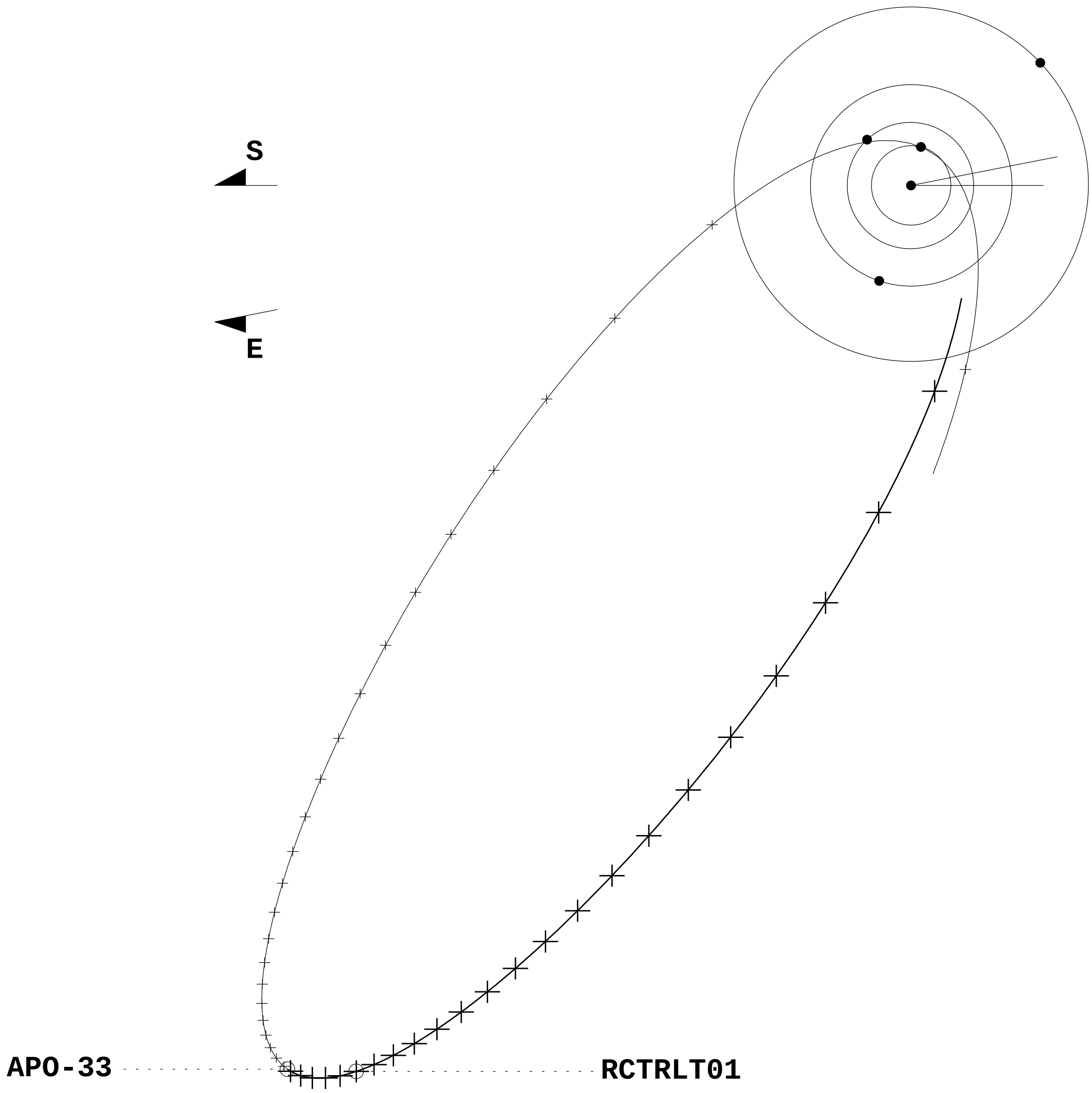
I32 North Trajectory Pole View

NIMS - FEL - 10/16/01

NIMS I32 IO FLYBY OBSERVATIONS



NIMS I32 CALIBRATIONS



Time Ticks (Relative to I32)
Spacecraft - 2 Days

Io Flyby (I32): 16-OCT-2001 (D289) 01:24:24 UTC
Perijove (PJ32): 15-OCT-2001 (D288) 23:57:03 UTC
Apojove (A33): 01-DEC-2001 (D335) 21:36:02 UTC

I32 North Trajectory Pole View

NIMS - FEL - 10/31/01

I32 INPUTS

Activity ID	Obervation Title	NIMS Edit Table	NIMS PB Table	Mode	Gain	Grating Start	Grating Offset	Record Format	PSID
32INTHPELE01	Io Pele Map 01	I32ILM442	I32ILM144 A, B	LM	1	0	4	MPW	DA
32INTHLOKI01	Io Loki Map	I32ILM442	I32ILM144 A, B	LM	1	0	4	MPW	DB
32INTHPELE02	Io Pele Map 02	I32ILM442	I32ILM144 A, B	LM	1	0	4	MPW	DC
32INTHERML01	Io Thermal Map	I32ILM442	I32ILM144 A, B	LM	2	0	4	MPW	DD
32INEMAKNG01	Io Emakong Obs	I32ILM442	I32ILM144 A, B	LM	2	0	4	MPW	DE
32INITUPAN01	Io Tupan Obs	I32ILM442	I32ILM144 A, B	LM	2	0	4	MPW	DF
32INICHAAC01	Io Chaac Obs	I32ILM442	I32ILM144 A, B	LM	2	0	4	MPW	DG
32INHTSPOT01	Io Hot Spot Obs	I32ILM442	I32ILM144 A, B	LM	2	0	4	MPW	DH
32INREGION01	Io Regional Map 01	I32IFMFG120	I32IFMFG 36, 24	LM	2	0	4	LPU	DI
32INREGION02	Io Regional Map 02	I32ILMFG252	I32ILMFG72 A, B	LM	2	0	4	LPU	DJ
32JNGLOBAL01	Jupiter Global Obs 01	I32JXM10	I32JXMFG7	XM	2	0	4	LPU	DK
32JNGLOBAL02	Jupiter Global Obs 02	I32JXM10	I32JXMFG7	XM	2	0	4	LPU	DL

I32 RESOURCES

Activity ID	Mode	Record Format	Obs. Cost (tracks)	Obs. Cost (ticks)	Number Wavelengths Returned	Obs Record Time (sec.)	Obs PB Time (sec.	Selected Bits to Tape sBOT (MBITS)	Bits to Tape BOT (Mbit)	Mode Cycle time (sec)
32INTHPELE01	LM	MPW	0.0371	216	144	243	239	2.75	2.80	8.667
32INTHLOKI01	LM	MPW	0.0926	540	144	611	606	6.98	7.04	8.667
32INTHPELE02	LM	MPW	0.0547	319	144	360	356	4.10	4.15	8.667
32INTHERML01	LM	MPW	0.0285	166	144	186	182	2.10	2.14	8.667
32INEMAKNG01	LM	MPW	0.0659	384	144	434	430	4.95	5.00	8.667
32INITUPAN01	LM	MPW	0.0834	486	144	550	545	6.28	6.34	8.667
32INICHAAC01	LM	MPW	0.0846	493	144	558	553	6.37	6.43	8.667
32INHTSPOT01	LM	MPW	0.1108	646	144	732	728	8.39	8.43	8.667
32INREGION01	FM	LPU	0.1563	911	36	3876	3870	23.87	23.91	4.333
32INREGION02	LM	LPU	0.0785	457	72	1943	1935	11.94	11.98	8.667
32JNGLOBAL01	XM	LPU	0.0950	554	7	2354	1459	9.00	14.52	0.333
32JNGLOBAL02	XM	LPU	0.0864	504	7	2140	1269	7.83	13.20	0.333
32INTHPELE01	LM	MPW	0.0371	216	144	243	239	2.75	2.80	8.667
32INTHLOKI01	LM	MPW	0.0926	540	144	611	606	6.98	7.04	8.667
32INTHPELE02	LM	MPW	0.0547	319	144	360	356	4.10	4.15	8.667
32INTHERML01	LM	MPW	0.0285	166	144	186	182	2.10	2.14	8.667
32INEMAKNG01	LM	MPW	0.0659	384	144	434	430	4.95	5.00	8.667
32INITUPAN01	LM	MPW	0.0834	486	144	550	545	6.28	6.34	8.667
32INICHAAC01	LM	MPW	0.0846	493	144	558	553	6.37	6.43	8.667
32INHTSPOT01	LM	MPW	0.1108	646	144	732	728	8.39	8.43	8.667
32INREGION01	FM	LPU	0.1563	911	24	3876	3870	23.87	23.91	4.333
32INREGION02	LM	LPU	0.0785	457	72	1943	1935	11.94	11.98	8.667
32JNGLOBAL01	XM	LPU	0.0950	554	7	2354	887	5.47	14.52	0.333
32JNGLOBAL02	XM	LPU	0.0864	504	7	2140	857	5.29	13.20	0.333

I32 RESOURCES

Activity ID	AACS Mbits c 2.5	Comp	Thold	RT BTG	Total BTG (Mbits) (w/4% o'head)	Data Reduction Factor (sBOT/BTG)	Pass
32INTHPELE01	0.01	1.25			0.661	4.17	2
32INTHLOKI01	0.03	1.25			1.675	4.17	2
32INTHPELE02	0.02	1.2			1.025	4.00	2
32INTHERML01	0.01	1.2			0.524	4.00	2
32INEMAKNG01	0.02	1.2			1.238	4.00	2
32INITUPAN01	0.03	1.2			1.570	4.00	2
32INICHAAC01	0.03	1.2			1.593	4.00	2
32INHTSPOT01	0.04	1.2			2.097	4.00	2
32INREGION01	0.22	1.25			5.350	4.46	2
32INREGION02	0.11	1.25			2.675	4.46	2
32JNGLOBAL01	0.08	1.4			4.557	1.97	2
32JNGLOBAL02	0.07	1.6			3.468	2.26	2
32INTHPELE01	0.01	1.25			0.661	4.17	3
32INTHLOKI01	0.03	1.25			1.675	4.17	3
32INTHPELE02	0.02	1.2			1.025	4.00	3
32INTHERML01	0.01	1.2			0.524	4.00	3
32INEMAKNG01	0.02	1.2			1.238	4.00	3
32INITUPAN01	0.03	1.2			1.570	4.00	3
32INICHAAC01	0.03	1.2			1.593	4.00	3
32INHTSPOT01	0.04	1.2			2.097	4.00	3
32INREGION01	0.22	1.25			3.567	6.69	3
32INREGION02	0.11	1.25			2.675	4.46	3
32JNGLOBAL01	0.05	1.4			2.770	1.97	3
32JNGLOBAL02	0.05	1.6			2.342	2.26	3
					48.169	TOTAL	
					47.338	ALLOCATION	
					0.831	OVER/UNDER	

NIMS I32 OBSERVING GEOMETRY

OAPEL	Latitude (deg)	Longitude (deg)	Range (km)	Cone (deg)	Light (deg)	View (deg)	Phase (deg)
32INTHPELE01	-23 to -13	252 to 260	24K	55	160 to 163	38 to 46	135
32INTHLOKI01	9 to 13	307 to 313	7 to 11K	49	119 to 124	22 to 32	142
32INTHPELE02	-19 to -17	254 to 257	3 to 6K	61 to 69	163 to 164	50 to 53	120 to 128
32INTHERML01	-82 to -78	127 to 130	2 to 4K	120	85 to 86	73 to 76	48 to 52
32INEMAKNG01	-5 to -2	116 to 121	6 to 11K	123	36 to 42	11 to 14	47 to 49
32INITUPAN01	-21 to -15	137 to 146	14 to 18K	128	57 to 67	17 to 26	43
32INICHAAC01	9 to 17	137 to 163	19 to 24K	128	55 to 78	23 to 42	43
32INHTSPOT01	31 to 52	126 to 141	26 to 31K	126	53 to 66	47 to 57	44
32INREGION01	-90 to +90	47 to 193	48 to 78K	123 to 127	4 to 97	4 to 90	43
32INREGION02	-90 to +90	86 to 267	165 to 186K	120	1 to 139	2 to 90	49
32JNGLOBAL01	-90 to +90	75 to 255	1150K	154 to 163	0 to 98	1 to 92	8
32JNGLOBAL02	-90 to +90	270 to 90	1360K	162 to 169	2 to 92	2 to 91	2

