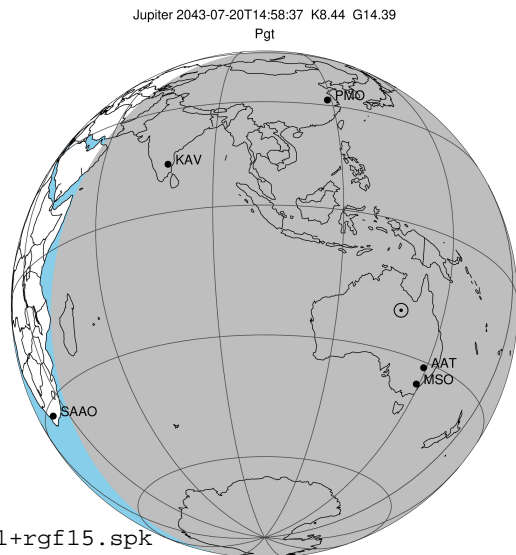


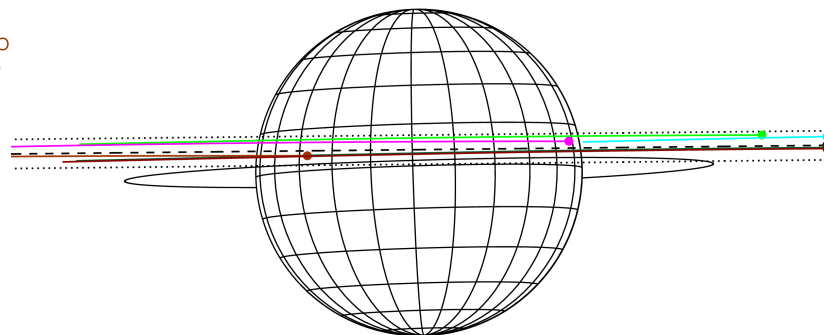
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-20T14:58:37.290
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116734300845752576
 2Mass ID (if available) : 17363041-2303252

Jupiter 2043-07-20T14:58:37 K8.44 G14.39 Pgt

ICRS Star Coord at Epoch: 17h 36m 30.40589s -23°03:25.25970s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 8.437
 G magnitude : 14.386
 RP magnitude : 12.919
 BP magnitude : 17.374
 DUPflag : 0
 Distance (au) : 4.371
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -11.83
 Sun-Target sep (deg) : 147.38
 Sun-Moon sep (deg) : 15.83
 B (ring opening deg) : -2.39
 PA of pole (deg) : 1.69
 Pole direction: RA (deg): 268.05670
 Dec (deg): 64.49732
 C/A sky separation (") : 3.155
 C/A sky separation (km) : 10001.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



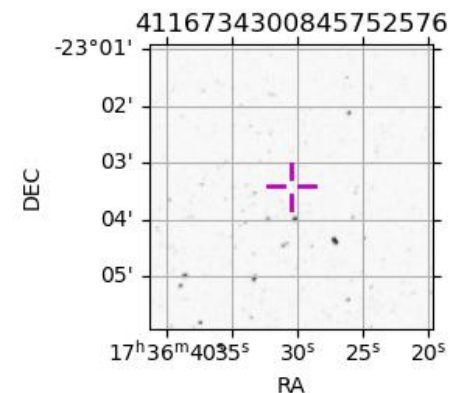
Earth
 PMO
 IRTF
 KAV
 AAT
 SAAO
 MSO



2043-07-20T14:58:37.2900 at: 17 36 30.40589 s: -23 03 25.260 C/A 3.144" PA 180.61 deg v_sky -11.83 km/s D 04.37 AU
 Credit: Styled after SORA/Lucky Star

