

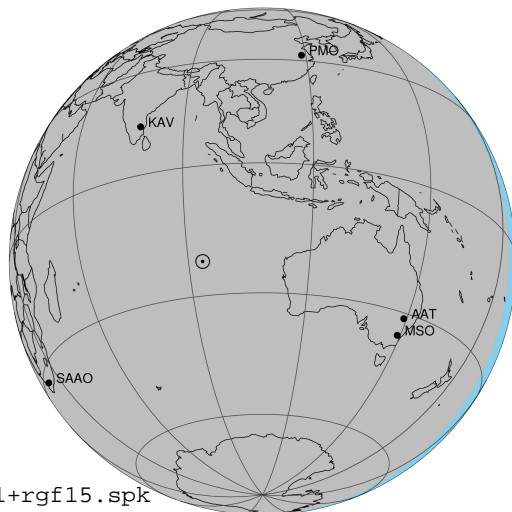
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-06-02T17:43:38.800
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116749895802424192
 2Mass ID (if available) : 17392169-2251444

Jupiter 2031-06-02T17:43:38 K9.05 G14.68 Pgt

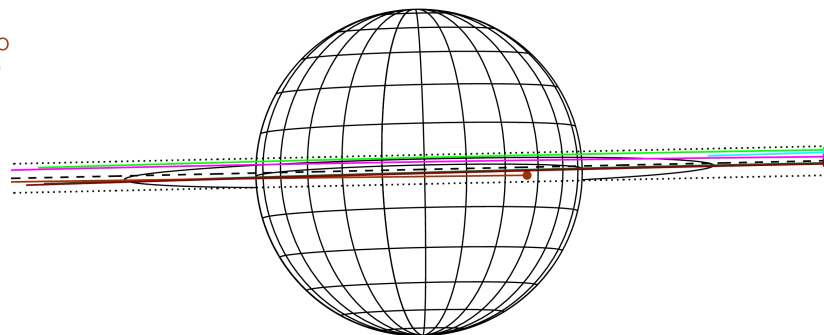
ICRS Star Coord at Epoch: 17h 39m 21.68882s -22:51:44.61504s

RUWE (>1.4 is poor) : 1.06
 K magnitude : 9.054
 G magnitude : 14.682
 RP magnitude : 13.296
 BP magnitude : 17.074
 DUPflag : 0
 Distance (au) : 4.294
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.61
 Sun-Target sep (deg) : 166.32
 Sun-Moon sep (deg) : 51.46
 B (ring opening deg) : -2.61
 PA of pole (deg) : 1.39
 Pole direction: RA (deg): 268.05693
 Dec (deg): 64.49651
 C/A sky separation (") : 0.419
 C/A sky separation (km) : 1306.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-06-02T17:43:38 K9.05 G14.68
 Pgt



Earth
 PMO
 IRTF
 KAV
 AAT
 SAAO
 MSO

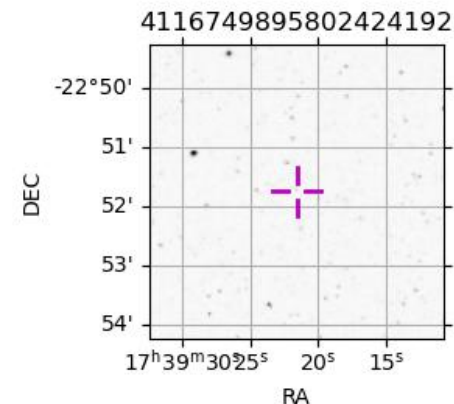


2031-06-02T17:43:38.8000 at: 17 39 21.6888 s: -22 51 44.615 C/A 0.407" PA 181.23 deg v_sky -15.61 km/s D 04.29 AU

