Chapter 3 - Encounter Geometries

Contents

Introduction to Chapter 3

This chapter contains diagrams of various aspects of geometry for the Ida Encounter. The geometry is computed relative to a tri-axial ellipsoid model of Ida.

The figure on page 3 shows the entire Galileo VEEGA Trajectory from launch through Jupiter arrival with various 'milestones' labeled along the trajectory.

The figure on page 4 shows the geometry of the 4 OPNAV images taken on approach to Ida.

The figure on page 5 is a Pole View of the Trajectory of Galileo past Ida during the Ida Flyby, -10 to +10 minutes of closest approach.

The figure on page 6 is a plot of the tri-axial ellipsoid model of Ida at closest approach with the NIMS and SSI footprints.

The figure on page 7 is a plot of spacecraft range from Ida as a function of time.

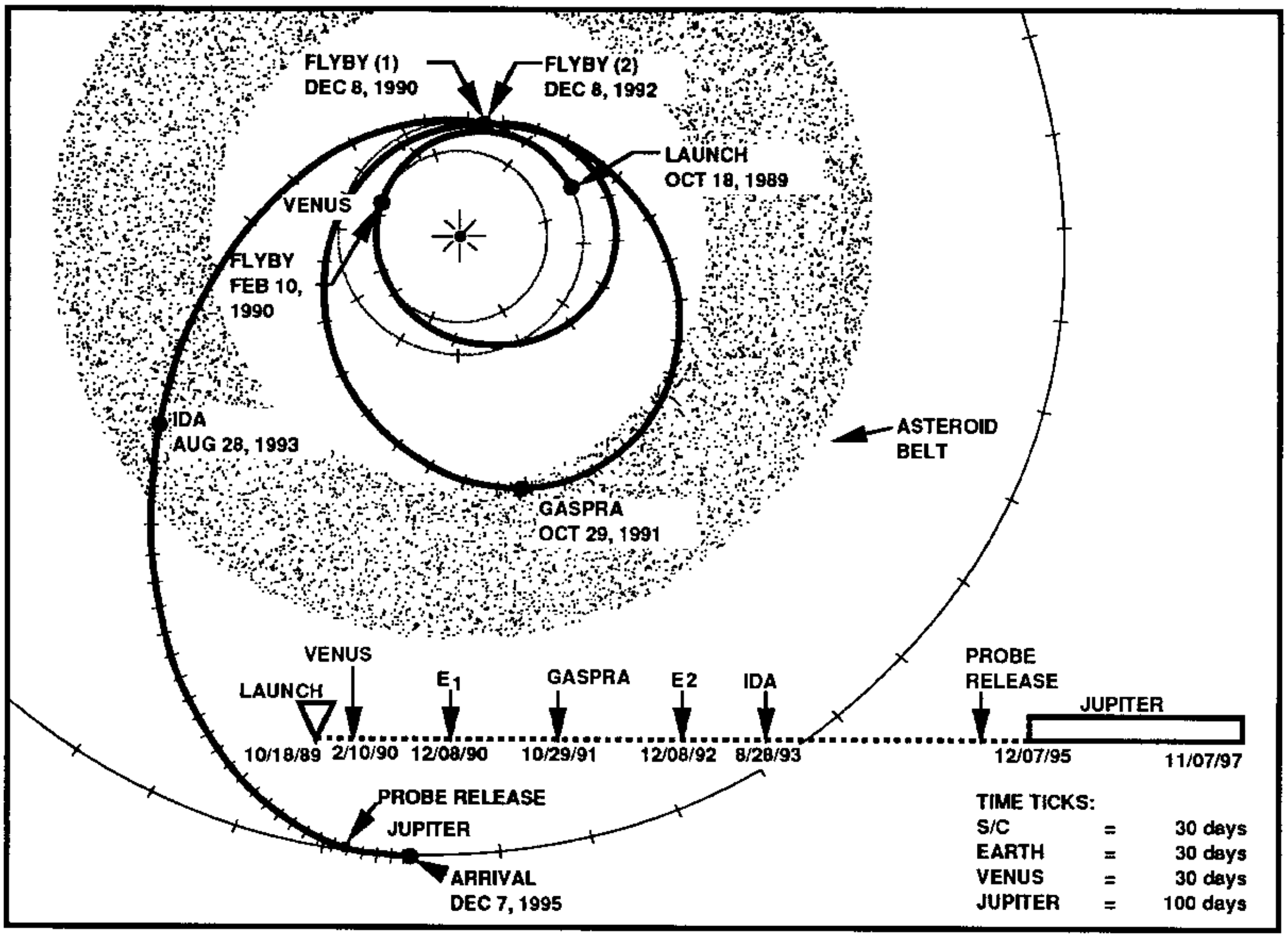
The figure on page 8 is a plot of Ida's tri-axial ellipsoid semi-major axis as a function of time.

The figure on page 9 is a plot of Ida's phase angle as a function of time.