GEM: I32

I32 ENCOUNTER
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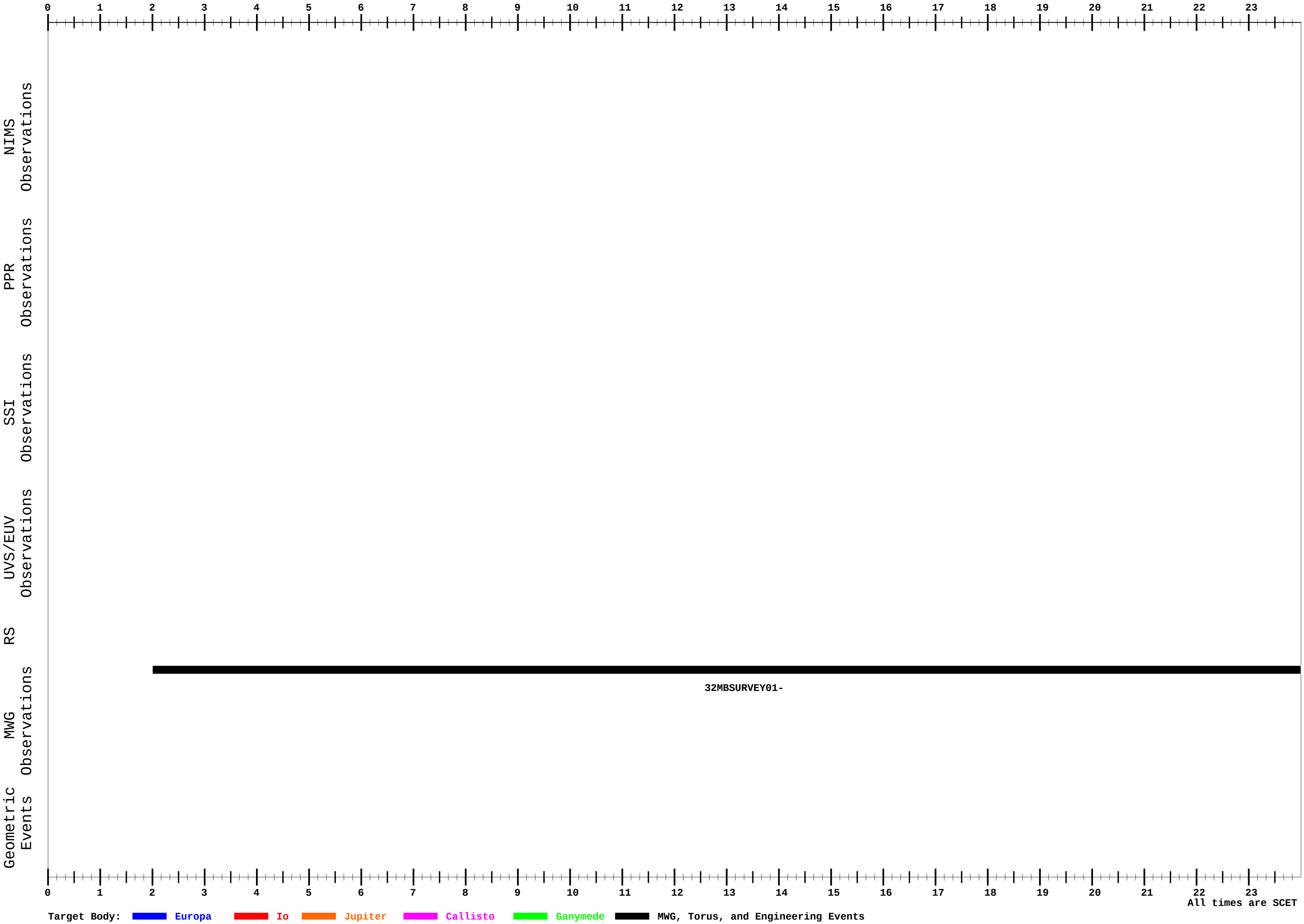
Date of Plot: 26-Sep-101 13:59:34



GEM: I32

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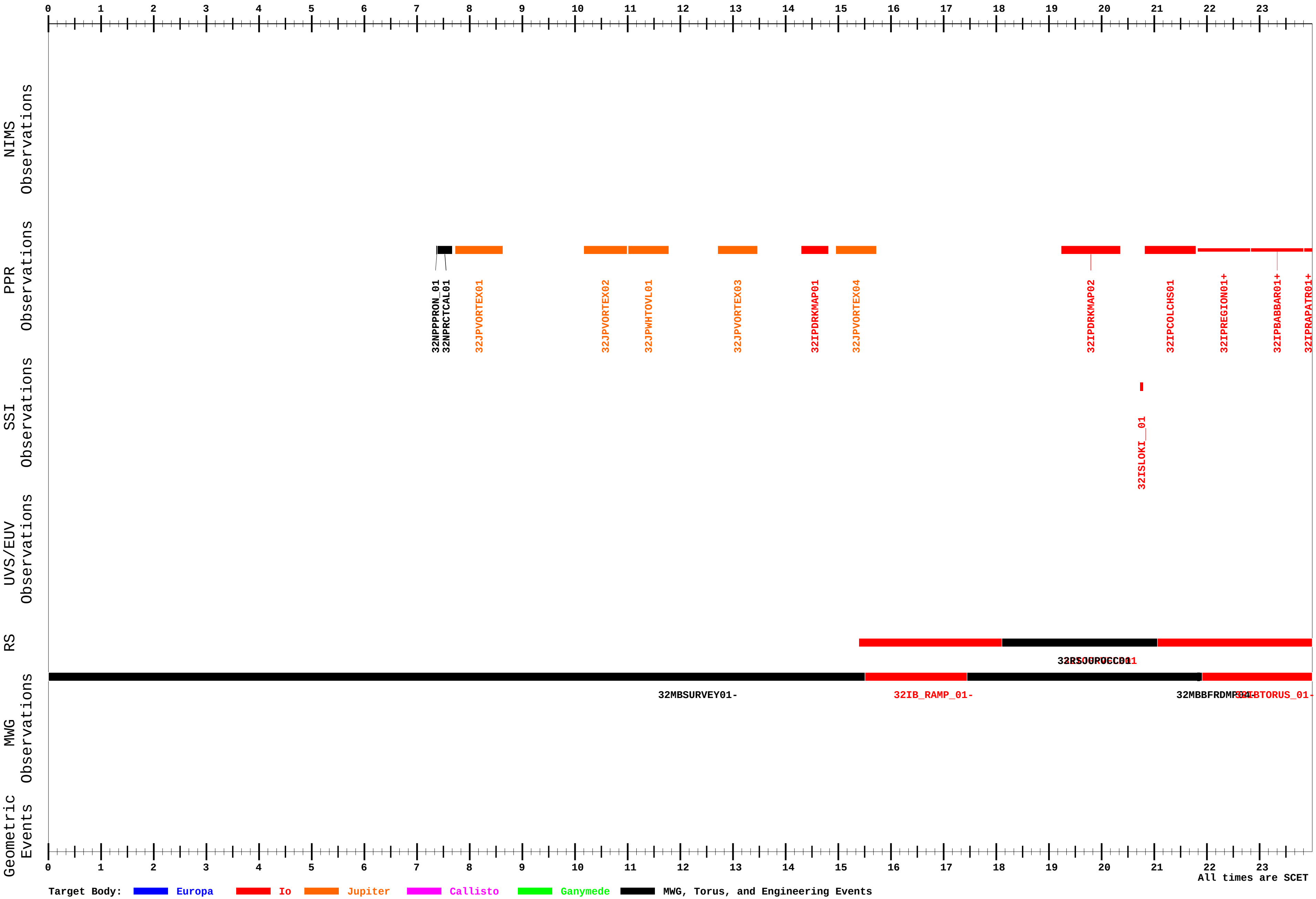

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I32 ENCOUNTER
Plot Time: 01-289/00:00:00.000 to 01-290/00:00:00.000
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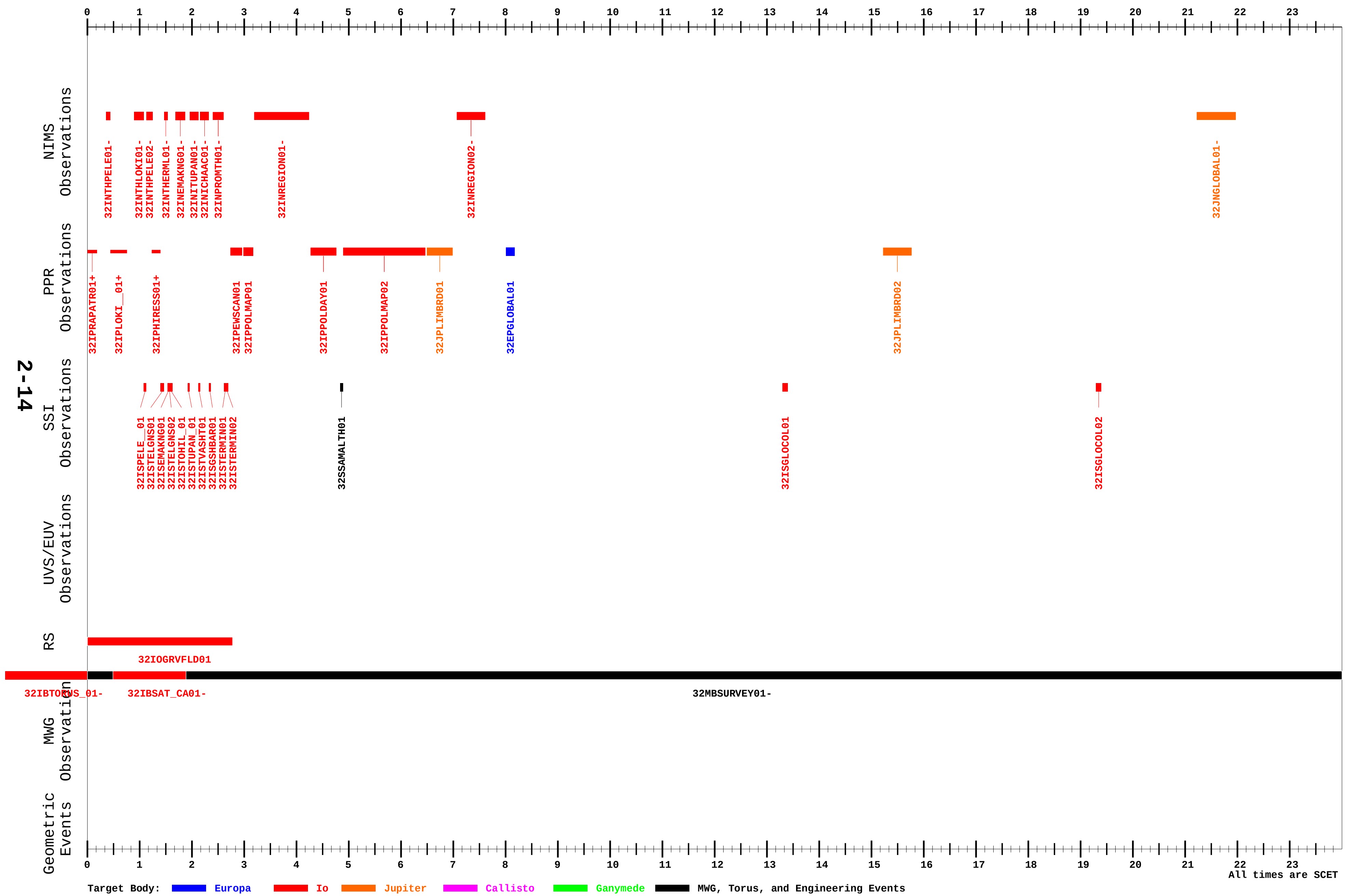

