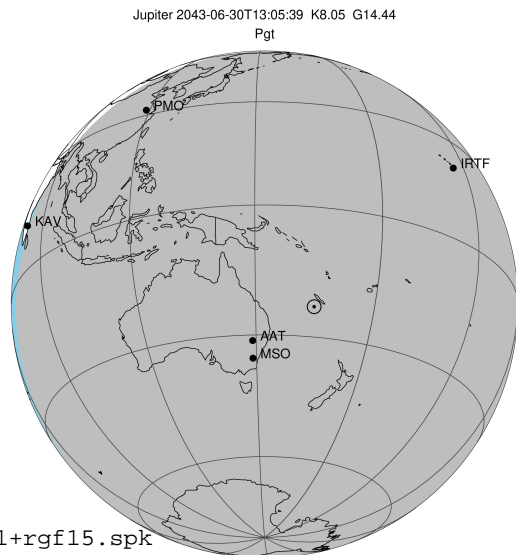


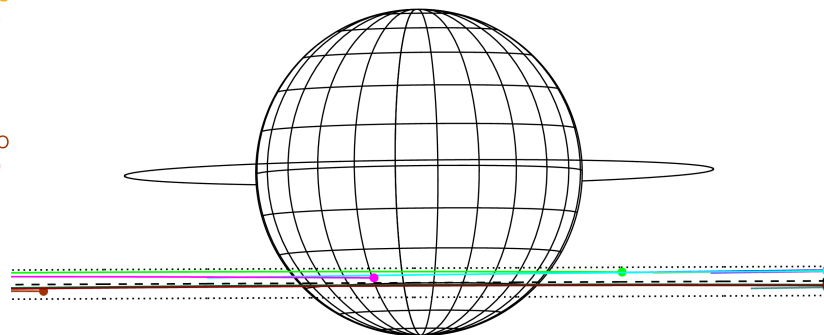
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-30T13:05:39.090
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068833763177452288
 2Mass ID (if available) : 17460065-2304516

Jupiter 2043-06-30T13:05:39 K8.05 G14.44 Pgt

ICRS Star Coord at Epoch: 17h 46m 00.64902s -23°04:51.91225s
 RUWE (>1.4 is poor) : 0.91
 K magnitude : 8.053
 G magnitude : 14.442
 RP magnitude : 12.902
 BP magnitude : 17.879
 DUPflag : 0
 Distance (au) : 4.262
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.88
 Sun-Target sep (deg) : 168.71
 Sun-Moon sep (deg) : 106.76
 B (ring opening deg) : -2.41
 PA of pole (deg) : 0.67
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 15.625
 C/A sky separation (km) : 48300.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



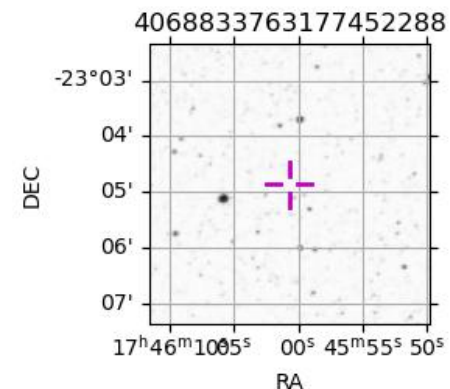
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 ESO
 AAT
 SAAO
 MSO



2043-06-30T13:05:39.0900 α: 17 46 00.6490 δ: -23 04 51.912 C/A ***** PA 0.26 deg v_sky -15.88 km/s D 04.26 AU
 Credit: Styled after SORA/Lucky Star

