Chapter 3 - Orbit Geometries

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Introduction to Chapter 3

This chapter contains diagrams of various aspects of geometry for the E6 Orbit.

The figure on page 3 is a North Trajectory Pole View of the E6 Orbit from apoapsis to apoapsis.

The figure on page 4 is a North Trajectory Pole View of the E6 Orbit from +/- 5 days of Europa closest approach.

The figure on page 5 is a North Trajectory Pole View of the E6 Orbit from +/- 1 day of Europa closest approach.

The figure on page 6 shows the spacecraft's groundtrack on Europa at Europa closest approach.

The figure on page 7 shows the spacecraft's groundtrack on Jupiter at Jupiter closest approach.

The figure on page 8 is a North Trajectory Pole View of the E6 Orbit from +/- 1 hour of Europa closest approach.

The figure on page 9 is a South Trajectory Pole View of the E6 Orbit from +/- 1 hour of Europa closest approach.

The figure on page 10 shows spacecraft altitude with respect to Europa (km).

The figure on page 11 shows the cone angle of Europa (Earth - S/C - Europa, deg).

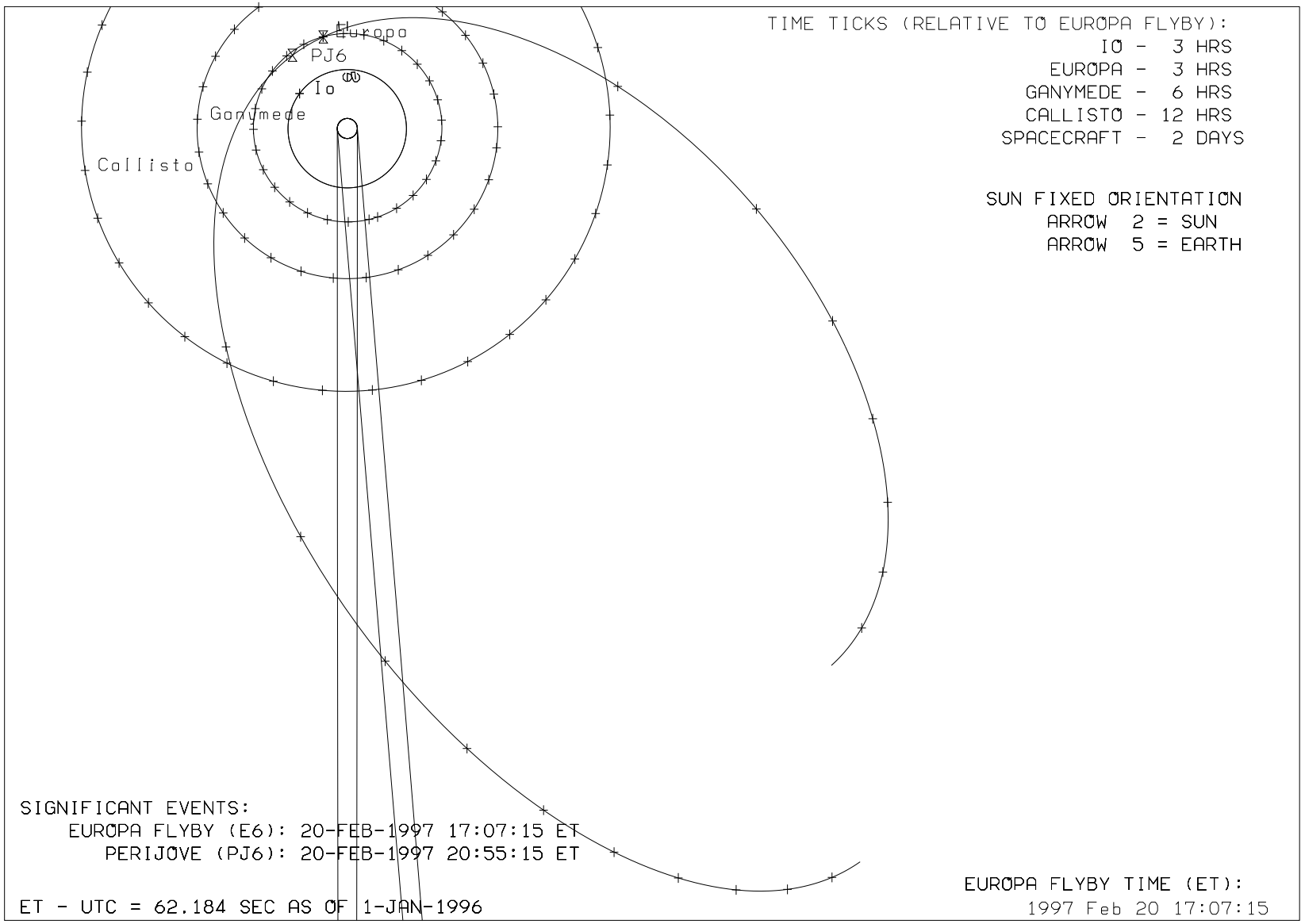
The figure on page 12 shows the Sun-Europa-S/C Angle (deg).

The figure on page 13 shows spacecraft range to Jupiter's center of mass (Rj).

The figure on page 14 shows the cone angle of Jupiter (Earth - S/C - Jupiter, deg).

The figure on page 15 shows the Sun-Jupiter-S/C Angle (deg).

Jupiter 6: North Trajectory Pole View (E6 Apo to Apo)



