

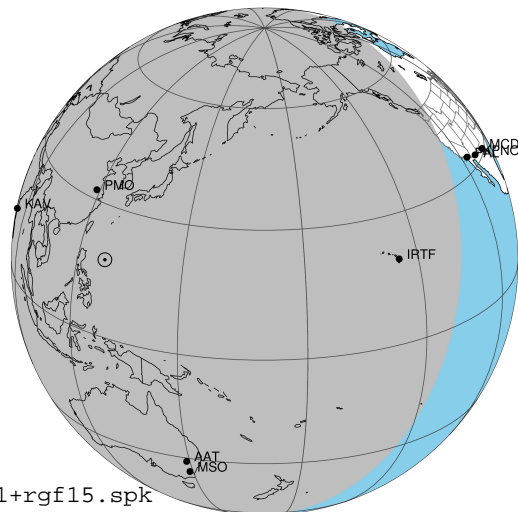
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2048-11-12T15:09:29.390
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3424726004646574592
 2Mass ID (if available) : 05565879+2256457

Jupiter 2048-11-12T15:09:29 K8.64 G11.61 Pgt

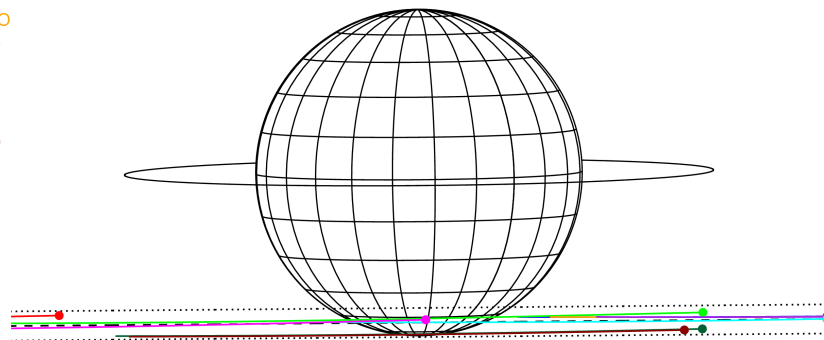
ICRS Star Coord at Epoch: 05h 56m 58.80493s +22:56:45.45020s

RUWE (>1.4 is poor) : 0.94
 K magnitude : 8.639
 G magnitude : 11.614
 RP magnitude : 10.747
 BP magnitude : 12.403
 DUPflag : 0
 Distance (au) : 4.287
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -10.46
 Sun-Target sep (deg) : 140.92
 Sun-Moon sep (deg) : 131.81
 B (ring opening deg) : 2.55
 PA of pole (deg) : 0.51
 Pole direction: RA (deg): 268.05736
 Dec (deg): 64.49721
 C/A sky separation (") : 21.131
 C/A sky separation (km) : 65707.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2048-11-12T15:09:29 K8.64 G11.61
 Pgt



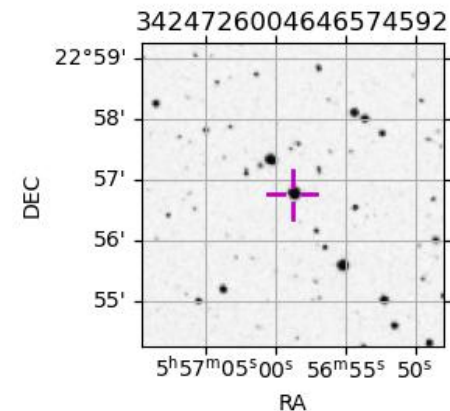
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 AAT
 MSO



2048-11-12T15:09:29.3900 α: 05 56 58.8049 β: +22 56 45.450 C/A ***** PA 0.49 deg v_sky -10.46 km/s D 04.29 AU
 Credit: Styled after SORA/Lucky Star

