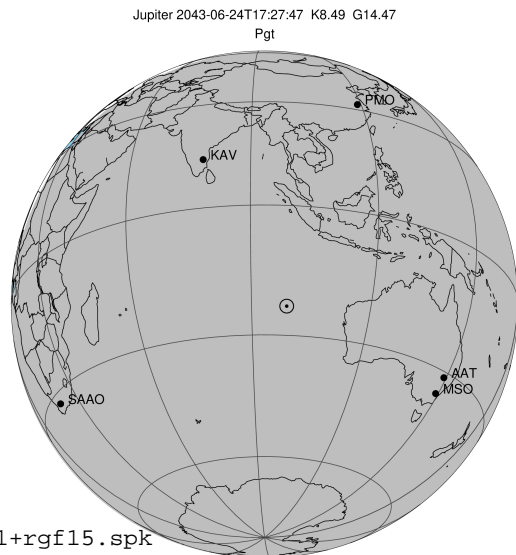


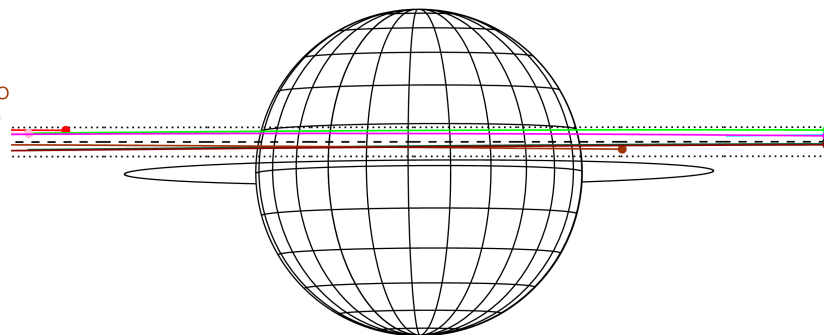
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-06-24T17:27:47.490  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4068871700675865344  
 2Mass ID (if available) : 17491089-2304384

Jupiter 2043-06-24T17:27:47 K8.49 G14.47 Pgt

ICRS Star Coord at Epoch: 17h 49m 10.89240s -23:04:38.52467s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 8.491  
 G magnitude : 14.474  
 RP magnitude : 13.000  
 BP magnitude : 17.405  
 DUPflag : 0  
 Distance (au) : 4.252  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -16.31  
 Sun-Target sep (deg) : 174.98  
 Sun-Moon sep (deg) : 29.74  
 B (ring opening deg) : -2.42  
 PA of pole (deg) : 0.33  
 Pole direction: RA (deg): 268.05669  
 Dec (deg): 64.49732  
 C/A sky separation (") : 4.352  
 C/A sky separation (km) : 13420.9  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



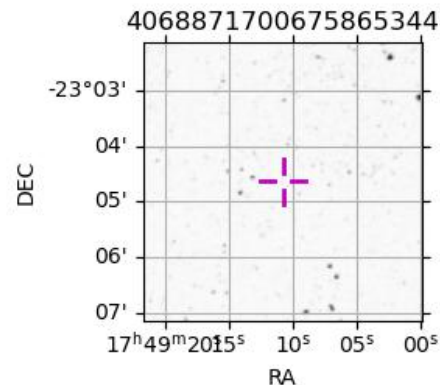
Earth  
 PIC  
 PMO  
 TEN  
 IRTF  
 KAV  
 AAT  
 SAAO  
 MSO



2043-06-24T17:27:47.4900 at: 17 49 10.8924 s: -23 04 38.525 C/A 4.341" PA 180.03 deg v\_sky -16.31 km/s D 04.25 AU  
 Credit: Styled after SORA/Lucky Star

