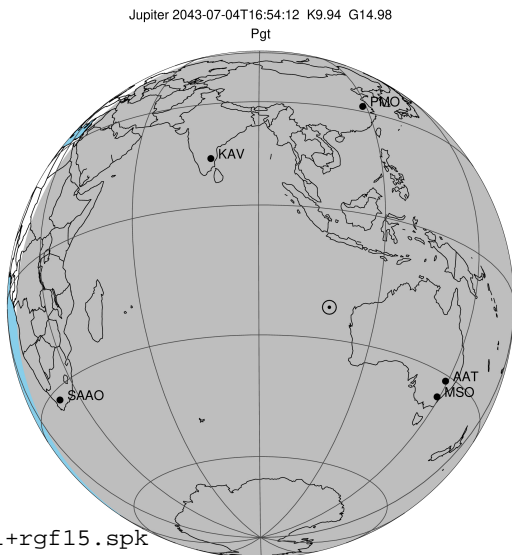


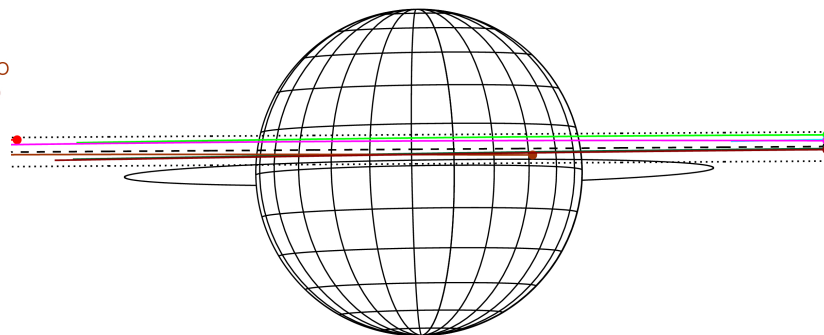
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-04T16:54:12.390
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116863454758305280
 2Mass ID (if available) : 17434919-2304225

Jupiter 2043-07-04T16:54:12 K9.94 G14.98 Pgt

ICRS Star Coord at Epoch: 17h 43m 49.18052s -23:04:22.67539s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 9.940
 G magnitude : 14.982
 RP magnitude : 13.693
 BP magnitude : 16.694
 DUPflag : 0
 Distance (au) : 4.276
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.36
 Sun-Target sep (deg) : 164.25
 Sun-Moon sep (deg) : 166.55
 B (ring opening deg) : -2.41
 PA of pole (deg) : 0.91
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 3.281
 C/A sky separation (km) : 10175.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



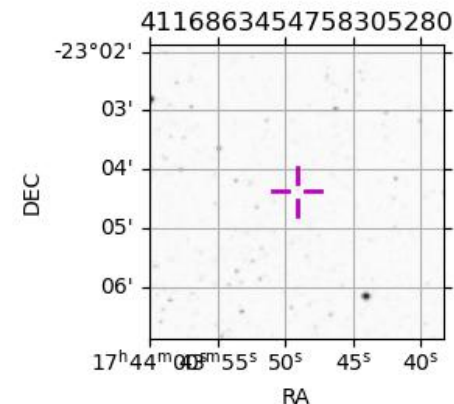
Earth
 PIC
 PMO
 IRTF
 KAV
 AAT
 SAAO
 MSO



2043-07-04T16:54:12.3900 at: 17 43 49.1805 s: -23 04 22.675 C/A 3.270" PA 180.39 deg v_sky -15.36 km/s D 04.28 AU
 Credit: Styled after SORA/Lucky Star