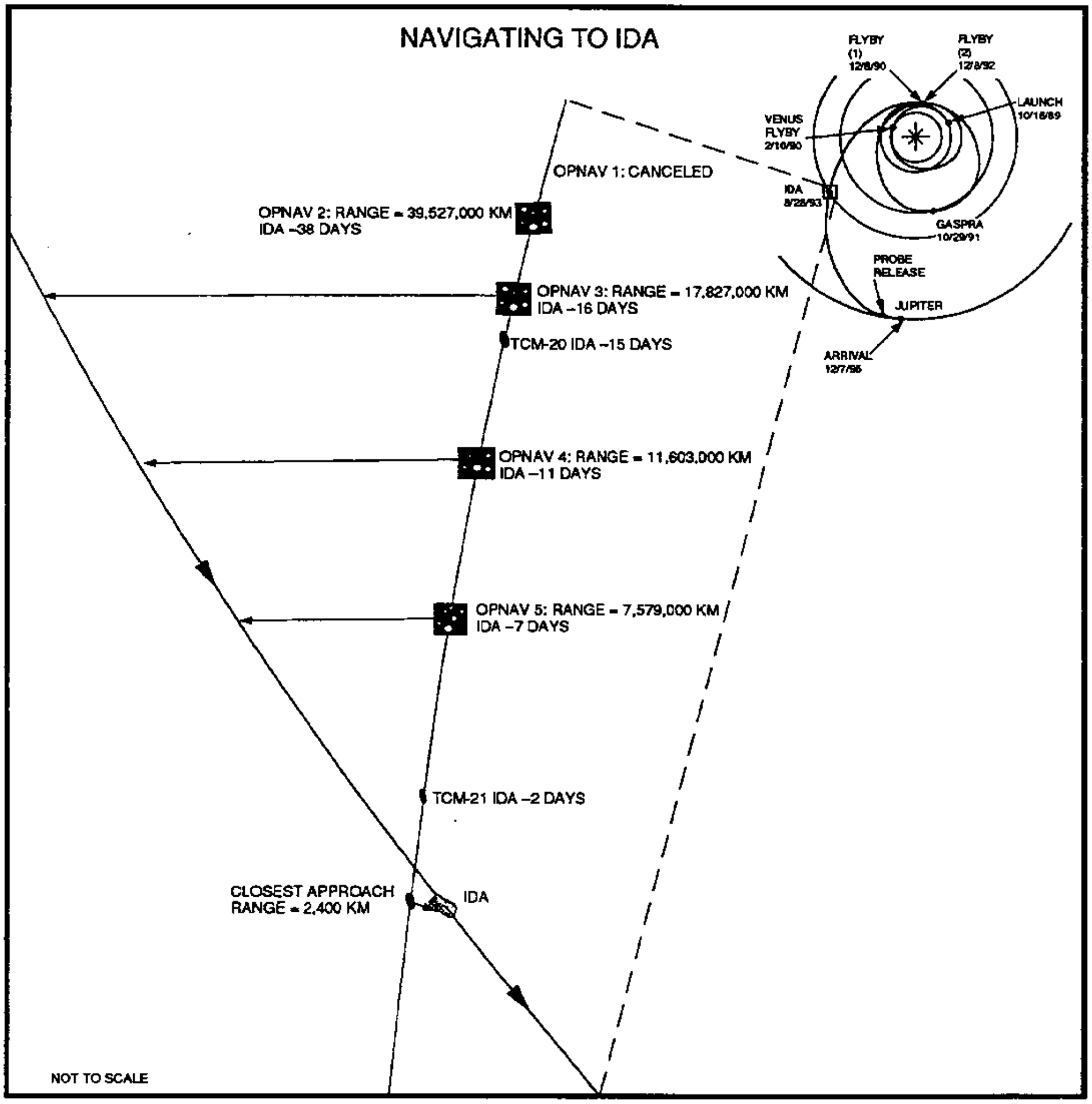
The figure on page 10 is a plot of Ida's cone angle as a function of time.

The figure on page 11 is a plot of the latitude of the spacecraft with respect to Ida (sub-spacecraft point) as a function of time.

