

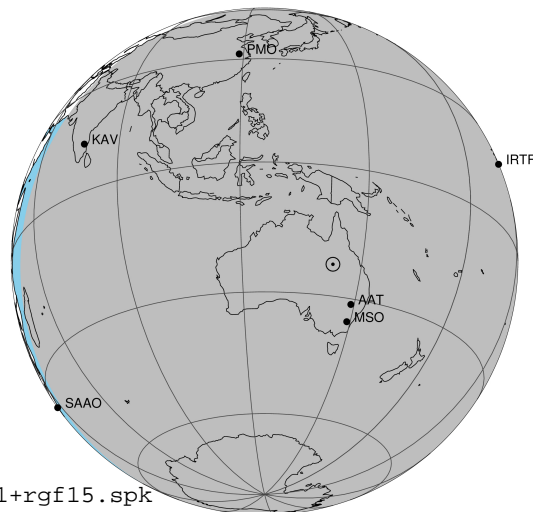
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-04T14:33:58.620
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116862703204760320
 2Mass ID (if available) : 17435223-2304405

Jupiter 2043-07-04T14:33:58 K8.84 G14.87 Pgt

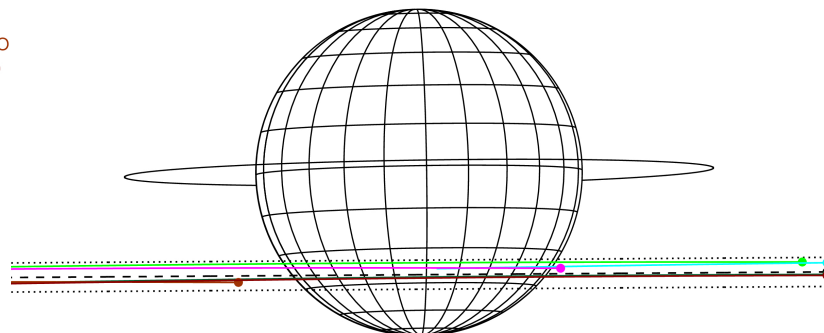
ICRS Star Coord at Epoch: 17h 43m 52.19292s -23:04:40.67890s

RUWE (>1.4 is poor) : 0.93
 K magnitude : 8.840
 G magnitude : 14.866
 RP magnitude : 13.560
 BP magnitude : 16.673
 DUPflag : 0
 Distance (au) : 4.275
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.37
 Sun-Target sep (deg) : 164.35
 Sun-Moon sep (deg) : 165.21
 B (ring opening deg) : -2.41
 PA of pole (deg) : 0.90
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 14.438
 C/A sky separation (km) : 44769.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-07-04T14:33:58 K8.84 G14.87
 Pgt



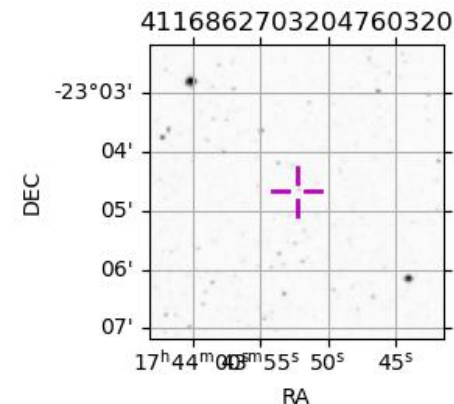
Earth
 PMO
 IRTF
 KAV
 AAT
 SAAO
 MSO



2043-07-04T14:33:58.6200 α: 17 43 52.1929 δ: -23 04 40.679 C/A ***** PA 0.39 deg v_sky -15.37 km/s D 04.28 AU
 Credit: Styled after SORA/Lucky Star