Credit: Styled after SORA/Lucky Star

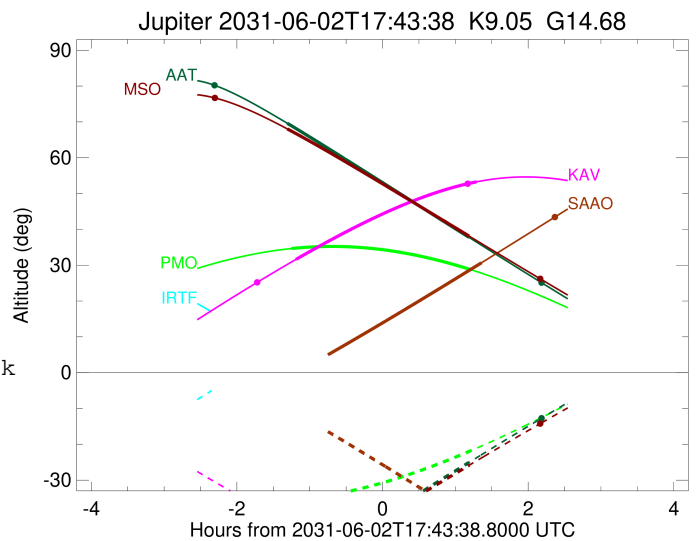
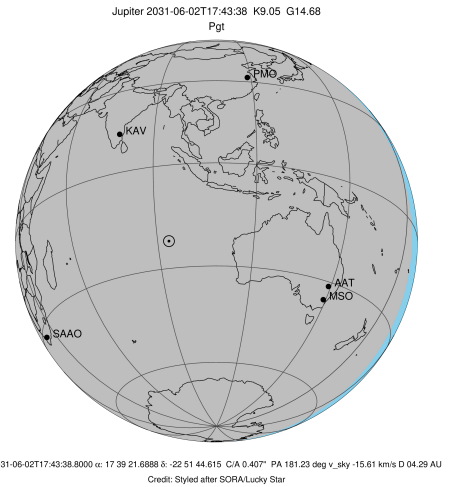
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	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 02 16:28 - JUN 02 18:57	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 02 16:32 - JUN 02 19:01	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 02 16:25 - JUN 02 18:54	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8		JUN 02 19:05 - JUN 02 19:05	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 02 16:25 - JUN 02 18:55	Pie



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-06-02T17:42:44.090
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       : 4116749895802424192
2Mass ID (if available) : 17392169-2251444
ICRS Star Coord at Epoch: 17h 39m 21.68882s -22:51:44.61504s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 9.054
G magnitude           : 14.682
RP magnitude          : 13.296
BP magnitude          : 17.074
DUPflag              : 0
Distance (au)         : 4.294
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.61
Sun-Target sep (deg) : 166.32
Sun-Moon sep (deg)   : 52.00
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 2.086
C/A sky separation (km) : 6495.0
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
    
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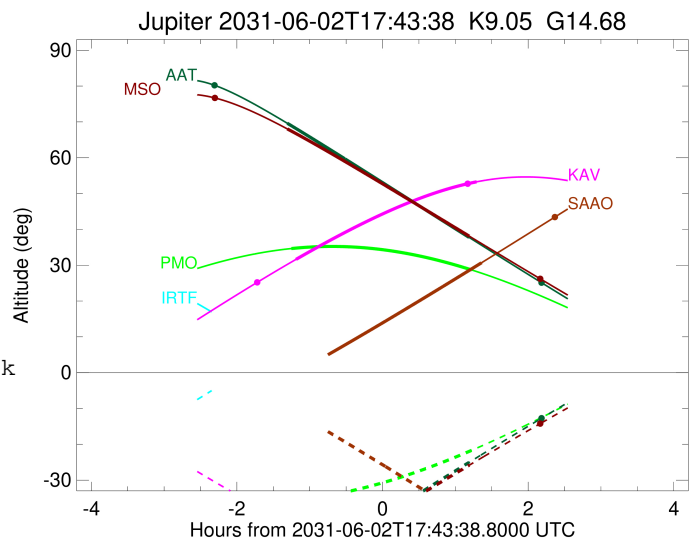
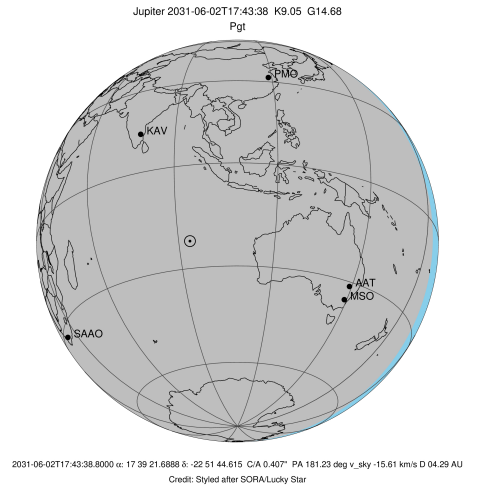


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-02T16:28:32.642	34.64	-35.54	71491.9	5.05	5.76
Jupiter	E	2031-06-02T18:56:59.825	28.69	-21.70	71491.9	5.19	5.93