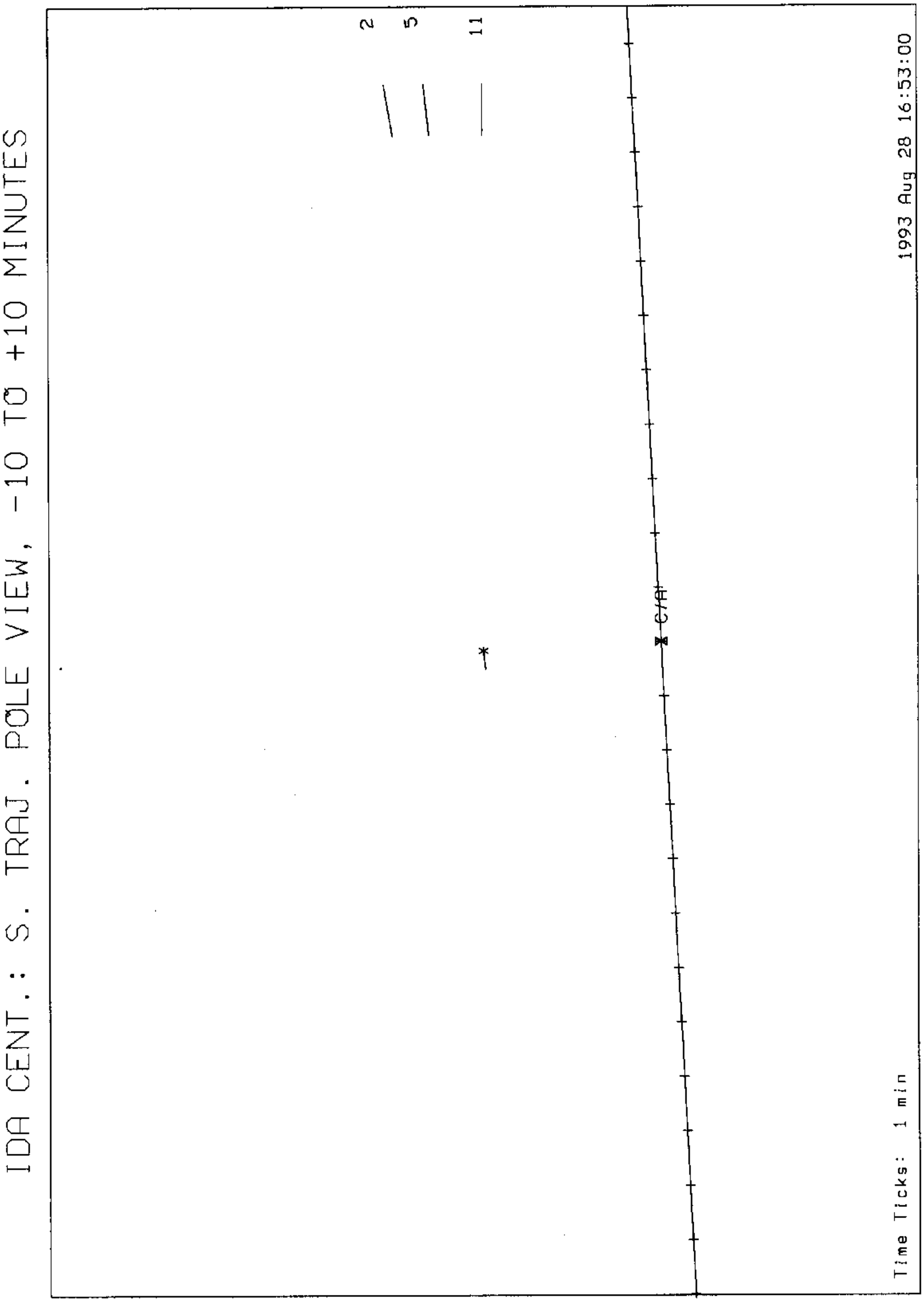
The figure on page 12 is a plot of the west longitude of the spacecraft with respect to Ida (sub-spacecraft point) as a function of time.



