

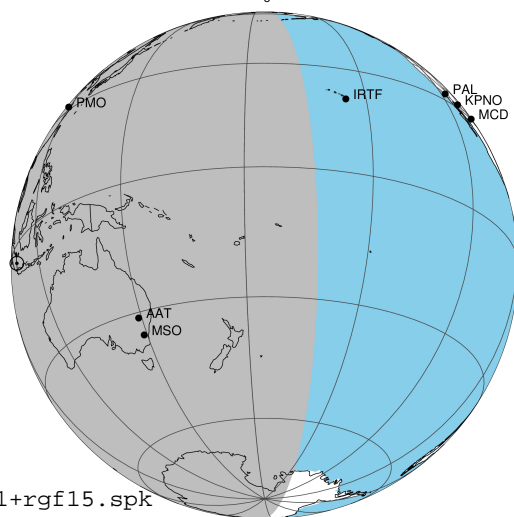
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-31T17:00:03.850
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068702719548635520
 2Mass ID (if available) : 17521217-2253116

Jupiter 2031-03-31T17:00:03 K8.38 G14.50 Pgt

ICRS Star Coord at Epoch: 17h 52m 12.16835s -22:53:11.63424s

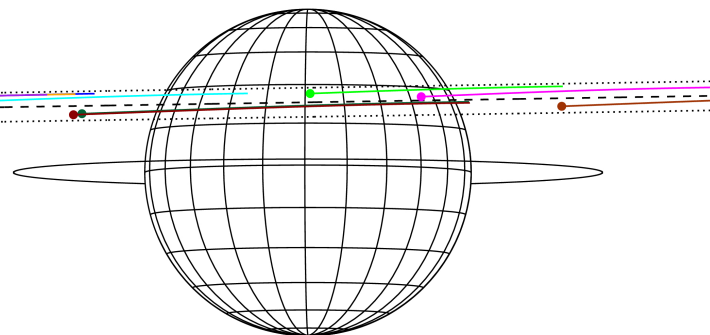
RUWE (>1.4 is poor) : 0.94
 K magnitude : 8.384
 G magnitude : 14.504
 RP magnitude : 13.028
 BP magnitude : 17.476
 DUPflag : 0
 Distance (au) : 5.005
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 6.88
 Sun-Target sep (deg) : 102.15
 Sun-Moon sep (deg) : 160.13
 B (ring opening deg) : -2.62
 PA of pole (deg) : 0.00
 Pole direction: RA (deg): 268.05698
 Dec (deg): 64.49651
 C/A sky separation (") : 8.469
 C/A sky separation (km) : 30739.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-31T17:00:03 K8.38 G14.50
 Pgt



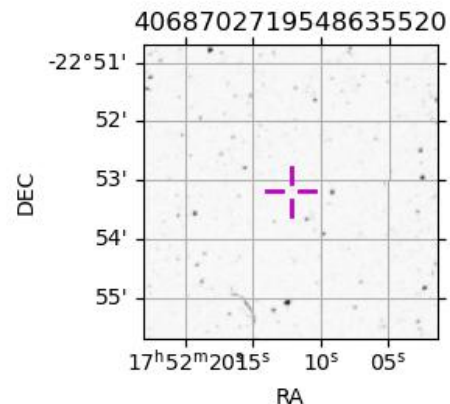
2031-03-31T17:00:03.8500 or: 17 52 12.1684 s: -22 53 11.634 C/A 8.458" PA 180.92 deg v_sky + 6.88 km/s D 05.00 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 ESO
 AAT
 SAAO
 MSO



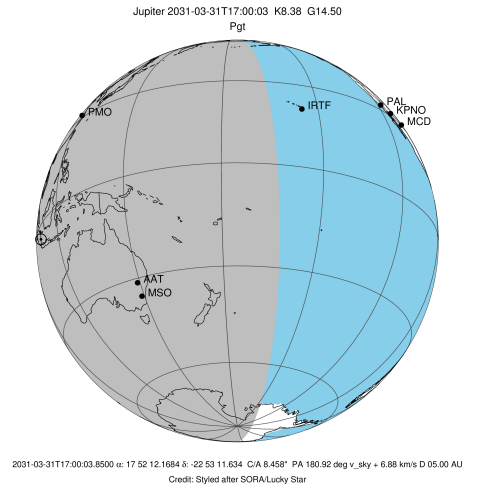
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAR 31 19:24 - MAR 31 19:24	Pne
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	+	MAR 31 14:24 - MAR 31 14:24	Pin
KAV	Kavalur Observatory	12.6	78.8	+	MAR 31 19:20 - MAR 31 19:20	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	+	MAR 31 14:08 - MAR 31 19:39	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAR 31 14:08 - MAR 31 19:39	Pie

