

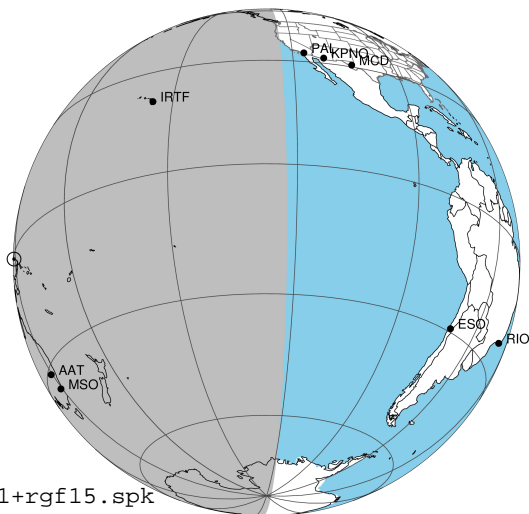
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-03-23T14:16:28.200  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4068898466921764224  
 2Mass ID (if available) : 17501059-2253040

Jupiter 2031-03-23T14:16:28 K6.99 G10.57 Pgt

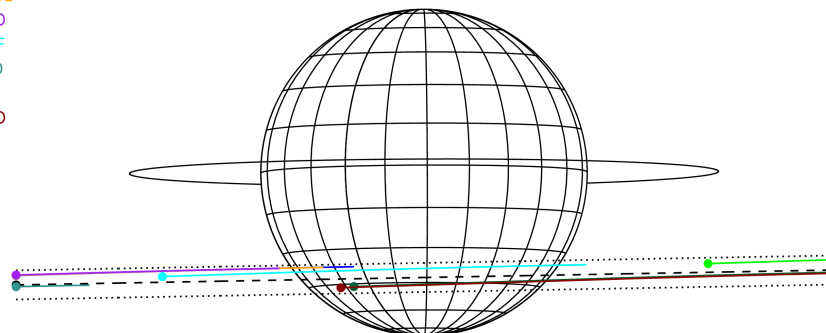
ICRS Star Coord at Epoch: 17h 50m 10.59073s -22:53:03.99424s

RUWE (>1.4 is poor) : 1.12  
 K magnitude : 6.986  
 G magnitude : 10.571  
 RP magnitude : 9.561  
 BP magnitude : 11.620  
 DUPflag : 0  
 Distance (au) : 5.135  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 10.76  
 Sun-Target sep (deg) : 94.58  
 Sun-Moon sep (deg) : 99.96  
 B (ring opening deg) : -2.62  
 PA of pole (deg) : 0.22  
 Pole direction: RA (deg): 268.05699  
 Dec (deg): 64.49651  
 C/A sky separation (") : 12.348  
 C/A sky separation (km) : 45984.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-03-23T14:16:28 K6.99 G10.57  
 Pgt



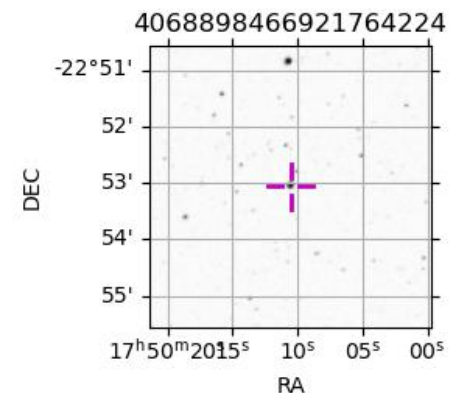
Earth  
 PAL  
 PMO  
 KPNO  
 MCD  
 IRTF  
 ESO  
 AAT  
 MSO



2031-03-23T14:16:28.2000 α: 17 50 10.5907 δ: -22 53 03.994 C/A \*\*\*\*\* PA 1.05 deg v\_sky +10.76 km/s D 05.13 AU  
 Credit: Styled after SORA/Lucky Star