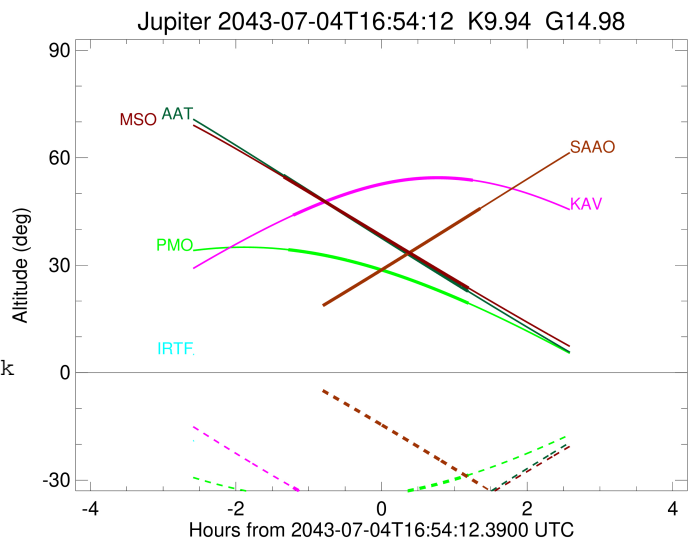
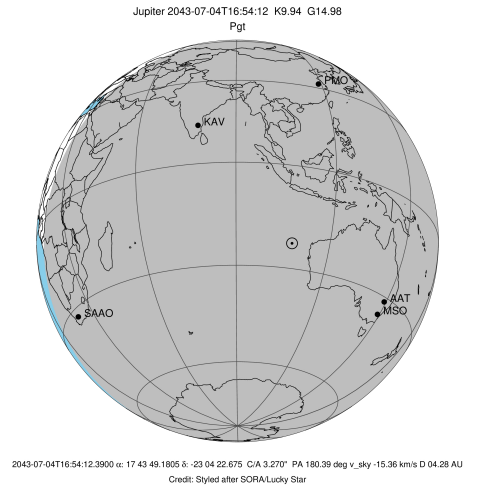
Observable events with sun below -5 deg and altitude above 5 deg

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 15:37 - JUL 04 18:05	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			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUL 04 15:41 - JUL 04 18:09	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 15:33 - JUL 04 18:05	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8		JUL 04 18:15 - JUL 04 18:15	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 04 15:33 - JUL 04 18:05	Pie



```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2043-07-04T16:51:33.760
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        : 4116863454758305280
2Mass ID (if available) : 17434919-2304225
ICRS Star Coord at Epoch: 17h 43m 49.18052s -23:04:22.67539s
RUWE (>1.4 is poor)  : 0.97
K magnitude           : 9.940
G magnitude           : 14.982
RP magnitude          : 13.693
BP magnitude          : 16.694
DUPflag              : 0
Distance (au)         : 4.276
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -15.36
Sun-Target sep (deg)  : 164.25
Sun-Moon sep (deg)    : 167.29
B (ring opening deg)  : -2.41
PA of pole (deg)      : 0.91
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 4.888
C/A sky separation (km) : 15156.6
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
    
```

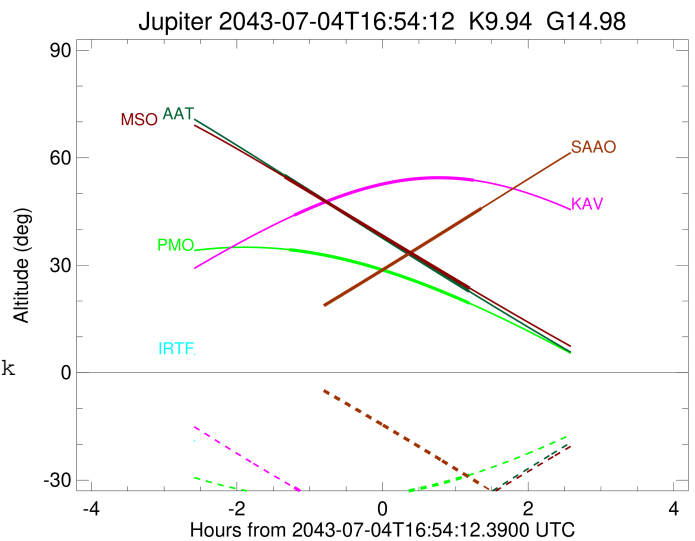
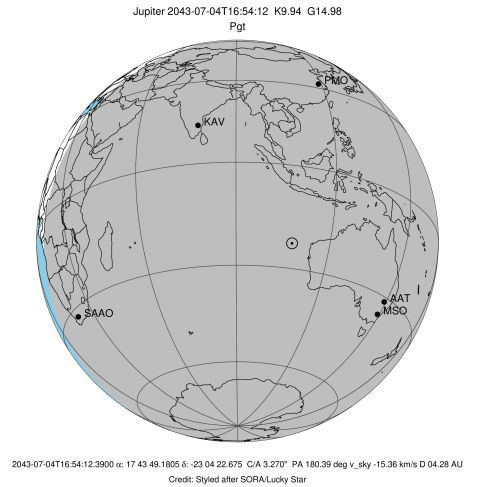


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-04T15:37:32.255	34.32	-34.75	71491.7	11.89	13.53
Jupiter	E	2043-07-04T18:05:53.758	19.38	-28.57	71491.6	12.40	14.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-04T16:55:30.230
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        : 4116863454758305280
2Mass ID (if available) : 17434919-2304225
ICRS Star Coord at Epoch: 17h 43m 49.18052s -23:04:22.67539s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 9.940
G magnitude           : 14.982
RP magnitude          : 13.693
BP magnitude          : 16.694
DUPflag              : 0
Distance (au)         : 4.276
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.36
Sun-Target sep (deg) : 164.25
Sun-Moon sep (deg)   : 166.74
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.91
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 4.462
C/A sky separation (km) : 13836.5
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
    
