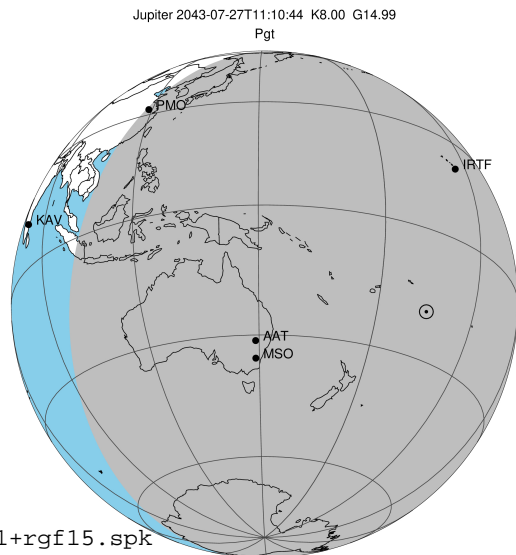


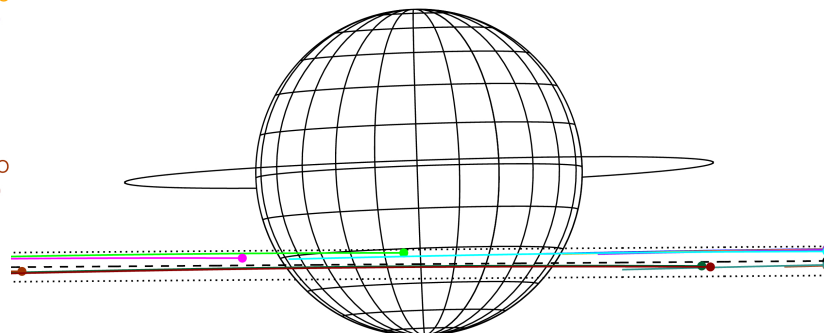
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-27T11:10:44.720
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116695714847415424
 2Mass ID (if available) : 17340547-2303214

Jupiter 2043-07-27T11:10:44 K8.00 G14.99 Pgt

ICRS Star Coord at Epoch: 17h 34m 05.46202s -23°03'21.85778s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 7.996
 G magnitude : 14.986
 RP magnitude : 13.391
 BP magnitude : 18.972
 DUPflag : 0
 Distance (au) : 4.432
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -9.71
 Sun-Target sep (deg) : 140.30
 Sun-Moon sep (deg) : 105.25
 B (ring opening deg) : -2.38
 PA of pole (deg) : 1.95
 Pole direction: RA (deg): 268.05671
 Dec (deg): 64.49731
 C/A sky separation (") : 12.483
 C/A sky separation (km) : 40124.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



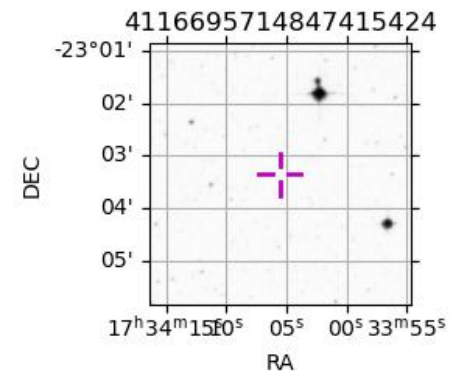
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-07-27T11:10:44.7200 cz: 17 34 05.4620 2: -23 03 21.858 C/A ***** PA 0.44 deg v_sky -9.71 km/s D 04.43 AU
 Credit: Styled after SORA/Lucky Star

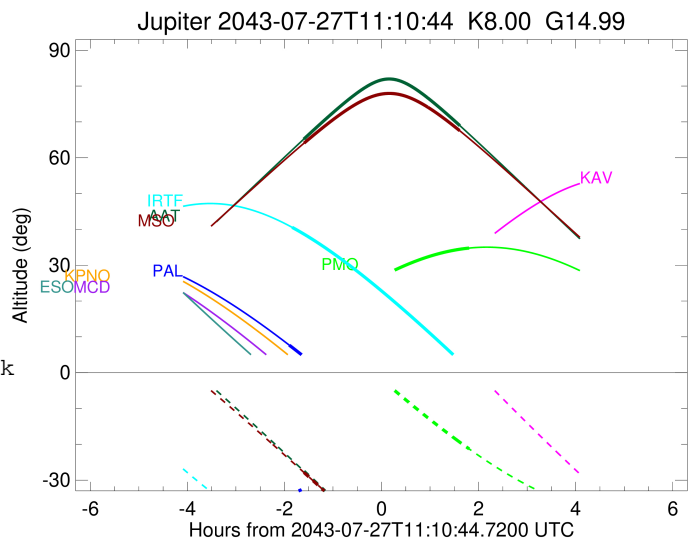
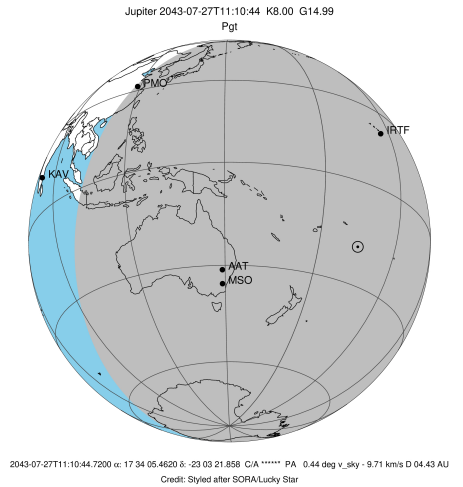
Observable events with sun below -5 deg and altitude above 5 deg