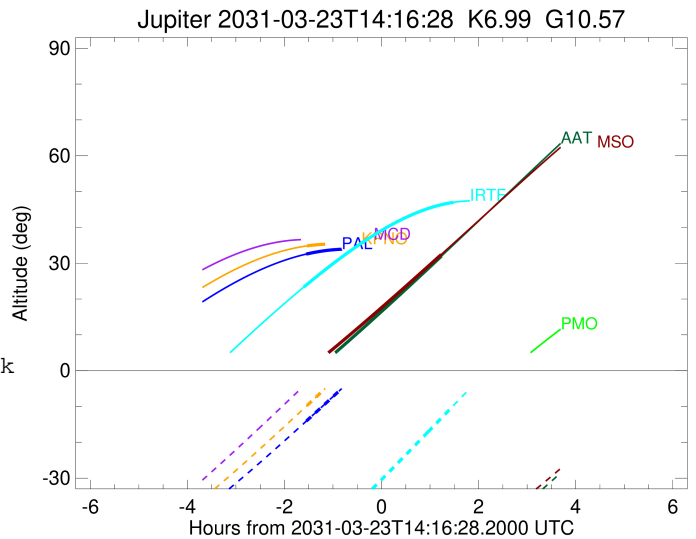
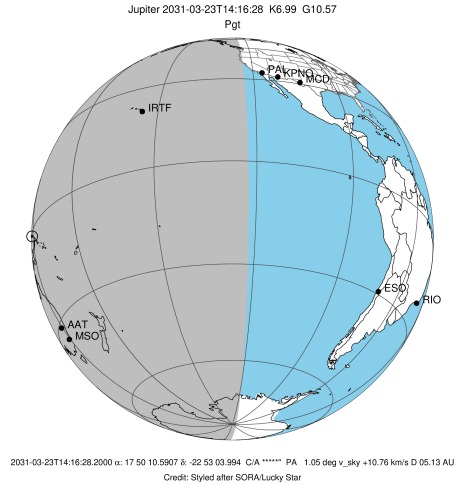
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAR 23 12:43 - MAR 23 12:43	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 23 12:44 - MAR 23 12:44	Pin
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 23 12:40 - MAR 23 15:45	Pie
KAV	Kavalur Observatory	12.6	78.8			Pnn
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 23 15:30 - MAR 23 15:30	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAR 23 15:30 - MAR 23 15:30	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-23T14:17:42.690
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4068898466921764224
2Mass ID (if available) : 17501059-2253040
ICRS Star Coord at Epoch: 17h 50m 10.59073s -22:53:03.99424s
RUWE (>1.4 is poor) : 1.12
K magnitude          : 6.986
G magnitude          : 10.571
RP magnitude         : 9.561
BP magnitude         : 11.620
DUPflag             : 0
Distance (au)        : 5.135
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.76
Sun-Target sep (deg) : 94.58
Sun-Moon sep (deg)   : 100.51
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.22
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation ("): 10.933
C/A sky separation (km): 40717.1
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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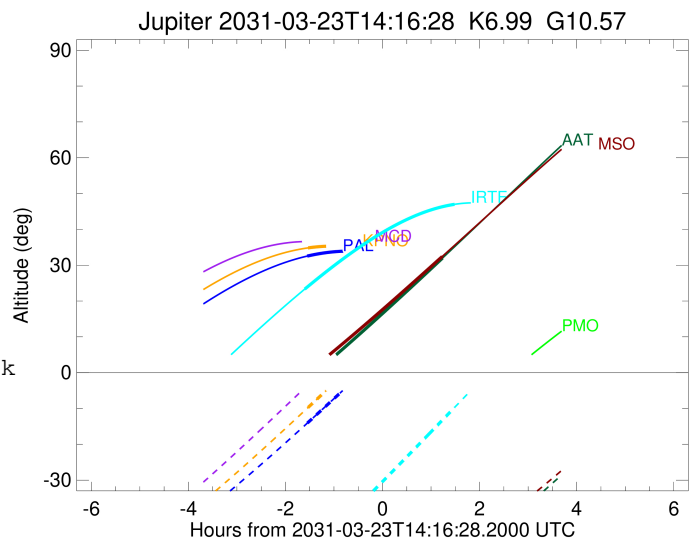
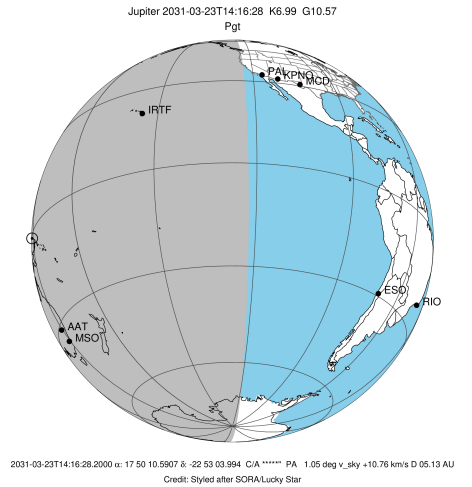


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-23T12:43:41.578	32.55	-14.05	71488.8	-35.55	-39.17
Jupiter	E	2031-03-23T15:51:47.379	25.24	24.96x	71489.0	-34.14	-37.71

