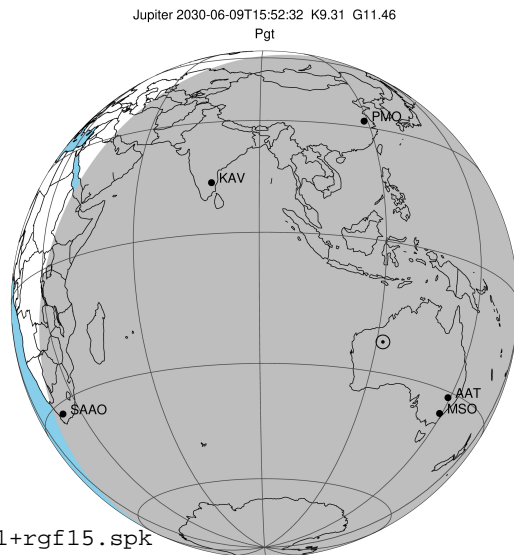


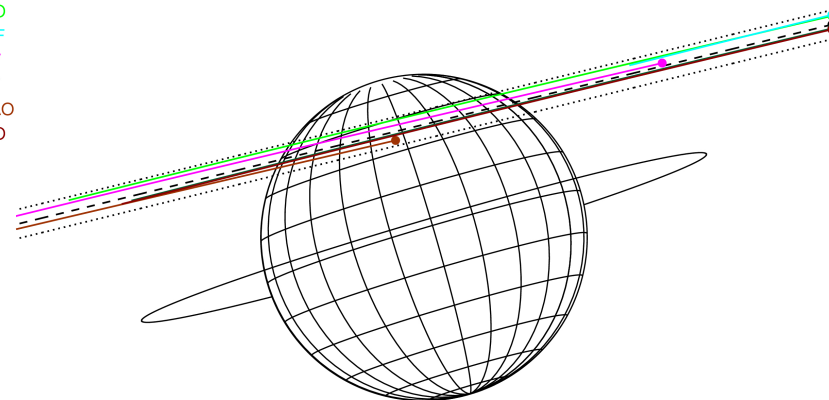
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2030-06-09T15:52:32.450
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6305881669865833216
 2Mass ID (if available) : 15080369-1625105

Jupiter 2030-06-09T15:52:32 K9.31 G11.46 Pgt

ICRS Star Coord at Epoch: 15h 08m 03.60855s -16:25:12.08552s
 RUWE (>1.4 is poor) : 2.22
 K magnitude : 9.309
 G magnitude : 11.456
 RP magnitude : 10.774
 BP magnitude : 11.976
 DUPflag : 0
 Distance (au) : 4.481
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.18
 Sun-Target sep (deg) : 150.68
 Sun-Moon sep (deg) : 54.58
 B (ring opening deg) : -3.23
 PA of pole (deg) : 16.45
 Pole direction: RA (deg): 268.05723
 Dec (deg): 64.49652
 C/A sky separation (") : 14.792
 C/A sky separation (km) : 48075.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



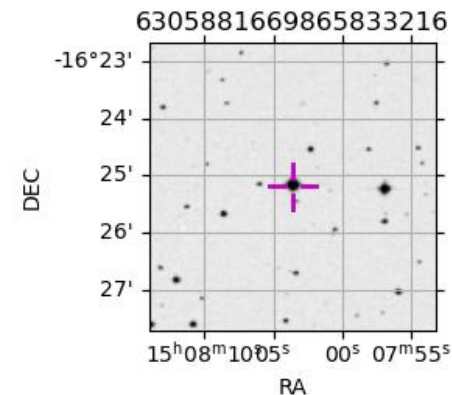
Earth
 PMO
 IRTF
 KAV
 AAT
 SAAO
 MSO



2030-06-09T15:52:32.4500 a: 15 08 03.6086 s: -16 25 12.086 C/A ***** PA 193.76 deg v_sky -13.18 km/s D 04.48 AU
 Credit: Styled after SORA/Lucky Star

