

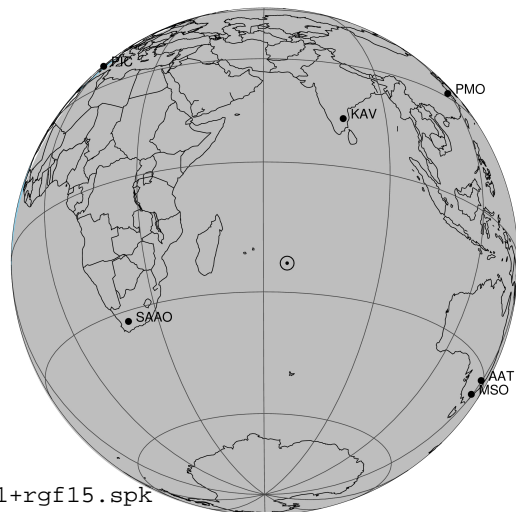
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-24T19:39:02.060
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068871769395436032
 2Mass ID (if available) : 17490786-2304215

Jupiter 2043-06-24T19:39:02 K8.55 G14.36 Pgt

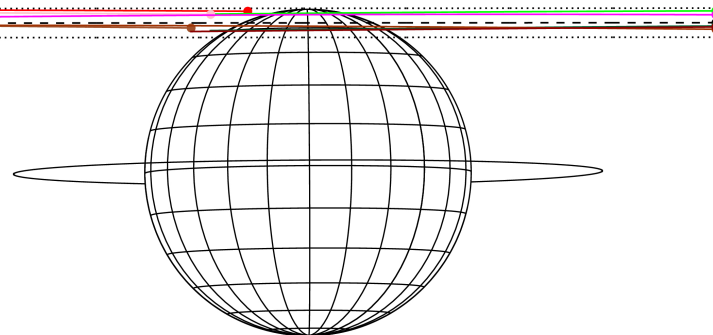
ICRS Star Coord at Epoch: 17h 49m 07.87587s -23°04'21.60187s

RUWE (>1.4 is poor) : 0.95
 K magnitude : 8.554
 G magnitude : 14.358
 RP magnitude : 12.923
 BP magnitude : 17.110
 DUPflag : 0
 Distance (au) : 4.252
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.30
 Sun-Target sep (deg) : 174.89
 Sun-Moon sep (deg) : 30.88
 B (ring opening deg) : -2.43
 PA of pole (deg) : 0.33
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 21.254
 C/A sky separation (km) : 65542.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-24T19:39:02 K8.55 G14.36
 Pgt



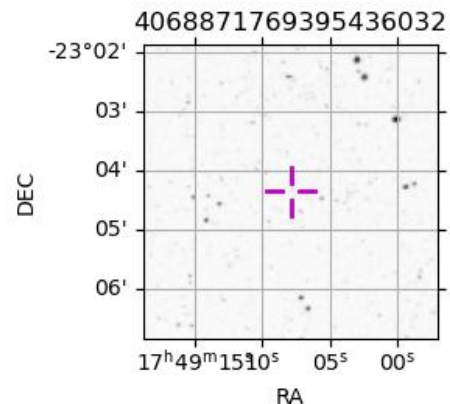
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-06-24T19:39:02.0600 a: 17 49 07.87587 s: -23 04 21.602 C/A ***** PA 180.03 deg v_sky -16.30 km/s D 04.25 AU
 Credit: Styled after SORA/Lucky Star