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I32 ENCOUNTER
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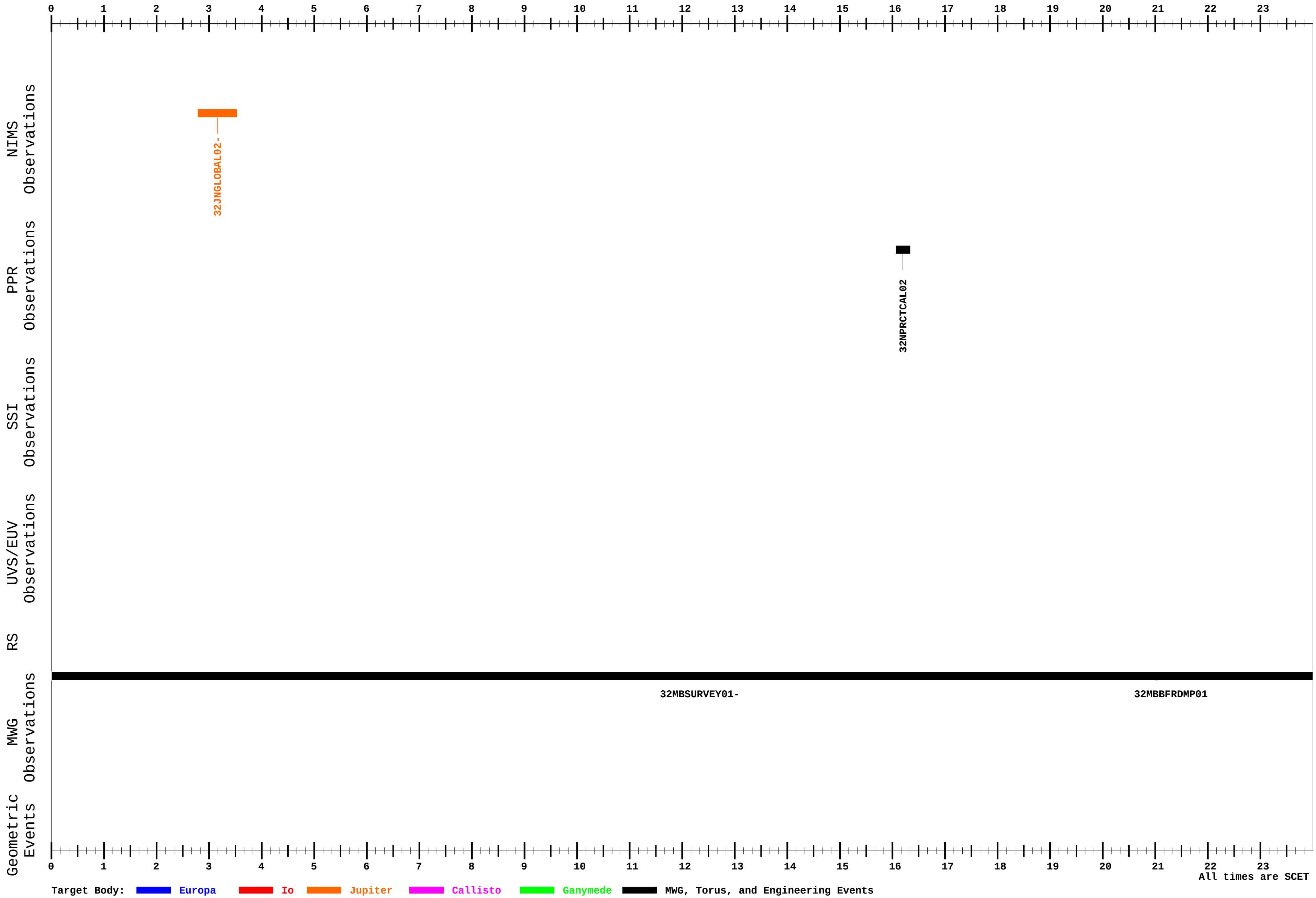

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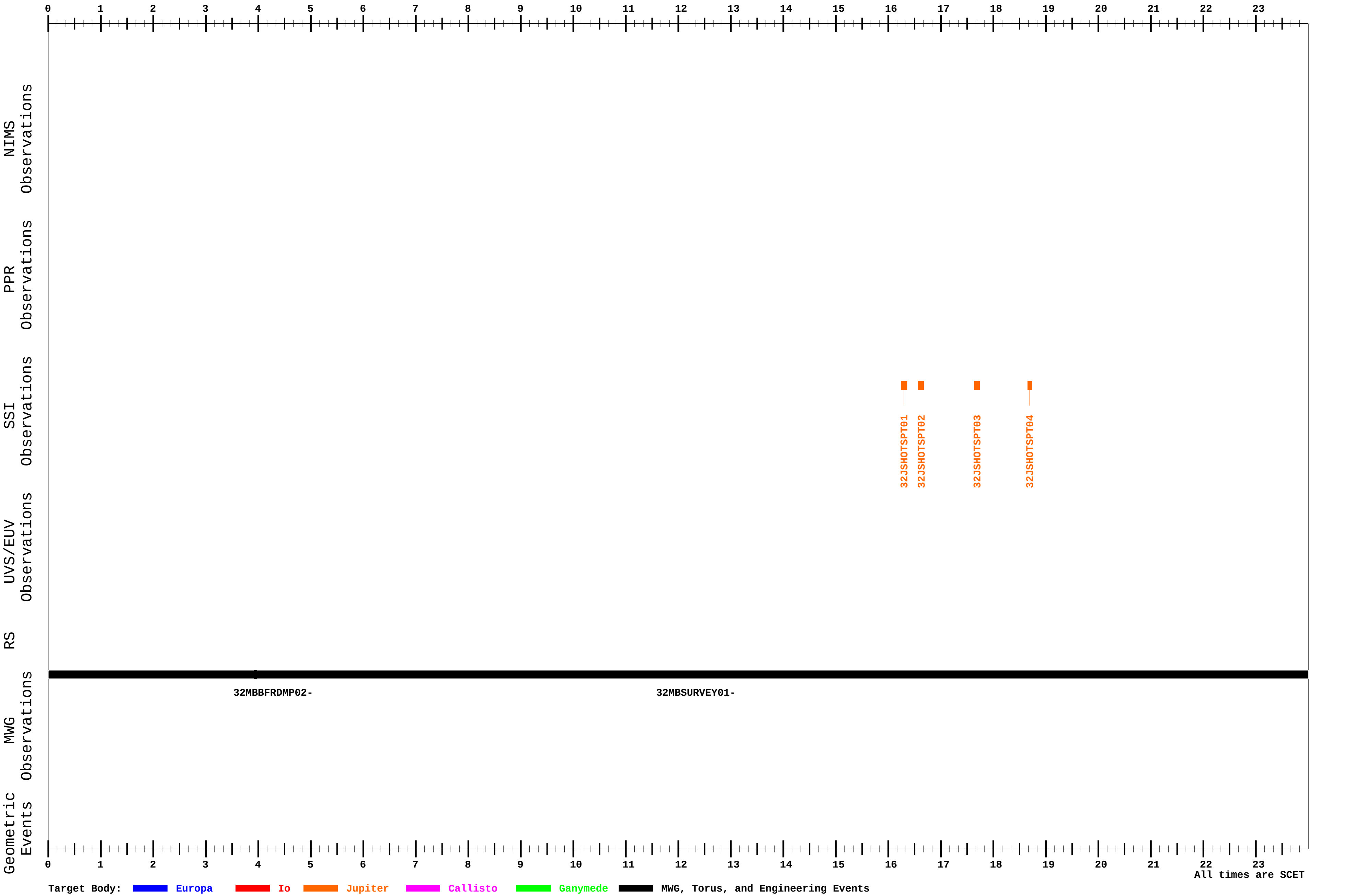
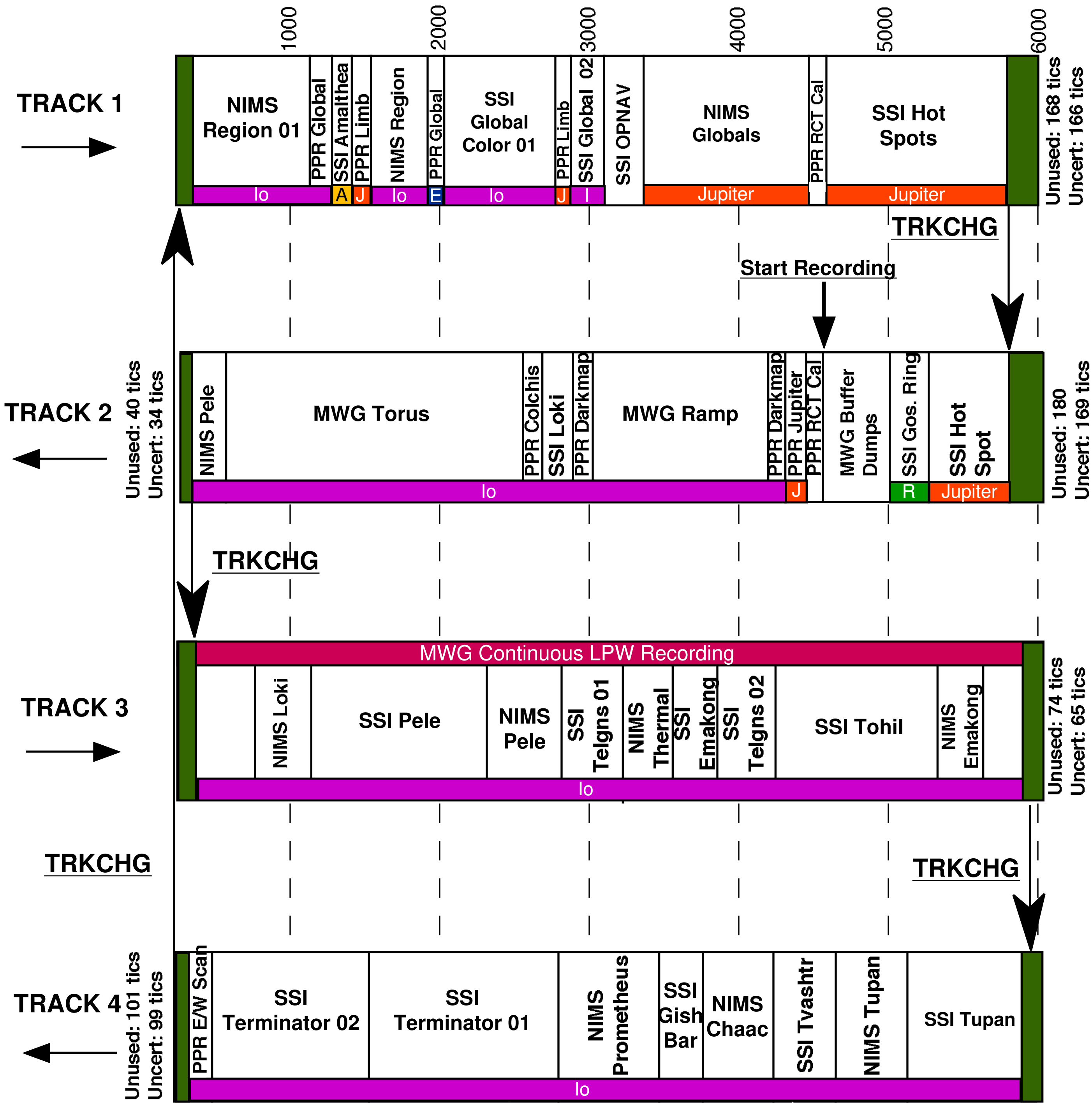