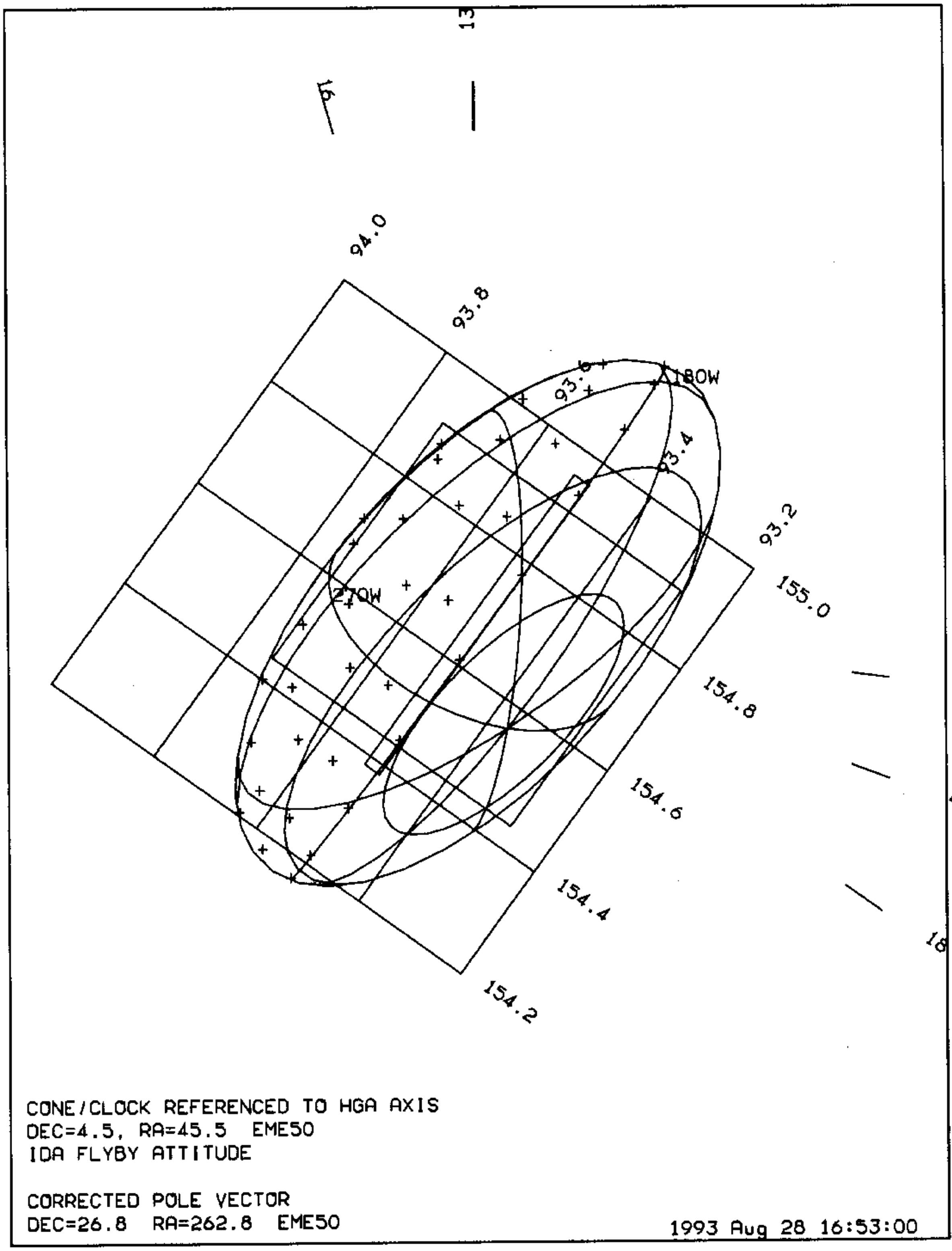
VEEGA TRAJECTORY

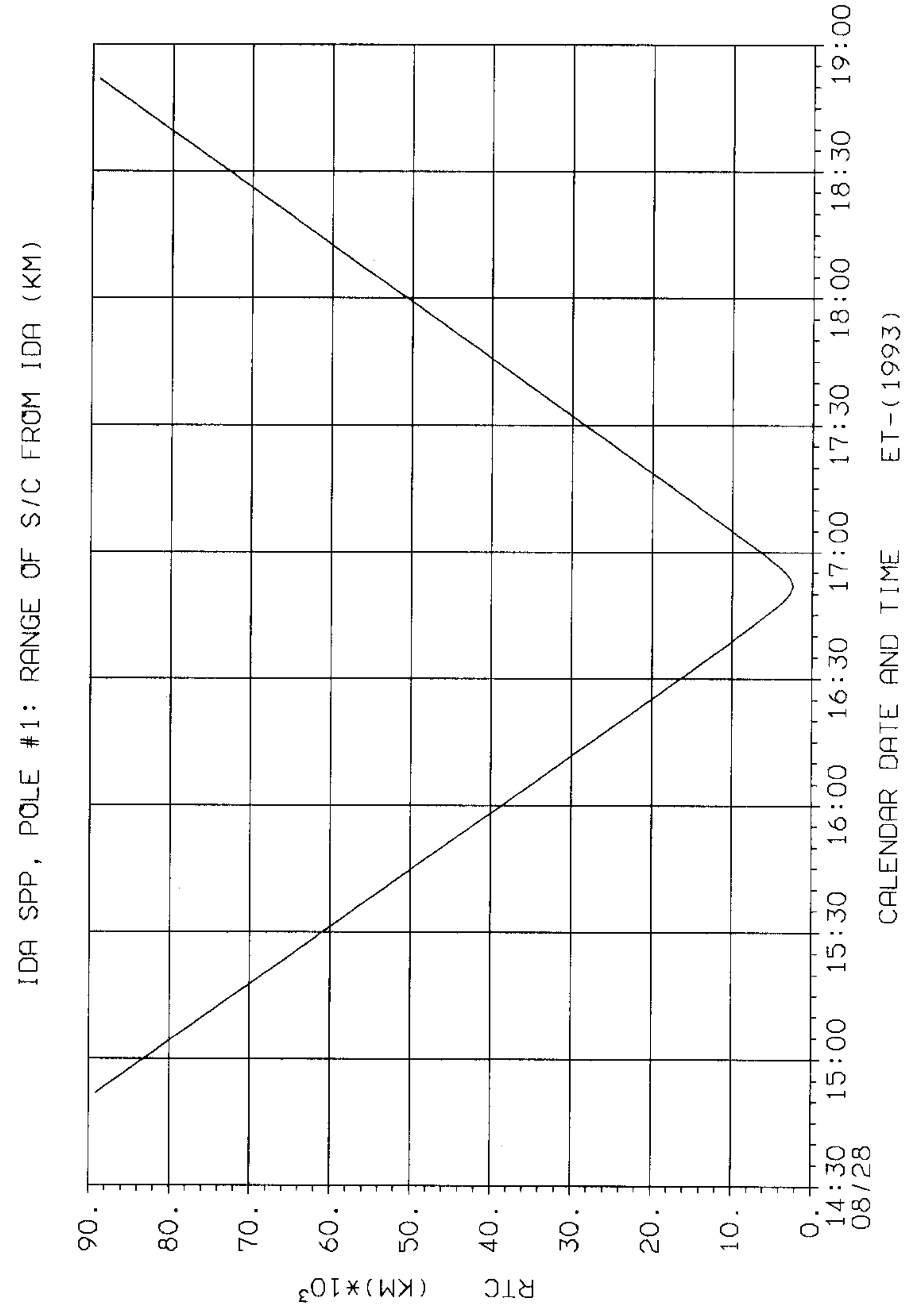


Path of Galileo Past Ida Showing OPNAV Locations and Ranges.