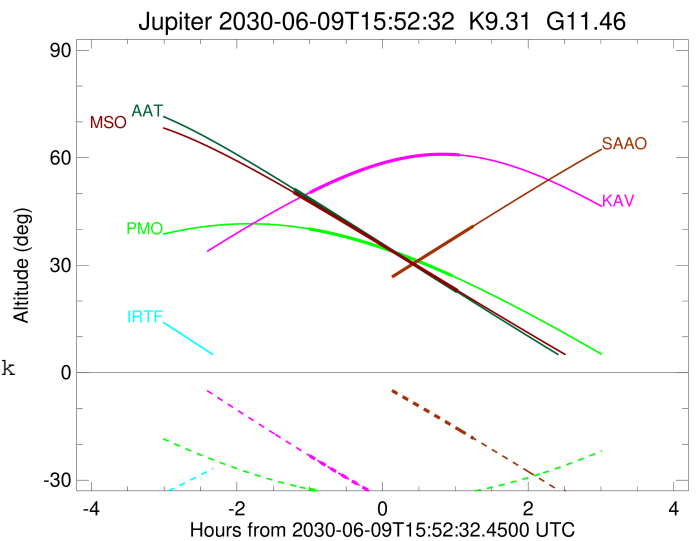
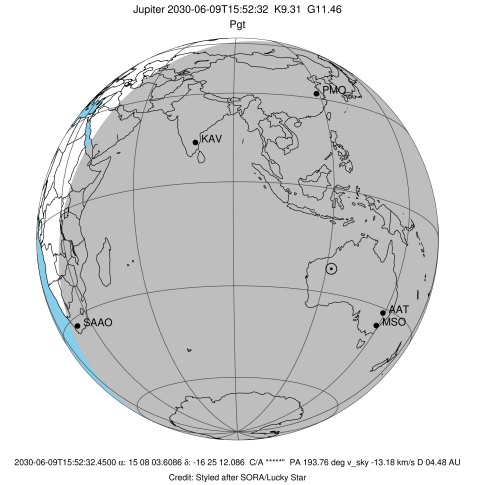
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUN 09 14:51 - JUN 09 16:49	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 09 14:52 - JUN 09 16:56	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 09 14:39 - JUN 09 16:53	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8		JUN 09 17:07 - JUN 09 17:07	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 09 14:39 - JUN 09 16:54	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-06-09T15:50:42.970
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       : 6305881669865833216
2Mass ID (if available) : 15080369-1625105
ICRS Star Coord at Epoch: 15h 08m 03.60855s -16:25:12.08552s
RUWE (>1.4 is poor) : 2.22
K magnitude          : 9.309
G magnitude          : 11.456
RP magnitude         : 10.774
BP magnitude         : 11.976
DUPflag             : 0
Distance (au)        : 4.481
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.18
Sun-Target sep (deg) : 150.68
Sun-Moon sep (deg)   : 55.20
B (ring opening deg) : -3.23
PA of pole (deg)     : 16.45
Pole direction: RA (deg): 268.05723
Dec (deg): 64.49652
C/A sky separation ("): 16.346
C/A sky separation (km): 53126.0
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
    