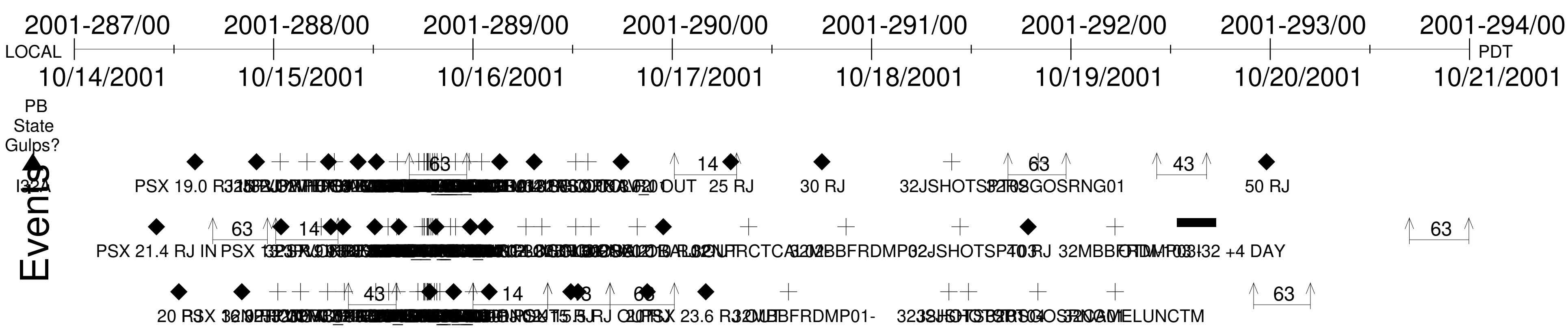
I32 ENCOUNTER HIGH-LEVEL TAPEMAP



L. Barnard, 09/21/01

I32PBA

Playback / Date Returned



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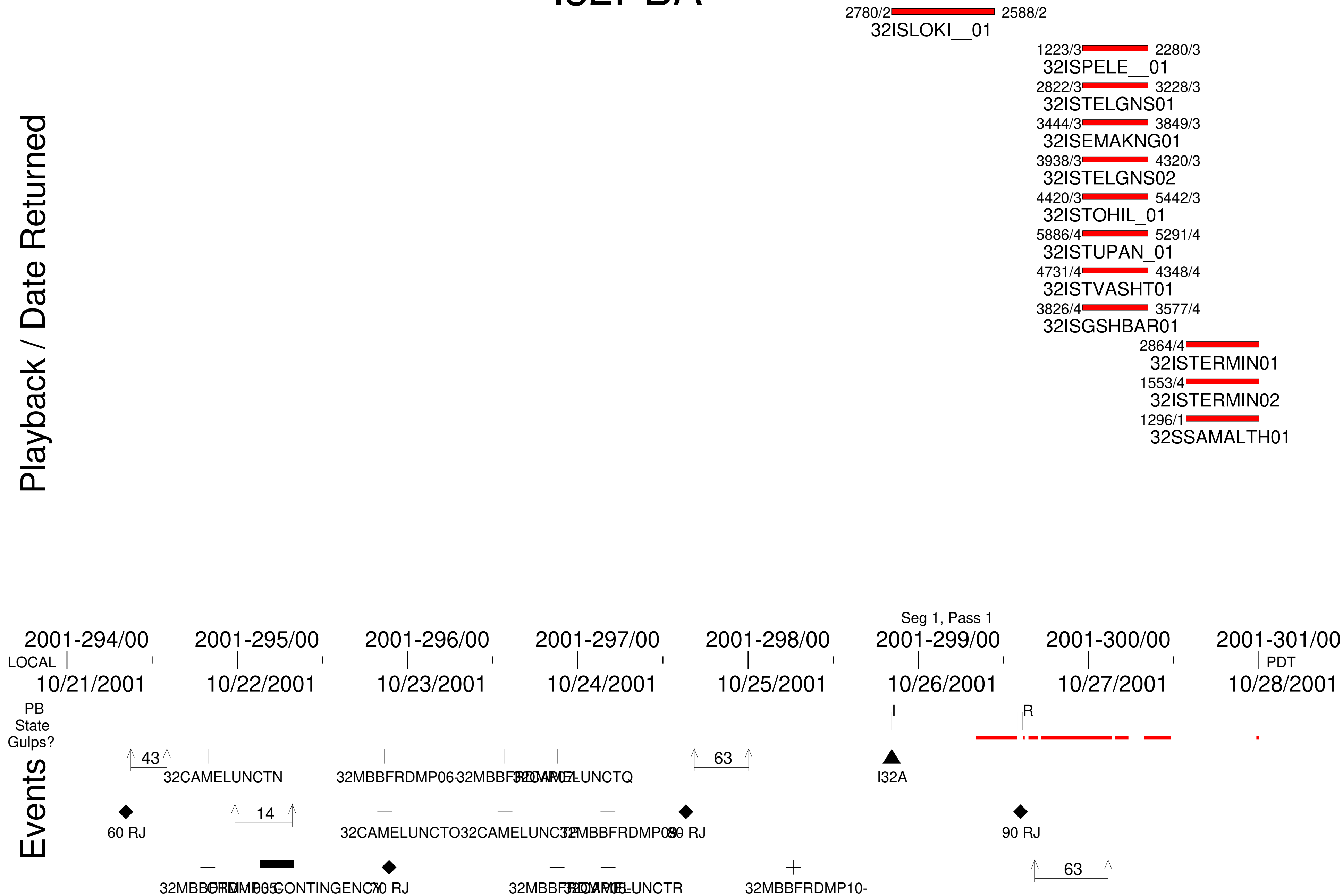
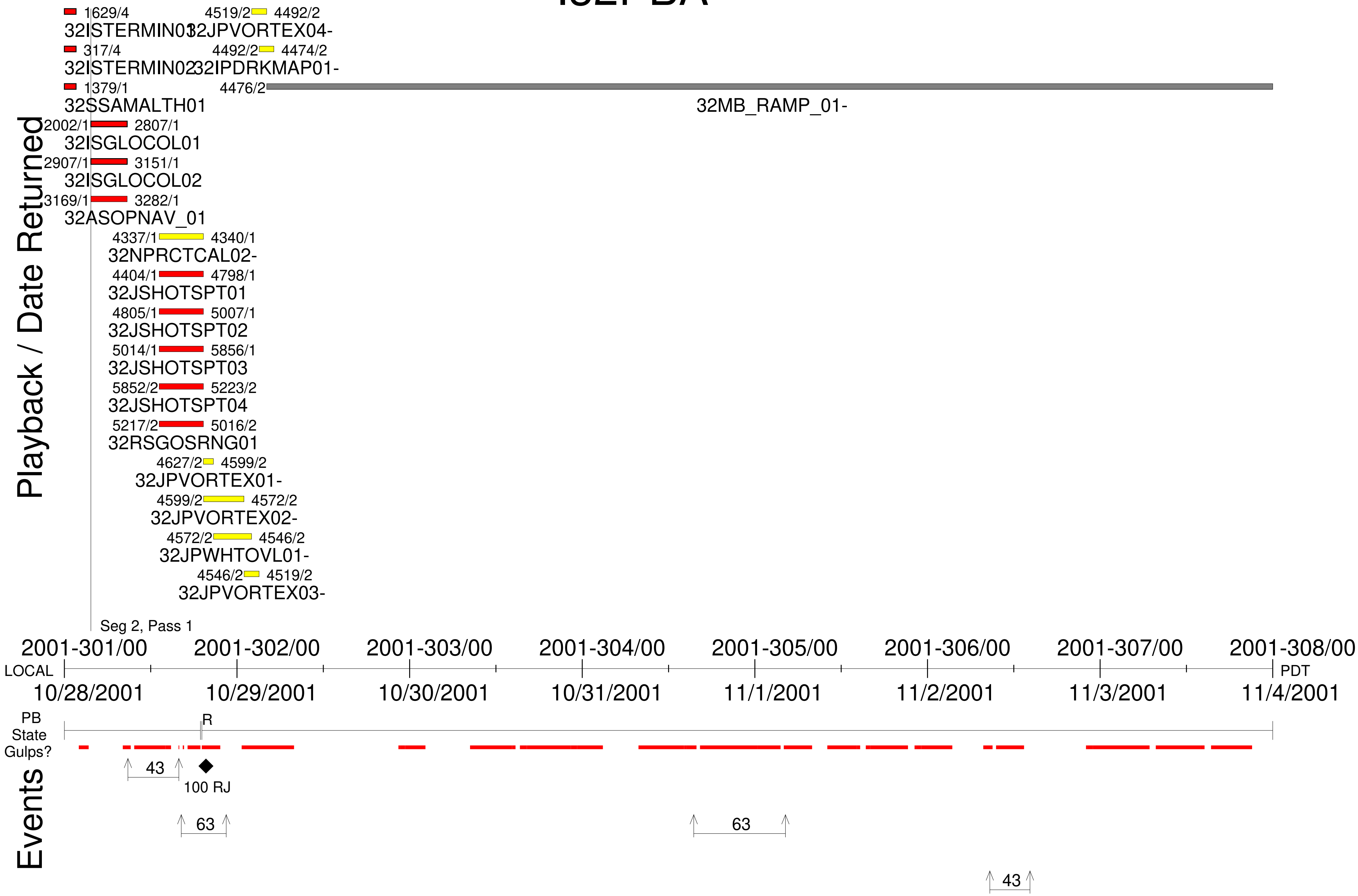

Playback / Date Returned
2780/2 2588/2
32ISLOKI__01
1223/3 2280/3
32ISPELE__01
2822/3 3228/3
32ISTELGNS01
3444/3 3849/3
32ISEMAKNG01
3938/3 4320/3
32ISTELGNS02
4420/3 5442/3
32ISTOHIL_01
5886/4 5291/4
32ISTUPAN_01
4731/4 4348/4
32ISTVASHT01
3826/4 3577/4
32ISGSHBAR01
2864/4
32ISTERMIN01
1553/4
32ISTERMIN02
1296/1
32SSAMALTH01
Seg 1, Pass 1
2001-294/00
2001-295/00
2001-296/00
2001-297/00
2001-298/00
2001-299/00
2001-300/00
2001-301/00
LOCAL
PDT
10/21/2001
10/22/2001
10/23/2001
10/24/2001
10/25/2001
10/26/2001
10/27/2001
10/28/2001
PB
State
Gulps?
I
R
Events
43
32CAMELUNCTN
32MBBFRDMP06-32MBBFRDMP07-
32CAMELUNCTQ
63
I32A
60 RJ
14
32CAMELUNCTO32CAMELUNCTP
32MBBFRDMP08-
90 RJ
90 RJ
32MBBFRDMP05-ORT-CONTINGENCY
70 RJ
32MBBFRDMP09-
32CAMELUNCTR
32MBBFRDMP10-
63