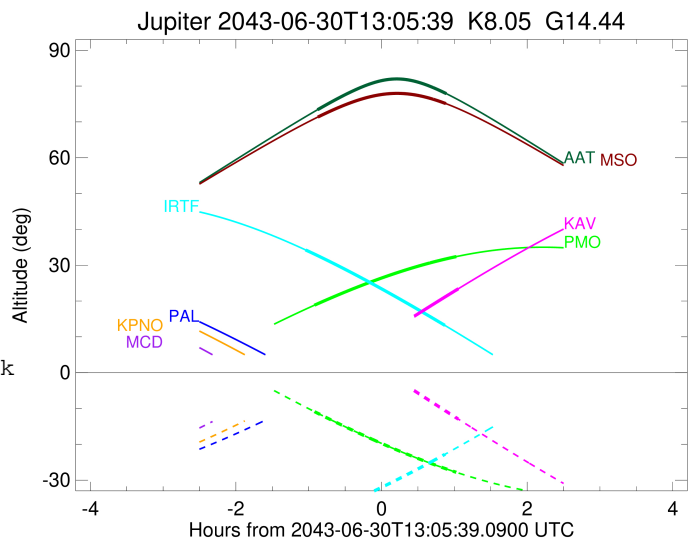
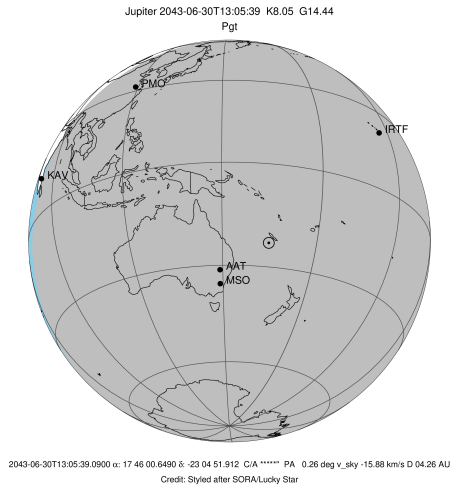
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	JUN 30 12:10 - JUN 30 14:07	Pie
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JUN 30 12:03 - JUN 30 13:57	Pie
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 30 14:08 - JUN 30 14:08	Pne
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUN 30 12:12 - JUN 30 13:59	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 30 12:13 - JUN 30 13:58	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-30T13:08:56.620
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PMO
Location             : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 4068833763177452288
2Mass ID (if available) : 17460065-2304516
ICRS Star Coord at Epoch: 17h 46m 00.64902s -23:04:51.91225s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 8.053
G magnitude          : 14.442
RP magnitude         : 12.902
BP magnitude         : 17.879
DUPflag             : 0
Distance (au)        : 4.262
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.88
Sun-Target sep (deg) : 168.71
Sun-Moon sep (deg)   : 107.04
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.67
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 14.045
C/A sky separation (km) : 43415.2
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

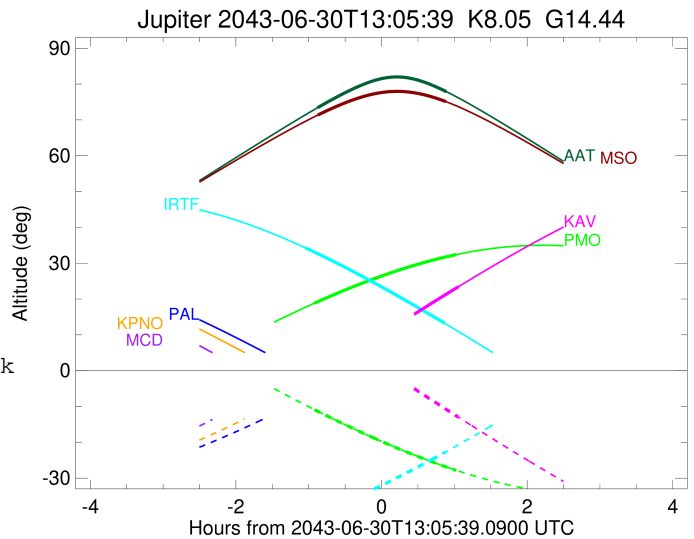
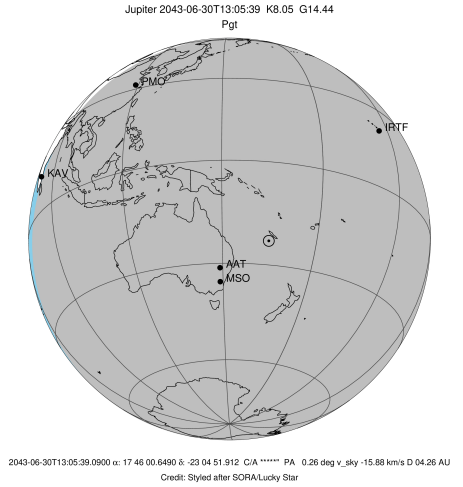


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-30T12:10:29.280	18.85	-10.88	71488.9	-38.12	-41.80
Jupiter	E	2043-06-30T14:07:12.875	32.39	-27.80	71489.1	-36.71	-40.36

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-06-30T13:00:21.850
Event type             : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code          : IRTF
Location               : Mauna Kea/IRTF
Latitude (deg)         : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 4068833763177452288
2Mass ID (if available) : 17460065-2304516
ICRS Star Coord at Epoch: 17h 46m 00.64902s -23:04:51.91224s
RUWE (>1.4 is poor)  : 0.91
K magnitude            : 8.053
G magnitude            : 14.442
RP magnitude           : 12.902
BP magnitude           : 17.879
DUPflag               : 0
Distance (au)         : 4.262
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -15.88
Sun-Target sep (deg)  : 168.71
Sun-Moon sep (deg)    : 107.35
B (ring opening deg)  : -2.41
PA of pole (deg)      : 0.67
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 14.506
C/A sky separation (km) : 44840.2
NAIF SPICE kernels    : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