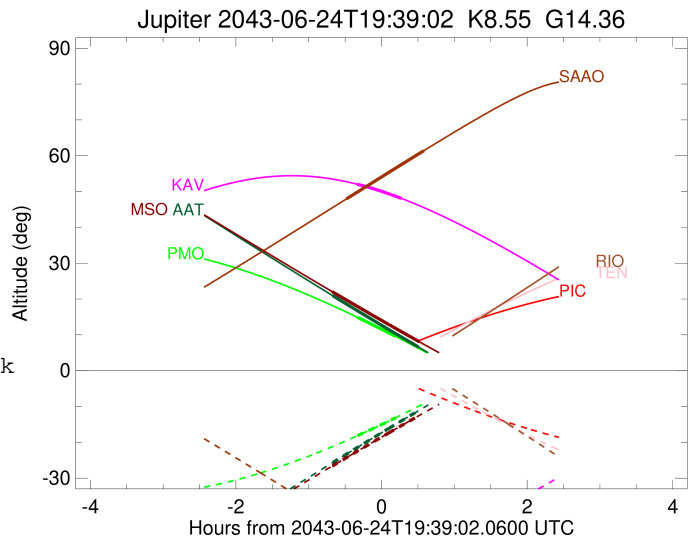
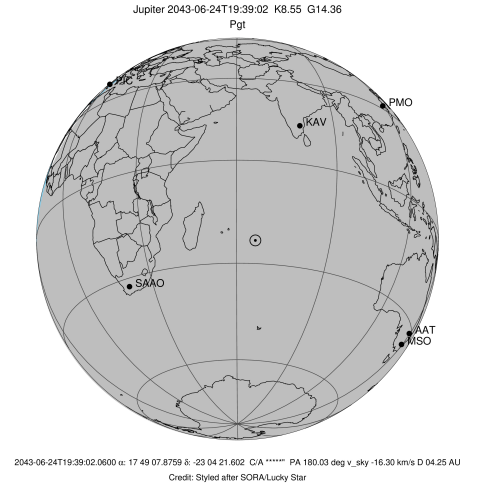
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUN 24 19:19 - JUN 24 19:50	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	+ +	JUN 24 19:19 - JUN 24 19:55	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	+ +	JUN 24 18:58 - JUN 24 20:09	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 24 19:10 - JUN 24 20:13	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 24 18:58 - JUN 24 20:10	Pie



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target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2043-06-24T19:34:55.190
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        : 4068871769395436032
2Mass ID (if available) : 17490786-2304215
ICRS Star Coord at Epoch: 17h 49m 07.87587s -23:04:21.60186s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.554
G magnitude           : 14.358
RP magnitude          : 12.923
BP magnitude          : 17.110
DUPflag              : 0
Distance (au)         : 4.252
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg)  : 174.89
Sun-Moon sep (deg)   : 30.50
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 22.623
C/A sky separation (km) : 69763.4
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
    
```

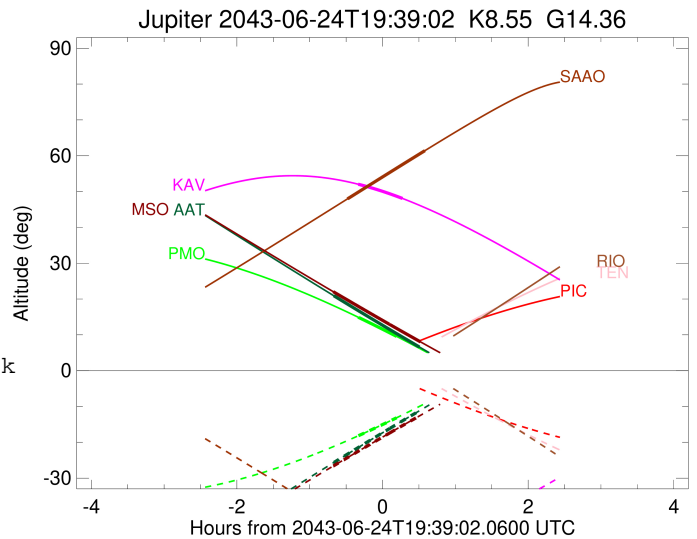
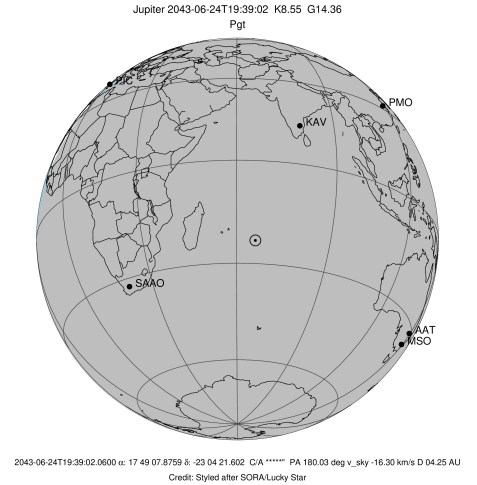


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T19:19:10.986	14.89	-18.16	71484.4	77.31	78.78
Jupiter	E	2043-06-24T19:50:40.683	9.57	-13.15	71484.4	77.02	78.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T19:37:17.050
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        : 4068871769395436032
2Mass ID (if available) : 17490786-2304215
ICRS Star Coord at Epoch: 17h 49m 07.87587s -23:04:21.60186s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.554
G magnitude           : 14.358
RP magnitude          : 12.923
BP magnitude          : 17.110
DUPflag              : 0
Distance (au)         : 4.252
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg)  : 174.89
Sun-Moon sep (deg)    : 31.08
B (ring opening deg) : -2.43
PA of pole (deg)      : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 22.416
C/A sky separation (km) : 69124.8
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
    
```