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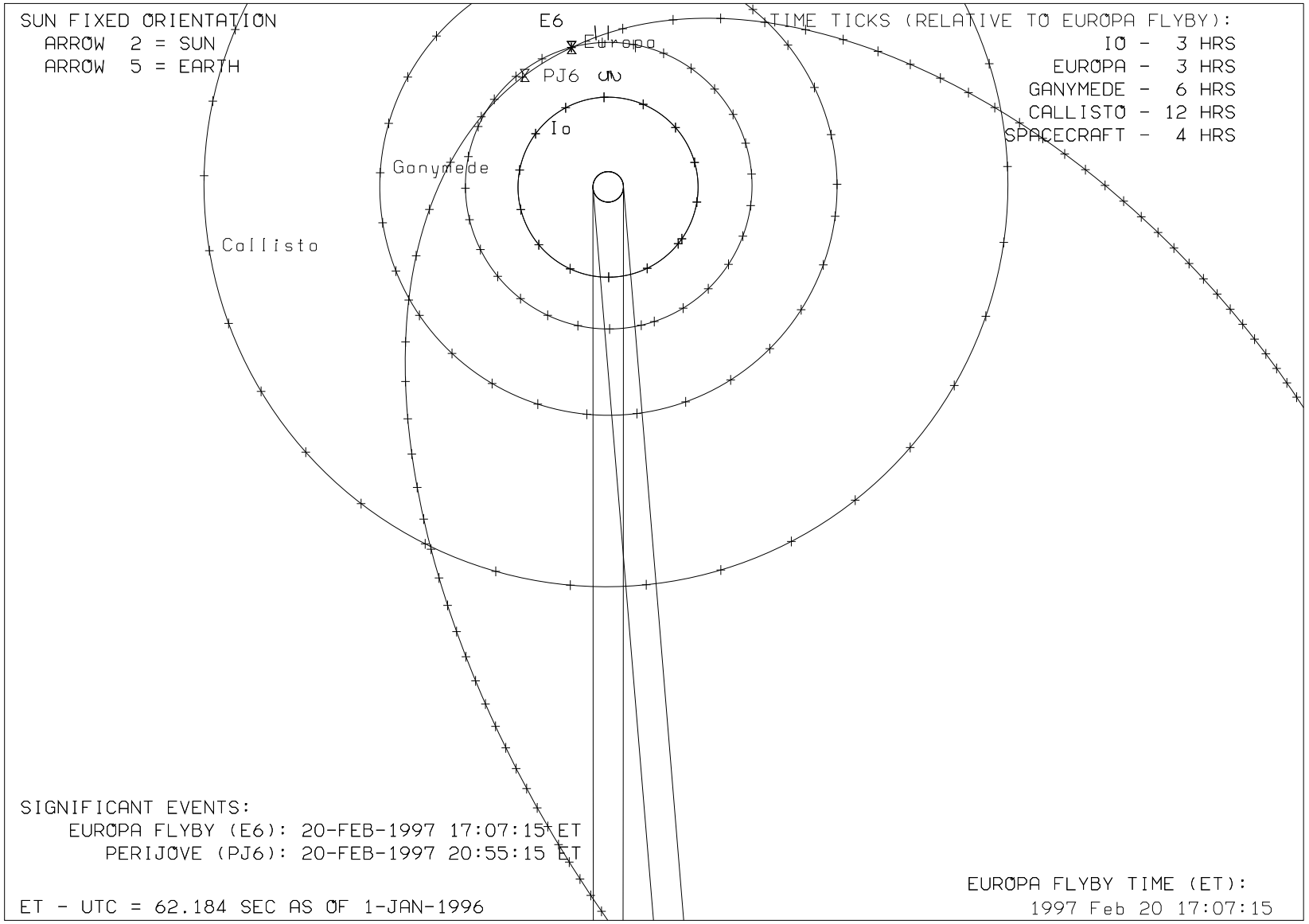
Jupiter 6: North Trajectory Pole View (E6 +/- 5 days)



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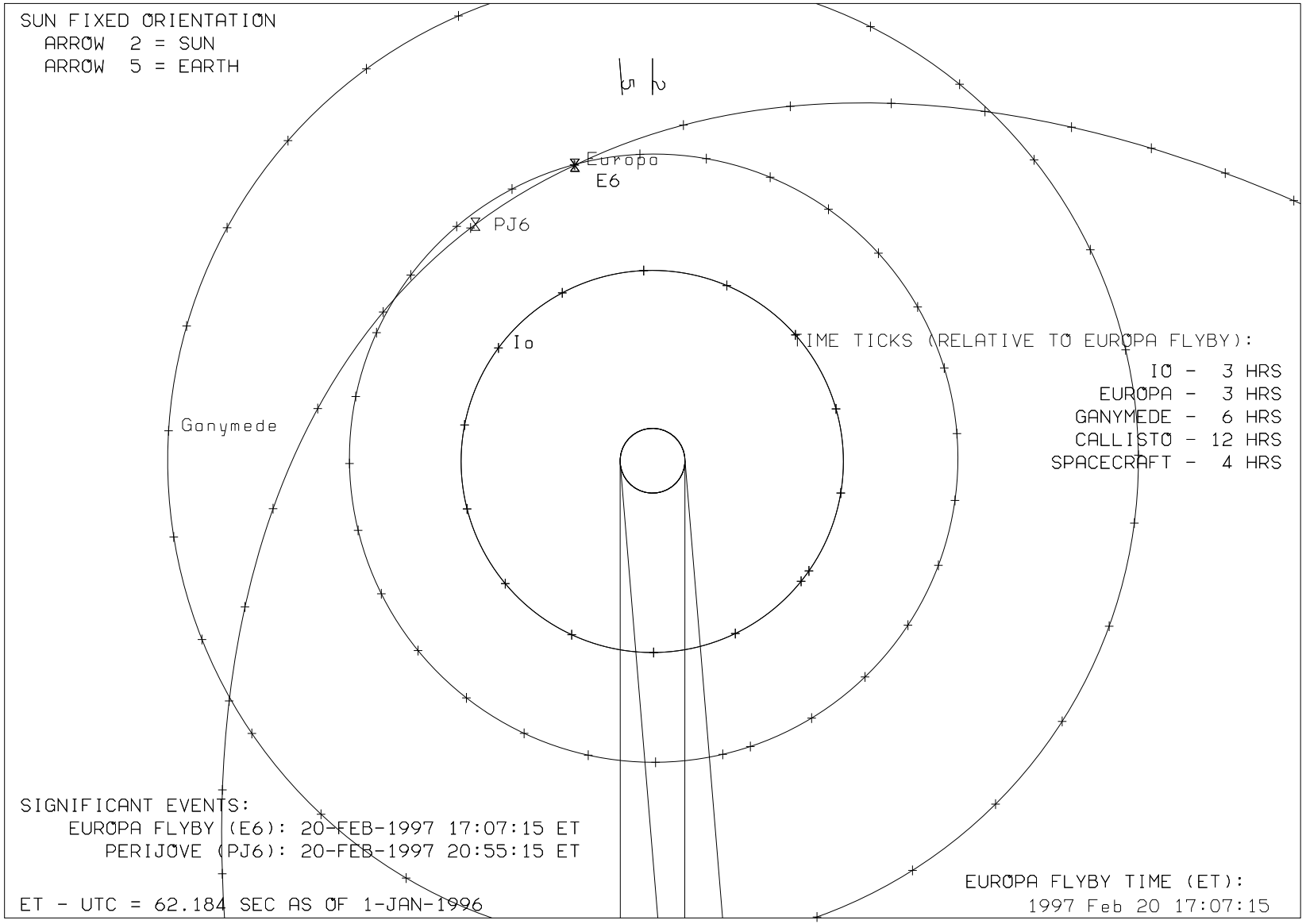
Jupiter 6: North Trajectory Pole View (E6 +/- 1 day)