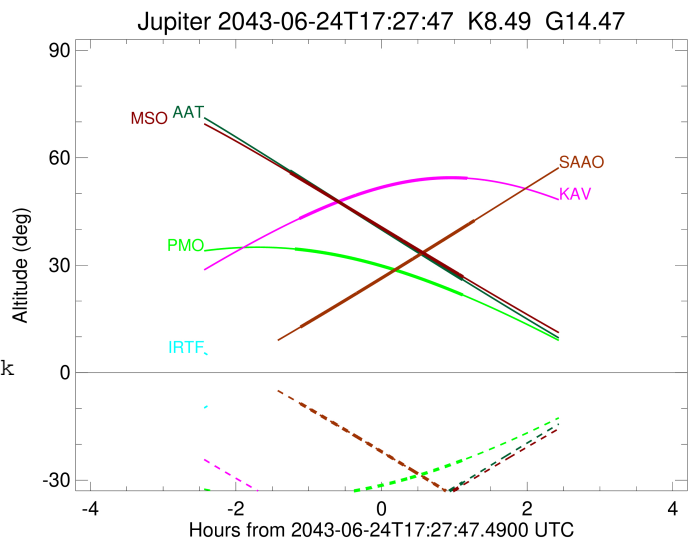
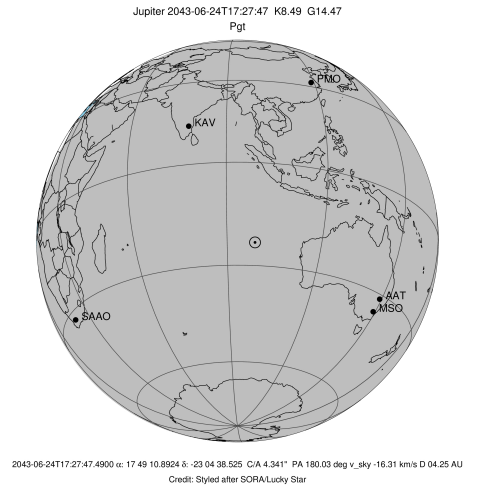
Observable events with sun below -5 deg and altitude above 5 deg

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 16:16 - JUN 24 18:34	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 16:20 - JUN 24 18:38	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 16:12 - JUN 24 18:34	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 24 16:21 - JUN 24 18:44	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 24 16:12 - JUN 24 18:34	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T17:25:30.390
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       : 4068871700675865344
2Mass ID (if available) : 17491089-2304384
ICRS Star Coord at Epoch: 17h 49m 10.89240s -23:04:38.52467s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 8.491
G magnitude          : 14.474
RP magnitude         : 13.000
BP magnitude         : 17.405
DUPflag             : 0
Distance (au)        : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 174.98
Sun-Moon sep (deg)   : 29.81
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 5.977
C/A sky separation (km): 18431.4
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
    
```

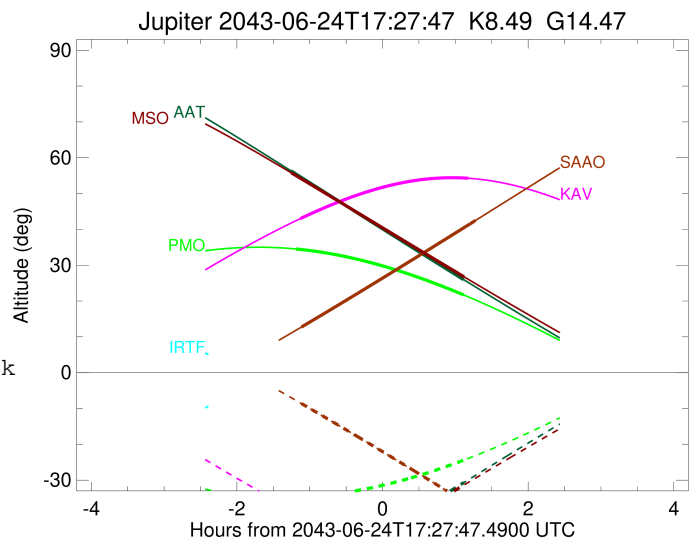
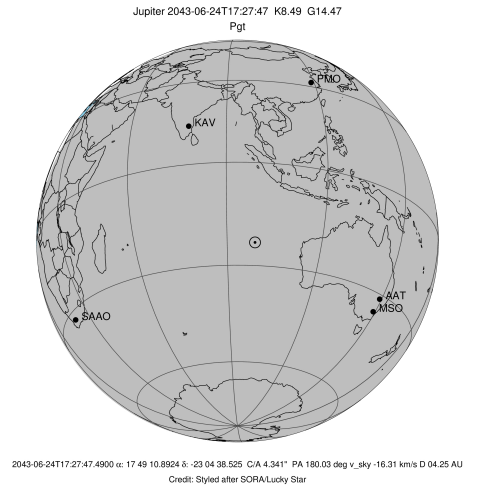


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T16:16:28.874	34.52	-34.66	71491.5	14.78	16.78
Jupiter	E	2043-06-24T18:34:44.751	21.69	-24.42	71491.5	14.93	16.94

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T17:29:16.480
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        : 4068871700675865344
2Mass ID (if available) : 17491089-2304384
ICRS Star Coord at Epoch: 17h 49m 10.89240s -23:04:38.52467s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 8.491
G magnitude           : 14.474
RP magnitude          : 13.000
BP magnitude          : 17.405
DUPflag              : 0
Distance (au)         : 4.252
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 174.98
Sun-Moon sep (deg)    : 30.39
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 5.534
C/A sky separation (km) : 17065.7
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
    
```