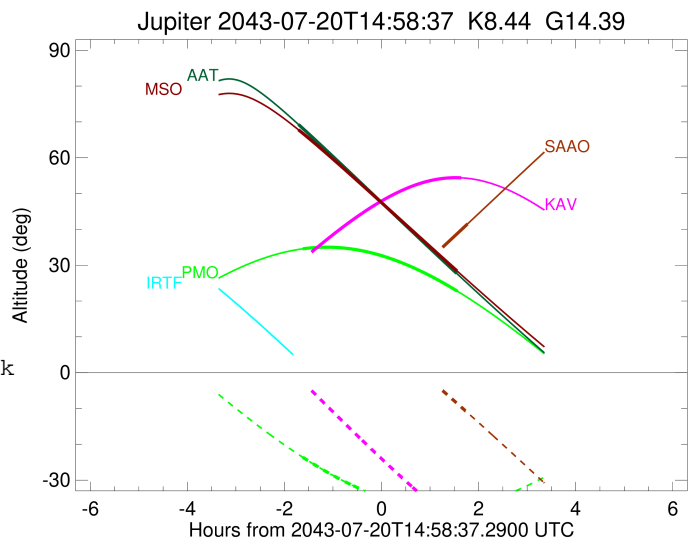
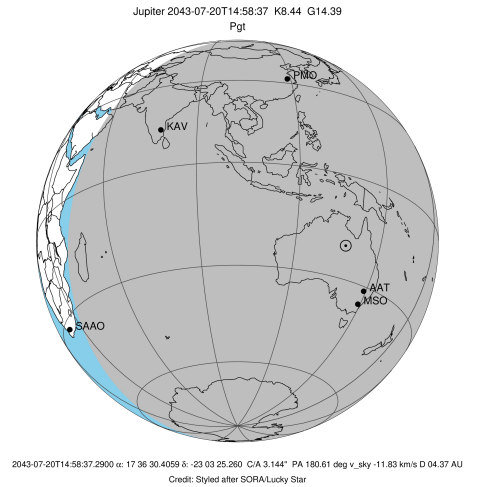
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
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 20 13:21 - JUL 20 16:32	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 20 16:37 - JUL 20 16:37	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	+ +	JUL 20 13:15 - JUL 20 16:31	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 20 16:44 - JUL 20 16:44	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 20 13:16 - JUL 20 16:31	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-20T14:56:34.510
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       : 4116734300845752576
2Mass ID (if available) : 17363041-2303252
ICRS Star Coord at Epoch: 17h 36m 30.40589s -23:03:25.25970s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.437
G magnitude           : 14.386
RP magnitude          : 12.919
BP magnitude          : 17.374
DUPflag              : 0
Distance (au)        : 4.371
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.83
Sun-Target sep (deg) : 147.38
Sun-Moon sep (deg)   : 16.04
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.69
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 4.776
C/A sky separation (km) : 15141.9
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
    
```

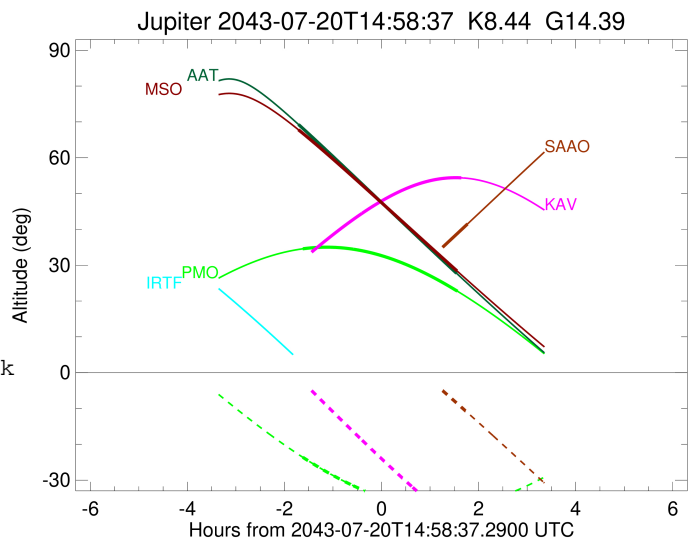
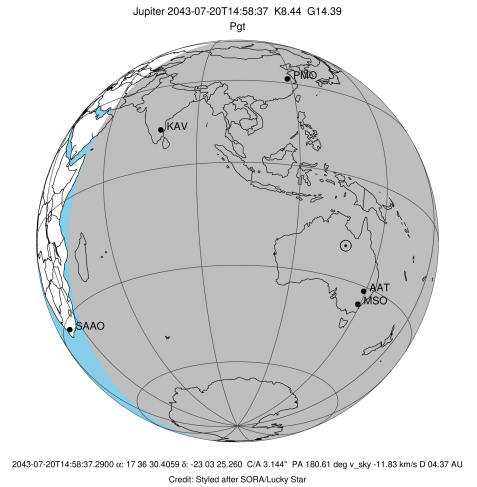


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-20T13:21:19.832	34.57	-23.61	71491.7	11.18	12.73
Jupiter	E	2043-07-20T16:32:18.728	22.76	-37.28	71491.6	12.97	14.74

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-20T15:01:51.220
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      : 4116734300845752576
2Mass ID (if available) : 17363041-2303252
ICRS Star Coord at Epoch: 17h 36m 30.40589s -23:03:25.25970s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.437
G magnitude          : 14.386
RP magnitude         : 12.919
BP magnitude         : 17.374
DUPflag             : 0
Distance (au)       : 4.371
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.83
Sun-Target sep (deg) : 147.38
Sun-Moon sep (deg)  : 16.52
B (ring opening deg) : -2.39
PA of pole (deg)    : 1.69
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 4.263
C/A sky separation (km) : 13517.3
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
    
```