I32PBA



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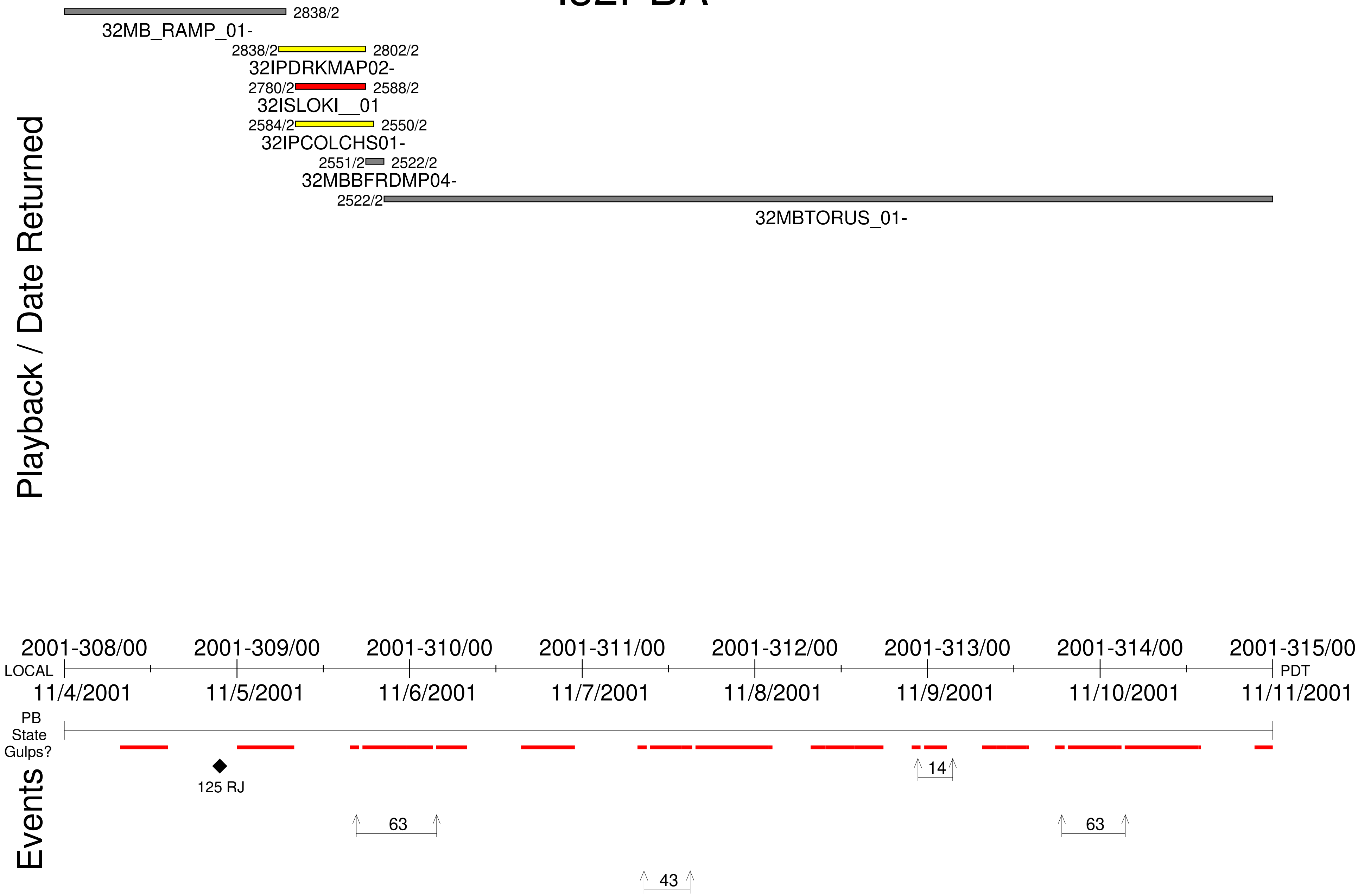
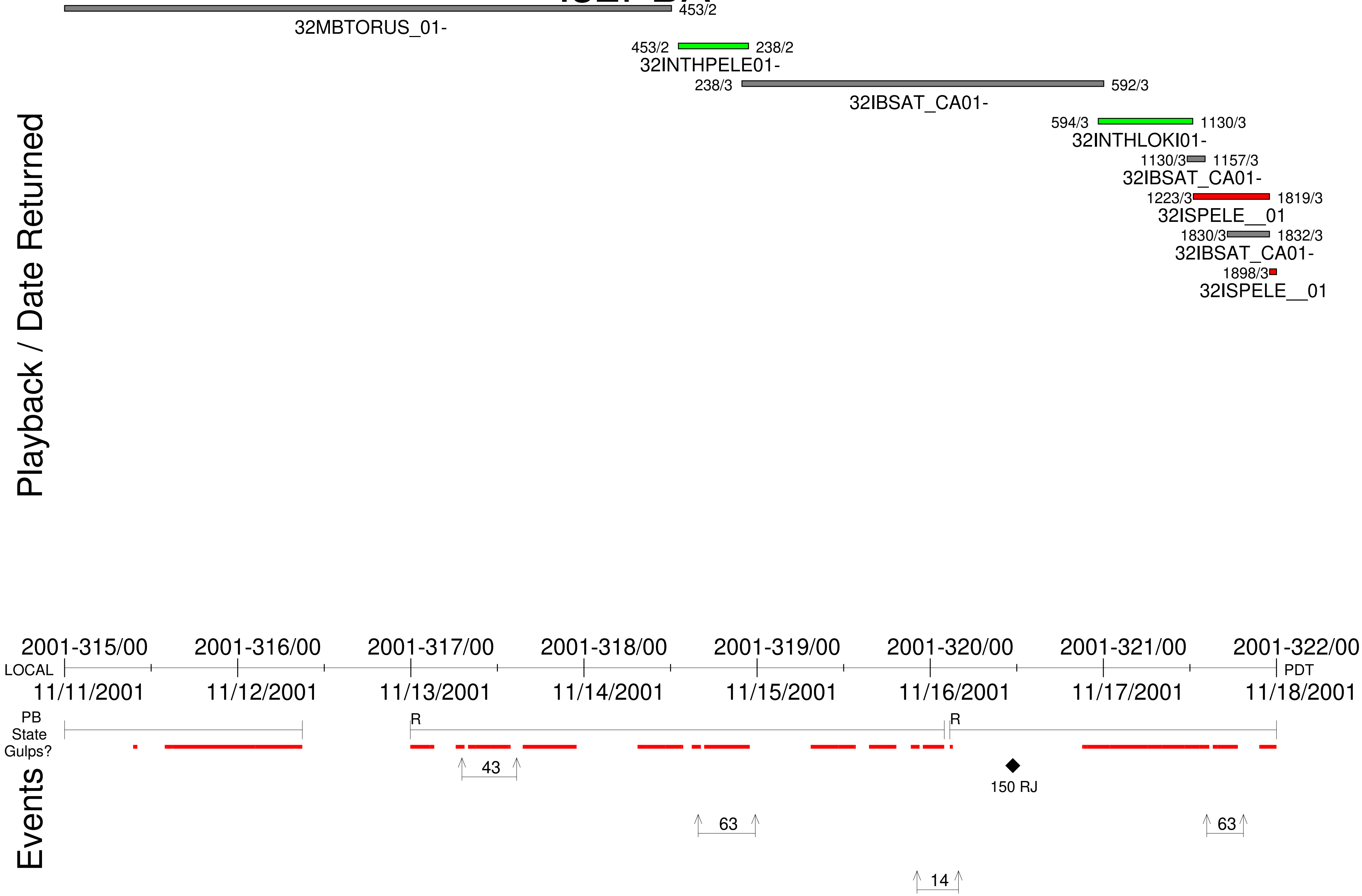


Playback / Date Returned
2838/2
32MB_RAMP_01-
2838/2
2802/2
32IPDRKMAP02-
2780/2
2588/2
32ISLOKI__01
2584/2
2550/2
32IPCOLCHS01-
2551/2
2522/2
32MBBFRDMP04-
2522/2
32MBTORUS_01-
2001-308/00
2001-309/00
2001-310/00
2001-311/00
2001-312/00
2001-313/00
2001-314/00
2001-315/00
LOCAL
PDT
11/4/2001
11/5/2001
11/6/2001
11/7/2001
11/8/2001
11/9/2001
11/10/2001
11/11/2001
PB
State
Gulps?
Events
125 RJ
14
63
63
43

I32PBA



Playback / Date Returned
32MBTORUS_01-
453/2
453/2
238/2
32INTHPELE01-
238/3
592/3
32IBSAT_CA01-
594/3
1130/3
32INTHLOKI01-
1130/3
1157/3
32IBSAT_CA01-
1223/3
1819/3
32ISPELE__01
1830/3
1832/3
32IBSAT_CA01-
1898/3
32ISPELE__01
2001-315/00
2001-316/00
2001-317/00
2001-318/00
2001-319/00
2001-320/00
2001-321/00
2001-322/00
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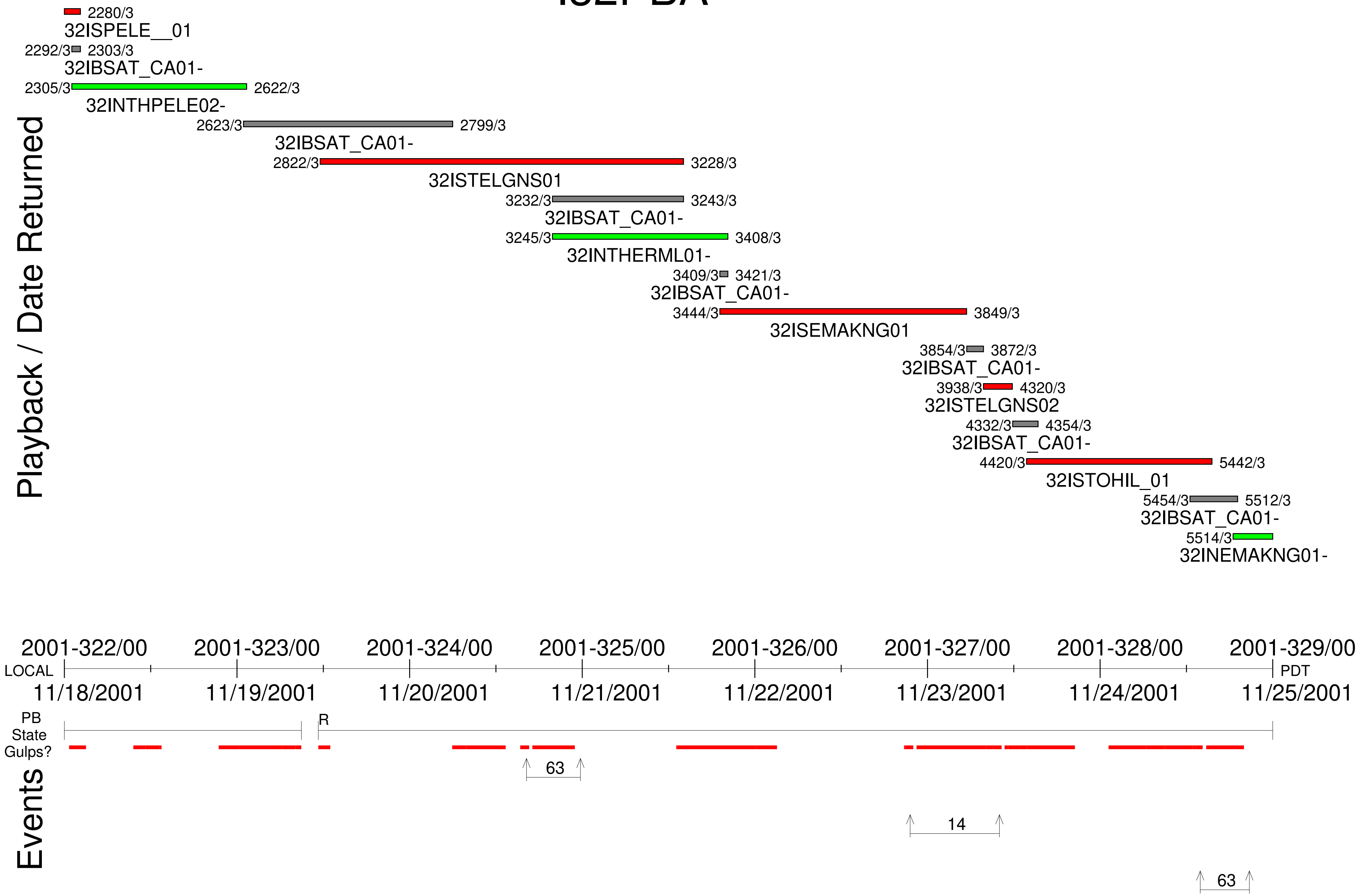
11/12/2001
11/13/2001
11/14/2001
11/15/2001
11/16/2001
11/17/2001
11/18/2001
PB
State
Gulps?
R
R
43
150 RJ
63
63
14
Events

I32PBA



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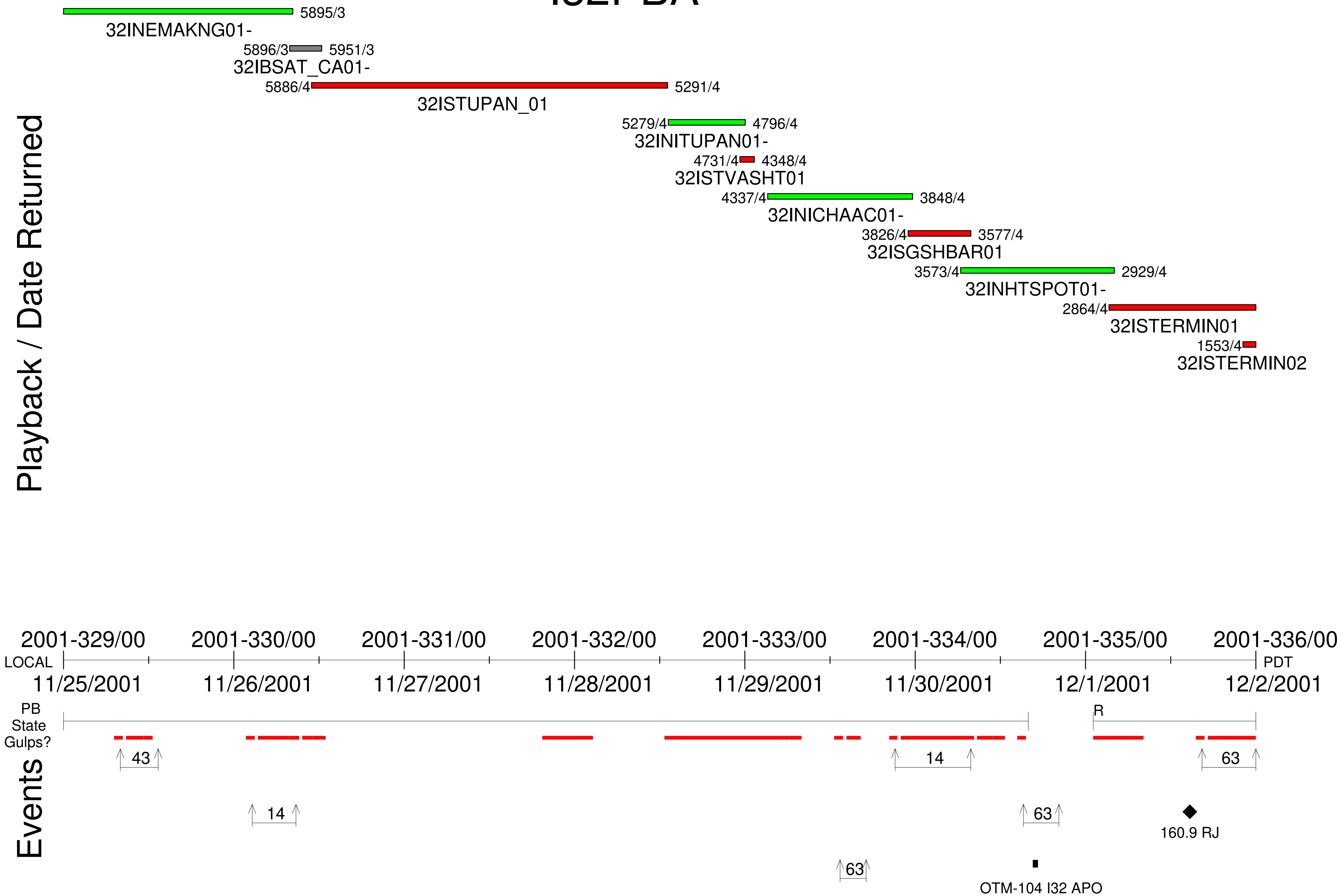