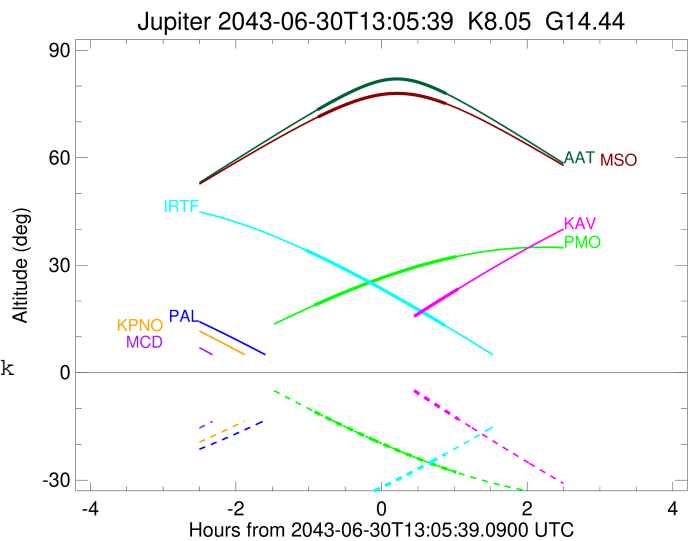
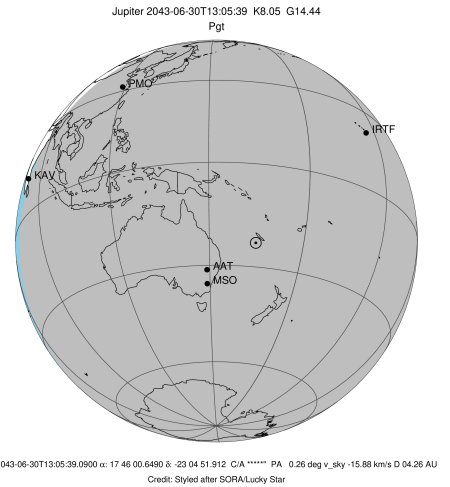


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-30T12:03:06.590	34.25	-40.98	71488.9	-38.80	-42.49
Jupiter	E	2043-06-30T13:57:56.424	13.18	-22.79	71488.8	-38.91	-42.60

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-30T13:12:22.210
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : KAV
Location            : Kavalur Observatory
Latitude (deg)      : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)       : 0.722
Gaia source ID      : 4068833763177452288
2Mass ID (if available) : 17460065-2304516
ICRS Star Coord at Epoch: 17h 46m 00.64902s -23:04:51.91225s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 8.053
G magnitude          : 14.442
RP magnitude         : 12.902
BP magnitude         : 17.879
DUPflag             : 0
Distance (au)       : 4.262
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.88
Sun-Target sep (deg) : 168.71
Sun-Moon sep (deg)  : 106.66
B (ring opening deg) : -2.41
PA of pole (deg)    : 0.67
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 14.967
C/A sky separation (km) : 46266.7
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

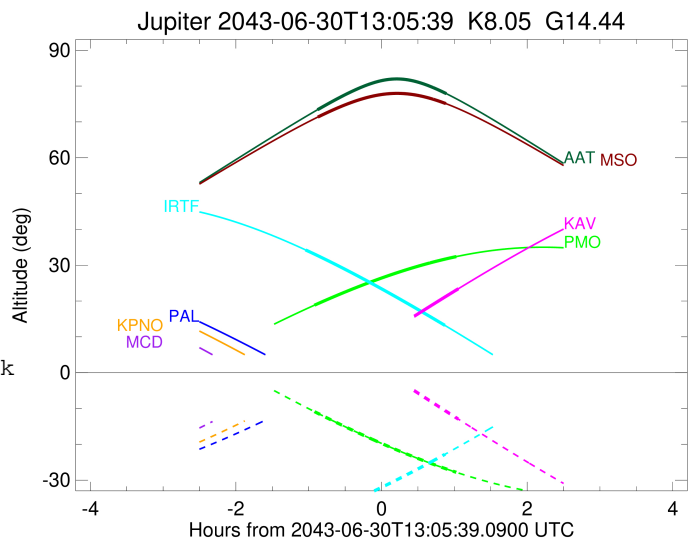
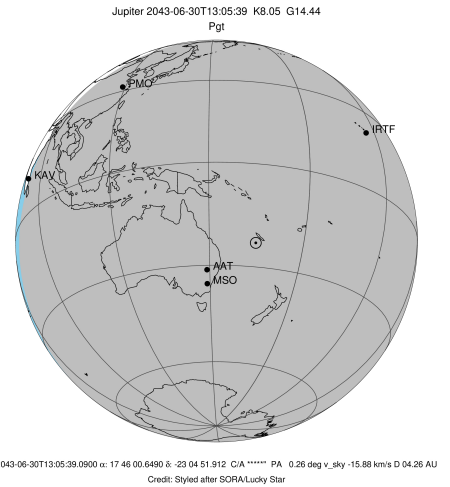