IDA CENT.: S. TRAJ. POLE VIEW, -10 TO +10 MINUTES
2
5
11
1993 Aug 28 16:53:00
C/A
Time Ticks: 1 min

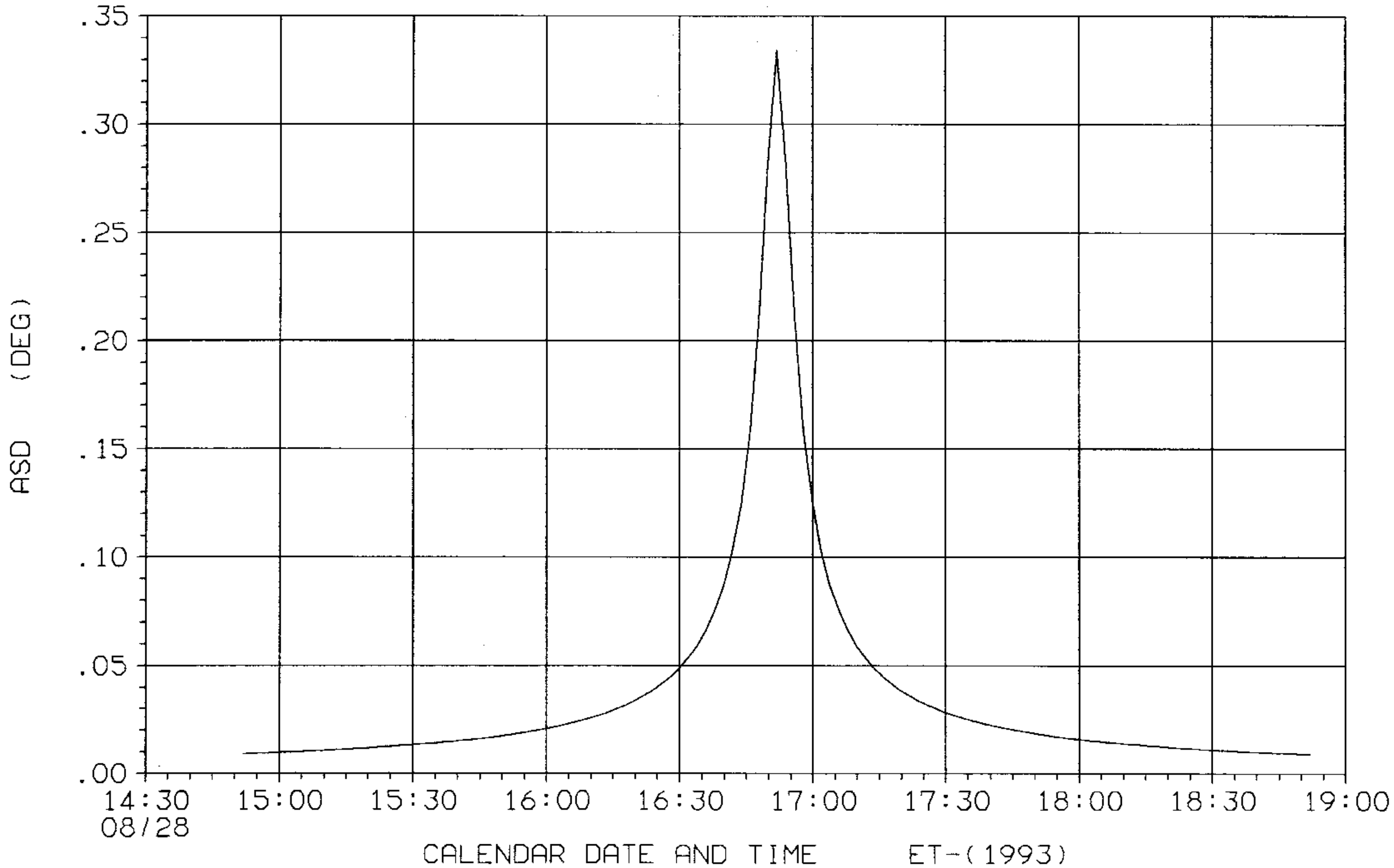
IDA, POLE #1: C/A

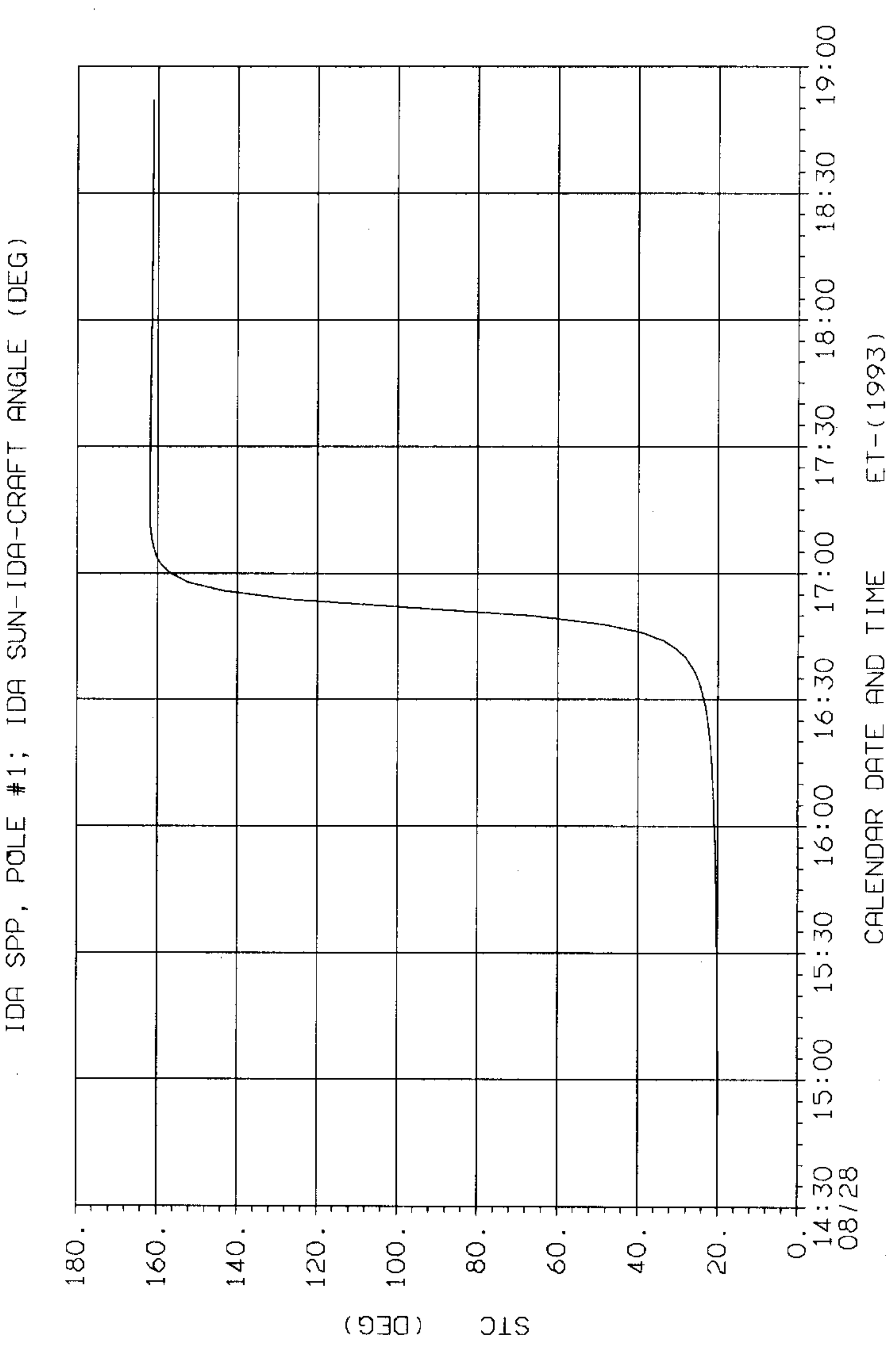

13
16
94.0
93.8
93.6
180W
93.4
93.2
155.0
270W
154.8
154.6
154.4
154.2
5
2
18
CONE/CLOCK REFERENCED TO HGA AXIS
DEC=4.5, RA=45.5 EME50
IDA FLYBY ATTITUDE
CORRECTED POLE VECTOR
DEC=26.8 RA=262.8 EME50
1993 Aug 28 16:53:00

