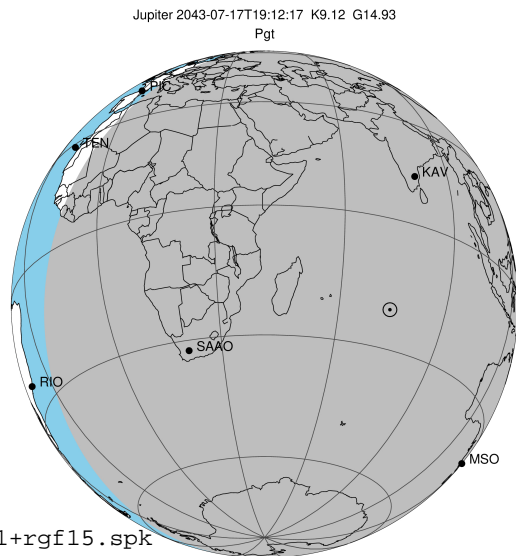


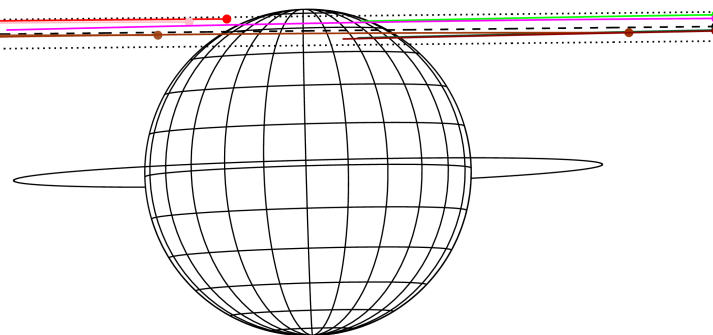
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-17T19:12:17.680
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116719904112099328
 2Mass ID (if available) : 17373878-2303185

Jupiter 2043-07-17T19:12:17 K9.12 G14.93 Pgt

ICRS Star Coord at Epoch: 17h 37m 38.76712s -23:03:18.88855s
 RUWE (>1.4 is poor) : 0.92
 K magnitude : 9.117
 G magnitude : 14.929
 RP magnitude : 13.498
 BP magnitude : 17.581
 DUPflag : 0
 Distance (au) : 4.350
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.61
 Sun-Target sep (deg) : 150.34
 Sun-Moon sep (deg) : 20.20
 B (ring opening deg) : -2.40
 PA of pole (deg) : 1.57
 Pole direction: RA (deg): 268.05670
 Dec (deg): 64.49732
 C/A sky separation (") : 19.667
 C/A sky separation (km) : 62043.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



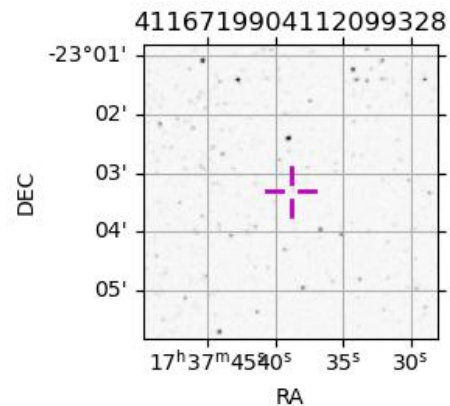
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-07-17T19:12:17.6800 a: 17 37 38.76712 s: -23 03 18.8889 C/A ***** PA 180.61 deg v_sky -12.61 km/s D 04.35 AU
 Credit: Styled after SORA/Lucky Star