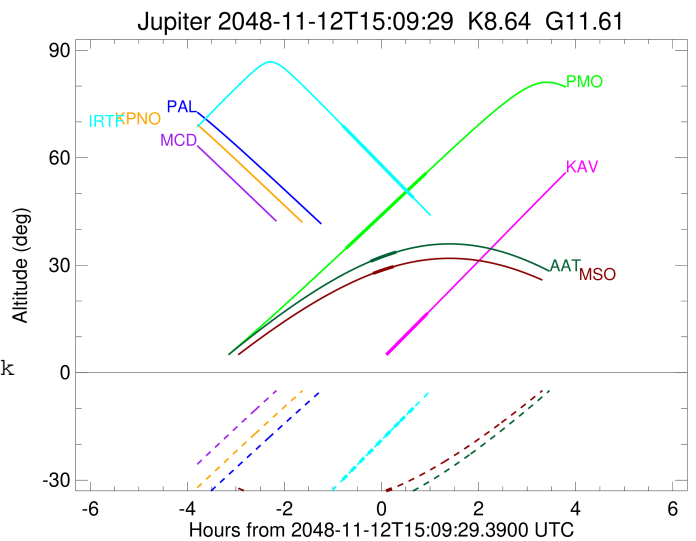
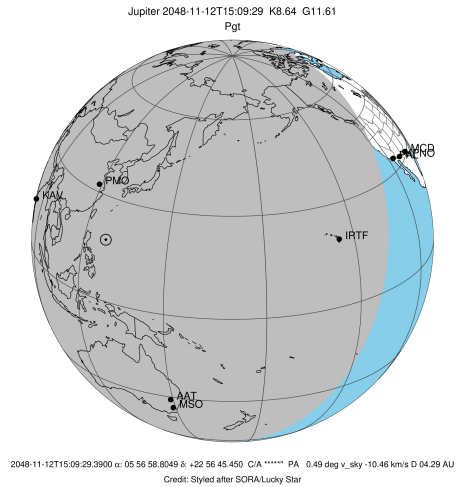
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	NOV 12 14:25 - NOV 12 16:04	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	+ +	NOV 12 14:21 - NOV 12 15:48	Pie
KAV	Kavalur Observatory	12.6	78.8	+ +	NOV 12 16:06 - NOV 12 16:06	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	+ +	NOV 12 14:56 - NOV 12 15:27	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	NOV 12 14:59 - NOV 12 15:24	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-11-12T15:15:02.230
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      : 3424726004646574592
2Mass ID (if available) : 05565879+2256457
ICRS Star Coord at Epoch: 05h 56m 58.80493s +22:56:45.45020s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.639
G magnitude          : 11.614
RP magnitude         : 10.747
BP magnitude         : 12.403
DUPflag             : 0
Distance (au)       : 4.287
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -10.46
Sun-Target sep (deg) : 140.92
Sun-Moon sep (deg)  : 132.76
B (ring opening deg) : 2.55
PA of pole (deg)    : 0.51
Pole direction: RA (deg): 268.05736
Dec (deg): 64.49721
C/A sky separation (") : 20.590
C/A sky separation (km) : 64025.4
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
    