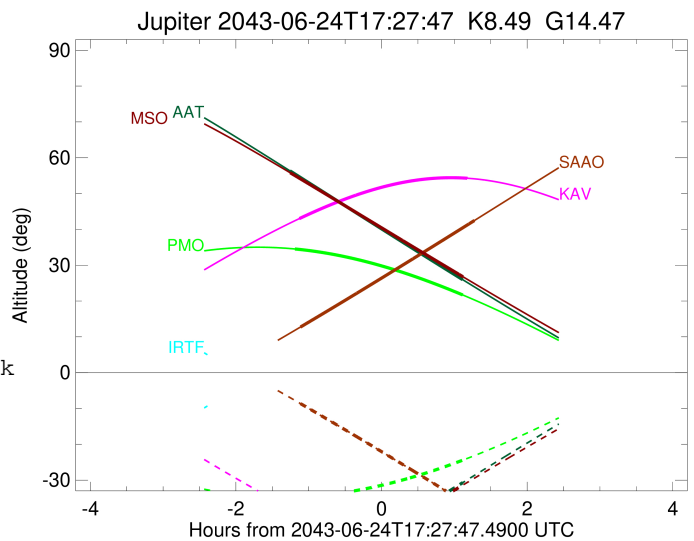
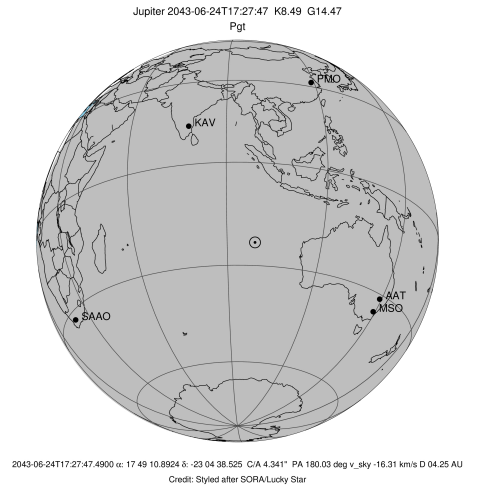


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T16:20:03.995	43.00	-39.19	71491.6	13.27	15.08
Jupiter	E	2043-06-24T18:38:21.399	54.27	-54.05	71491.5	14.15	16.07

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T17:23:20.250
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       : 4068871700675865344
2Mass ID (if available) : 17491089-2304384
ICRS Star Coord at Epoch: 17h 49m 10.89240s -23:04:38.52467s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 8.491
G magnitude           : 14.474
RP magnitude          : 13.000
BP magnitude          : 17.405
DUPflag              : 0
Distance (au)        : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 174.98
Sun-Moon sep (deg)   : 29.43
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 3.765
C/A sky separation (km): 11609.7
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
    