```

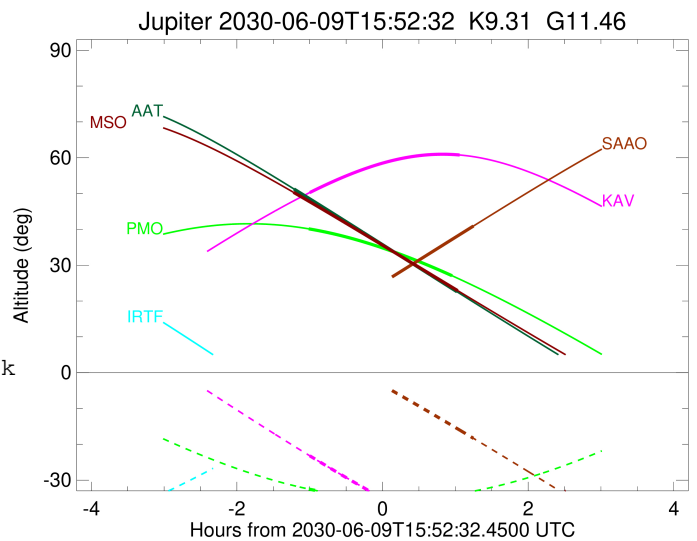
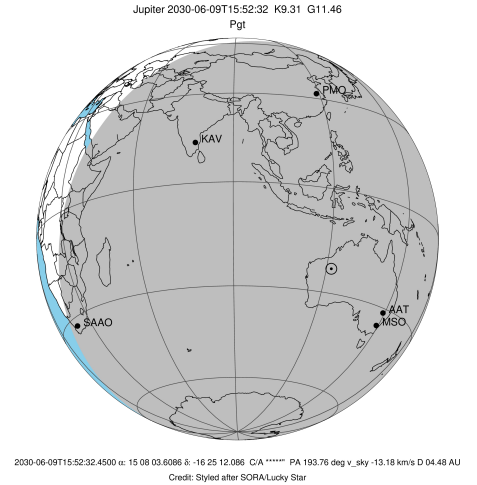


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-06-09T14:51:49.084	40.14	-32.49	71484.9	45.01	48.71
Jupiter	E	2030-06-09T16:49:49.758	27.06	-34.06	71483.5	50.64	54.21

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-06-09T15:54:25.120
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      : 6305881669865833216
2Mass ID (if available) : 15080369-1625105
ICRS Star Coord at Epoch: 15h 08m 03.60855s -16:25:12.08552s
RUWE (>1.4 is poor) : 2.22
K magnitude          : 9.309
G magnitude          : 11.456
RP magnitude         : 10.774
BP magnitude         : 11.976
DUPflag             : 0
Distance (au)       : 4.481
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.18
Sun-Target sep (deg) : 150.68
Sun-Moon sep (deg)  : 55.11
B (ring opening deg) : -3.23
PA of pole (deg)    : 16.45
Pole direction: RA (deg): 268.05723
Dec (deg): 64.49652
C/A sky separation ("): 15.613
C/A sky separation (km): 50745.2
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
    
```

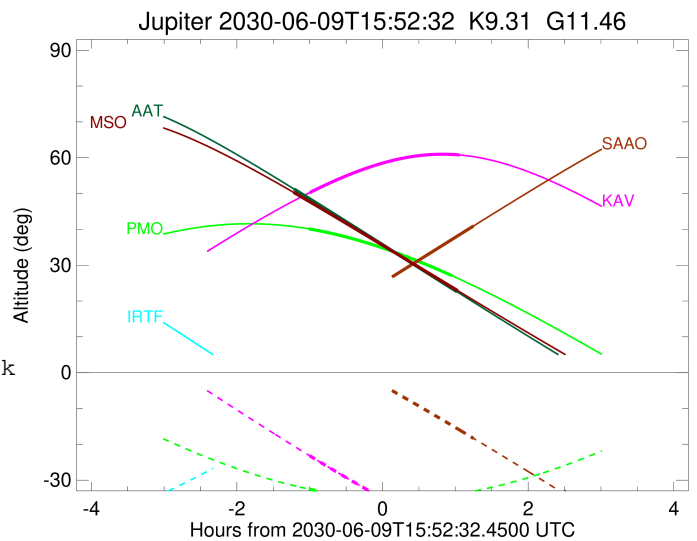
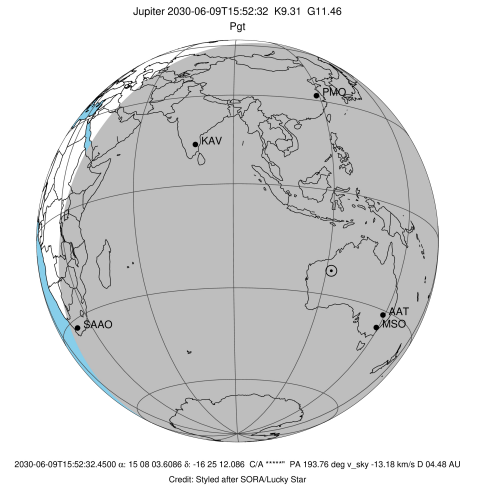