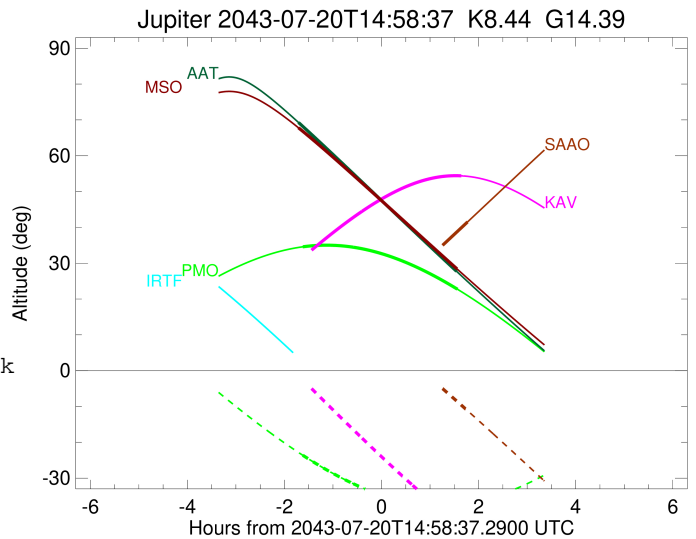
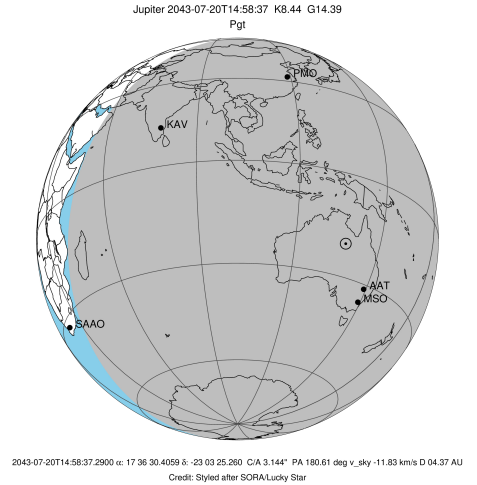


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-20T13:26:00.863	32.46	-3.60x	71491.8	9.33	10.64
Jupiter	E	2043-07-20T16:37:17.026	54.38	-43.37	71491.7	12.13	13.81

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-20T14:53:11.970
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       : 4116734300845752576
2Mass ID (if available) : 17363041-2303252
ICRS Star Coord at Epoch: 17h 36m 30.40589s -23:03:25.25970s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.437
G magnitude           : 14.386
RP magnitude          : 12.919
BP magnitude          : 17.374
DUPflag              : 0
Distance (au)        : 4.371
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.83
Sun-Target sep (deg) : 147.38
Sun-Moon sep (deg)   : 15.41
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.69
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 2.676
C/A sky separation (km) : 8485.4
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
    
