

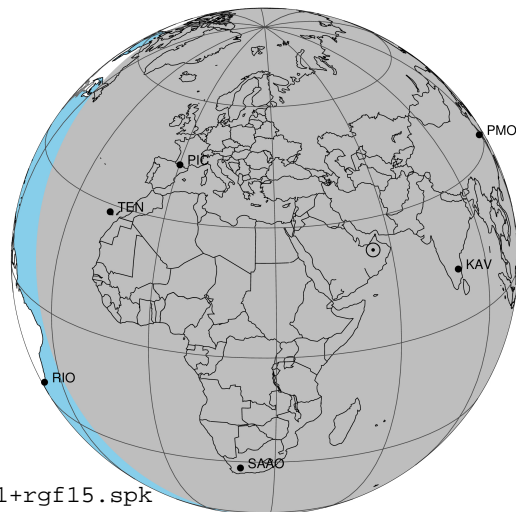
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2037-01-03T20:24:57.760  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 3415257220963752320  
 2Mass ID (if available) : 05070995+2223369

Jupiter 2037-01-03T20:24:57 K6.88 G8.71 Pgt

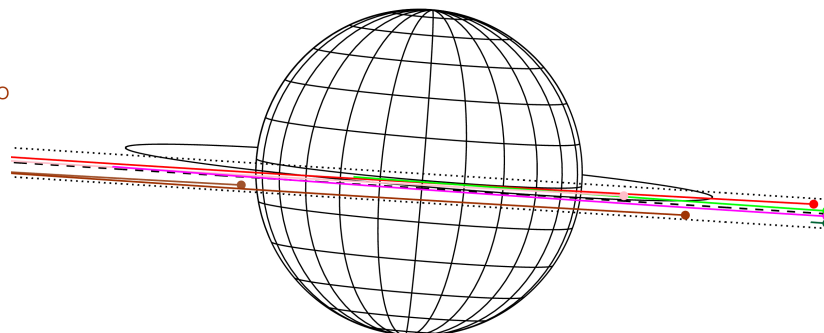
ICRS Star Coord at Epoch: 05h 07m 09.98284s +22:23:36.51204s

RUWE (>1.4 is poor) : 0.00  
 K magnitude : 6.882  
 G magnitude : 8.708  
 RP magnitude : 7.804  
 BP magnitude : 8.621  
 DUPflag : 0  
 Distance (au) : 4.194  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -14.02  
 Sun-Target sep (deg) : 154.50  
 Sun-Moon sep (deg) : 49.49  
 B (ring opening deg) : 2.67  
 PA of pole (deg) : -4.83  
 Pole direction: RA (deg): 268.05631  
 Dec (deg): 64.49687  
 C/A sky separation (") : 2.239  
 C/A sky separation (km) : 6809.8  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2037-01-03T20:24:57 K6.88 G8.71  
 Pgt



Earth  
 PIC  
 PMO  
 TEN  
 KAV  
 RIO  
 AAT  
 SAAO

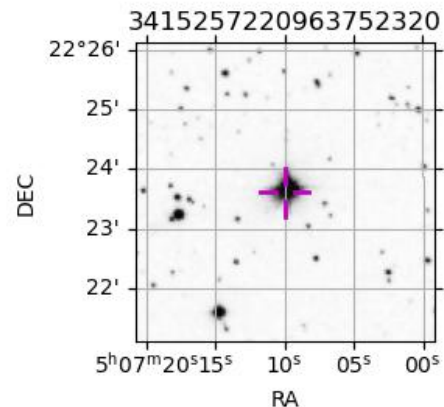


2037-01-03T20:24:57.7600 ex: 05 07 09.9828 s : +22 23 36.512 C/A 2.227" PA 356.38 deg v\_sky -14.02 km/s D 04.19 AU

Credit: Styled after SORA/Lucky Star

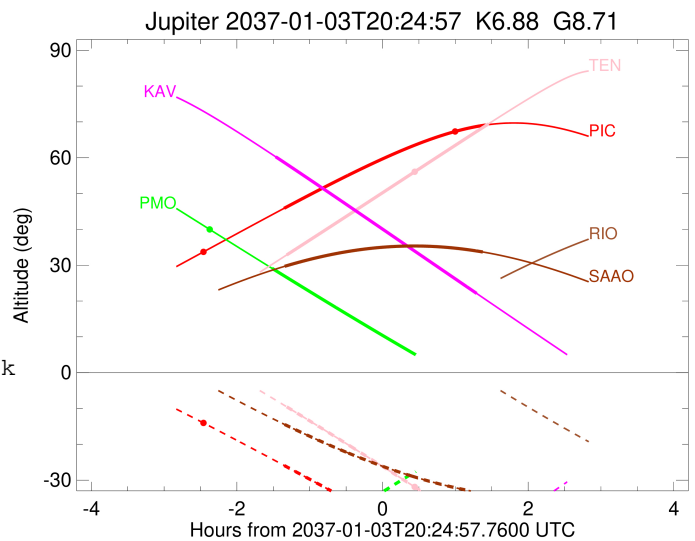
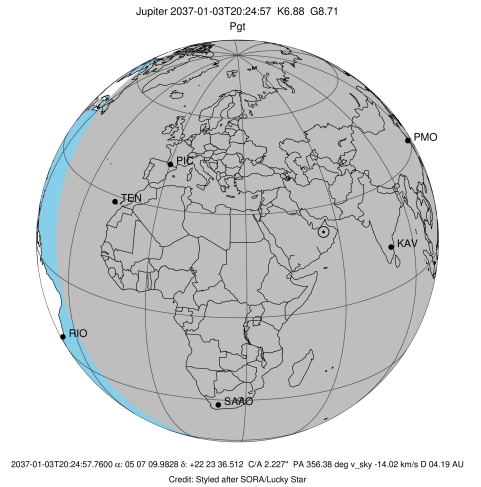
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +	JAN 03 19:04 - JAN 03 21:50	Pie
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JAN 03 18:54 - JAN 03 18:54	Pin
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	+ +	JAN 03 19:06 - JAN 03 21:52	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JAN 03 18:56 - JAN 03 21:42	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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JAN 03 19:04 - JAN 03 21:47	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-01-03T20:27:15.020
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 3415257220963752320
2Mass ID (if available) : 05070995+2223369
ICRS Star Coord at Epoch: 05h 07m 09.98284s +22:23:36.51204s
RUWE (>1.4 is poor) : 0.00
K magnitude          : 6.882
G magnitude          : 8.708
RP magnitude         : 7.804
BP magnitude         : 8.621
DUPflag             : 0
Distance (au)        : 4.194
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.02
Sun-Target sep (deg) : 154.50
Sun-Moon sep (deg)   : 50.35
B (ring opening deg) : 2.67
PA of pole (deg)     : -4.83
Pole direction: RA (deg): 268.05631
Dec (deg): 64.49687
C/A sky separation (") : 1.410
C/A sky separation (km) : 4290.1
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
    