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-23T14:18:25.440
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4068898466921764224
2Mass ID (if available) : 17501059-2253040
ICRS Star Coord at Epoch: 17h 50m 10.59073s -22:53:03.99424s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 6.986
G magnitude           : 10.571
RP magnitude          : 9.561
BP magnitude          : 11.620
DUPflag              : 0
Distance (au)        : 5.135
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.76
Sun-Target sep (deg) : 94.58
Sun-Moon sep (deg)   : 100.53
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.22
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation (") : 10.967
C/A sky separation (km) : 40842.6
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
    
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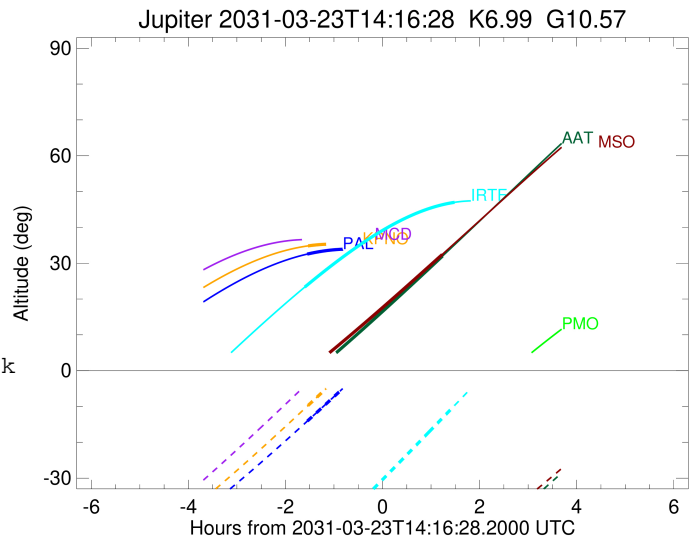
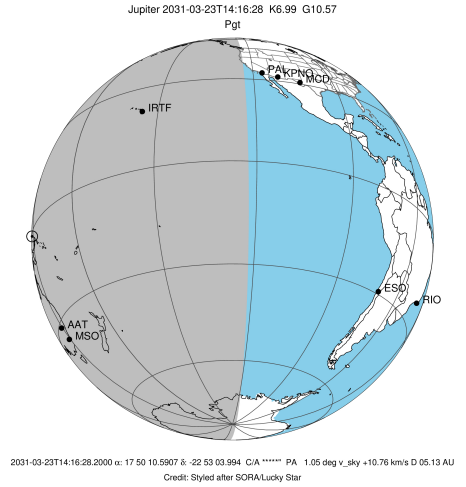


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-23T12:44:29.792	34.83	-9.71	71488.8	-35.60	-39.21
Jupiter	E	2031-03-23T15:52:16.696	23.59	29.71x	71489.0	-34.34	-37.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-23T14:12:21.400
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        : 4068898466921764224
2Mass ID (if available) : 17501059-2253040
ICRS Star Coord at Epoch: 17h 50m 10.59073s -22:53:03.99424s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 6.986
G magnitude           : 10.571
RP magnitude          : 9.561
BP magnitude          : 11.620
DUPflag              : 0
Distance (au)         : 5.135
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.76
Sun-Target sep (deg)  : 94.58
Sun-Moon sep (deg)   : 100.49
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.22
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation (") : 11.282
C/A sky separation (km) : 42016.3
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
    
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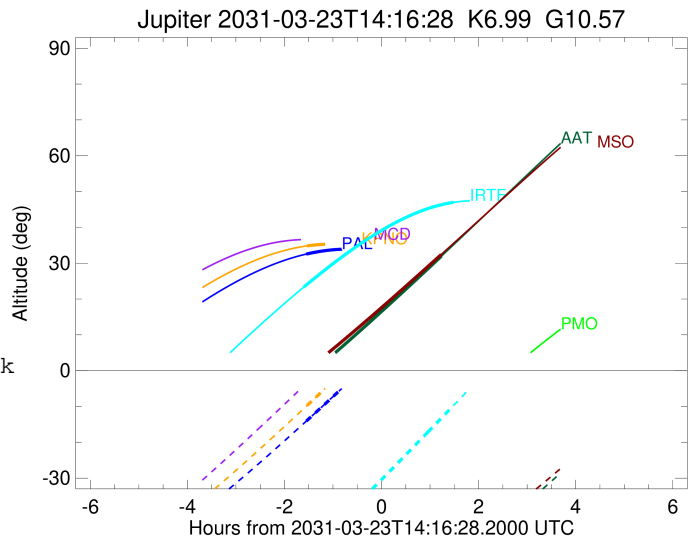
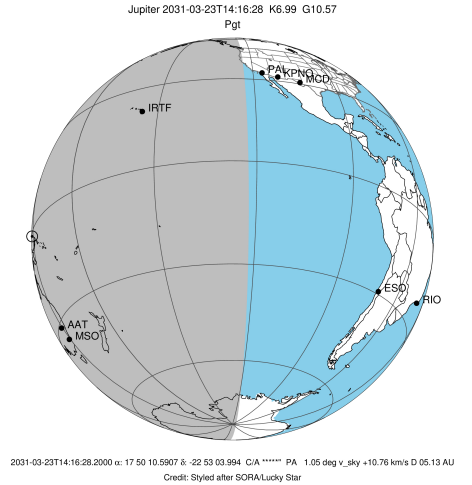