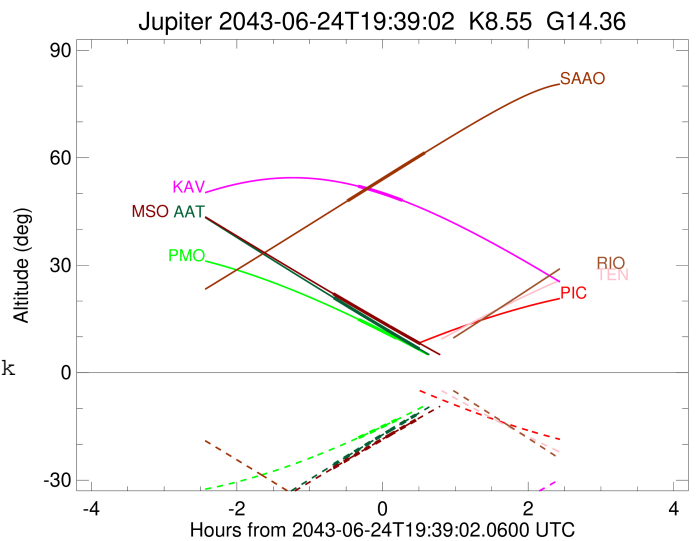
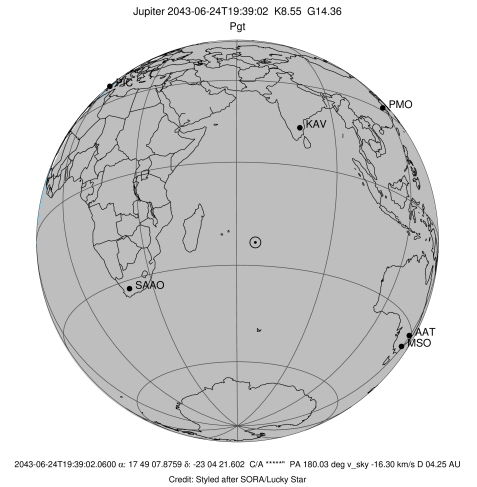


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T19:19:07.194	52.03	-53.27	71484.5	74.91	76.64
Jupiter	E	2043-06-24T19:55:27.640	48.07	-50.41	71484.5	75.13	76.83

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T19:34:05.070
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       : 4068871769395436032
2Mass ID (if available) : 17490786-2304215
ICRS Star Coord at Epoch: 17h 49m 07.87587s -23:04:21.60186s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.554
G magnitude           : 14.358
RP magnitude          : 12.923
BP magnitude          : 17.110
DUPflag              : 0
Distance (au)        : 4.252
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg) : 174.89
Sun-Moon sep (deg)   : 30.24
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 20.296
C/A sky separation (km): 62586.3
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
    