```

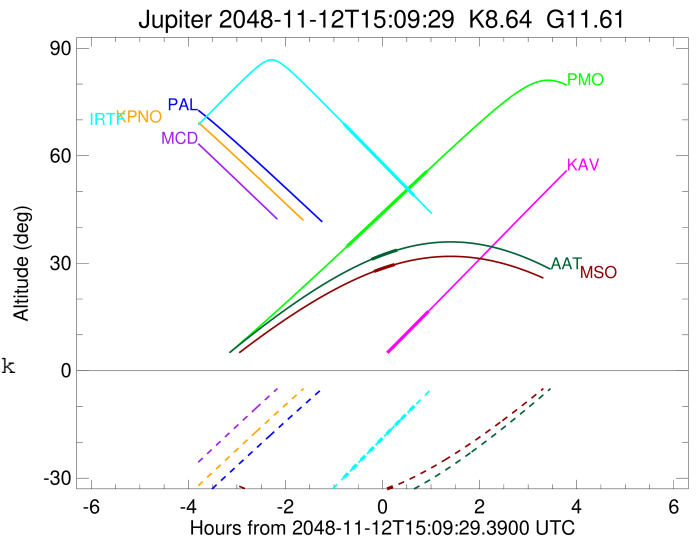
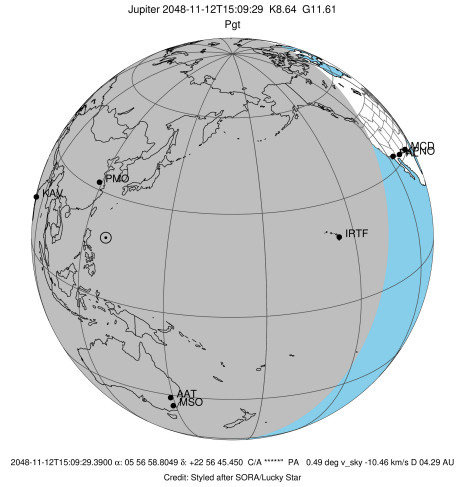


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-11-12T14:25:19.585	34.62	-66.58	71485.0	-62.83	-65.68
Jupiter	E	2048-11-12T16:04:24.705	55.66	-75.66	71484.8	-64.00	-66.76

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-11-12T15:05:11.600
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : IRTF
Location            : Mauna Kea/IRTF
Latitude (deg)      : 19.82622
E. Longitude (deg)  : 204.52800
Altitude (km)       : 4.168
Gaia source ID      : 3424726004646574592
2Mass ID (if available) : 05565879+2256457
ICRS Star Coord at Epoch: 05h 56m 58.80493s +22:56:45.45020s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.639
G magnitude          : 11.614
RP magnitude         : 10.747
BP magnitude         : 12.403
DUPflag             : 0
Distance (au)       : 4.287
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.46
Sun-Target sep (deg) : 140.92
Sun-Moon sep (deg)  : 132.08
B (ring opening deg) : 2.55
PA of pole (deg)    : 0.51
Pole direction: RA (deg): 268.05736
Dec (deg): 64.49721
C/A sky separation ("): 21.109
C/A sky separation (km): 65641.1
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
    
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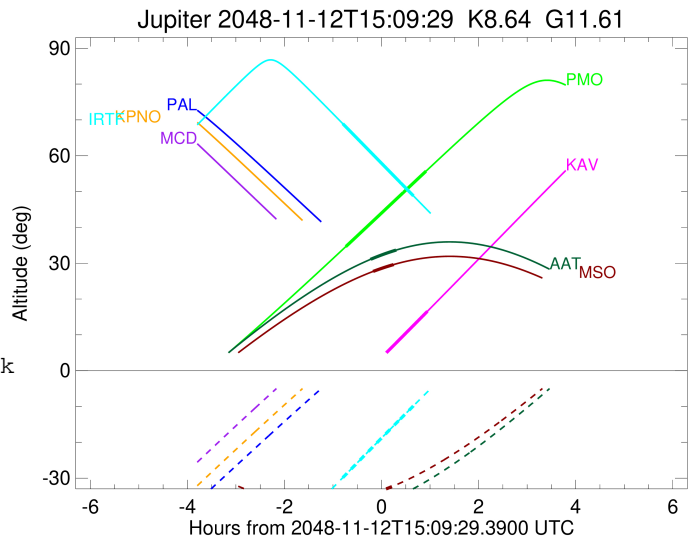
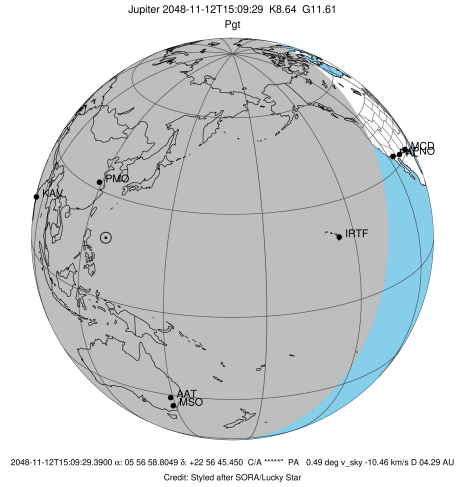


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-11-12T14:21:33.393	68.95	-29.88	71484.5	-67.00	-69.51
Jupiter	E	2048-11-12T15:48:57.999	48.78	-9.82	71484.6	-65.94	-68.53

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-11-12T15:17:41.730
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       : 3424726004646574592
2Mass ID (if available) : 05565879+2256457
ICRS Star Coord at Epoch: 05h 56m 58.80493s +22:56:45.45020s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.639
G magnitude           : 11.614
RP magnitude          : 10.747
BP magnitude          : 12.403
DUPflag              : 0
Distance (au)         : 4.287
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -10.46
Sun-Target sep (deg) : 140.92
Sun-Moon sep (deg)   : 132.51
B (ring opening deg) : 2.55
PA of pole (deg)     : 0.51
Pole direction: RA (deg): 268.05736
Dec (deg): 64.49721
C/A sky separation ("): 20.763
C/A sky separation (km): 64563.1
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
    
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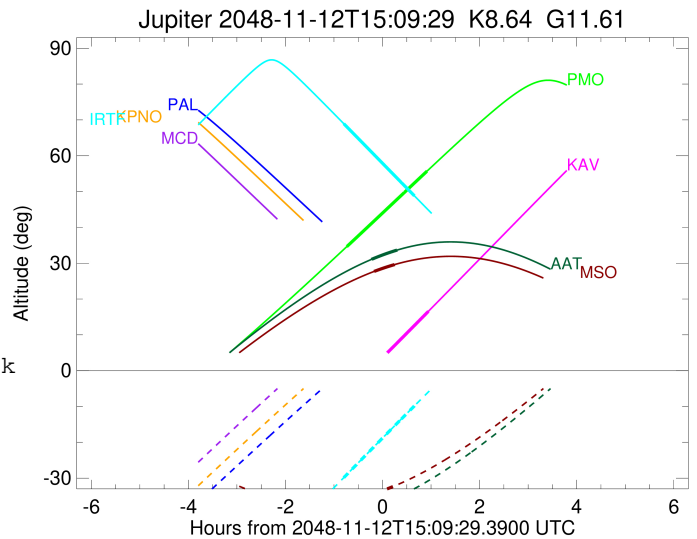
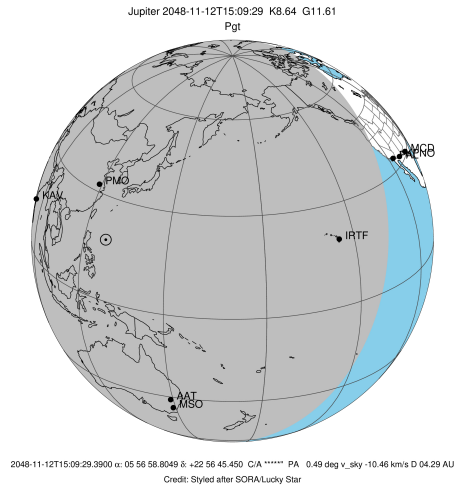


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-11-12T14:28:36.813	-5.51x	-32.04	71484.9	-63.51	-66.31
Jupiter	E	2048-11-12T16:06:18.079	16.58	-55.25	71484.7	-65.39	-68.03

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2048-11-12T15:11:54.580
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        : 3424726004646574592
2Mass ID (if available) : 05565879+2256457
ICRS Star Coord at Epoch: 05h 56m 58.80493s +22:56:45.45020s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.639
G magnitude           : 11.614
RP magnitude          : 10.747
BP magnitude          : 12.403
DUPflag              : 0
Distance (au)         : 4.287
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -10.46
Sun-Target sep (deg) : 140.92
Sun-Moon sep (deg)   : 132.34
B (ring opening deg) : 2.55
PA of pole (deg)     : 0.51
Pole direction: RA (deg): 268.05736
Dec (deg): 64.49721
C/A sky separation (") : 22.756
C/A sky separation (km) : 70759.3
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
    
```