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-23T12:40:20.161	23.32	-51.58	71488.5	-37.41	-41.08
Jupiter	E	2031-03-23T15:45:24.712	46.98	-9.74	71488.9	-34.81	-38.40

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-23T14:09:12.240
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        : 4068898466921764224
2Mass ID (if available) : 17501059-2253040
ICRS Star Coord at Epoch: 17h 50m 10.59073s -22:53:03.99424s
RUWE (>1.4 is poor)  : 1.12
K magnitude           : 6.986
G magnitude           : 10.571
RP magnitude          : 9.561
BP magnitude          : 11.620
DUPflag              : 0
Distance (au)         : 5.135
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 10.76
Sun-Target sep (deg)  : 94.58
Sun-Moon sep (deg)    : 100.08
B (ring opening deg)  : -2.62
PA of pole (deg)      : 0.22
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation (") : 13.143
C/A sky separation (km) : 48947.7
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
    
```

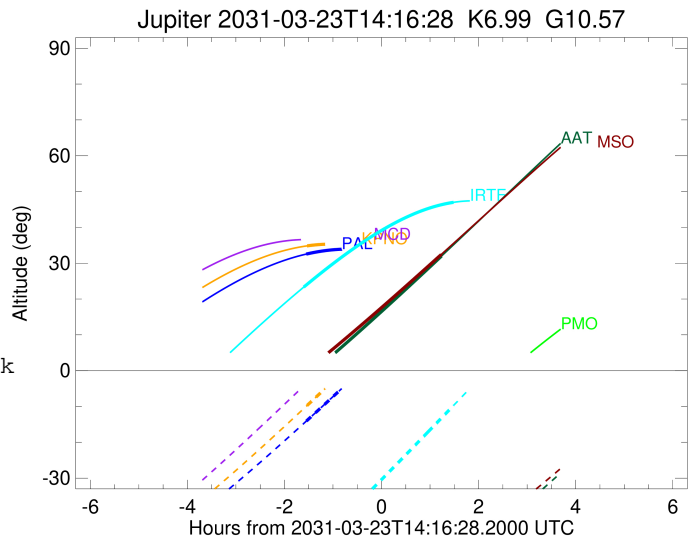
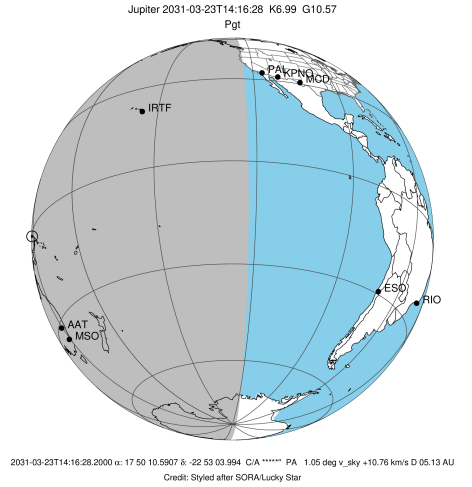


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-23T12:48:57.807	-0.86x	-54.33	71487.3	-44.79	-48.49
Jupiter	E	2031-03-23T15:30:39.761	31.99	-54.50	71487.9	-41.53	-45.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-23T14:09:33.050
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       : 4068898466921764224
2Mass ID (if available) : 17501059-2253040
ICRS Star Coord at Epoch: 17h 50m 10.59073s -22:53:03.99424s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 6.986
G magnitude           : 10.571
RP magnitude          : 9.561
BP magnitude          : 11.620
DUPflag              : 0
Distance (au)        : 5.135
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.76
Sun-Target sep (deg) : 94.58
Sun-Moon sep (deg)   : 100.11
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.22
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation ("): 13.236
C/A sky separation (km): 49294.7
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	2031-03-23T12:49:47.789	1.12x	-51.09	71487.3	-45.13	-48.83
Jupiter	E	2031-03-23T15:30:27.774	32.46	-51.23	71487.8	-41.94	-45.66