```

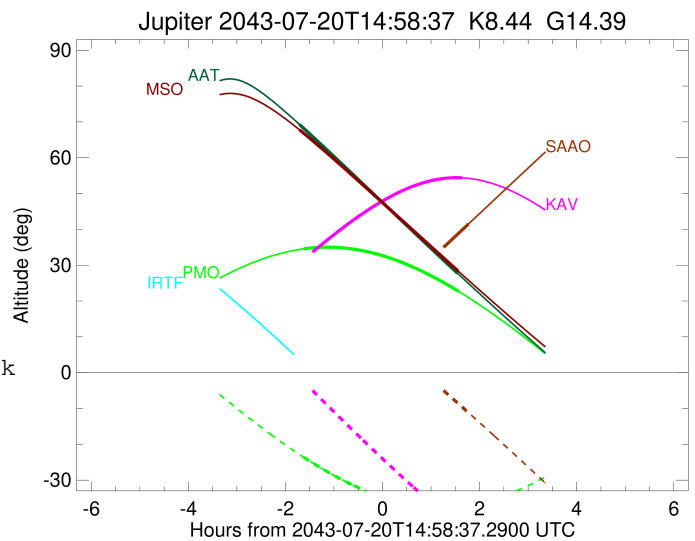
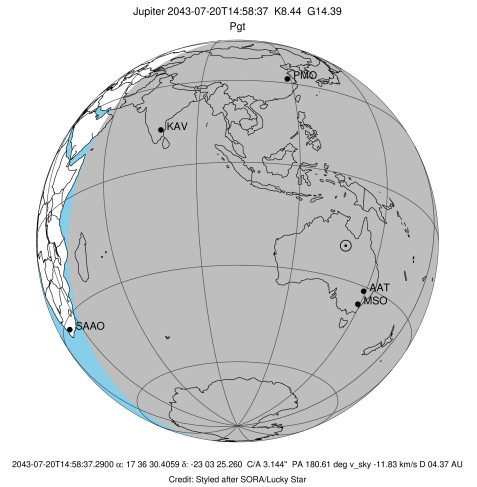


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-20T13:15:58.923	69.28	-73.95	71491.9	6.12	6.99
Jupiter	E	2043-07-20T16:31:31.562	27.70	-56.66	71491.9	7.27	8.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-20T15:05:55.760
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       : 4116734300845752576
2Mass ID (if available) : 17363041-2303252
ICRS Star Coord at Epoch: 17h 36m 30.40589s -23:03:25.25970s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.437
G magnitude           : 14.386
RP magnitude          : 12.919
BP magnitude          : 17.374
DUPflag              : 0
Distance (au)        : 4.371
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -11.83
Sun-Target sep (deg) : 147.38
Sun-Moon sep (deg)   : 16.47
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.69
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 2.284
C/A sky separation (km): 7242.1
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
    
```

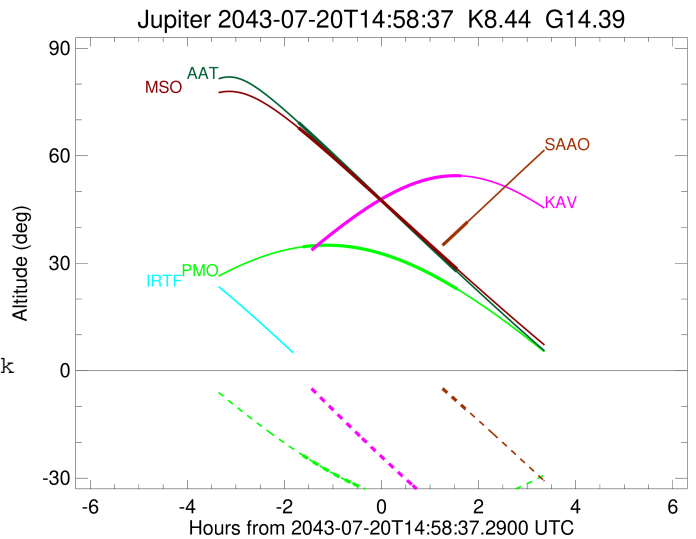
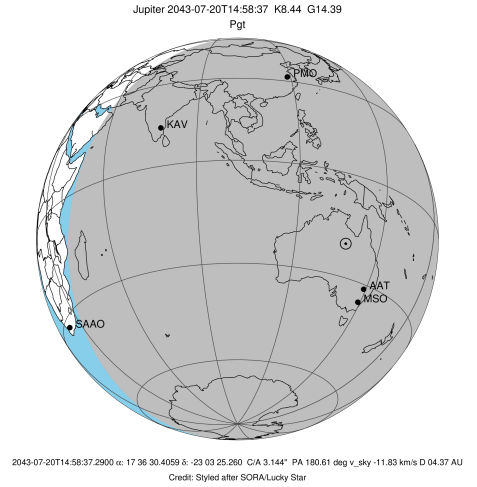


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-20T13:25:43.323	0.95x	24.41x	71492.0	3.99	4.56
Jupiter	E	2043-07-20T16:44:54.782	41.50	-11.16	71491.9	7.57	8.64

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-20T14:53:26.120
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      : 4116734300845752576
2Mass ID (if available) : 17363041-2303252
ICRS Star Coord at Epoch: 17h 36m 30.40589s -23:03:25.25970s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.437
G magnitude          : 14.386
RP magnitude         : 12.919
BP magnitude         : 17.374
DUPflag             : 0
Distance (au)       : 4.371
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.83
Sun-Target sep (deg) : 147.38
Sun-Moon sep (deg)   : 15.42
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.69
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 2.546
C/A sky separation (km): 8072.4
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	2043-07-20T13:16:02.121	67.78	-71.20	71491.9	5.77	6.59
Jupiter	E	2043-07-20T16:31:54.342	28.41	-55.74	71491.9	6.97	7.96