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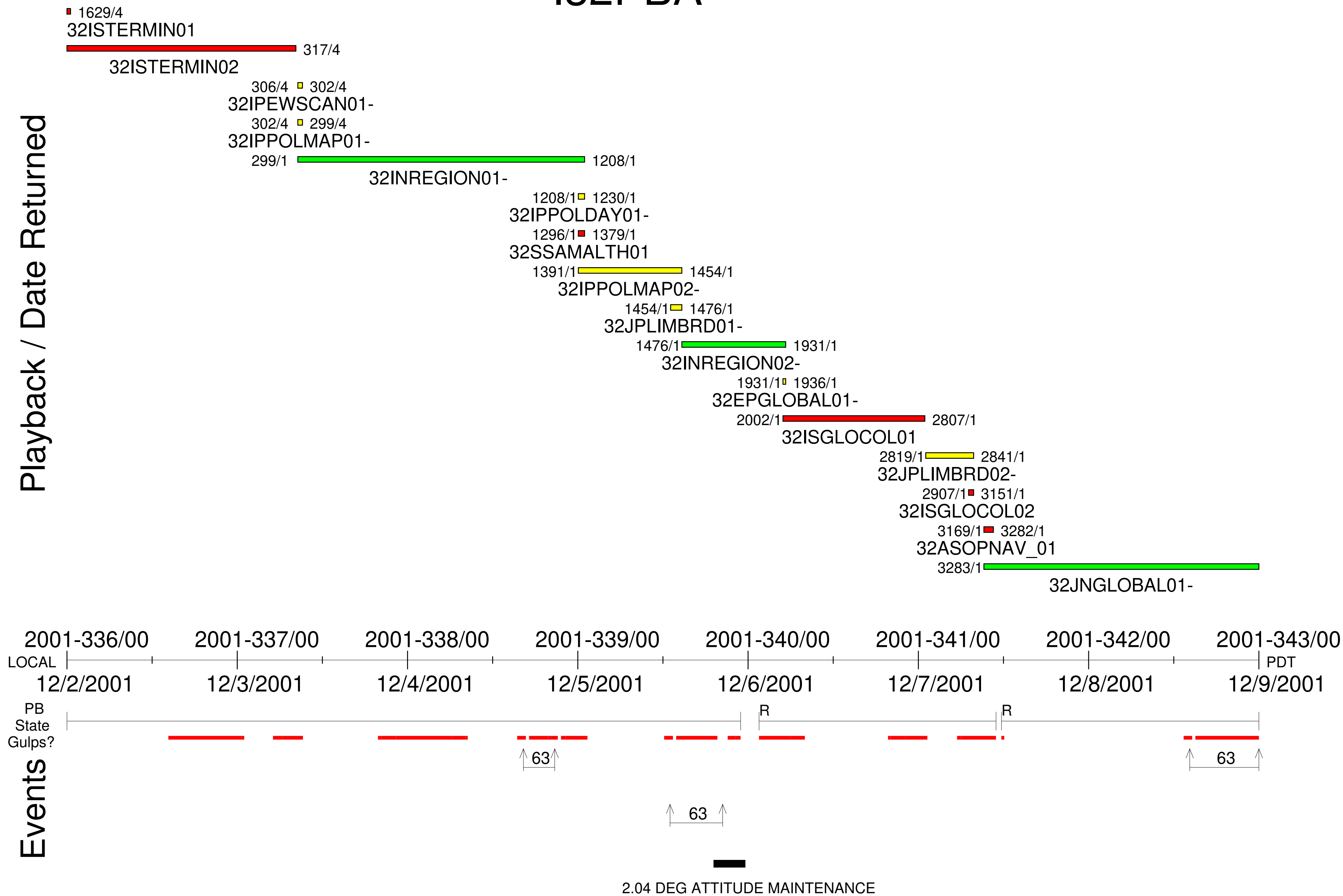

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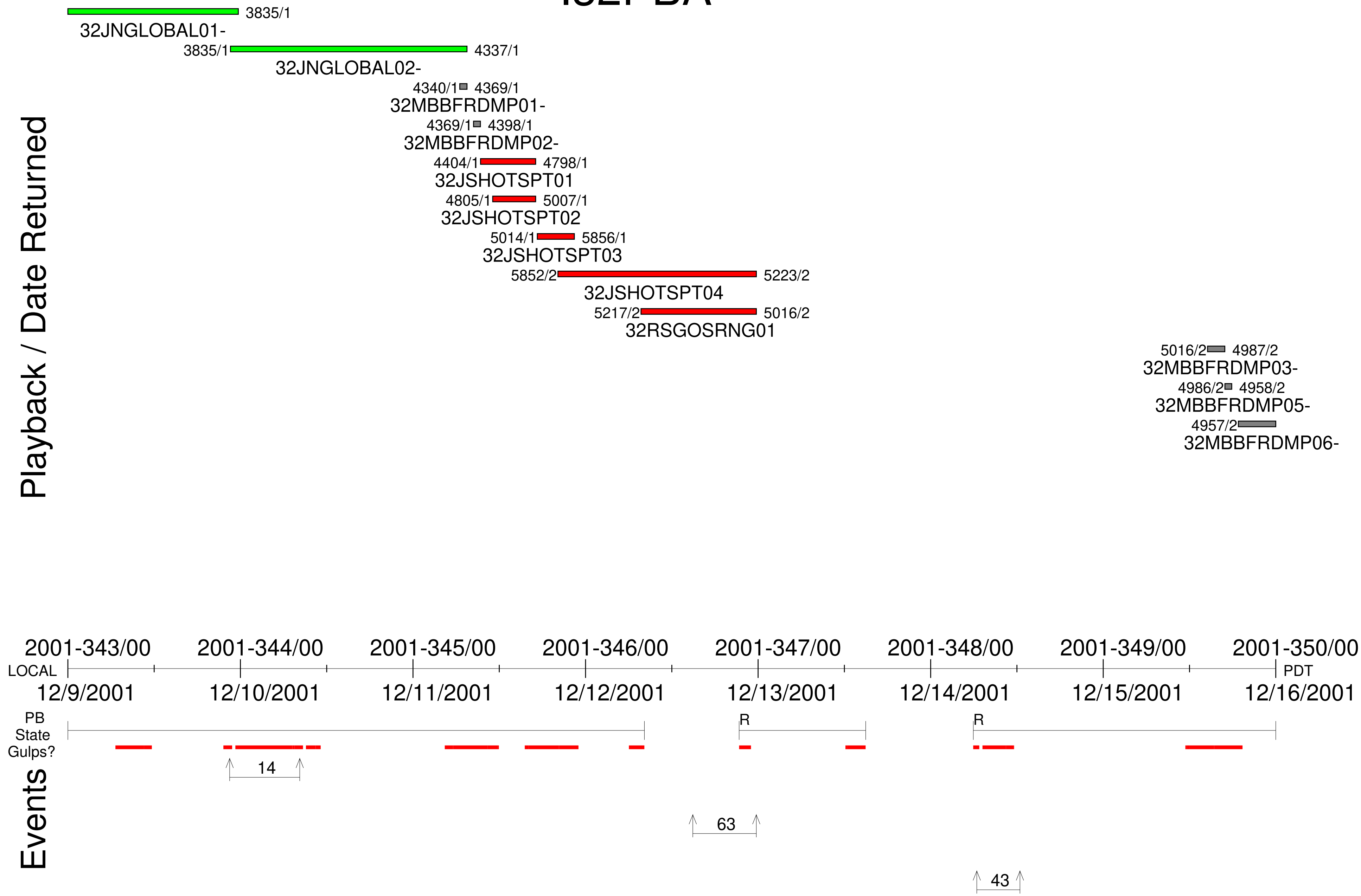

Playback / Date Returned
3835/1
32JNGLOBAL01-
3835/1 4337/1
32JNGLOBAL02-
4340/1 4369/1
32MBBFRDMP01-
4369/1 4398/1
32MBBFRDMP02-
4404/1 4798/1
32JSHOTSPT01
4805/1 5007/1
32JSHOTSPT02
5014/1 5856/1
32JSHOTSPT03
5852/2 5223/2
32JSHOTSPT04
5217/2 5016/2
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5016/2 4987/2
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4986/2 4958/2
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4957/2
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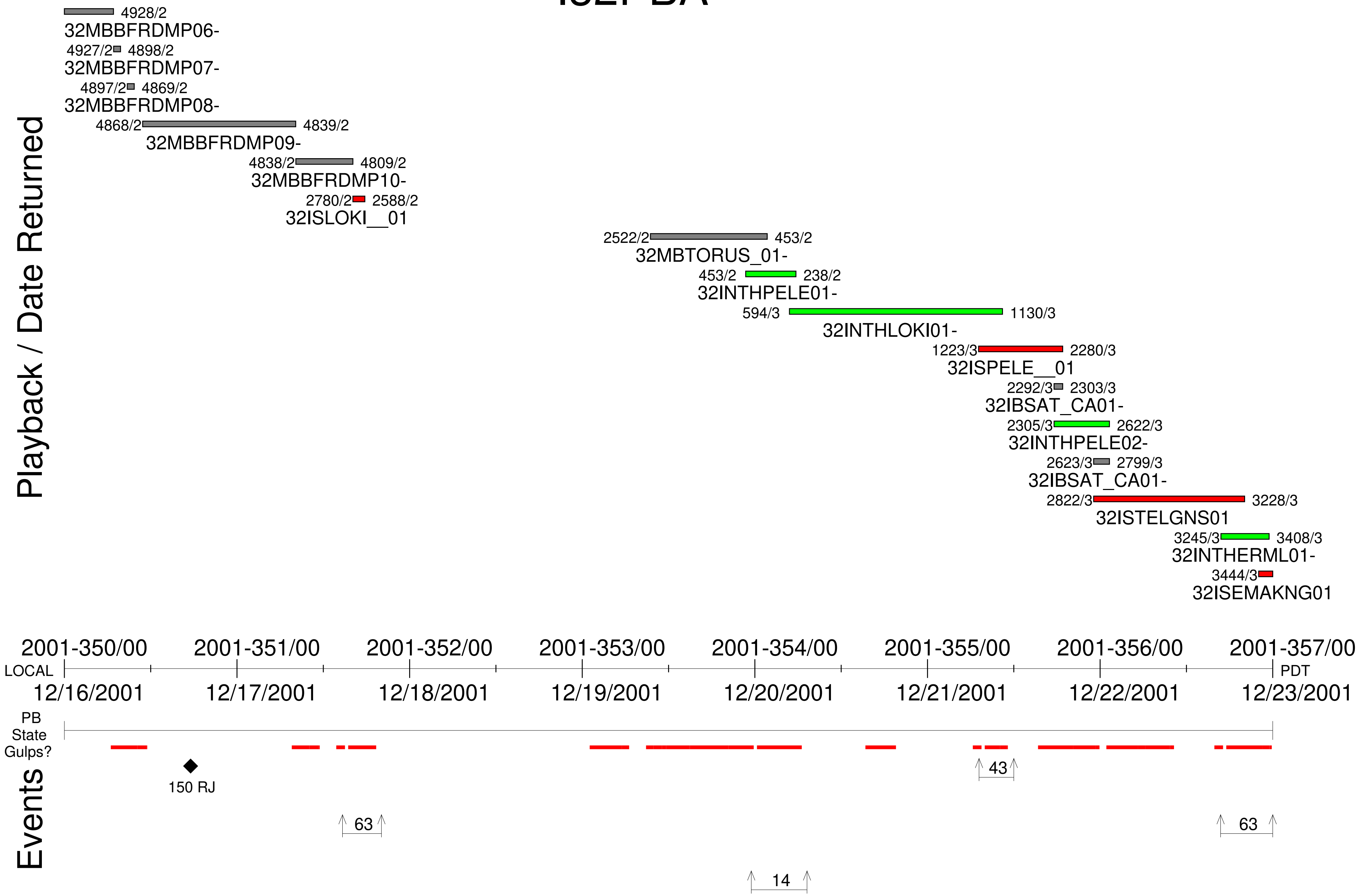