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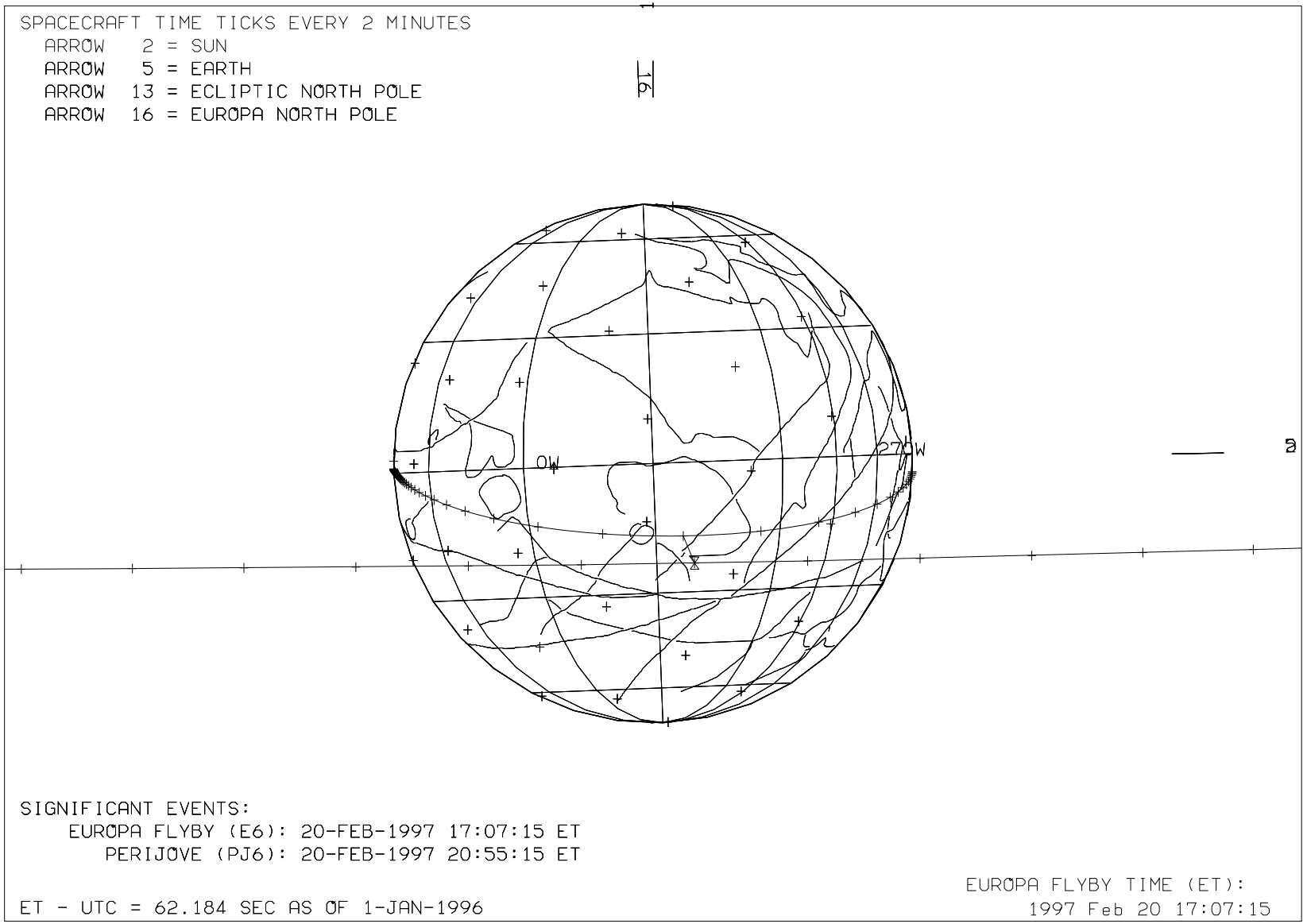
EUROPA 6: GROUNDTRACK AT CLOSEST APPROACH



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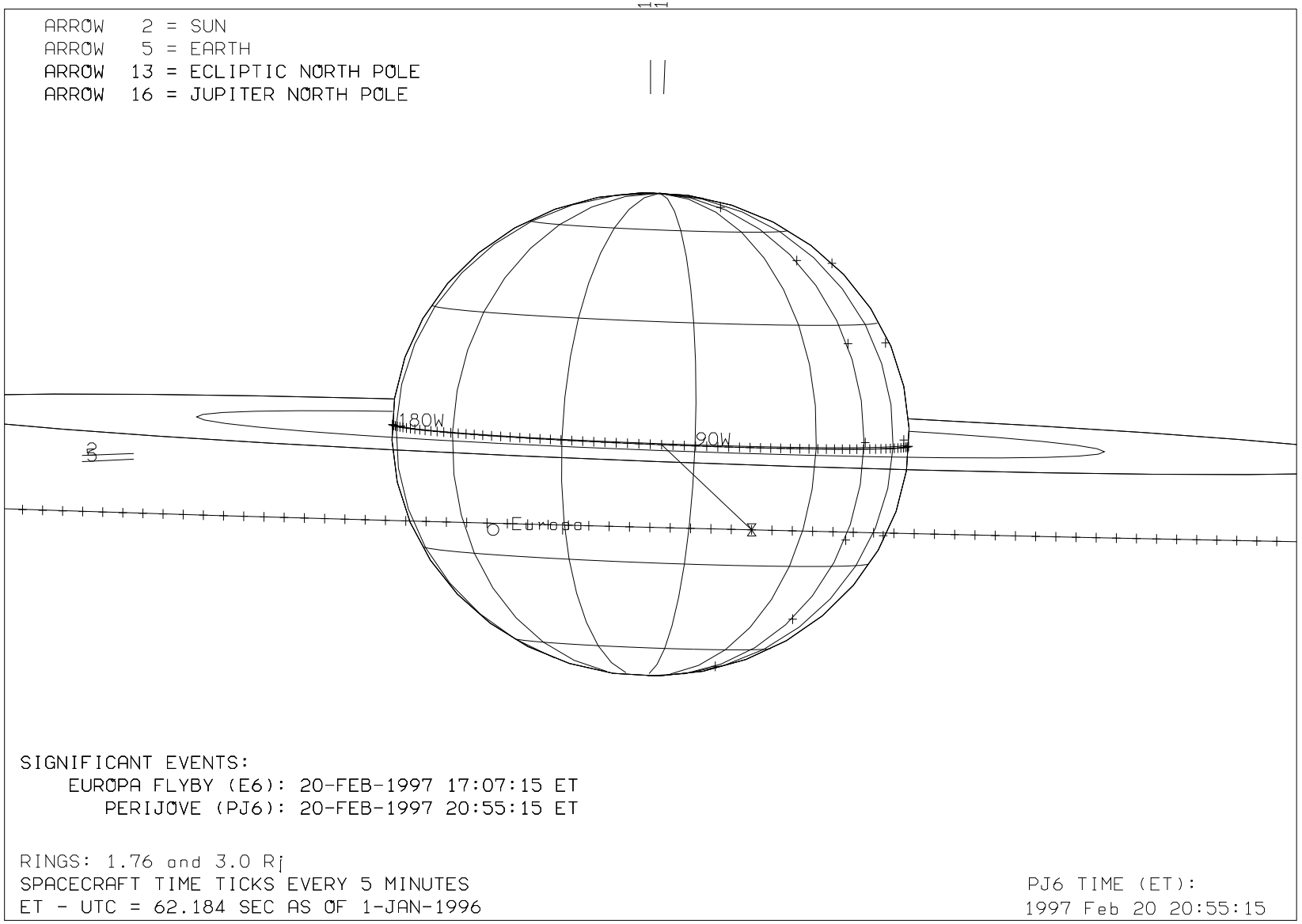
JUPITER 6: GROUNDTRACK AT CLOSEST APPROACH