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-06-09T14:52:36.721	50.27	-23.20	71485.6	41.85	45.57
Jupiter	E	2030-06-09T16:56:08.227	60.76	-45.78	71484.1	48.30	51.94

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-06-09T15:46:27.180
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       : 6305881669865833216
2Mass ID (if available) : 15080369-1625105
ICRS Star Coord at Epoch: 15h 08m 03.60855s -16:25:12.08552s
RUWE (>1.4 is poor) : 2.22
K magnitude           : 9.309
G magnitude           : 11.456
RP magnitude         : 10.774
BP magnitude         : 11.976
DUPflag              : 0
Distance (au)        : 4.481
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.18
Sun-Target sep (deg) : 150.68
Sun-Moon sep (deg)  : 55.47
B (ring opening deg) : -3.23
PA of pole (deg)    : 16.45
Pole direction: RA (deg): 268.05723
Dec (deg): 64.49652
C/A sky separation ("): 14.435
C/A sky separation (km): 46915.8
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
    
```

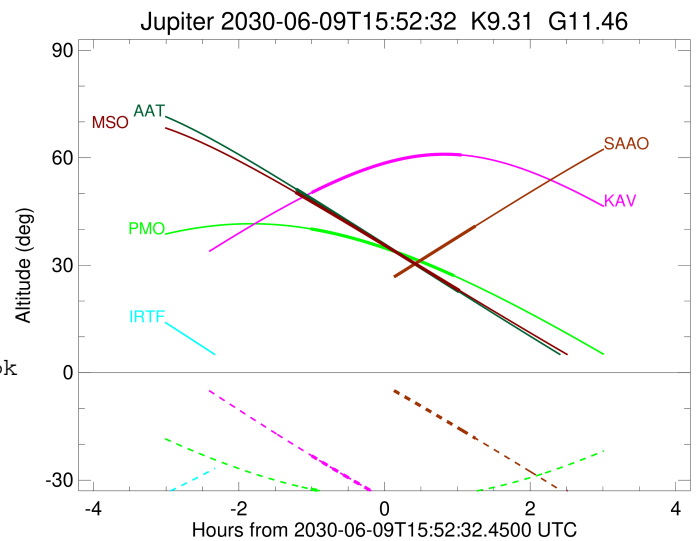
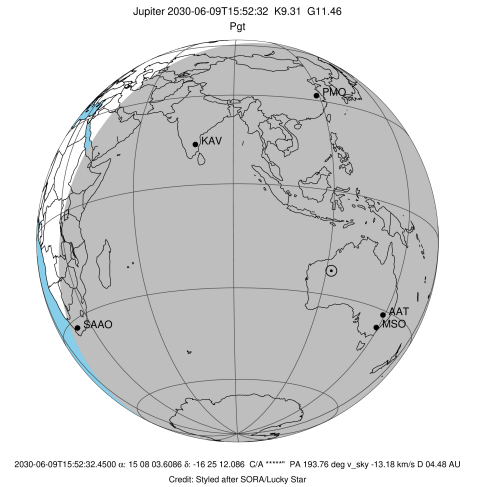


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-06-09T14:39:35.893	51.27	-78.50	71486.5	38.34	42.02
Jupiter	E	2030-06-09T16:53:48.377	22.61	-51.37	71485.3	43.37	47.08

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2030-06-09T15:57:21.770
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        : 6305881669865833216
2Mass ID (if available) : 15080369-1625105
ICRS Star Coord at Epoch: 15h 08m 03.60855s -16:25:12.08552s
RUWE (>1.4 is poor)  : 2.22
K magnitude           : 9.309
G magnitude           : 11.456
RP magnitude          : 10.774
BP magnitude          : 11.976
DUPflag              : 0
Distance (au)         : 4.481
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -13.18
Sun-Target sep (deg)  : 150.68
Sun-Moon sep (deg)    : 54.51
B (ring opening deg)  : -3.23
PA of pole (deg)      : 16.45
Pole direction: RA (deg): 268.05723
Dec (deg): 64.49652
C/A sky separation (") : 13.616
C/A sky separation (km) : 44254.4
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
    
```