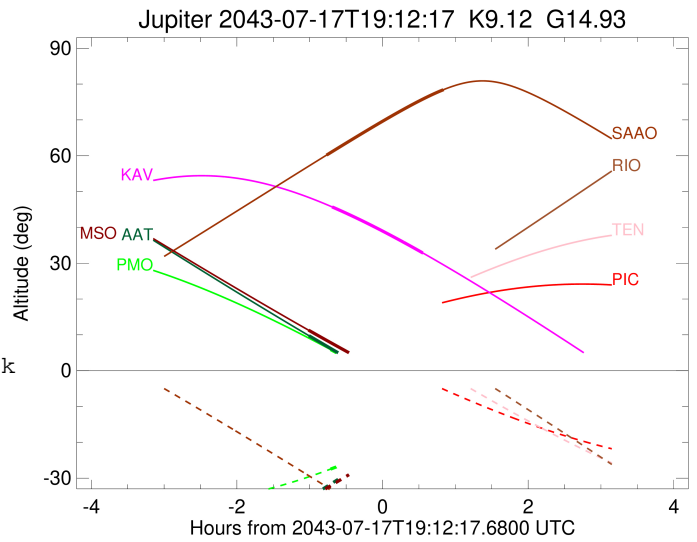
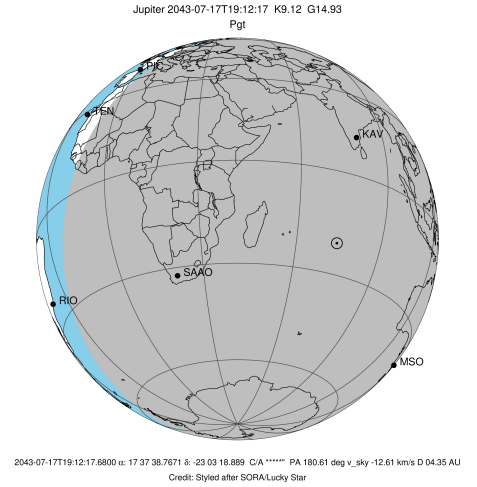
Observable events with sun below -5 deg and altitude above 5 deg

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	+	JUL 17 18:29 - JUL 17 18:29	Pin
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 17 18:30 - JUL 17 19:45	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 17 18:11 - JUL 17 18:11	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 17 18:26 - JUL 17 20:02	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUL 17 18:11 - JUL 17 18:11	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-17T19:06:24.650
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       : 4116719904112099328
2Mass ID (if available) : 17373878-2303185
ICRS Star Coord at Epoch: 17h 37m 38.76712s -23:03:18.88855s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.117
G magnitude           : 14.929
RP magnitude          : 13.498
BP magnitude          : 17.581
DUPflag              : 0
Distance (au)         : 4.350
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.61
Sun-Target sep (deg) : 150.34
Sun-Moon sep (deg)   : 20.97
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.57
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 20.825
C/A sky separation (km): 65694.7
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
    
```

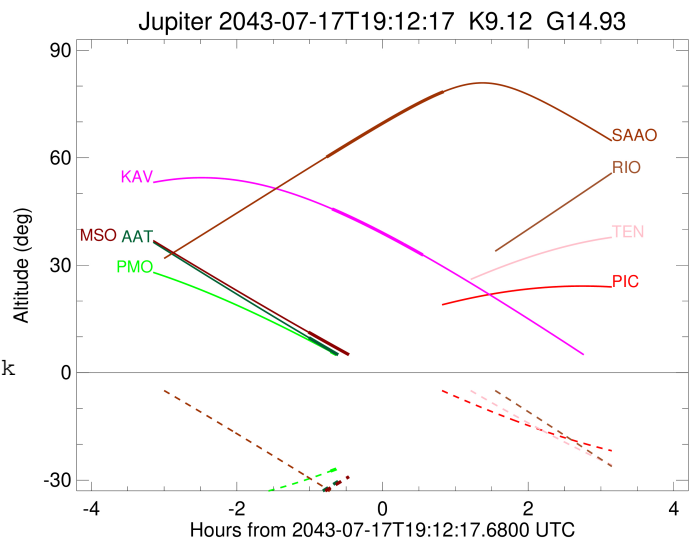
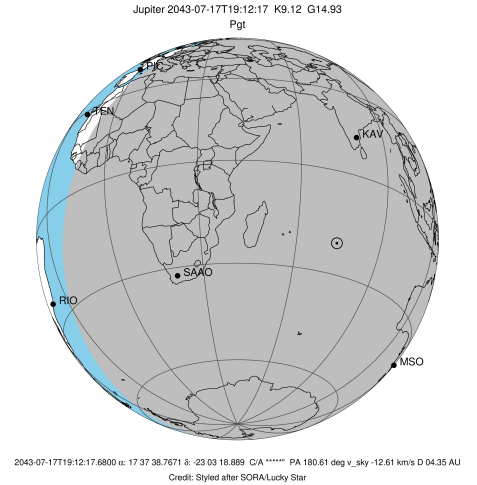


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T18:29:31.310	5.89	-27.47	71485.4	66.36	68.92
Jupiter	E	2043-07-17T19:43:29.329	-8.13x	-16.55	71485.4	66.93	69.44

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-17T19:08:08.010
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       : 4116719904112099328
2Mass ID (if available) : 17373878-2303185
ICRS Star Coord at Epoch: 17h 37m 38.76712s -23:03:18.88855s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.117
G magnitude           : 14.929
RP magnitude         : 13.498
BP magnitude         : 17.581
DUPflag              : 0
Distance (au)        : 4.350
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.61
Sun-Target sep (deg) : 150.34
Sun-Moon sep (deg)   : 20.99
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.57
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 20.701
C/A sky separation (km): 65303.9
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
    
```