SIGNIFICANT EVENTS:
EUROPA FLYBY (E6): 20-FEB-1997 17:07:15 ET
PERIJOVE (PJ6): 20-FEB-1997 20:55:15 ET

RINGS: 1.76 and 3.0 Rj
SPACECRAFT TIME TICKS EVERY 5 MINUTES
ET - UTC = 62.184 SEC AS OF 1-JAN-1996

PJ6 TIME (ET):
1997 Feb 20 20:55:15

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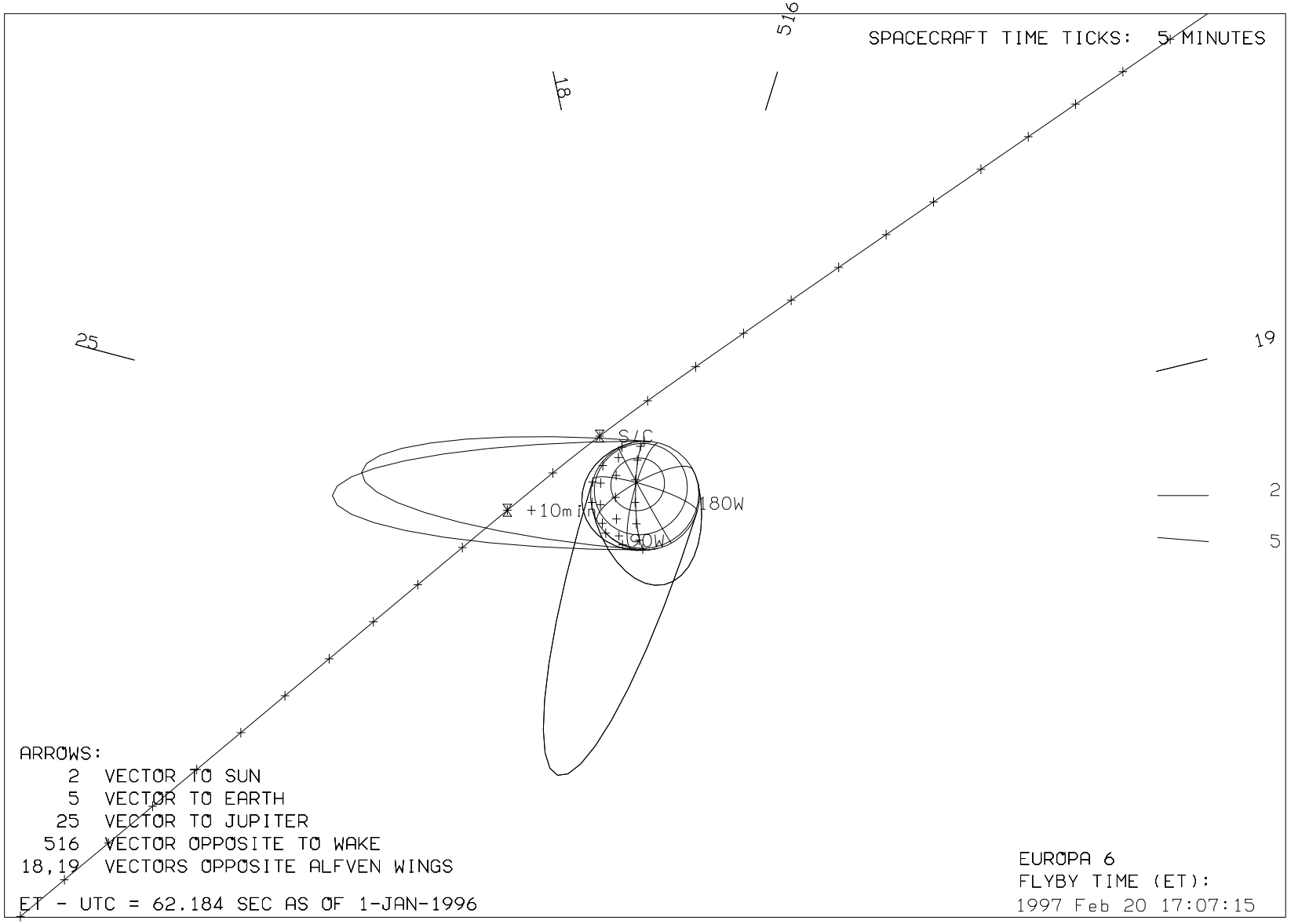
EUROPA 6: CLOSEST APPROACH (NORTH TRAJECTORY POLE VIEW)



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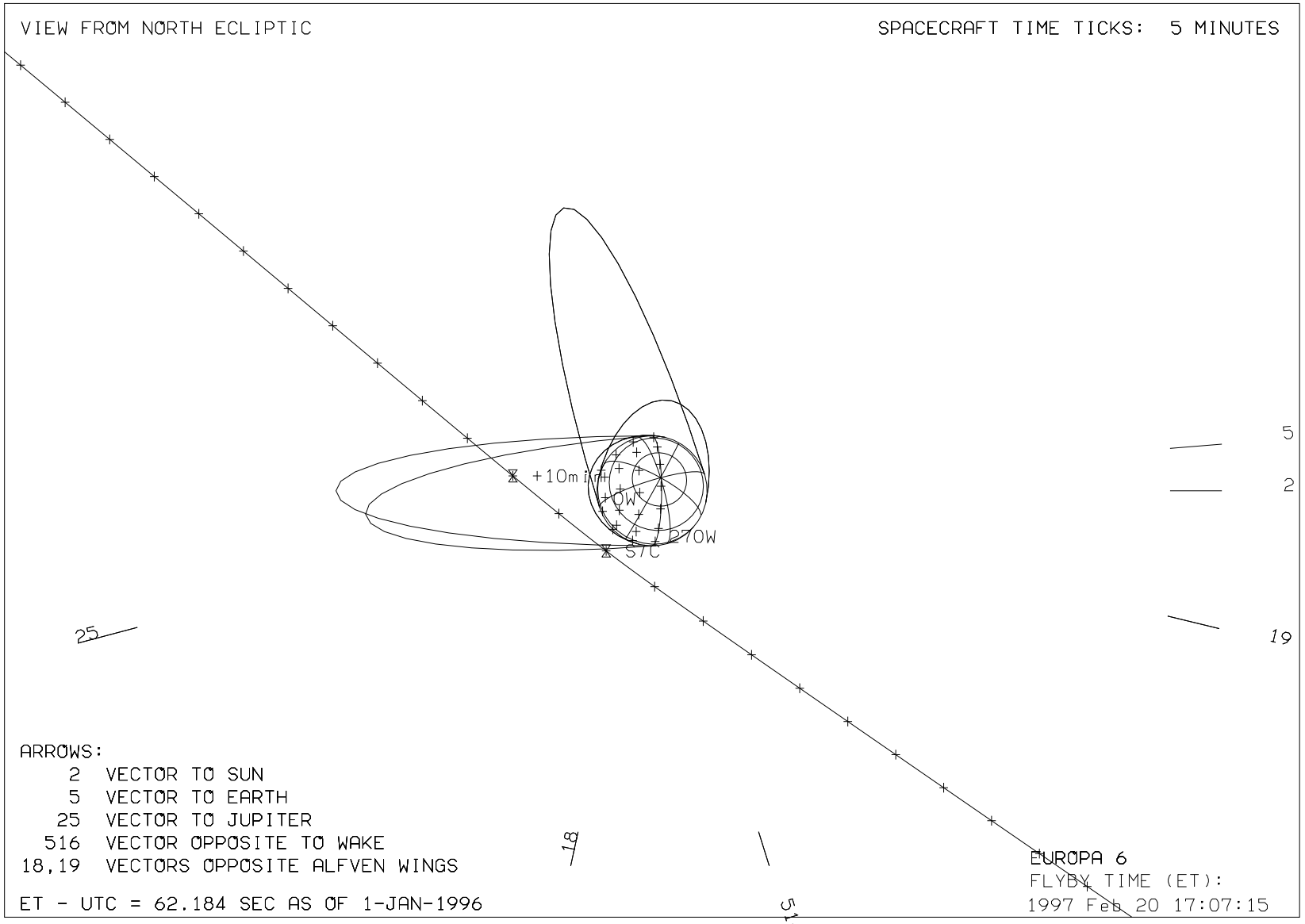
EUROPA 6: CLOSEST APPROACH (SOUTH TRAJECTORY POLE VIEW)