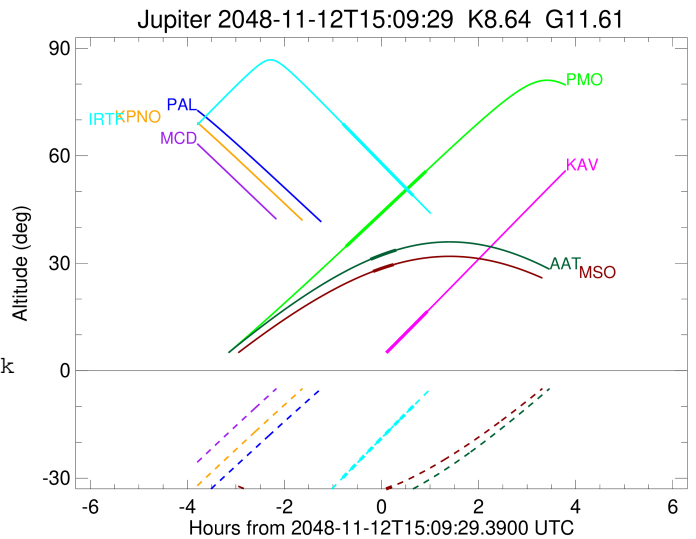
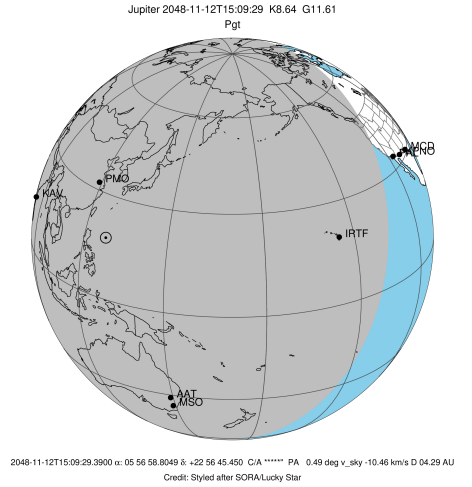


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-11-12T14:56:14.564	31.09	-38.24	71483.3	-81.20	-82.23
Jupiter	E	2048-11-12T15:27:33.507	33.66	-35.38	71483.3	-81.66	-82.63

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-11-12T15:11:47.810
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       : 3424726004646574592
2Mass ID (if available) : 05565879+2256457
ICRS Star Coord at Epoch: 05h 56m 58.80493s +22:56:45.45020s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.639
G magnitude          : 11.614
RP magnitude         : 10.747
BP magnitude         : 12.403
DUPflag             : 0
Distance (au)        : 4.287
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.46
Sun-Target sep (deg) : 140.92
Sun-Moon sep (deg)  : 132.29
B (ring opening deg) : 2.55
PA of pole (deg)    : 0.51
Pole direction: RA (deg): 268.05736
Dec (deg): 64.49721
C/A sky separation (") : 22.837
C/A sky separation (km) : 71011.9
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	2048-11-12T14:59:07.692	27.70	-34.27	71483.3	-82.71	-83.56
Jupiter	E	2048-11-12T15:24:27.225	29.61	-32.17	71483.3	-83.14	-83.95