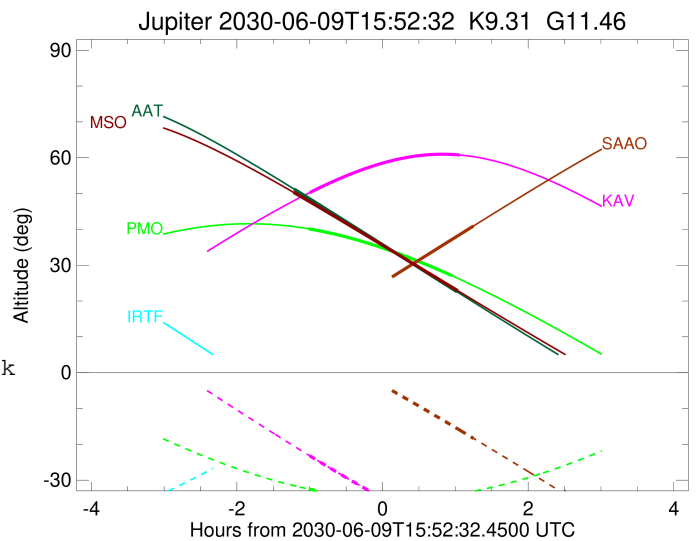
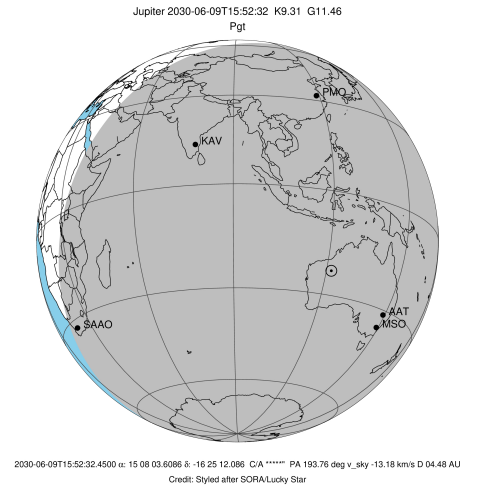


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-06-09T14:46:43.182	11.25	8.62x	71487.3	34.96	38.55
Jupiter	E	2030-06-09T17:07:29.414	40.93	-18.32	71485.8	41.46	45.17

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-06-09T15:46:34.710
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       : 6305881669865833216
2Mass ID (if available) : 15080369-1625105
ICRS Star Coord at Epoch: 15h 08m 03.60855s -16:25:12.08552s
RUWE (>1.4 is poor) : 2.22
K magnitude          : 9.309
G magnitude          : 11.456
RP magnitude         : 10.774
BP magnitude         : 11.976
DUPflag             : 0
Distance (au)        : 4.481
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.18
Sun-Target sep (deg) : 150.68
Sun-Moon sep (deg)   : 55.46
B (ring opening deg) : -3.23
PA of pole (deg)     : 16.45
Pole direction: RA (deg): 268.05723
Dec (deg): 64.49652
C/A sky separation (") : 14.301
C/A sky separation (km) : 46480.9
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	2030-06-09T14:39:12.155	50.34	-75.53	71486.6	37.87	41.55
Jupiter	E	2030-06-09T16:54:26.442	22.91	-51.01	71485.4	42.92	46.64