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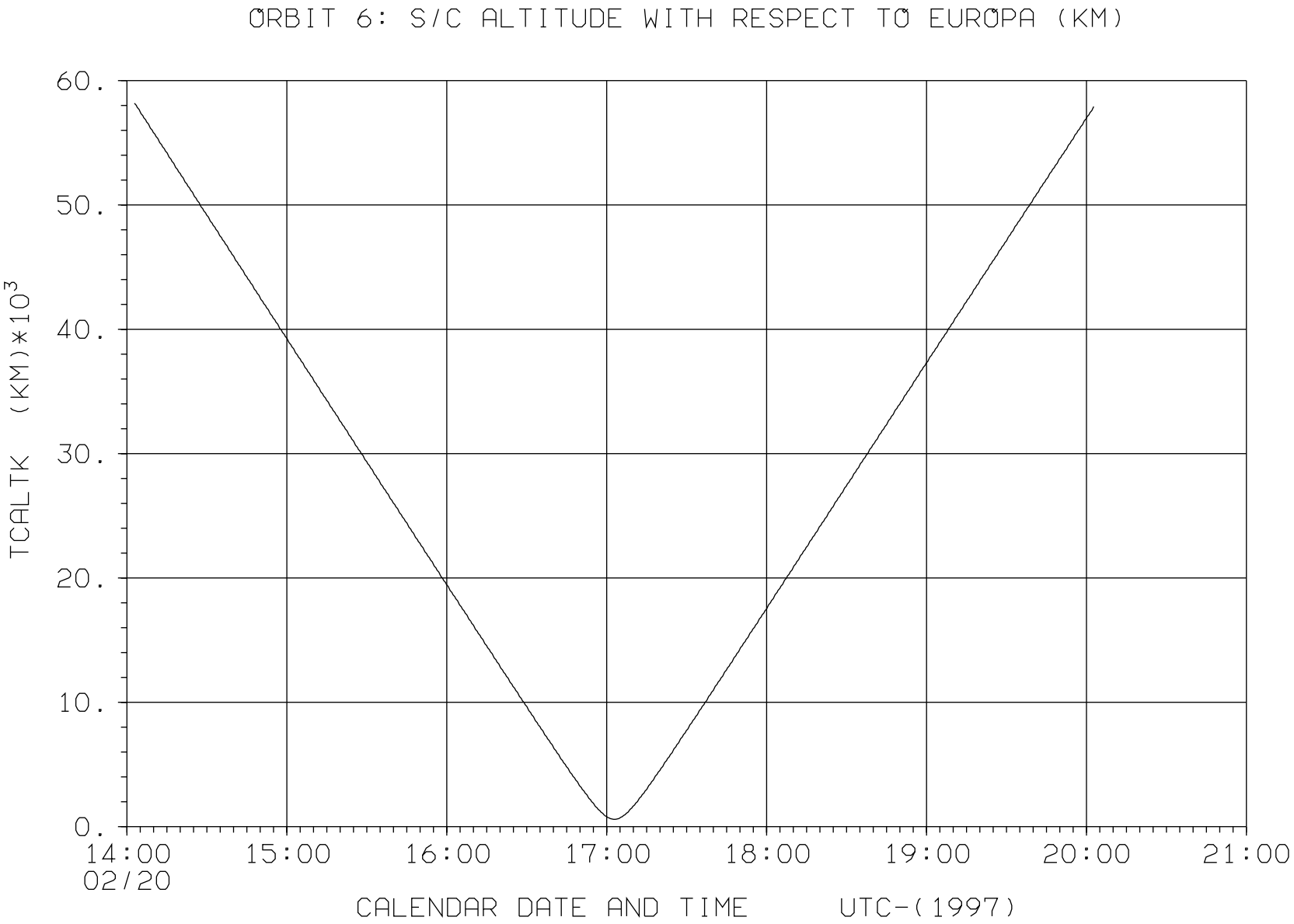