```

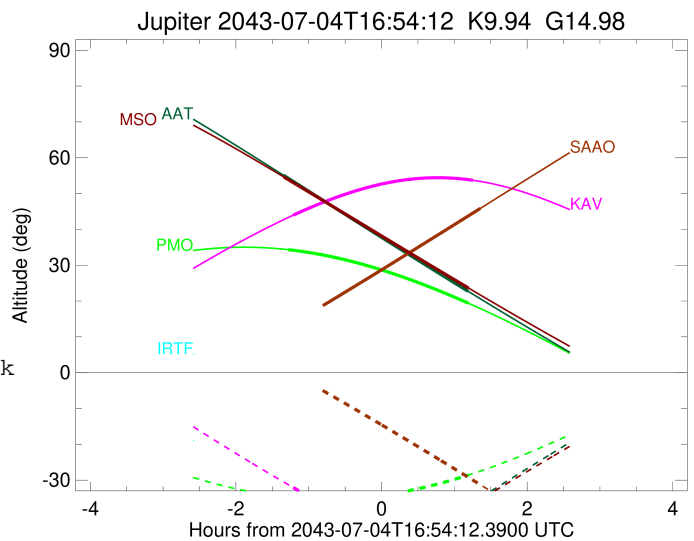
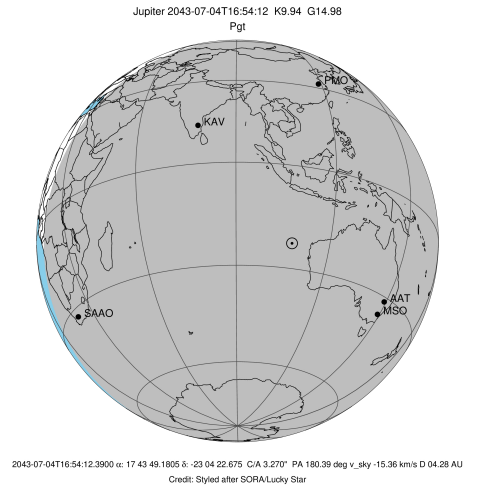


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-04T15:41:25.383	43.95	-32.05	71491.7	10.41	11.86
Jupiter	E	2043-07-04T18:09:29.051	53.71	-53.37	71491.7	11.69	13.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-04T16:49:17.380
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      : 4116863454758305280
2Mass ID (if available) : 17434919-2304225
ICRS Star Coord at Epoch: 17h 43m 49.18052s -23:04:22.67539s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 9.940
G magnitude          : 14.982
RP magnitude         : 13.693
BP magnitude         : 16.694
DUPflag             : 0
Distance (au)       : 4.276
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.36
Sun-Target sep (deg) : 164.25
Sun-Moon sep (deg)  : 167.24
B (ring opening deg) : -2.41
PA of pole (deg)    : 0.91
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 2.680
C/A sky separation (km) : 8310.2
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
    
```

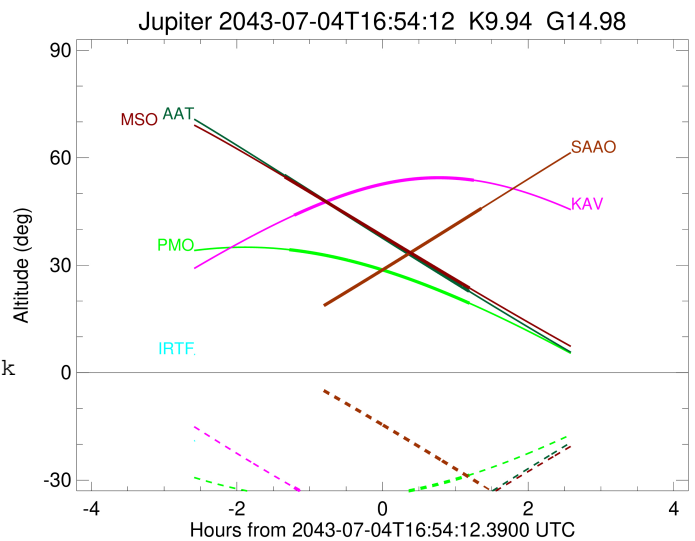
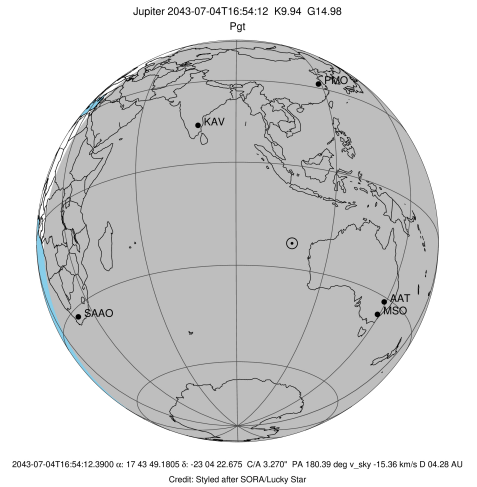