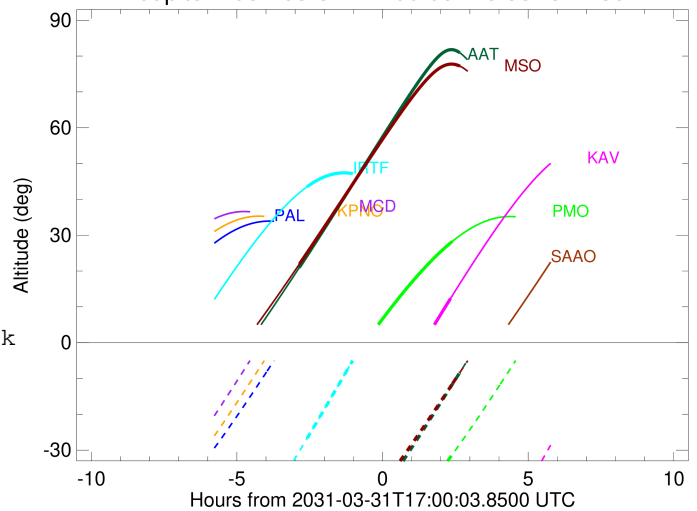


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-31T16:45:53.000
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 4068702719548635520
2Mass ID (if available) : 17521217-2253116
ICRS Star Coord at Epoch: 17h 52m 12.16835s -22:53:11.63424s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.384
G magnitude           : 14.504
RP magnitude          : 13.028
BP magnitude          : 17.476
DUPflag              : 0
Distance (au)        : 5.005
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 6.88
Sun-Target sep (deg) : 102.15
Sun-Moon sep (deg)  : 160.72
B (ring opening deg) : -2.62
PA of pole (deg)    : 0.00
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 9.512
C/A sky separation (km) : 34526.7
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
    
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Jupiter 2031-03-31T17:00:03 K8.38 G14.50

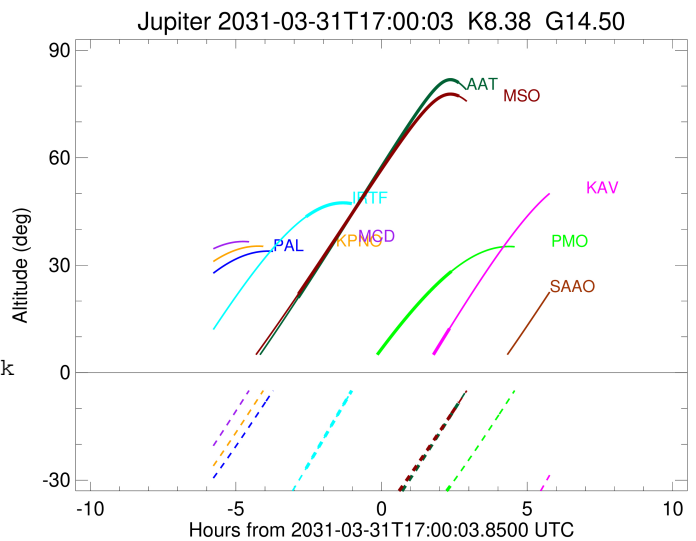
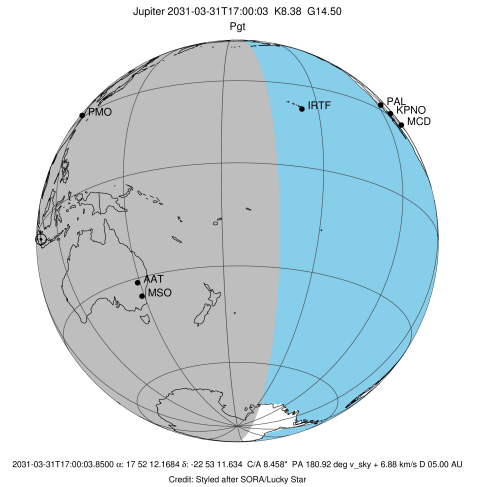


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-31T14:14:42.226	-25.95x	-44.82	71490.1	26.68	29.84
Jupiter	E	2031-03-31T19:24:05.326	28.28	-31.19	71489.5	30.78	34.19