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	+	JUL 27 09:16 - JUL 27 09:16	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUL 27 12:58 - JUL 27 12:58	Pne
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	+	JUL 27 09:20 - JUL 27 09:20	Pin
KAV	Kavalur Observatory	12.6	78.8			Pnn
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	+	JUL 27 09:34 - JUL 27 12:47	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUL 27 09:35 - JUL 27 12:47	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-27T11:00:37.220
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4116695714847415424
2Mass ID (if available) : 17340547-2303214
ICRS Star Coord at Epoch: 17h 34m 05.46202s -23:03:21.85778s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 7.996
G magnitude           : 14.986
RP magnitude         : 13.391
BP magnitude         : 18.972
DUPflag             : 0
Distance (au)        : 4.432
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.71
Sun-Target sep (deg) : 140.30
Sun-Moon sep (deg)   : 105.24
B (ring opening deg) : -2.38
PA of pole (deg)     : 1.95
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (") : 11.471
C/A sky separation (km) : 36873.3
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
    
```

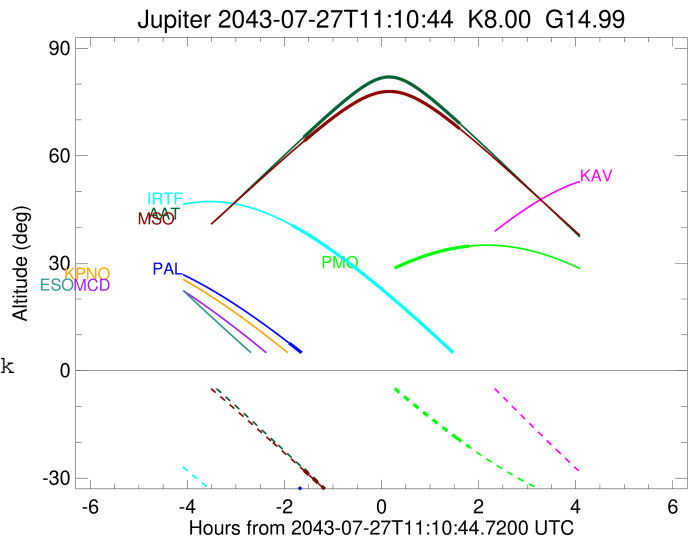
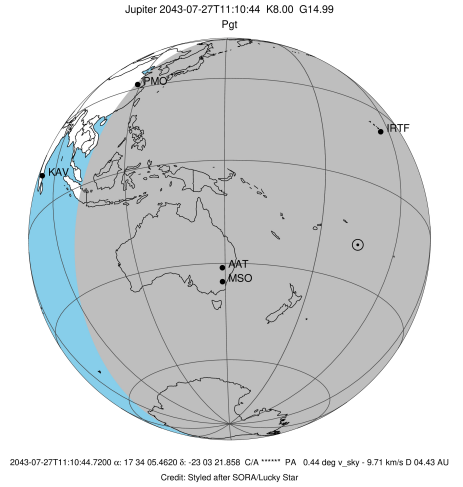


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-27T09:16:44.401	7.68	-34.03	71489.9	-31.68	-35.14
Jupiter	E	2043-07-27T12:46:42.628	-33.31x	-2.82x	71490.0	-30.39	-33.78

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-27T11:16:04.850
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      : 4116695714847415424
2Mass ID (if available) : 17340547-2303214
ICRS Star Coord at Epoch: 17h 34m 05.46202s -23:03:21.85778s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 7.996
G magnitude          : 14.986
RP magnitude         : 13.391
BP magnitude         : 18.972
DUPflag             : 0
Distance (au)       : 4.432
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.71
Sun-Target sep (deg) : 140.30
Sun-Moon sep (deg)  : 105.55
B (ring opening deg) : -2.38
PA of pole (deg)    : 1.95
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 10.958
C/A sky separation (km): 35224.1
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
    
```