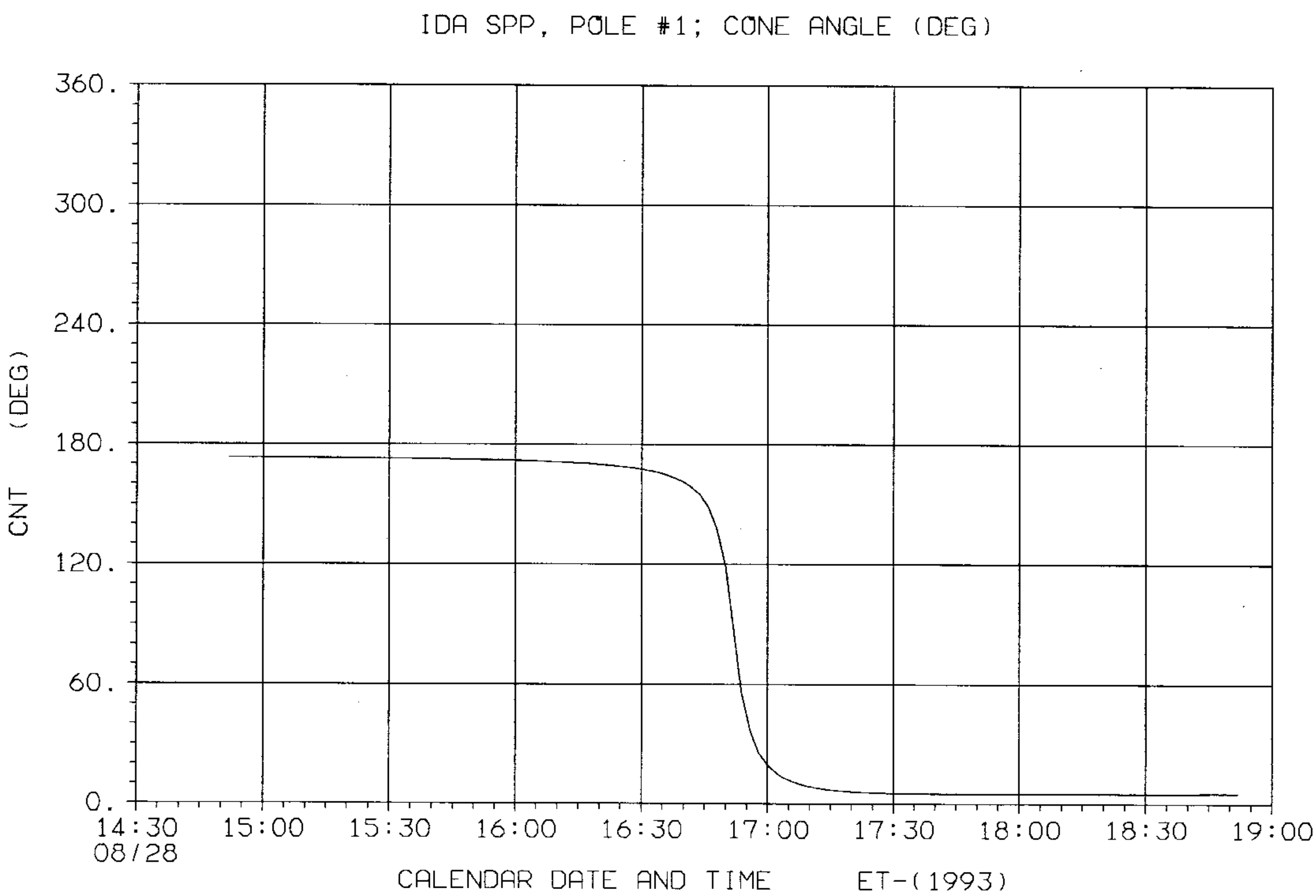


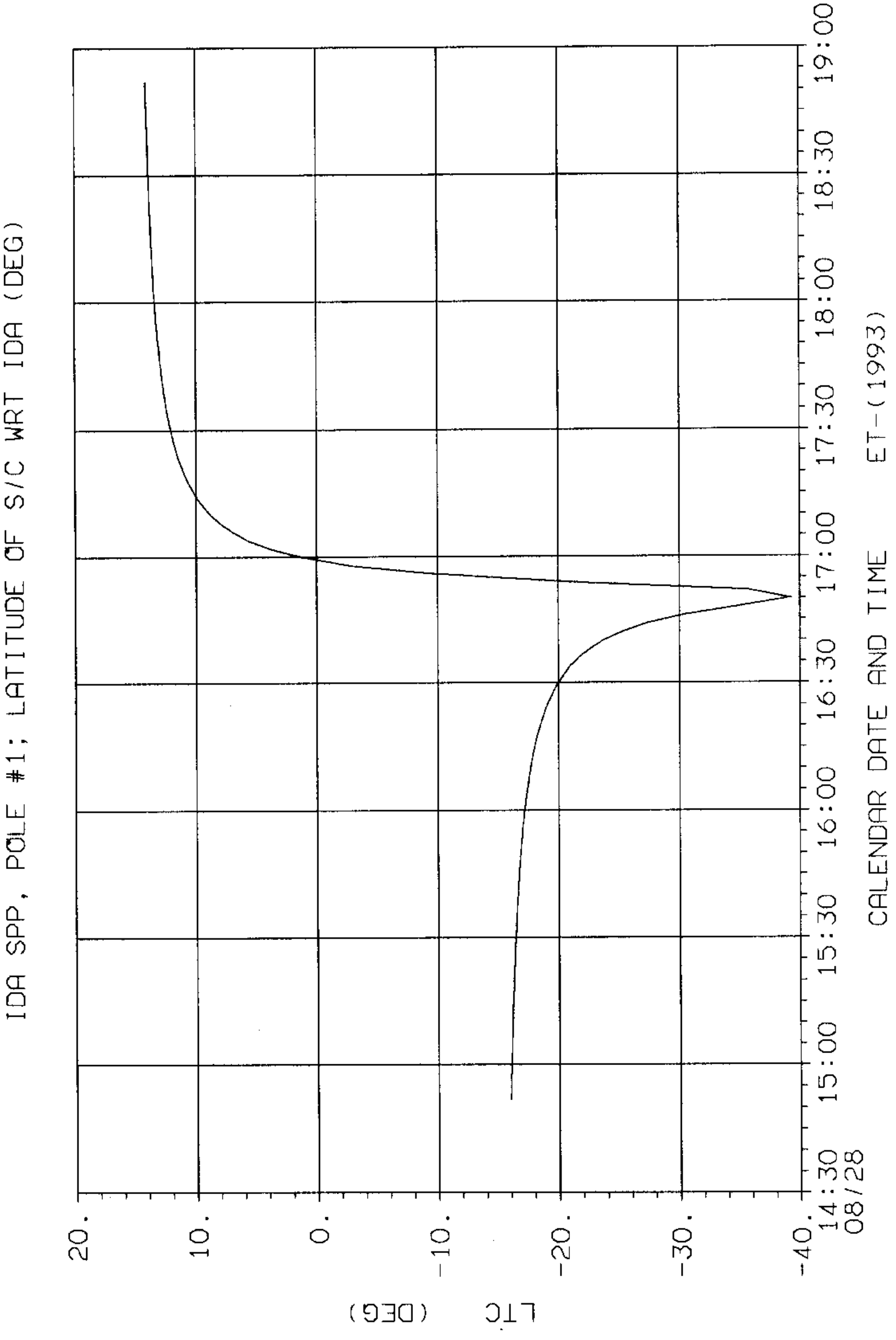
IDA SPP, POLE #1: RANGE OF S/C FROM IDA (KM)
RTC (KM)*10³
90.
80.
70.
60.
50.
40.
30.
20.
10.
0.
14:30
08/28
15:00
15:30
16:00
16:30
17:00
17:30
18:00
18:30
19:00
CALENDAR DATE AND TIME ET-(1993)