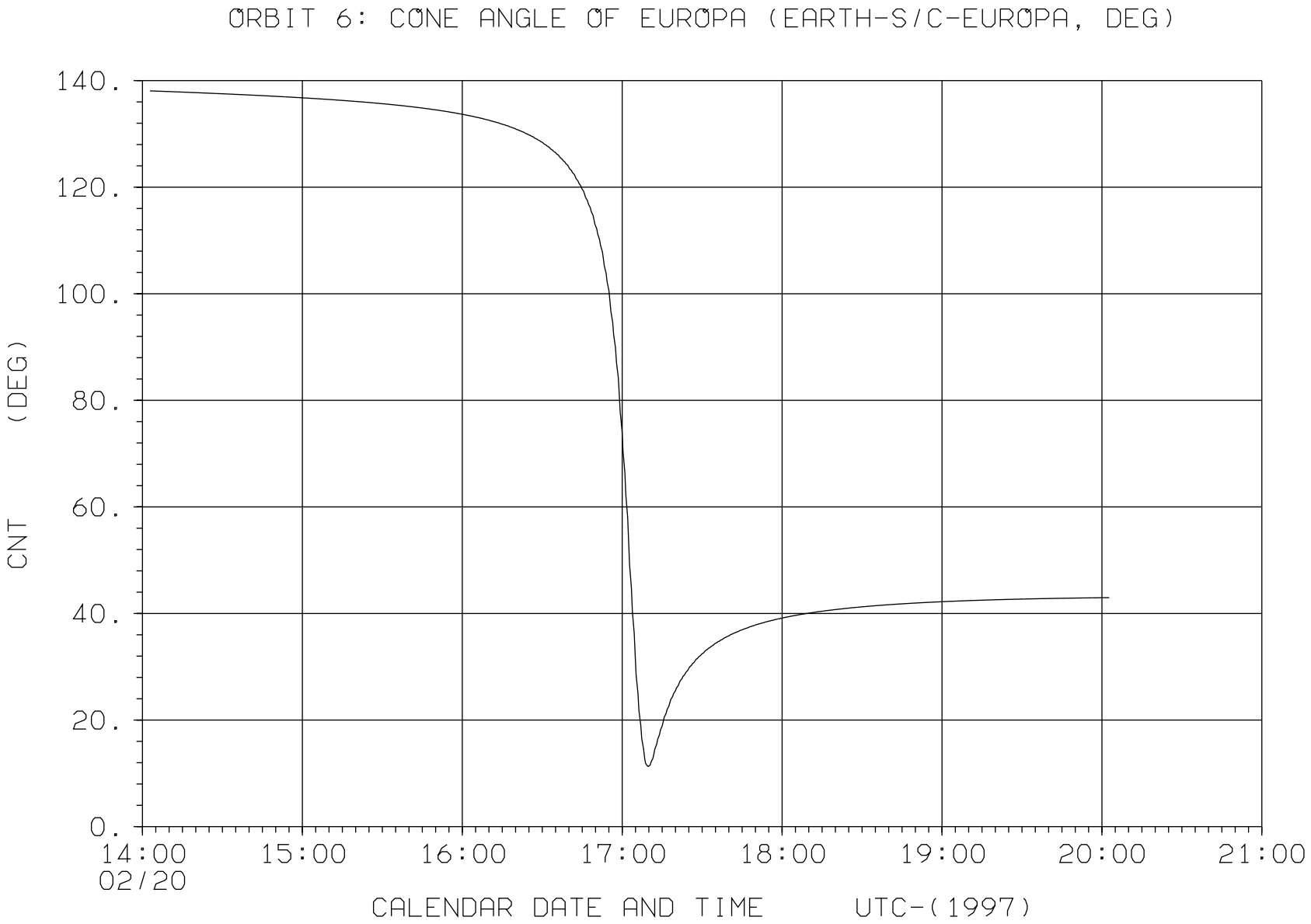
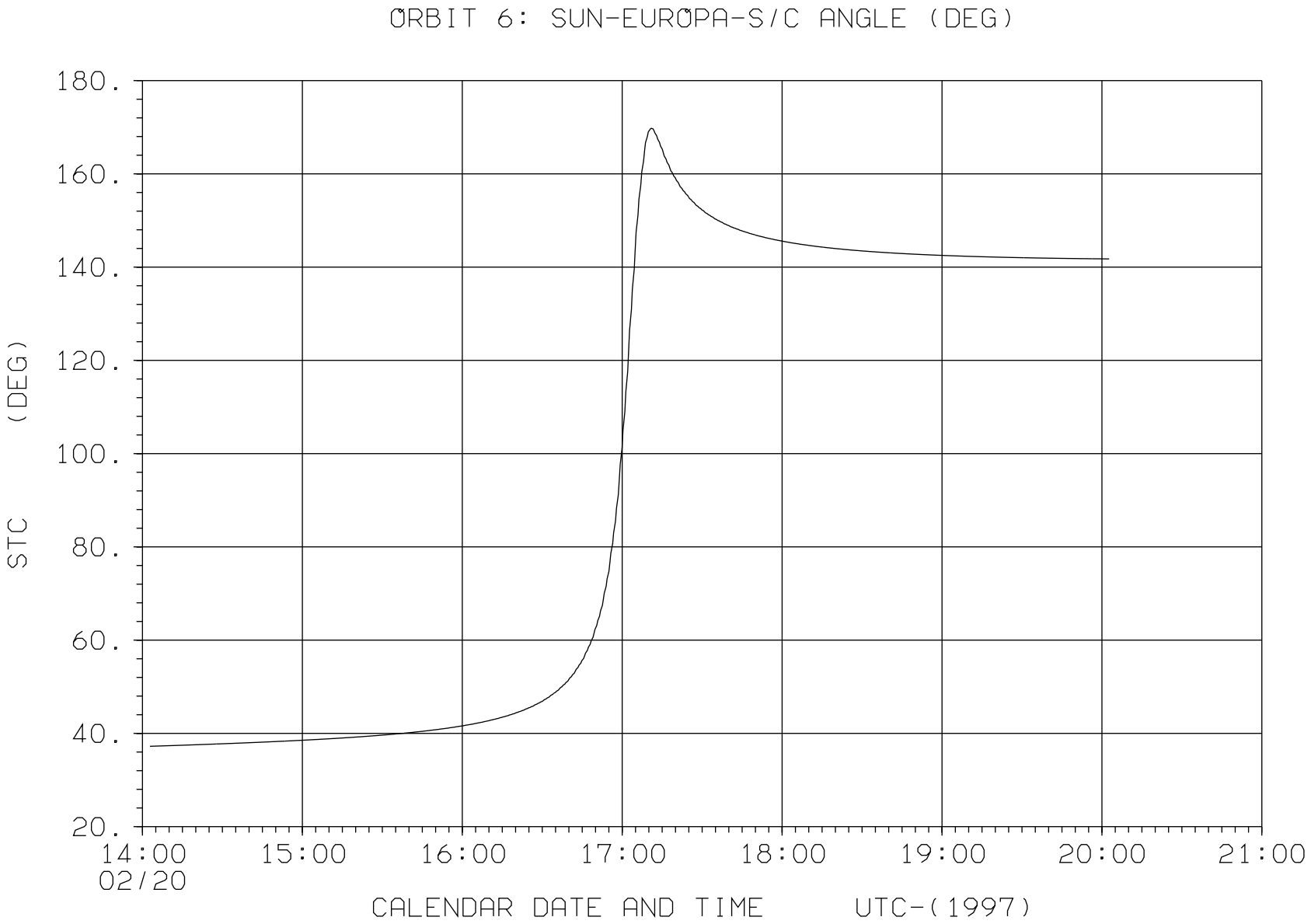
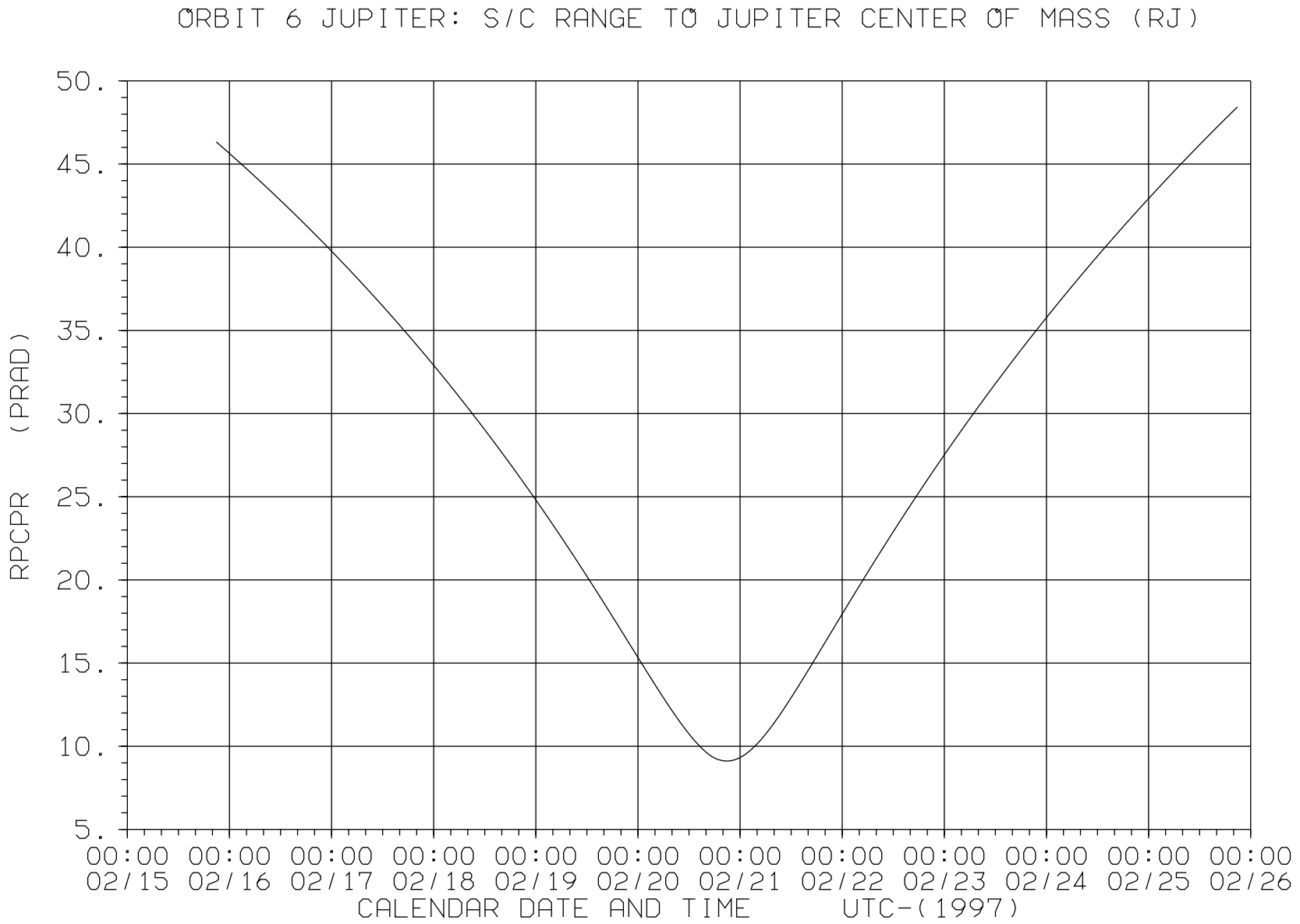