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-30T12:15:30.243	-1.25x	12.31x	71488.5	-41.32	-45.04
Jupiter	E	2043-06-30T14:08:51.828	23.40	-12.94	71488.8	-39.30	-43.00

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-30T13:05:59.140
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : AAT
Location              : Siding Spring (AAT)
Latitude (deg)        : -31.27703
E. Longitude (deg)    : 149.06608
Altitude (km)         : 1.164
Gaia source ID        : 4068833763177452288
2Mass ID (if available) : 17460065-2304516
ICRS Star Coord at Epoch: 17h 46m 00.64902s -23:04:51.91225s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 8.053
G magnitude           : 14.442
RP magnitude          : 12.902
BP magnitude          : 17.879
DUPflag              : 0
Distance (au)         : 4.262
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.88
Sun-Target sep (deg) : 168.71
Sun-Moon sep (deg)   : 107.67
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.67
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 15.913
C/A sky separation (km): 49191.6
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

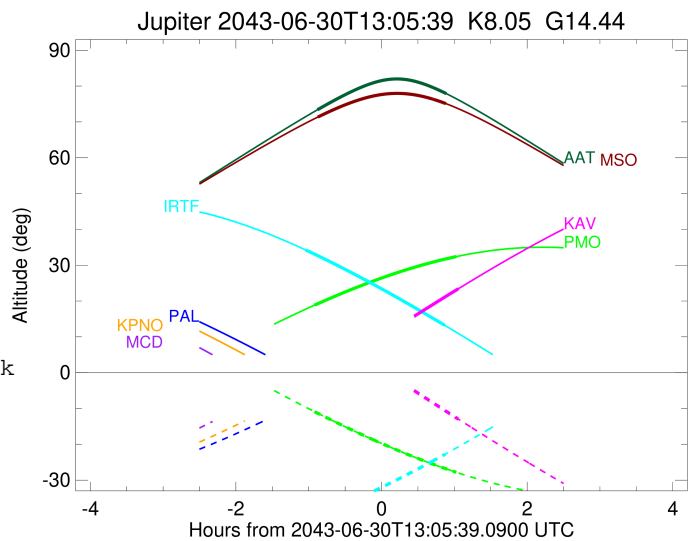
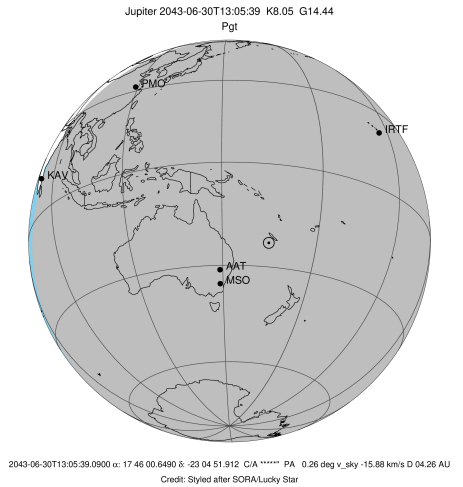


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-30T12:12:54.381	73.38	-63.41	71488.2	-43.94	-47.65
Jupiter	E	2043-06-30T13:59:03.593	77.88	-81.83	71488.3	-43.06	-46.77

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-30T13:05:58.630
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MSO
Location              : Mt. Stromlo Observatory
Latitude (deg)        : -35.32000
E. Longitude (deg)    : 149.00833
Altitude (km)         : 0.770
Gaia source ID        : 4068833763177452288
2Mass ID (if available) : 17460065-2304516
ICRS Star Coord at Epoch: 17h 46m 00.64902s -23:04:51.91225s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 8.053
G magnitude           : 14.442
RP magnitude          : 12.902
BP magnitude          : 17.879
DUPflag              : 0
Distance (au)         : 4.262
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.88
Sun-Target sep (deg)  : 168.71
Sun-Moon sep (deg)    : 107.66
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.67
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 16.056
C/A sky separation (km) : 49632.8
NAIF SPICE kernels    : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```



x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-30T12:13:16.229	71.36	-62.44	71488.1	-44.42	-48.13
Jupiter	E	2043-06-30T13:58:40.746	75.10	-77.85	71488.2	-43.54	-47.26