IDA SPP, POLE #1; ANGULAR SEMI-DIAMETER (DEG)

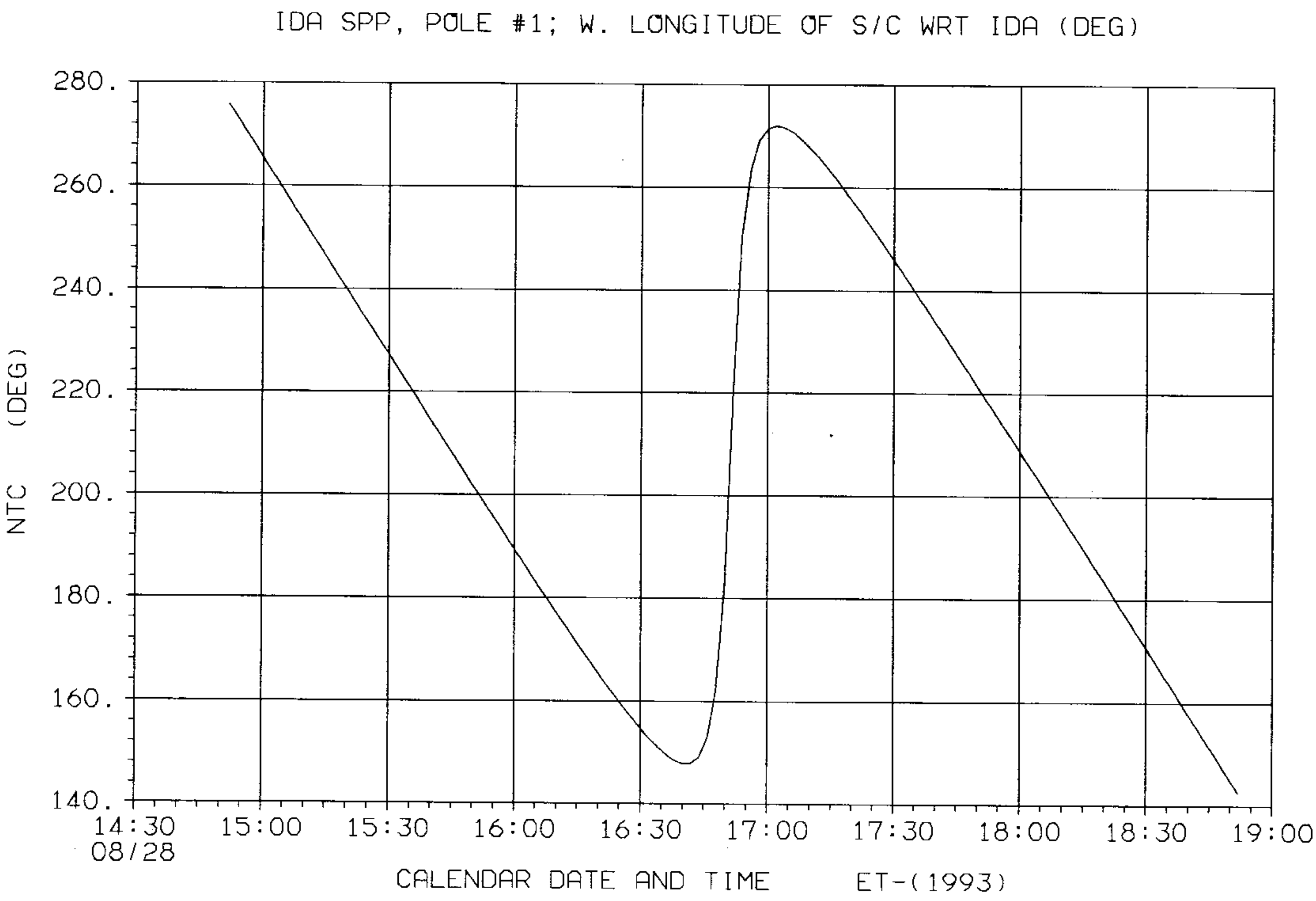



IDA SPP, POLE #1; IDA SUN-IDA-CRAFT ANGLE (DEG)
STC (DEG)
180.
160.
140.
120.
100.
80.
60.
40.
20.
0.
14:30
08/28
15:00
15:30
16:00
16:30
17:00
17:30
18:00
18:30
19:00
CALENDAR DATE AND TIME ET-(1993)


IDA SPP, POLE #1; CONE ANGLE (DEG)
CNT (DEG)
360.
300.
240.
180.
120.
60.
0.
14:30
08/28
15:00
15:30
16:00
16:30
17:00
17:30
18:00
18:30
19:00
CALENDAR DATE AND TIME ET-(1993)



IDA SPP, POLE #1; LATITUDE OF S/C WRT IDA (DEG)
LTC (DEG)
20.
10.
0.
-10.
-20.
-30.
-40.
14:30
08/28
15:00
15:30
16:00
16:30
17:00
17:30
18:00
18:30
19:00
CALENDAR DATE AND TIME ET-(1993)


IDA SPP, POLE #1; W. LONGITUDE OF S/C WRT IDA (DEG)
280.
260.
240.
220.
200.
180.
160.
140.
NTC (DEG)
14:30
08/28
15:00
15:30
16:00
16:30
17:00
17:30
18:00
18:30
19:00
CALENDAR DATE AND TIME ET-(1993)