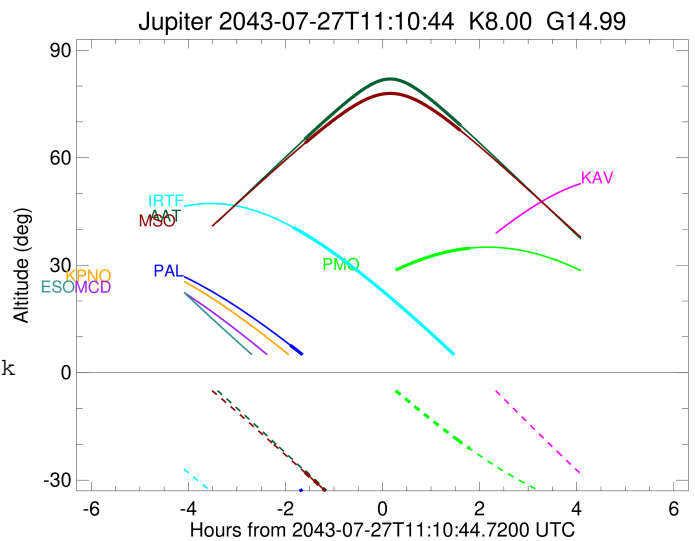
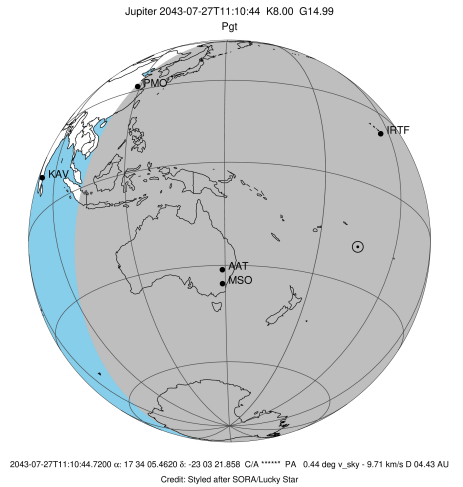


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-27T09:32:36.469	12.46	17.94x	71489.9	-31.62	-35.08
Jupiter	E	2043-07-27T12:58:49.449	34.77	-21.24	71490.3	-27.69	-30.92

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-27T11:01:56.210
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       : 4116695714847415424
2Mass ID (if available) : 17340547-2303214
ICRS Star Coord at Epoch: 17h 34m 05.46202s -23:03:21.85778s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 7.996
G magnitude           : 14.986
RP magnitude         : 13.391
BP magnitude         : 18.972
DUPflag              : 0
Distance (au)        : 4.432
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.71
Sun-Target sep (deg) : 140.30
Sun-Moon sep (deg)   : 105.81
B (ring opening deg) : -2.38
PA of pole (deg)     : 1.95
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 11.402
C/A sky separation (km): 36648.8
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
    