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-31T17:05:59.210
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       : 4068702719548635520
2Mass ID (if available) : 17521217-2253116
ICRS Star Coord at Epoch: 17h 52m 12.16835s -22:53:11.63424s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.384
G magnitude           : 14.504
RP magnitude          : 13.028
BP magnitude          : 17.476
DUPflag              : 0
Distance (au)        : 5.005
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 6.88
Sun-Target sep (deg) : 102.15
Sun-Moon sep (deg)   : 159.98
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.00
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 9.622
C/A sky separation (km) : 34925.5
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
    
```

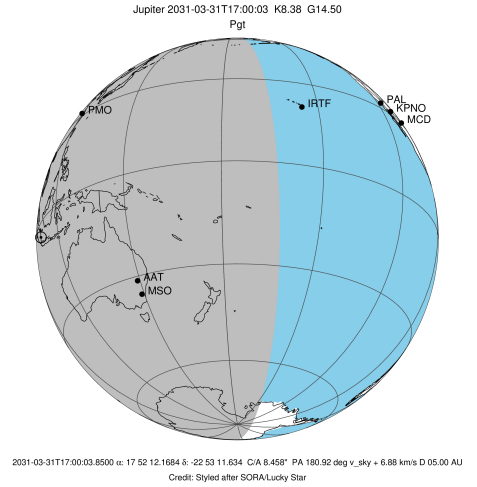


x: target alt < 5.0 deg or sun > -5.0 deg

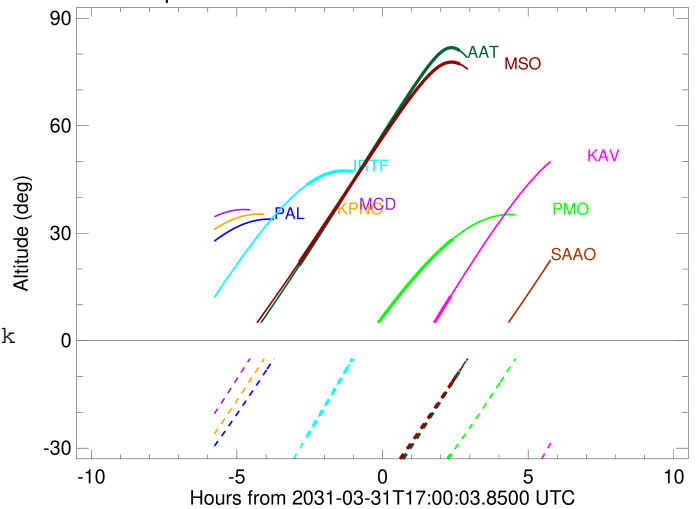
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-31T14:24:38.007	43.52	-26.73	71489.9	28.28	31.54
Jupiter	E	2031-03-31T19:45:55.809	16.44	48.10x	71489.8	29.19	32.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-31T16:44:06.330
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       : 4068702719548635520
2Mass ID (if available) : 17521217-2253116
ICRS Star Coord at Epoch: 17h 52m 12.16835s -22:53:11.63424s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.384
G magnitude           : 14.504
RP magnitude          : 13.028
BP magnitude          : 17.476
DUPflag              : 0
Distance (au)         : 5.005
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 6.88
Sun-Target sep (deg) : 102.15
Sun-Moon sep (deg)   : 160.81
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.00
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 8.574
C/A sky separation (km) : 31124.6
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
    
```