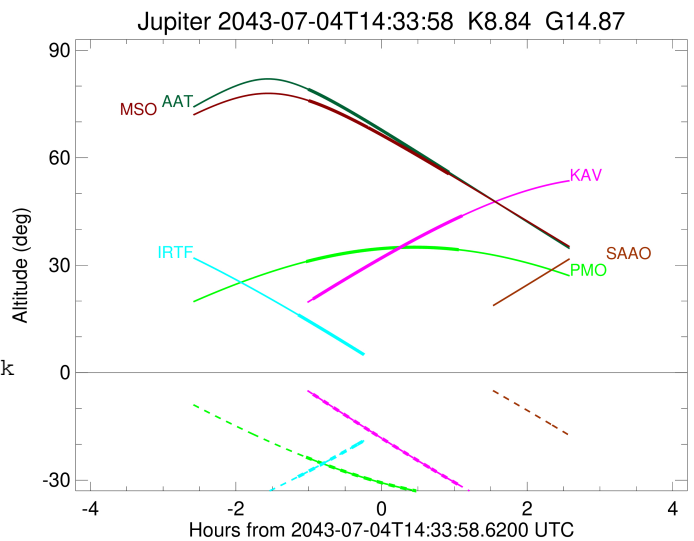
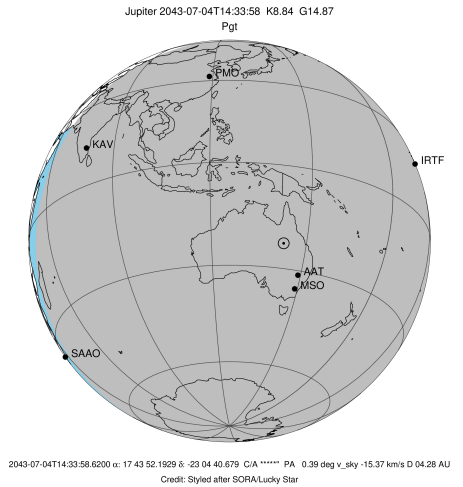
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
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	+ +	JUL 04 13:31 - JUL 04 15:37	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	+	JUL 04 13:25 - JUL 04 13:25	Pin
KAV	Kavalur Observatory	12.6	78.8	+ +	JUL 04 13:37 - JUL 04 15:40	Pie
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 04 13:33 - JUL 04 15:29	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 04 13:33 - JUL 04 15:29	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-04T14:34:42.900
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       : 4116862703204760320
2Mass ID (if available) : 17435223-2304405
ICRS Star Coord at Epoch: 17h 43m 52.19292s -23:04:40.67890s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 8.840
G magnitude           : 14.866
RP magnitude          : 13.560
BP magnitude          : 16.673
DUPflag              : 0
Distance (au)         : 4.275
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.37
Sun-Target sep (deg)  : 164.35
Sun-Moon sep (deg)   : 165.49
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.90
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 12.760
C/A sky separation (km) : 39565.1
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
    
```

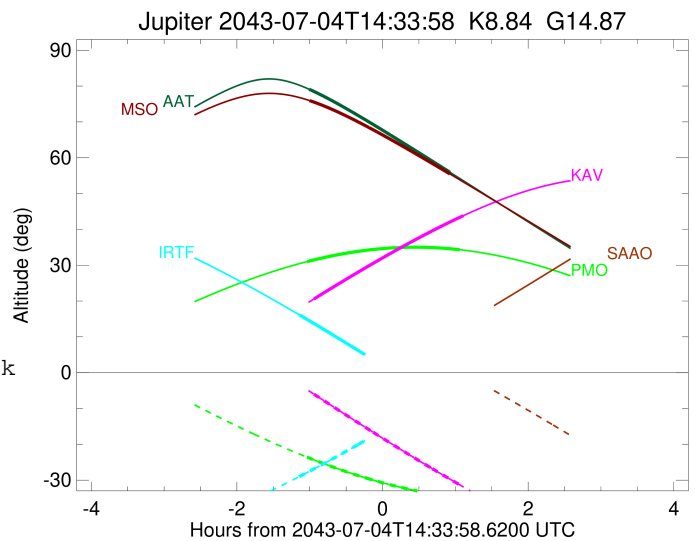
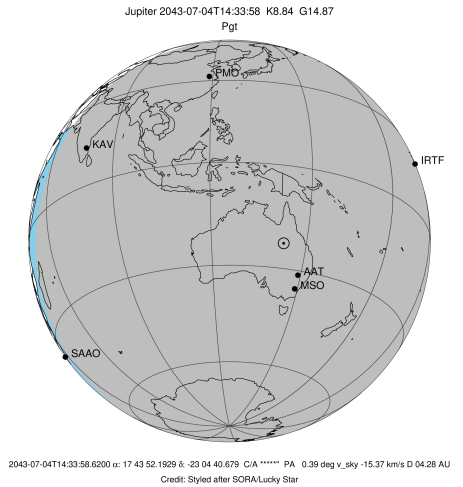


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-04T13:31:47.409	30.99	-23.58	71489.5	-34.22	-37.79
Jupiter	E	2043-07-04T15:37:36.736	34.32	-34.75	71489.6	-33.07	-36.60

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-04T14:27:08.270
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       : 4116862703204760320
2Mass ID (if available) : 17435223-2304405
ICRS Star Coord at Epoch: 17h 43m 52.19292s -23:04:40.67890s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 8.840
G magnitude           : 14.866
RP magnitude          : 13.560
BP magnitude          : 16.673
DUPflag              : 0
Distance (au)        : 4.275
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.37
Sun-Target sep (deg) : 164.35
Sun-Moon sep (deg)   : 166.19
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.90
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 13.628
C/A sky separation (km) : 42257.9
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
    
```