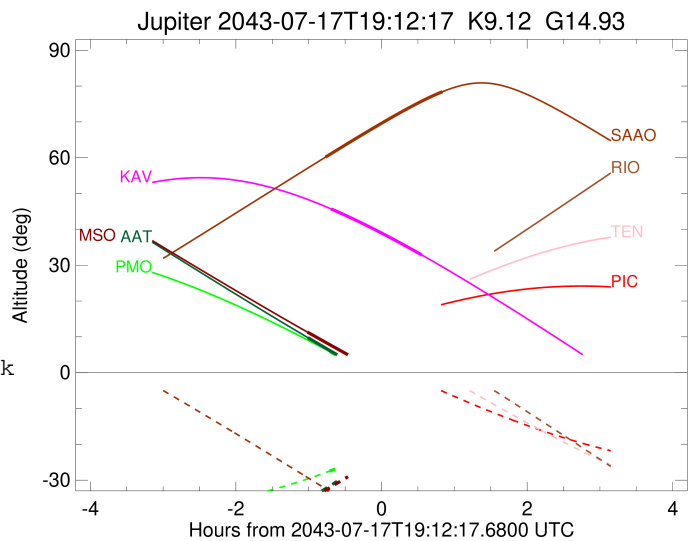
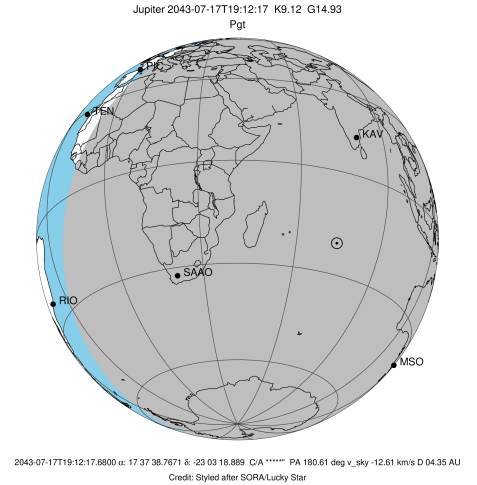


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T18:30:46.740	45.70	-56.04	71485.5	65.33	67.98
Jupiter	E	2043-07-17T19:45:37.587	32.83	-53.81	71485.4	66.33	68.89

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-17T19:06:16.010
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       : 4116719904112099328
2Mass ID (if available) : 17373878-2303185
ICRS Star Coord at Epoch: 17h 37m 38.76712s -23:03:18.88855s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.117
G magnitude           : 14.929
RP magnitude         : 13.498
BP magnitude         : 17.581
DUPflag              : 0
Distance (au)        : 4.350
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.61
Sun-Target sep (deg) : 150.34
Sun-Moon sep (deg)   : 20.77
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.57
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 18.530
C/A sky separation (km): 58457.6
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
    