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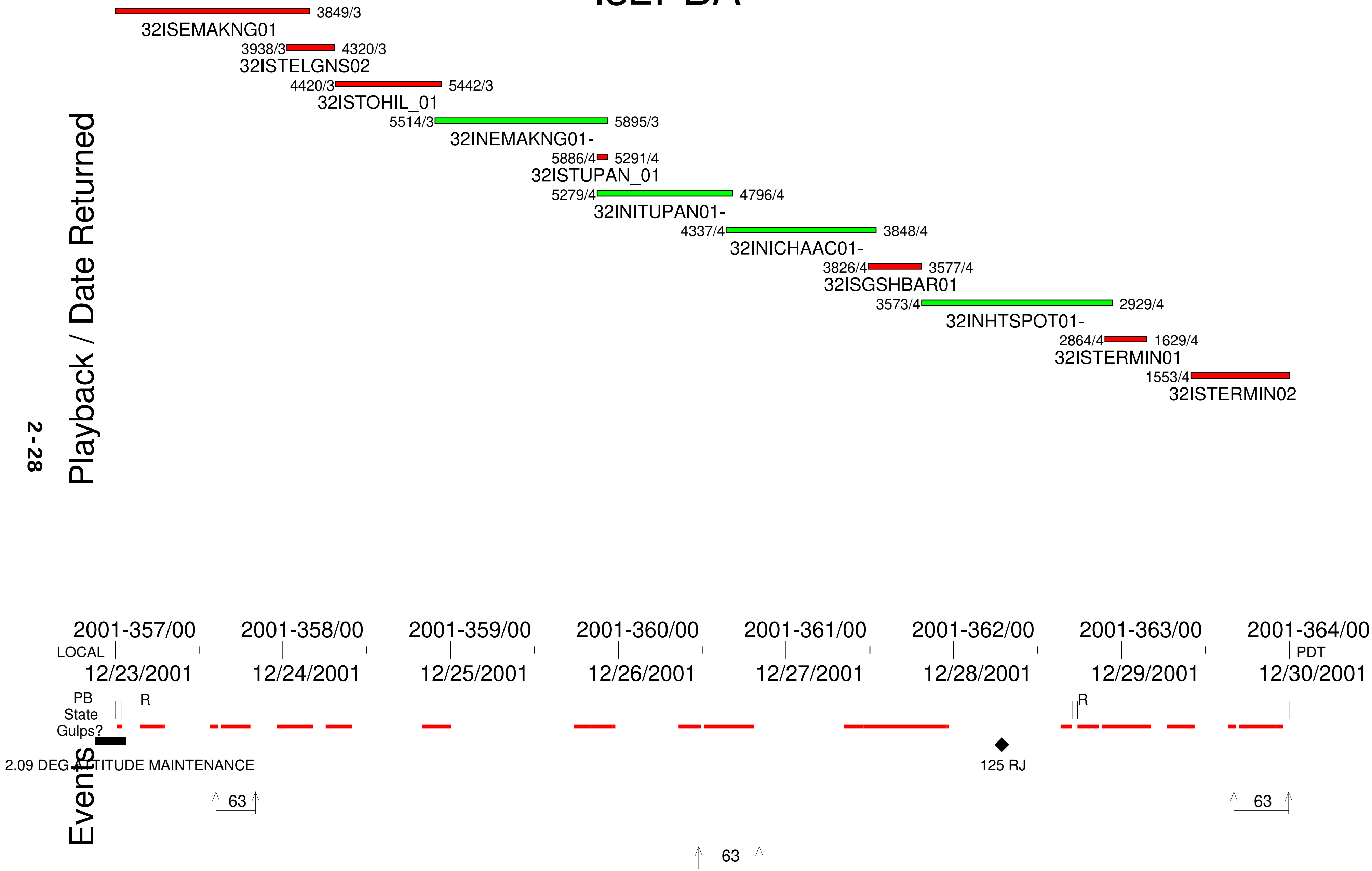

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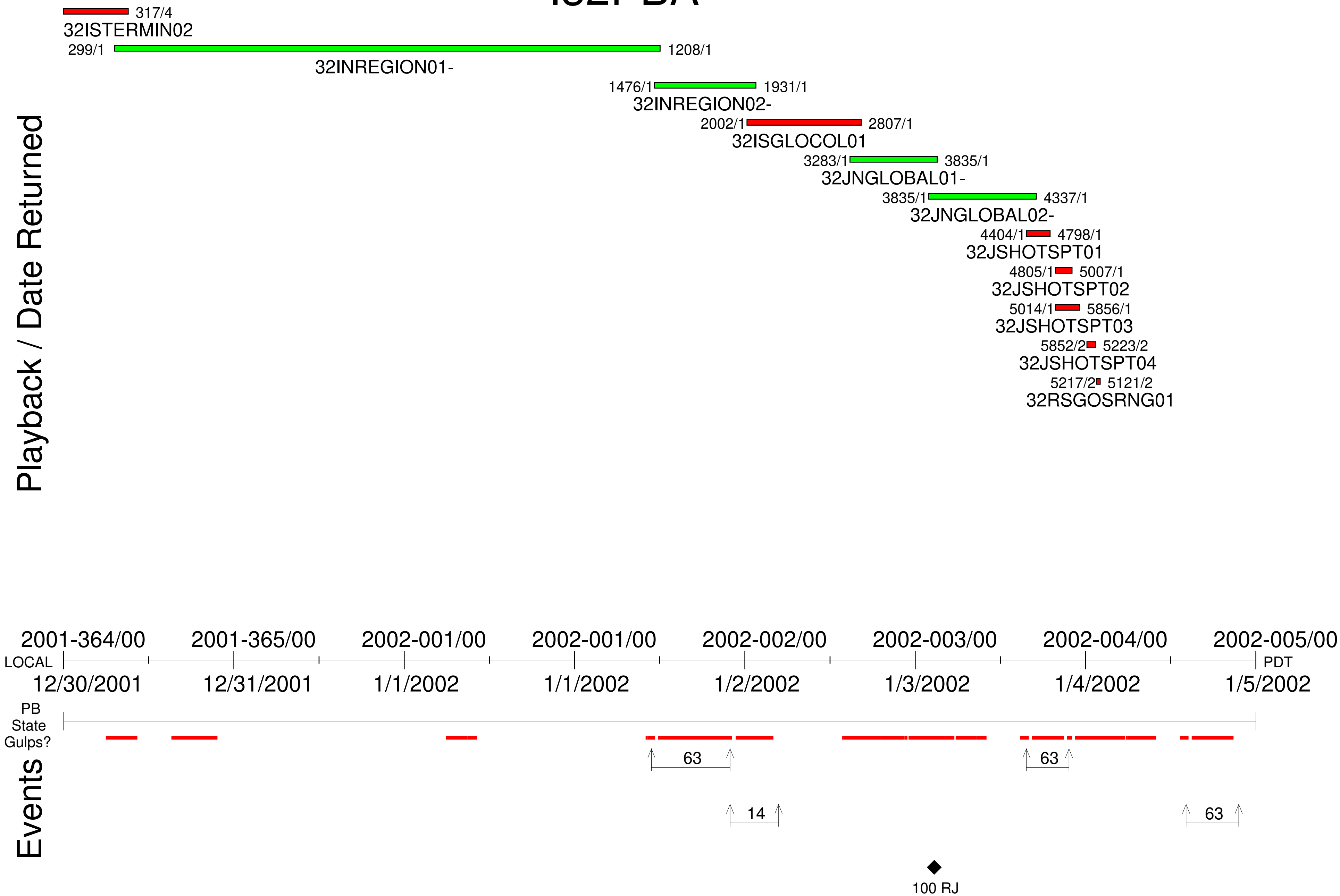

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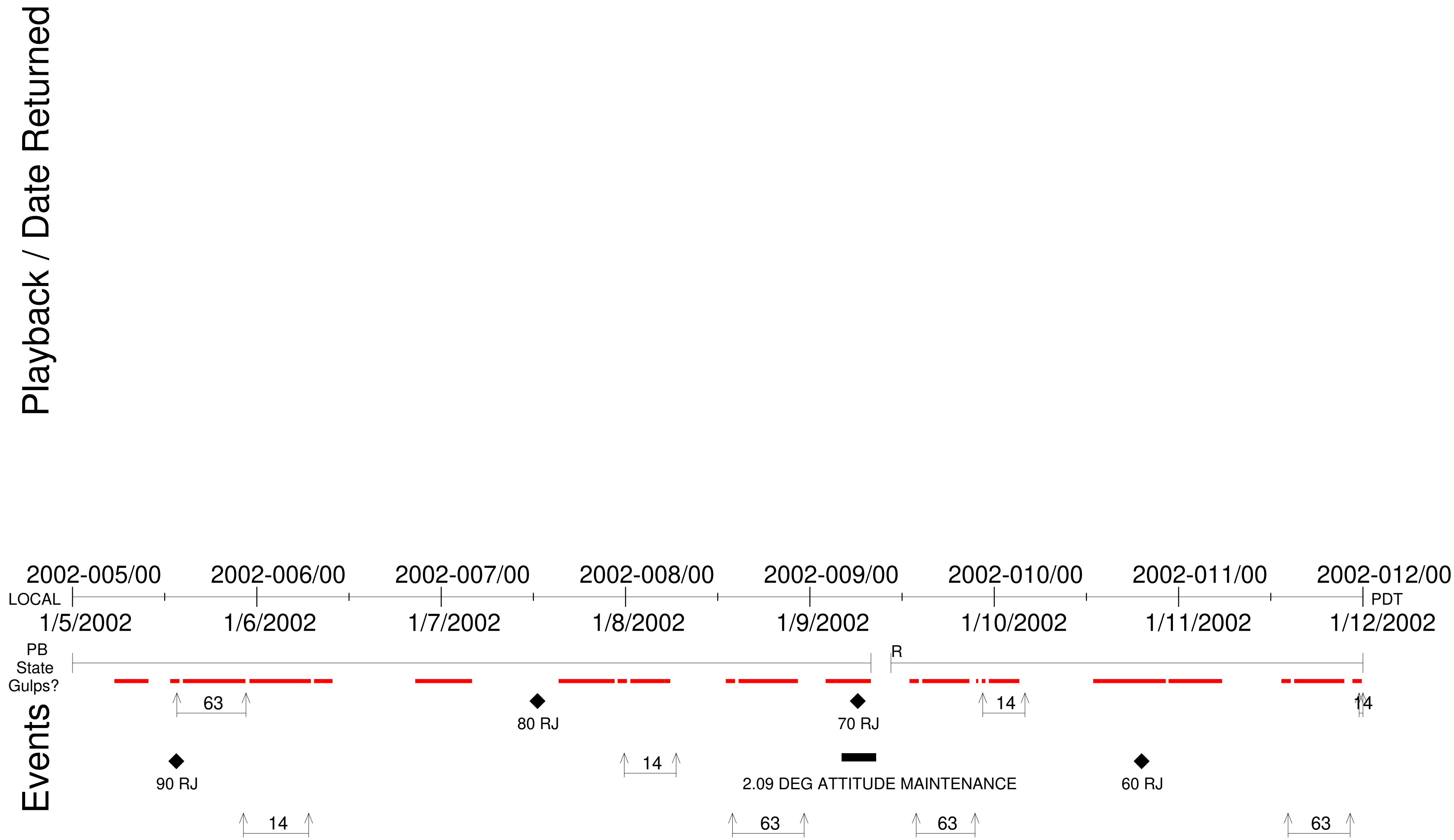
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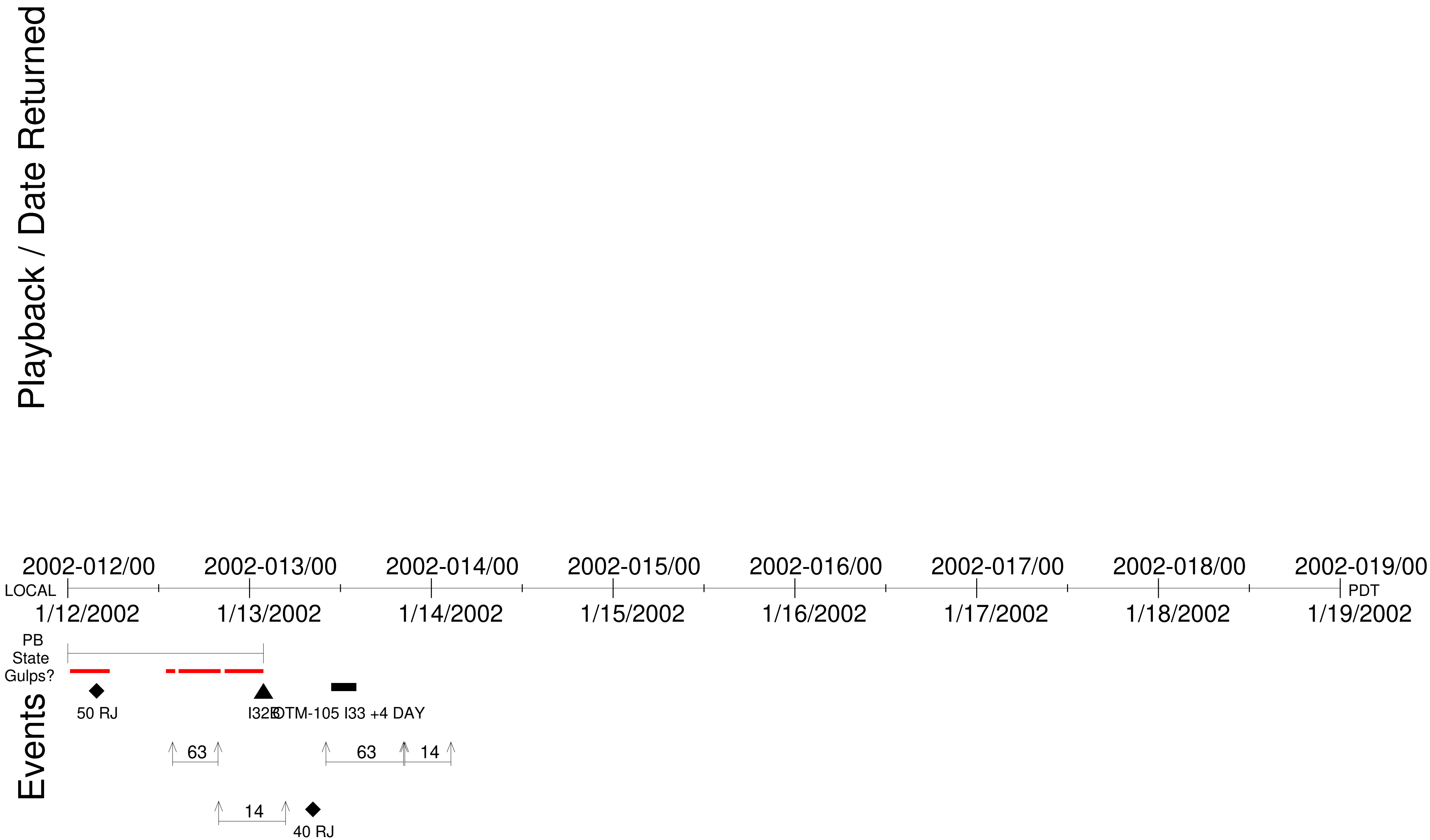