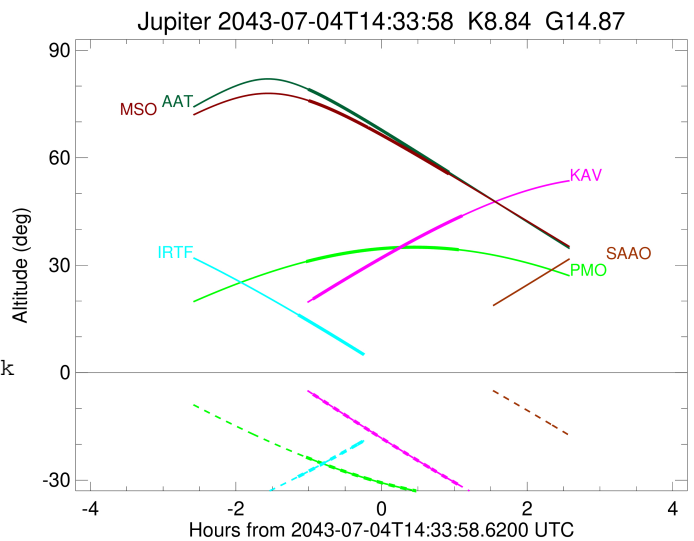
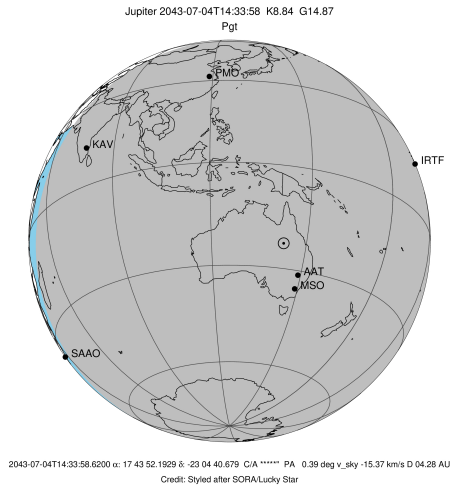


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-04T13:25:17.013	16.16	-29.03	71489.2	-36.12	-39.75
Jupiter	E	2043-07-04T15:29:29.353	-10.09x	-4.71x	71489.2	-36.32	-39.96

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-04T14:39:09.970
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      : 4116862703204760320
2Mass ID (if available) : 17435223-2304405
ICRS Star Coord at Epoch: 17h 43m 52.19292s -23:04:40.67890s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 8.840
G magnitude          : 14.866
RP magnitude         : 13.560
BP magnitude         : 16.673
DUPflag             : 0
Distance (au)       : 4.275
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.37
Sun-Target sep (deg) : 164.35
Sun-Moon sep (deg)  : 164.82
B (ring opening deg) : -2.41
PA of pole (deg)    : 0.90
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 13.480
C/A sky separation (km) : 41798.4
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
    