```

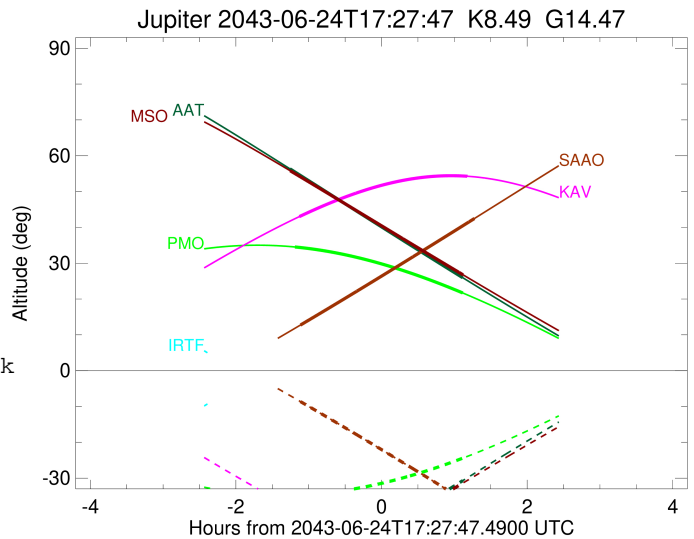
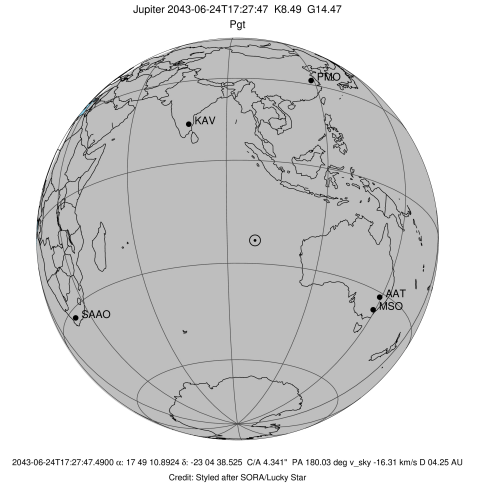


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T16:12:25.814	56.31	-61.02	71491.8	9.42	10.74
Jupiter	E	2043-06-24T18:34:40.910	25.97	-30.71	71491.8	9.15	10.44

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T17:32:55.090
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        : 4068871700675865344
2Mass ID (if available) : 17491089-2304384
ICRS Star Coord at Epoch: 17h 49m 10.89240s -23:04:38.52467s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 8.491
G magnitude           : 14.474
RP magnitude          : 13.000
BP magnitude          : 17.405
DUPflag              : 0
Distance (au)         : 4.252
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg)  : 174.98
Sun-Moon sep (deg)    : 30.53
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 3.568
C/A sky separation (km) : 11001.9
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
    
```

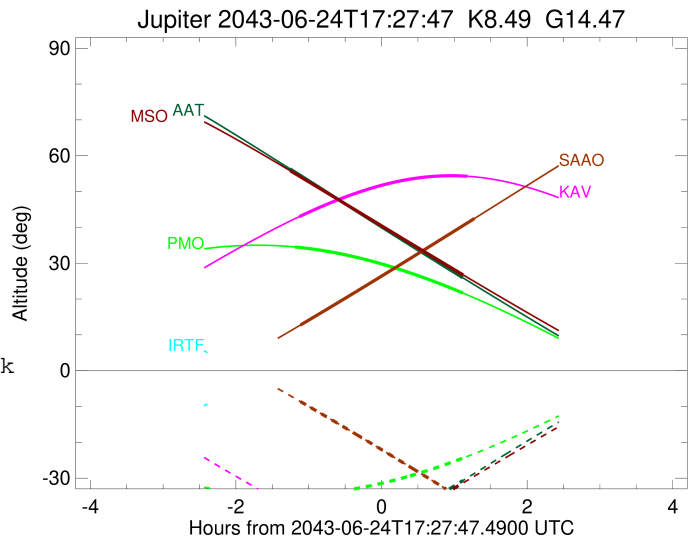
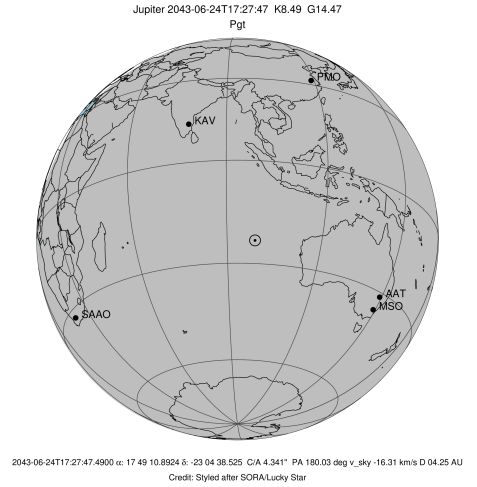


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T16:21:01.129	12.74	-8.63	71491.8	8.01	9.14
Jupiter	E	2043-06-24T18:44:19.526	42.46	-37.94	71491.8	9.61	10.96

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T17:23:32.290
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      : 4068871700675865344
2Mass ID (if available) : 17491089-2304384
ICRS Star Coord at Epoch: 17h 49m 10.89240s -23:04:38.52467s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 8.491
G magnitude          : 14.474
RP magnitude         : 13.000
BP magnitude         : 17.405
DUPflag             : 0
Distance (au)       : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 174.98
Sun-Moon sep (deg)  : 29.45
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.33
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 3.635
C/A sky separation (km) : 11210.3
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	2043-06-24T16:12:30.828	55.81	-60.27	71491.8	9.08	10.36
Jupiter	E	2043-06-24T18:34:58.908	26.75	-31.35	71491.8	8.85	10.09