```

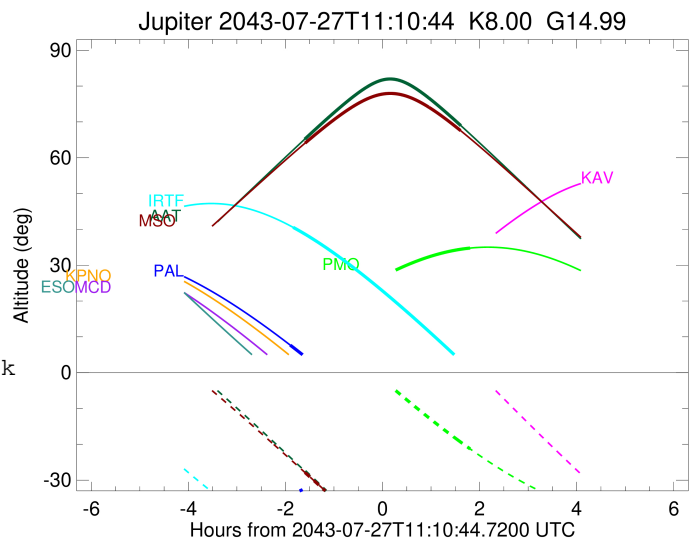
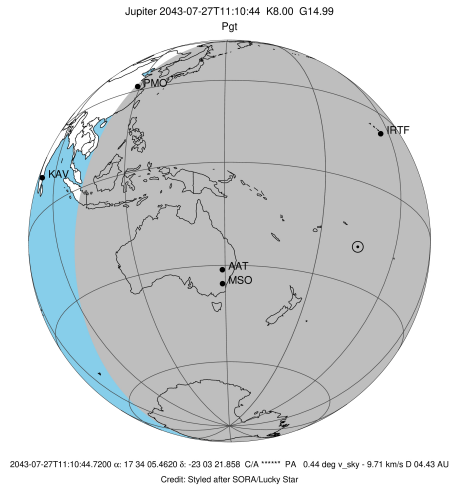


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-27T09:20:31.205	40.53	-47.70	71489.9	-31.73	-35.19
Jupiter	E	2043-07-27T12:45:09.400	3.79x	-38.69	71490.0	-30.18	-33.56

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-27T11:11:09.780
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      : 4116695714847415424
2Mass ID (if available) : 17340547-2303214
ICRS Star Coord at Epoch: 17h 34m 05.46202s -23:03:21.85778s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 7.996
G magnitude          : 14.986
RP magnitude         : 13.391
BP magnitude         : 18.972
DUPflag             : 0
Distance (au)       : 4.432
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.71
Sun-Target sep (deg) : 140.30
Sun-Moon sep (deg)  : 106.17
B (ring opening deg) : -2.38
PA of pole (deg)    : 1.95
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 12.760
C/A sky separation (km): 41016.3
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
    
```

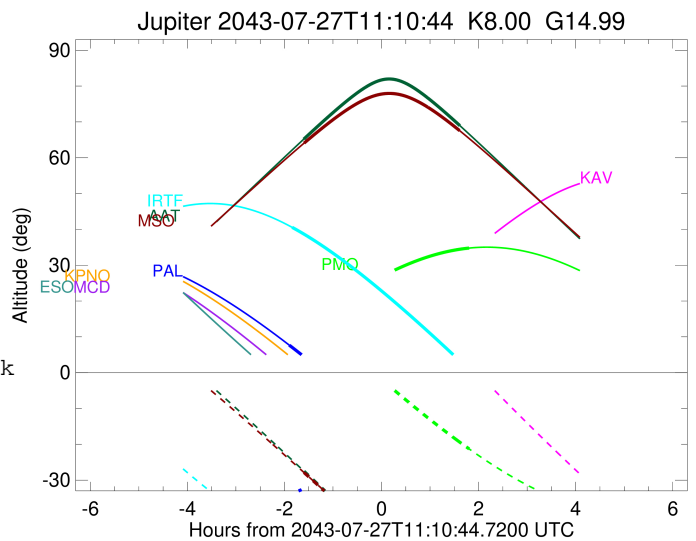
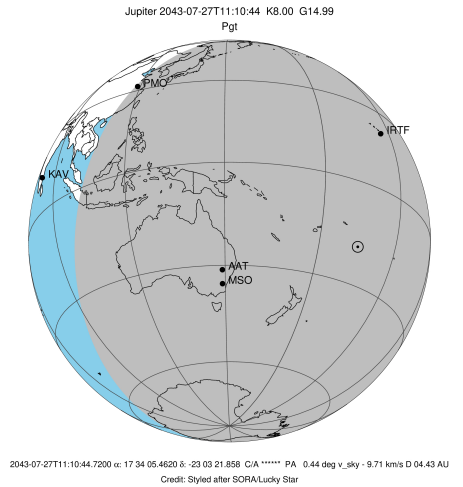


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-27T09:34:49.754	65.22	-27.48	71489.2	-36.71	-40.36
Jupiter	E	2043-07-27T12:47:37.836	68.95	-67.87	71489.6	-33.61	-37.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-27T11:11:09.180
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        : 4116695714847415424
2Mass ID (if available) : 17340547-2303214
ICRS Star Coord at Epoch: 17h 34m 05.46202s -23:03:21.85778s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 7.996
G magnitude           : 14.986
RP magnitude          : 13.391
BP magnitude          : 18.972
DUPflag              : 0
Distance (au)         : 4.432
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.71
Sun-Target sep (deg)  : 140.30
Sun-Moon sep (deg)    : 106.16
B (ring opening deg) : -2.38
PA of pole (deg)      : 1.95
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (") : 12.897
C/A sky separation (km) : 41457.5
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	2043-07-27T09:35:09.618	64.09	-27.91	71489.2	-37.13	-40.79
Jupiter	E	2043-07-27T12:47:16.776	67.56	-65.64	71489.6	-34.03	-37.59