```

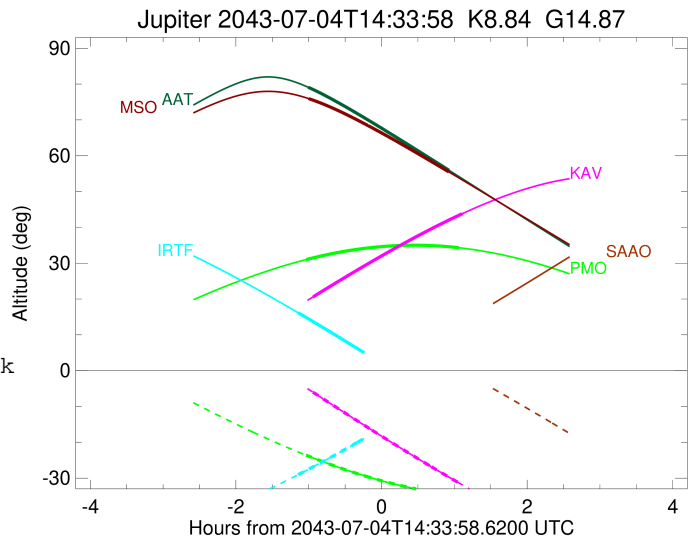
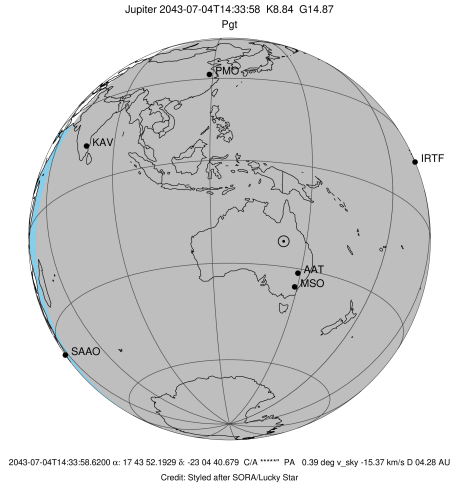


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-04T13:37:26.120	20.56	-5.99	71489.1	-36.77	-40.42
Jupiter	E	2043-07-04T15:40:34.319	43.81	-31.88	71489.4	-34.84	-38.43

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-04T14:31:29.400
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        : 4116862703204760320
2Mass ID (if available) : 17435223-2304405
ICRS Star Coord at Epoch: 17h 43m 52.19292s -23:04:40.67890s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 8.840
G magnitude           : 14.866
RP magnitude          : 13.560
BP magnitude          : 16.673
DUPflag              : 0
Distance (au)         : 4.275
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.37
Sun-Target sep (deg)  : 164.35
Sun-Moon sep (deg)    : 165.70
B (ring opening deg) : -2.41
PA of pole (deg)      : 0.90
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 14.777
C/A sky separation (km) : 45820.5
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
    
```

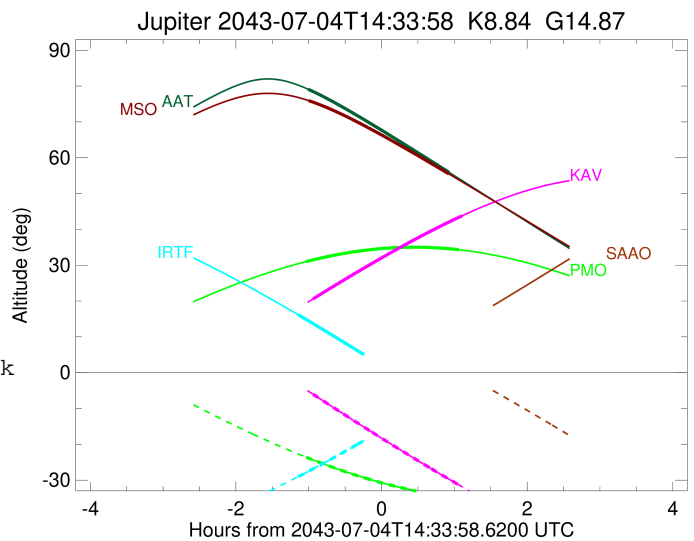
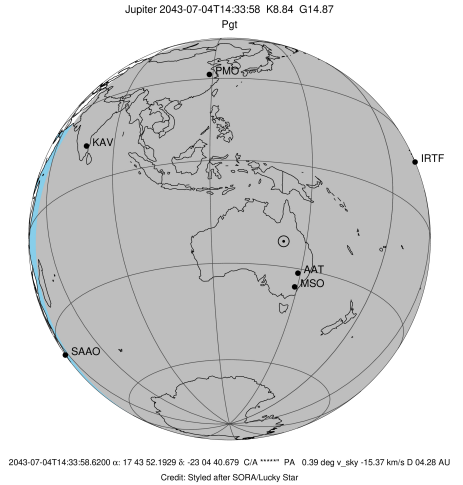


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-04T13:33:30.815	79.11	-78.71	71488.7	-40.18	-43.89
Jupiter	E	2043-07-04T15:29:37.992	55.91	-70.10	71488.8	-39.59	-43.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-04T14:31:36.130
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       : 4116862703204760320
2Mass ID (if available) : 17435223-2304405
ICRS Star Coord at Epoch: 17h 43m 52.19292s -23:04:40.67890s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 8.840
G magnitude           : 14.866
RP magnitude         : 13.560
BP magnitude         : 16.673
DUPflag              : 0
Distance (au)        : 4.275
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.37
Sun-Target sep (deg) : 164.35
Sun-Moon sep (deg)   : 165.66
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.90
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 14.917
C/A sky separation (km) : 46254.0
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	2043-07-04T13:33:56.762	75.93	-75.60	71488.6	-40.64	-44.35
Jupiter	E	2043-07-04T15:29:25.007	55.50	-68.51	71488.7	-40.03	-43.74