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-06-02T17:46:53.010
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        : 4116749895802424192
2Mass ID (if available) : 17392169-2251444
ICRS Star Coord at Epoch: 17h 39m 21.68882s -22:51:44.61504s
RUWE (>1.4 is poor)  : 1.06
K magnitude           : 9.054
G magnitude           : 14.682
RP magnitude          : 13.296
BP magnitude          : 17.074
DUPflag              : 0
Distance (au)         : 4.294
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -15.61
Sun-Target sep (deg)  : 166.32
Sun-Moon sep (deg)    : 51.71
B (ring opening deg)  : -2.61
PA of pole (deg)      : 1.39
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 1.491
C/A sky separation (km) : 4644.0
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
    
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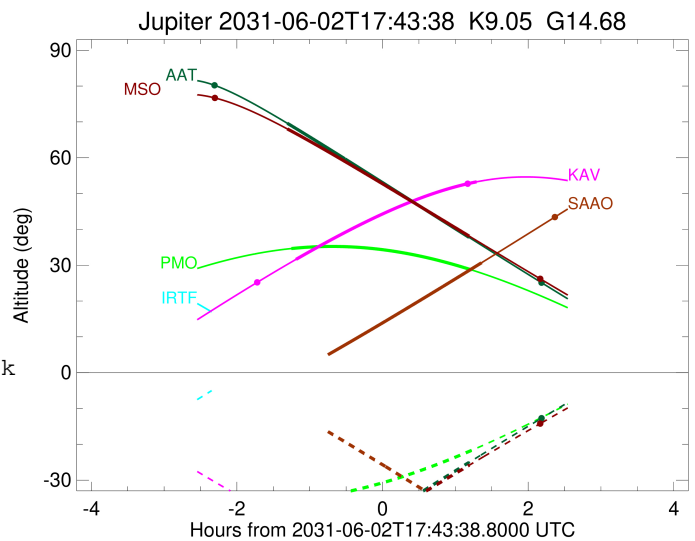
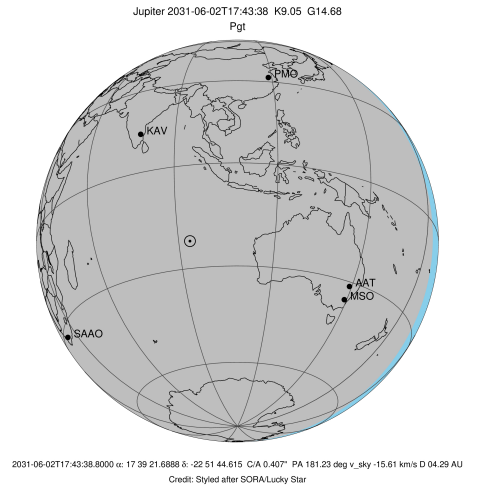


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-02T16:32:22.030	31.62	-42.82	71492.0	3.16	3.62
Jupiter	E	2031-06-02T19:01:02.526	53.26	-54.99	71492.0	4.10	4.68

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-06-02T17:39:53.720
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        : 4116749895802424192
2Mass ID (if available) : 17392169-2251444
ICRS Star Coord at Epoch: 17h 39m 21.68882s -22:51:44.61504s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 9.054
G magnitude           : 14.682
RP magnitude          : 13.296
BP magnitude          : 17.074
DUPflag              : 0
Distance (au)         : 4.294
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.61
Sun-Target sep (deg) : 166.32
Sun-Moon sep (deg)   : 52.41
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 0.011
C/A sky separation (km) : 34.8
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
    