```

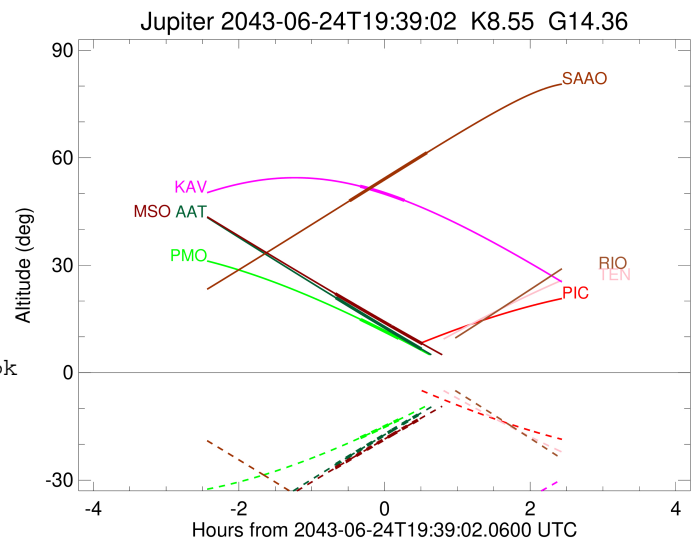
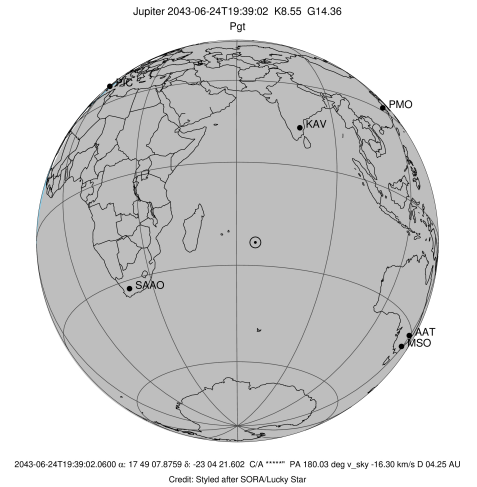


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T18:58:52.176	20.92	-25.64	71485.8	61.25	64.22
Jupiter	E	2043-06-24T20:09:25.748	6.61	-11.20	71485.9	60.77	63.78

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T19:42:06.850
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        : 4068871769395436032
2Mass ID (if available) : 17490786-2304215
ICRS Star Coord at Epoch: 17h 49m 07.87587s -23:04:21.60187s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.554
G magnitude           : 14.358
RP magnitude          : 12.923
BP magnitude          : 17.110
DUPflag              : 0
Distance (au)         : 4.252
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg)  : 174.89
Sun-Moon sep (deg)    : 31.65
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 20.781
C/A sky separation (km) : 64081.7
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
    
```

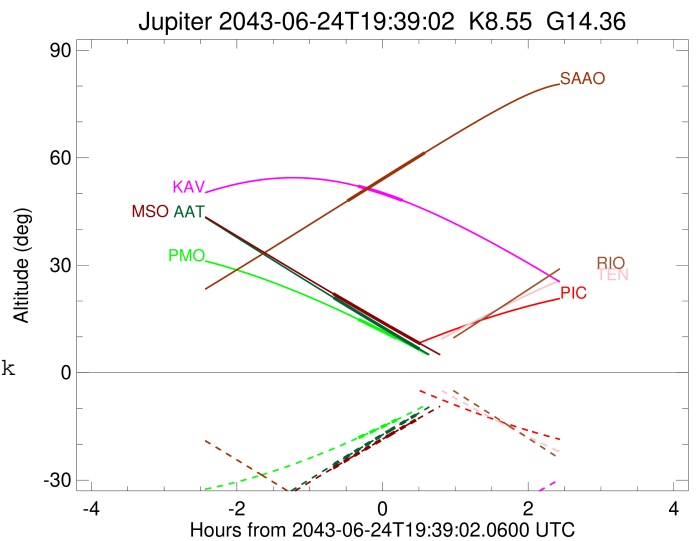
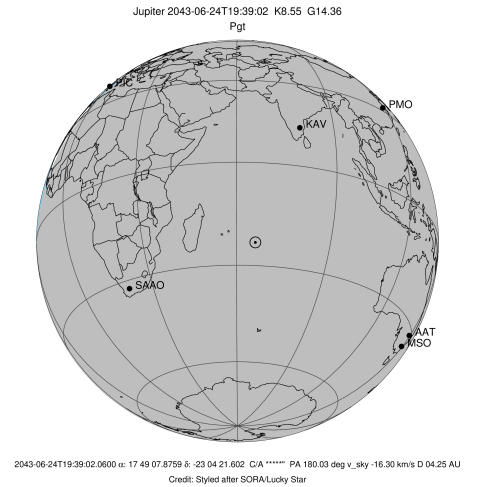


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T19:10:15.486	47.96	-43.40	71485.6	62.93	65.78
Jupiter	E	2043-06-24T20:13:54.517	61.40	-56.85	71485.5	64.19	66.93

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T19:34:18.410
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        : 4068871769395436032
2Mass ID (if available) : 17490786-2304215
ICRS Star Coord at Epoch: 17h 49m 07.87587s -23:04:21.60186s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.554
G magnitude           : 14.358
RP magnitude          : 12.923
BP magnitude          : 17.110
DUPflag              : 0
Distance (au)         : 4.252
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg)  : 174.89
Sun-Moon sep (deg)    : 30.27
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 20.183
C/A sky separation (km) : 62238.4
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	2043-06-24T18:58:27.199	22.05	-26.62	71485.9	60.66	63.67
Jupiter	E	2043-06-24T20:10:17.337	8.05	-12.48	71486.0	60.22	63.27