```

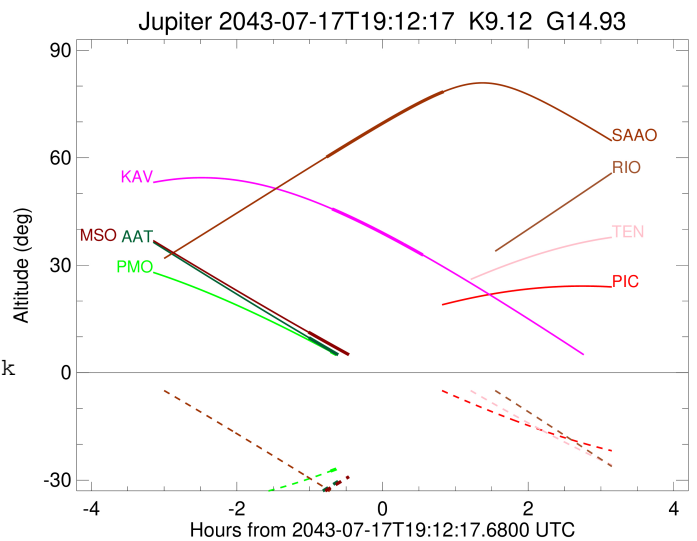
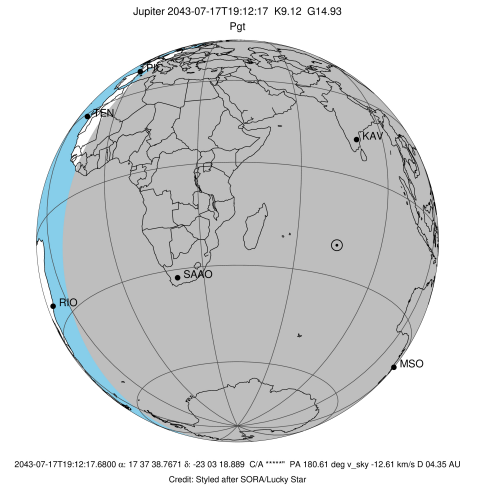


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T18:11:39.760	9.77	-35.47	71486.8	54.53	57.93
Jupiter	E	2043-07-17T20:01:17.609	-10.95x	-12.48	71486.7	55.08	58.45

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-17T19:14:23.740
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        : 4116719904112099328
2Mass ID (if available) : 17373878-2303185
ICRS Star Coord at Epoch: 17h 37m 38.76712s -23:03:18.88855s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.117
G magnitude           : 14.929
RP magnitude          : 13.498
BP magnitude          : 17.581
DUPflag              : 0
Distance (au)         : 4.350
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.61
Sun-Target sep (deg) : 150.34
Sun-Moon sep (deg)   : 20.22
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.57
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 19.302
C/A sky separation (km) : 60892.4
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
    
```

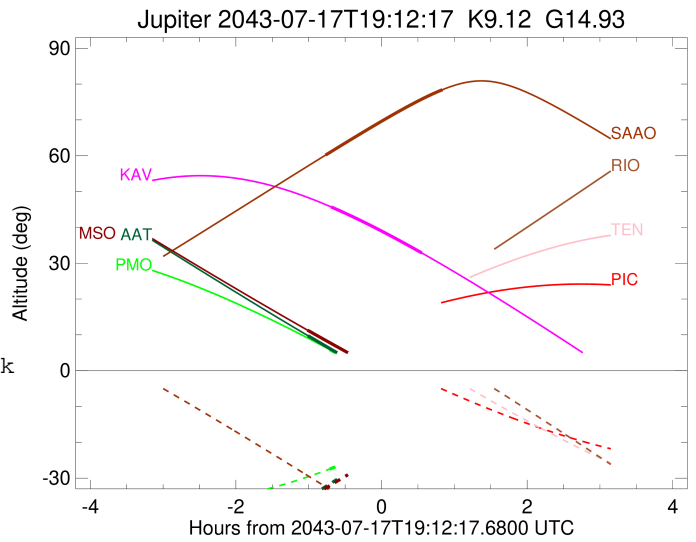
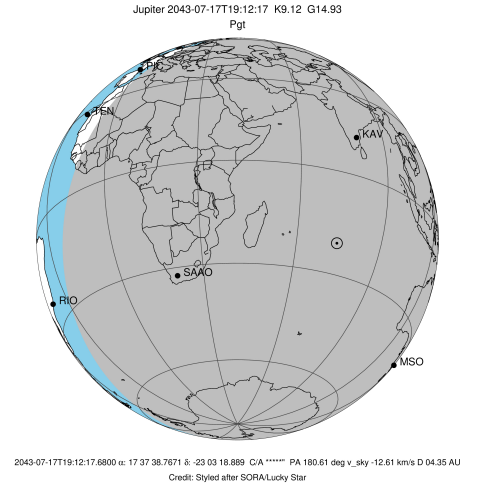


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T18:26:10.392	60.17	-32.39	71486.5	57.06	60.32
Jupiter	E	2043-07-17T20:02:32.778	78.43	-52.72	71486.2	59.46	62.56

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-17T19:06:31.810
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       : 4116719904112099328
2Mass ID (if available) : 17373878-2303185
ICRS Star Coord at Epoch: 17h 37m 38.76712s -23:03:18.88855s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.117
G magnitude           : 14.929
RP magnitude          : 13.498
BP magnitude          : 17.581
DUPflag              : 0
Distance (au)        : 4.350
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.61
Sun-Target sep (deg) : 150.34
Sun-Moon sep (deg)   : 20.75
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.57
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 18.429
C/A sky separation (km): 58137.7
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	2043-07-17T18:11:20.453	11.31	-35.83	71486.9	54.06	57.48
Jupiter	E	2043-07-17T20:02:08.001	-8.68x	-13.53	71486.8	54.67	58.06