```

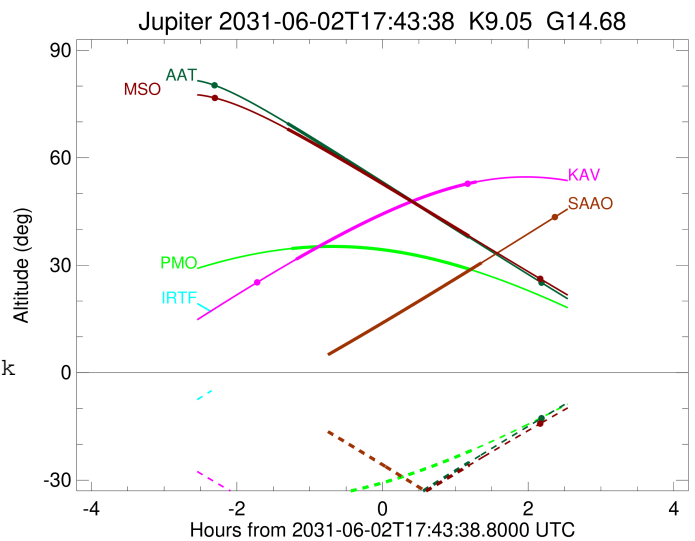
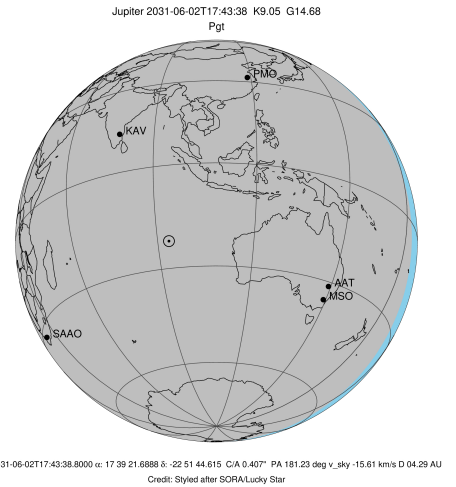


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-02T16:25:10.526	69.61	-56.91	71492.0	0.09	0.10
Jupiter	E	2031-06-02T18:54:58.264	37.76	-25.04	71492.0	-0.29	-0.33

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-06-02T17:49:21.140
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        : 4116749895802424192
2Mass ID (if available) : 17392169-2251444
ICRS Star Coord at Epoch: 17h 39m 21.68882s -22:51:44.61504s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 9.054
G magnitude           : 14.682
RP magnitude          : 13.296
BP magnitude          : 17.074
DUPflag              : 0
Distance (au)         : 4.294
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.61
Sun-Target sep (deg) : 166.32
Sun-Moon sep (deg)   : 51.11
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 0.572
C/A sky separation (km): 1781.6
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
    
```

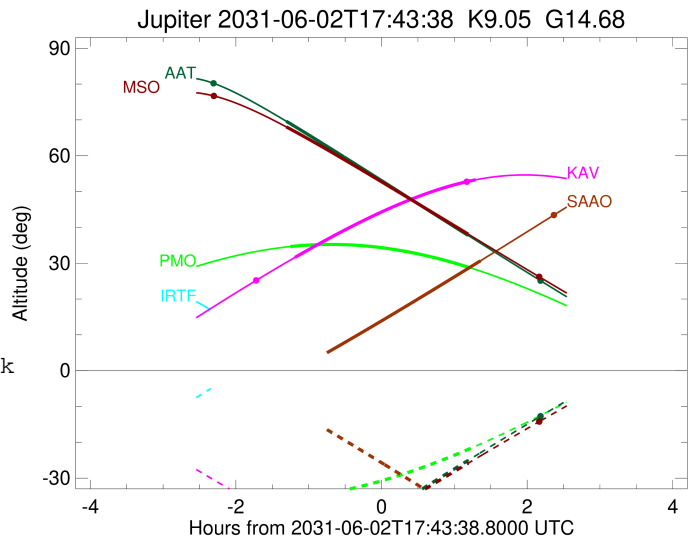
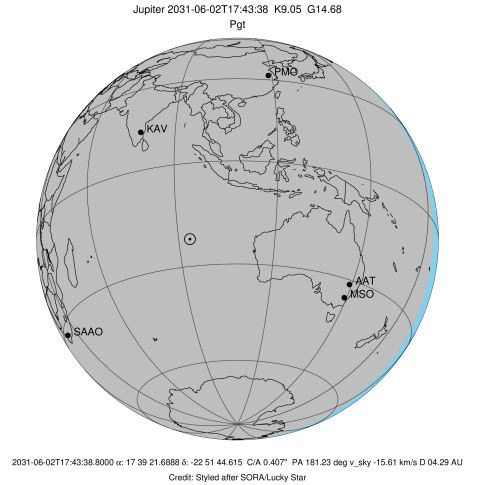


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-02T16:32:48.746	0.04x	-11.23	71492.0	-2.12	-2.43
Jupiter	E	2031-06-02T19:05:13.747	30.67	-42.81	71492.0	-0.74	-0.85

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-06-02T17:40:03.250
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       : 4116749895802424192
2Mass ID (if available) : 17392169-2251444
ICRS Star Coord at Epoch: 17h 39m 21.68882s -22:51:44.61504s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 9.054
G magnitude           : 14.682
RP magnitude          : 13.296
BP magnitude          : 17.074
DUPflag              : 0
Distance (au)         : 4.294
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.61
Sun-Target sep (deg)  : 166.32
Sun-Moon sep (deg)   : 52.39
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 0.146
C/A sky separation (km) : 453.4
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	2031-06-02T16:25:15.841	68.03	-56.26	71492.0	-0.26	-0.30
Jupiter	E	2031-06-02T18:55:11.016	38.09	-25.81	71492.0	-0.61	-0.69