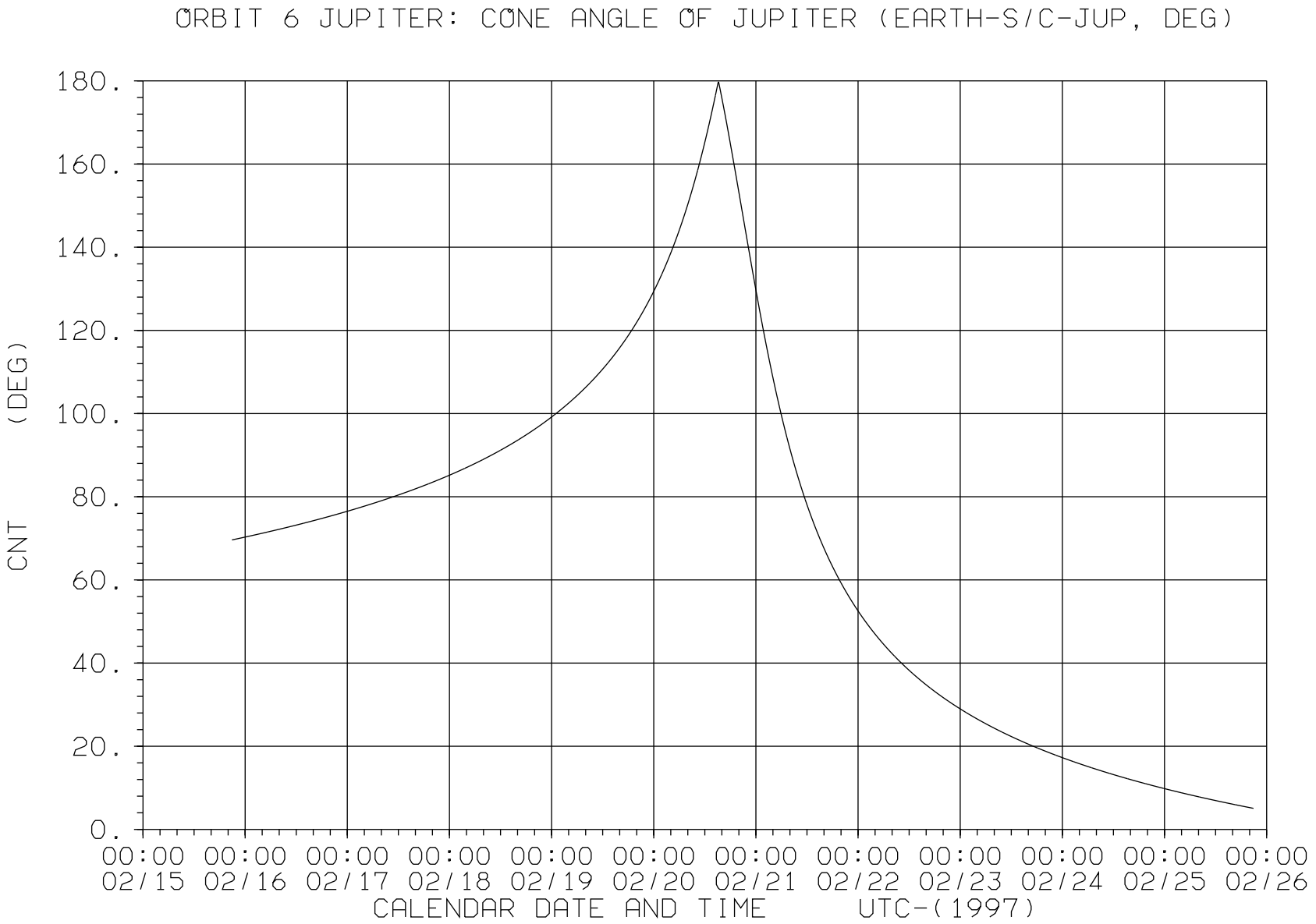
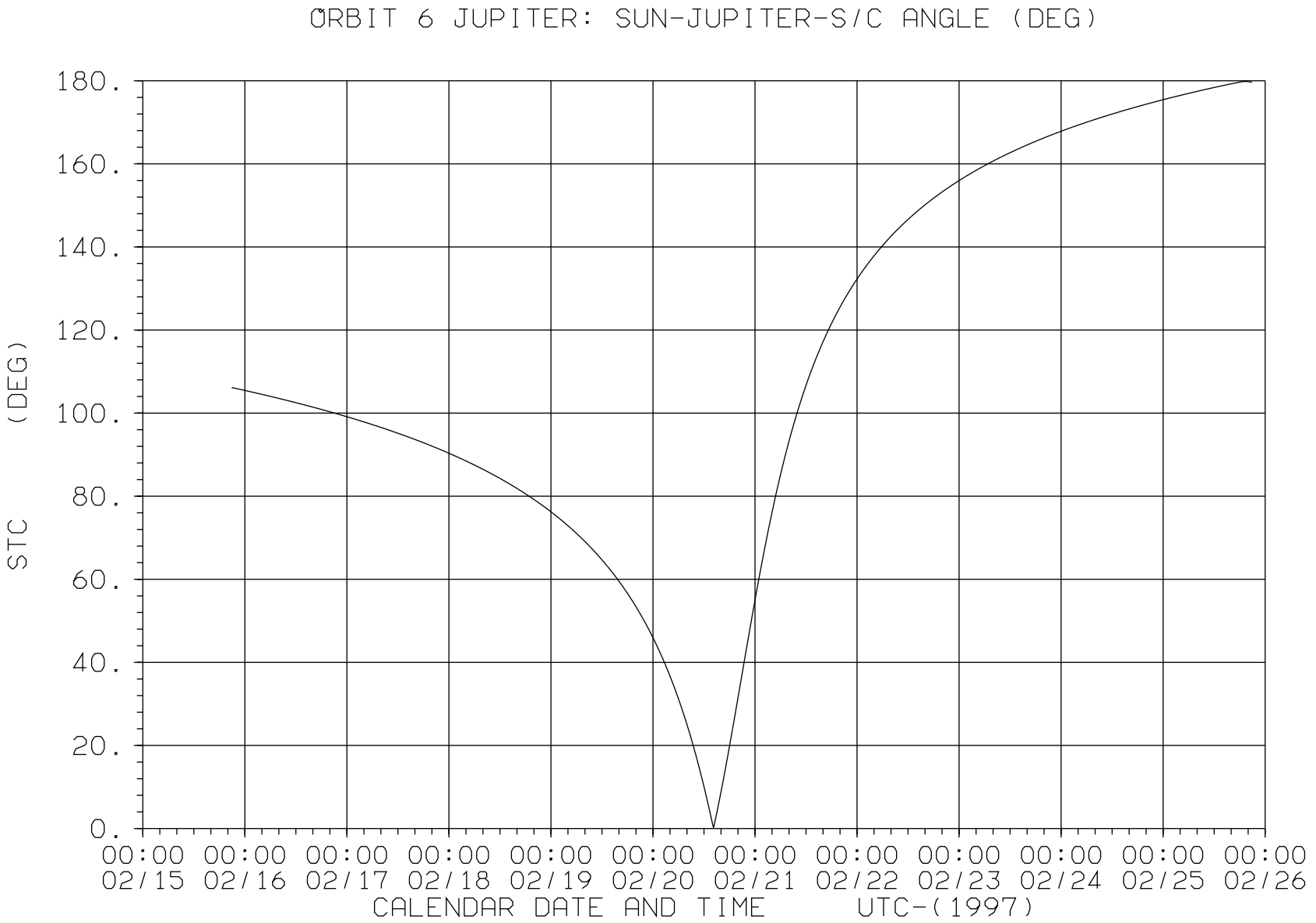