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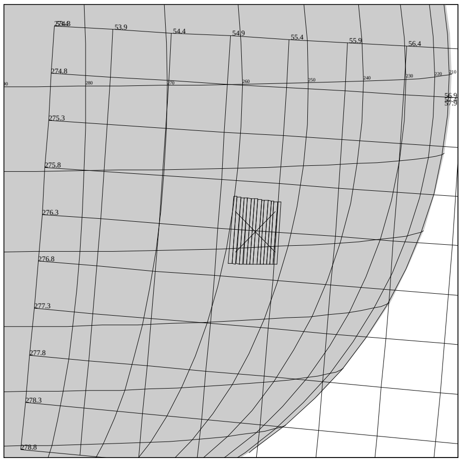

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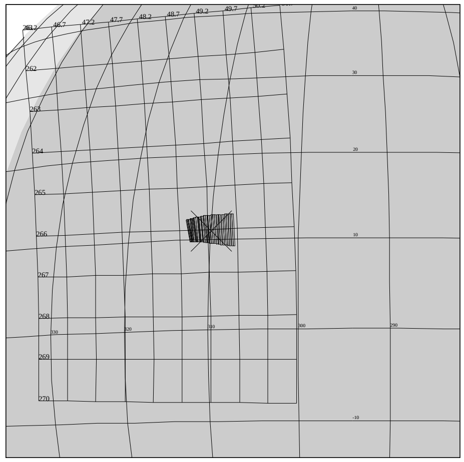

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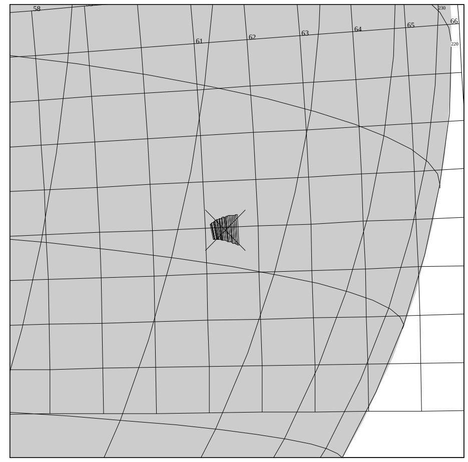

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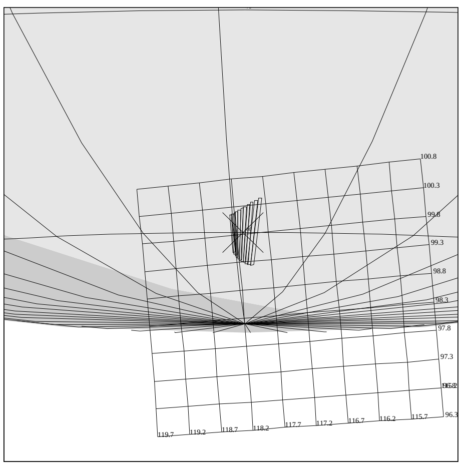

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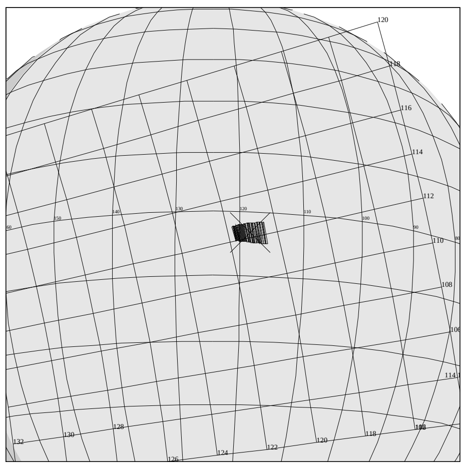

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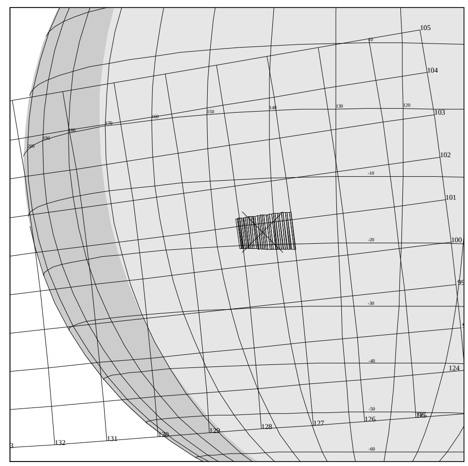

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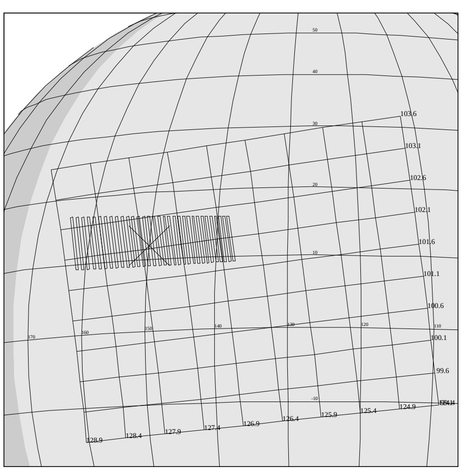

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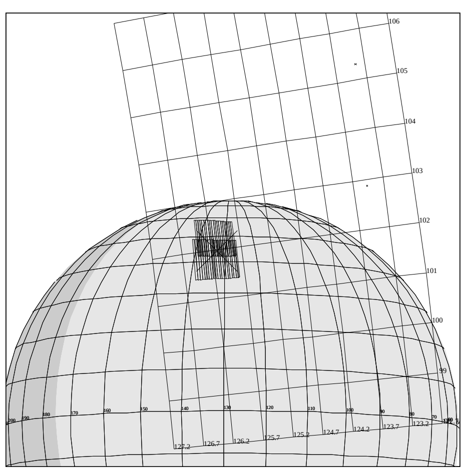

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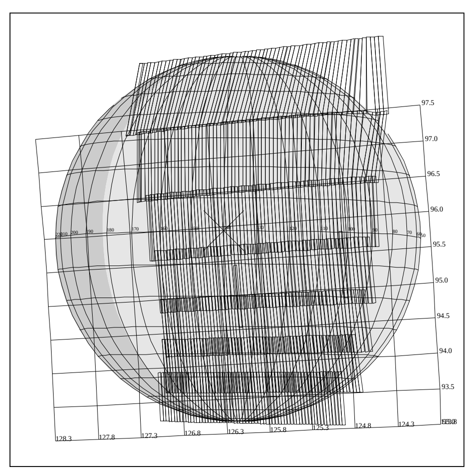

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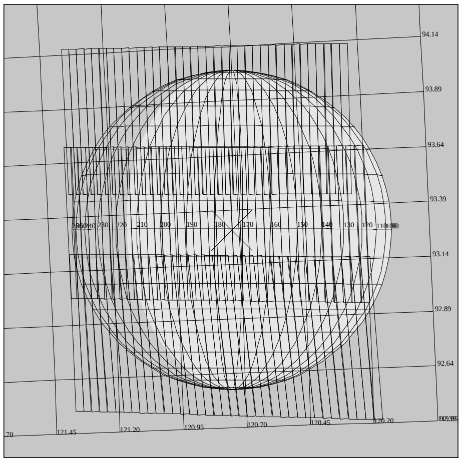

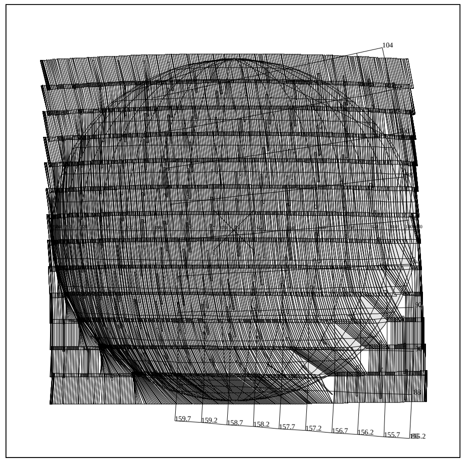

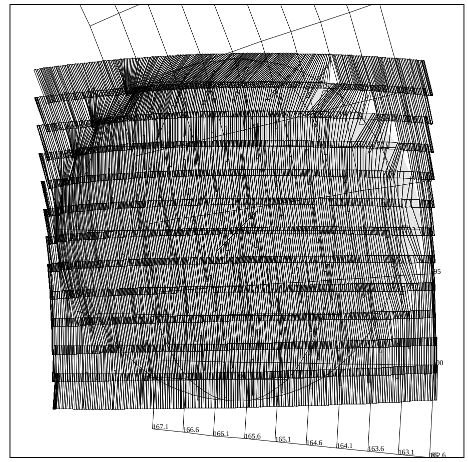

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