Jupiter 2031-03-31T17:00:03 K8.38 G14.50

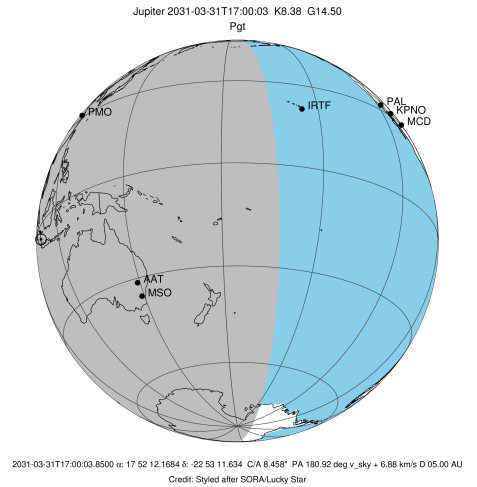


x: target alt < 5.0 deg or sun > -5.0 deg

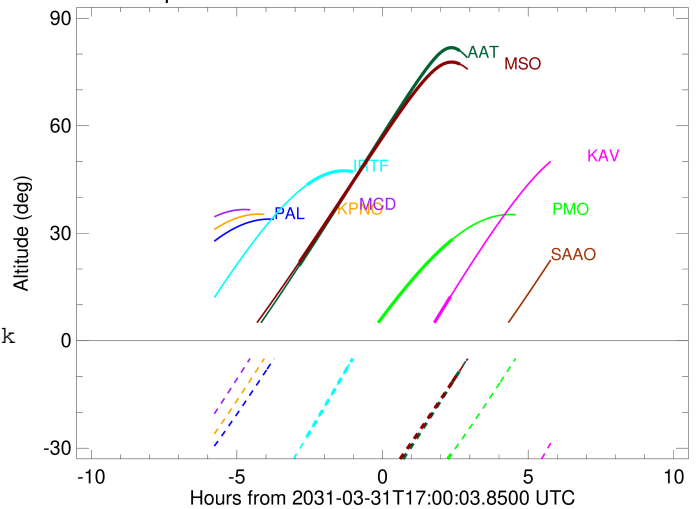
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-31T14:15:17.294	-57.07x	-20.04	71490.5	23.81	26.74
Jupiter	E	2031-03-31T19:20:14.052	12.34	-71.47	71489.9	28.14	31.39

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-31T16:50:55.440
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       : 4068702719548635520
2Mass ID (if available) : 17521217-2253116
ICRS Star Coord at Epoch: 17h 52m 12.16835s -22:53:11.63424s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.384
G magnitude           : 14.504
RP magnitude          : 13.028
BP magnitude          : 17.476
DUPflag              : 0
Distance (au)        : 5.005
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 6.88
Sun-Target sep (deg) : 102.15
Sun-Moon sep (deg)   : 160.83
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.00
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 8.084
C/A sky separation (km) : 29343.2
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
    
```



Jupiter 2031-03-31T17:00:03 K8.38 G14.50

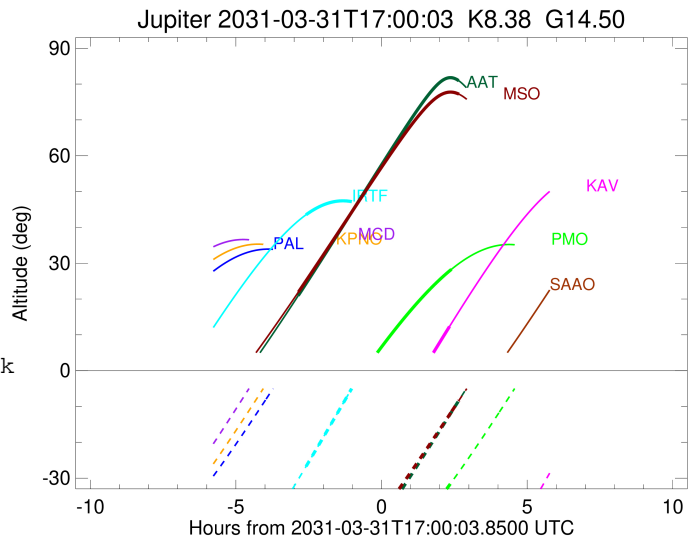
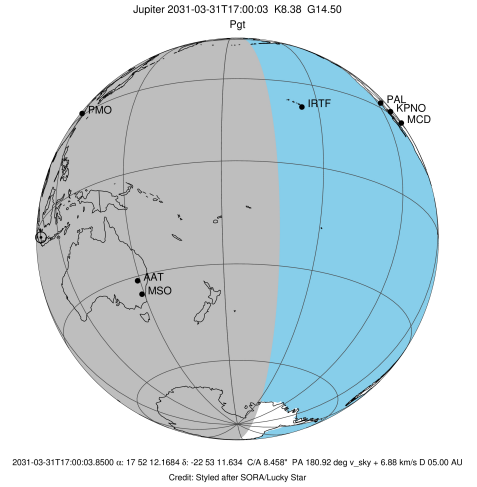


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-31T14:08:37.270	20.96	-63.12	71490.7	22.17	24.96
Jupiter	E	2031-03-31T19:39:07.659	80.94	-8.38	71490.3	25.55	28.62

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-31T16:51:22.740
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       : 4068702719548635520
2Mass ID (if available) : 17521217-2253116
ICRS Star Coord at Epoch: 17h 52m 12.16835s -22:53:11.63424s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.384
G magnitude          : 14.504
RP magnitude         : 13.028
BP magnitude         : 17.476
DUPflag             : 0
Distance (au)        : 5.005
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 6.88
Sun-Target sep (deg) : 102.15
Sun-Moon sep (deg)   : 160.82
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.00
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 7.969
C/A sky separation (km) : 28925.3
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	2031-03-31T14:08:50.700	21.94	-59.09	71490.7	21.86	24.61
Jupiter	E	2031-03-31T19:39:35.976	77.18	-8.31	71490.3	25.16	28.20