ORBIT 6: S/C ALTITUDE WITH RESPECT TO EUROPA (KM)
TCALTK (KM)*10^3
60.
50.
40.
30.
20.
10.
0.
14:00
02/20
15:00
16:00
17:00
18:00
19:00
20:00
21:00
CALENDAR DATE AND TIME UTC-(1997)


ORBIT 6: CONE ANGLE OF EUROPA (EARTH-S/C-EUROPA, DEG)
140.
120.
100.
80.
60.
40.
20.
0.
CNT (DEG)
14:00
02/20
15:00
16:00
17:00
18:00
19:00
20:00
21:00
CALENDAR DATE AND TIME UTC-(1997)


ORBIT 6: SUN-EUROPA-S/C ANGLE (DEG)
180.
160.
140.
120.
100.
80.
60.
40.
20.
STC (DEG)
14:00
02/20
15:00
16:00
17:00
18:00
19:00
20:00
21:00
CALENDAR DATE AND TIME UTC-(1997)


ORBIT 6 JUPITER: S/C RANGE TO JUPITER CENTER OF MASS (RJ)
RPCPR (PRAD)
50.
45.
40.
35.
30.
25.
20.
15.
10.
5.
00:00 02/15
00:00 02/16
00:00 02/17
00:00 02/18
00:00 02/19
00:00 02/20
00:00 02/21
00:00 02/22
00:00 02/23
00:00 02/24
00:00 02/25
00:00 02/26
CALENDAR DATE AND TIME UTC-(1997)


ORBIT 6 JUPITER: CONE ANGLE OF JUPITER (EARTH-S/C-JUP, DEG)
CNT (DEG)
180.
160.
140.
120.
100.
80.
60.
40.
20.
0.
00:00 02/15
00:00 02/16
00:00 02/17
00:00 02/18
00:00 02/19
00:00 02/20
00:00 02/21
00:00 02/22
00:00 02/23
00:00 02/24
00:00 02/25
00:00 02/26
CALENDAR DATE AND TIME UTC-(1997)


ORBIT 6 JUPITER: SUN-JUPITER-S/C ANGLE (DEG)
STC (DEG)
180.
160.
140.
120.
100.
80.
60.
40.
20.
0.
00:00 02/15
00:00 02/16
00:00 02/17
00:00 02/18
00:00 02/19
00:00 02/20
00:00 02/21
00:00 02/22
00:00 02/23
00:00 02/24
00:00 02/25
00:00 02/26
CALENDAR DATE AND TIME UTC-(1997)