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-04T15:33:33.557	55.07	-69.31	71491.9	6.58	7.51
Jupiter	E	2043-07-04T18:05:35.407	22.71	-37.07	71491.9	6.65	7.60

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-04T16:59:33.560
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : SAAO
Location             : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)       : -32.37953
E. Longitude (deg)   : 20.81070
Altitude (km)        : 1.768
Gaia source ID       : 4116863454758305280
2Mass ID (if available) : 17434919-2304225
ICRS Star Coord at Epoch: 17h 43m 49.18052s -23:04:22.67539s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 9.940
G magnitude           : 14.982
RP magnitude          : 13.693
BP magnitude          : 16.694
DUPflag              : 0
Distance (au)        : 4.276
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.36
Sun-Target sep (deg) : 164.25
Sun-Moon sep (deg)   : 165.82
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.91
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 2.522
C/A sky separation (km): 7821.7
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
    
```

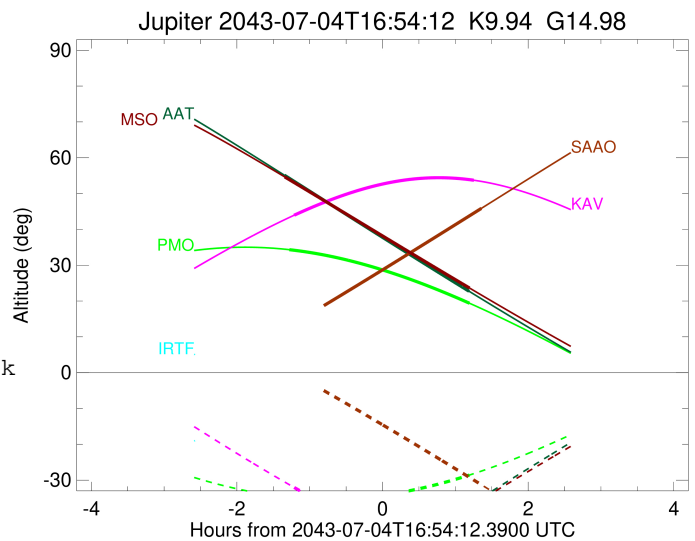
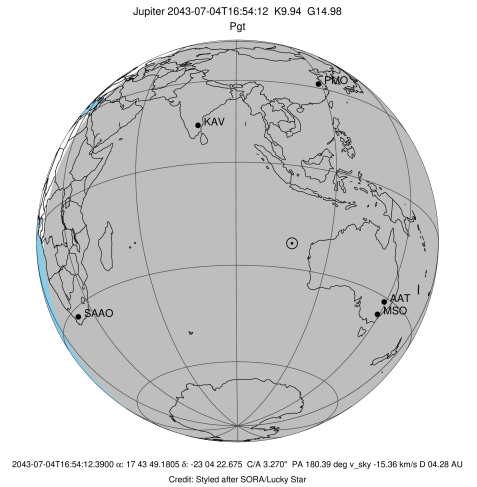


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-04T15:42:52.139	14.05	-0.61x	71491.9	5.21	5.95
Jupiter	E	2043-07-04T18:15:41.504	45.86	-31.28	71491.9	7.27	8.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-04T16:49:30.430
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        : 4116863454758305280
2Mass ID (if available) : 17434919-2304225
ICRS Star Coord at Epoch: 17h 43m 49.18052s -23:04:22.67539s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 9.940
G magnitude           : 14.982
RP magnitude          : 13.693
BP magnitude          : 16.694
DUPflag              : 0
Distance (au)         : 4.276
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.36
Sun-Target sep (deg)  : 164.25
Sun-Moon sep (deg)    : 167.19
B (ring opening deg) : -2.41
PA of pole (deg)     : 0.91
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 2.552
C/A sky separation (km) : 7913.1
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	2043-07-04T15:33:40.277	54.64	-67.74	71491.9	6.24	7.12
Jupiter	E	2043-07-04T18:05:53.463	23.63	-37.40	71491.9	6.36	7.26