```

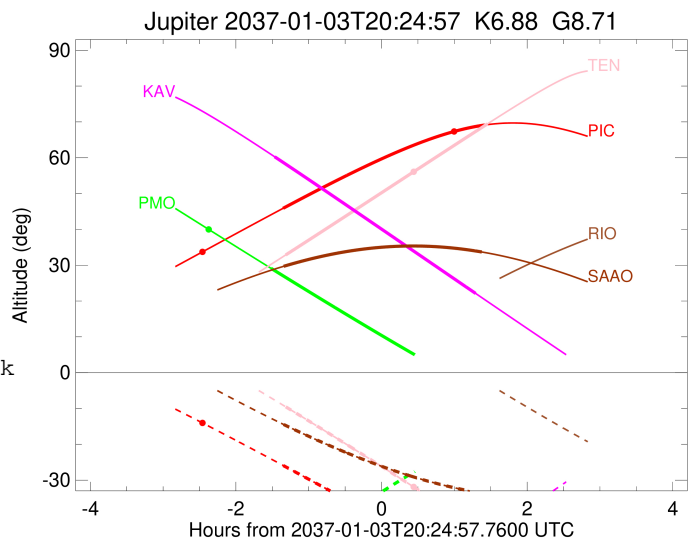
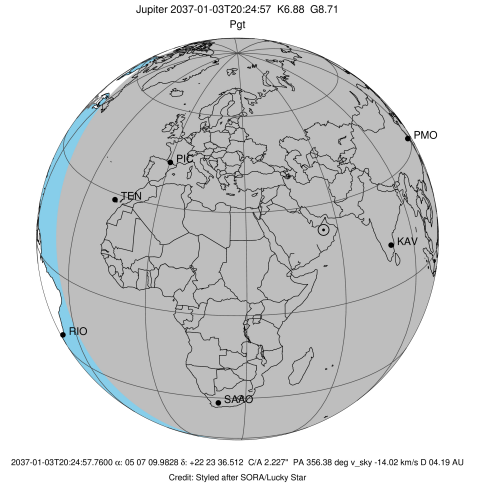


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-01-03T19:04:02.464	45.90	-25.93	71492.0	-1.85	-2.11
Jupiter	E	2037-01-03T21:50:12.209	69.13	-55.79	71491.9	-4.87	-5.56

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2037-01-03T20:18:22.560
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       : 3415257220963752320
2Mass ID (if available) : 05070995+2223369
ICRS Star Coord at Epoch: 05h 07m 09.98284s +22:23:36.51204s
RUWE (>1.4 is poor) : 0.00
K magnitude           : 6.882
G magnitude           : 8.708
RP magnitude          : 7.804
BP magnitude          : 8.621
DUPflag              : 0
Distance (au)        : 4.194
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.02
Sun-Target sep (deg) : 154.50
Sun-Moon sep (deg)  : 49.04
B (ring opening deg) : 2.67
PA of pole (deg)    : -4.83
Pole direction: RA (deg): 268.05631
Dec (deg): 64.49687
C/A sky separation ("): 1.324
C/A sky separation (km): 4028.9
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
    
```

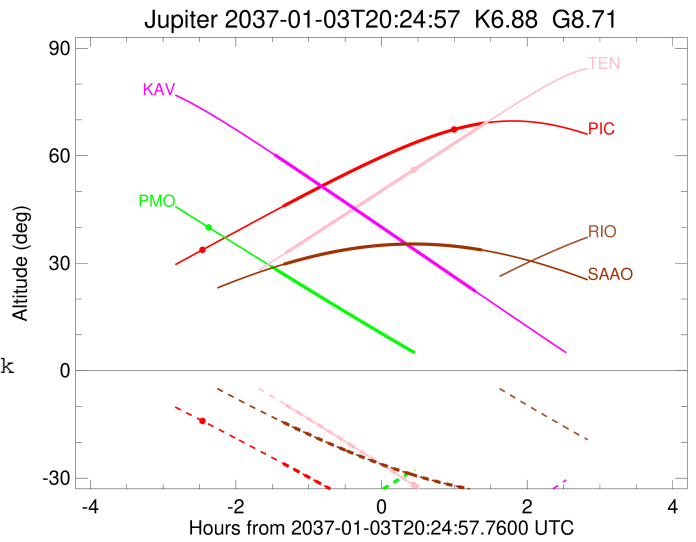
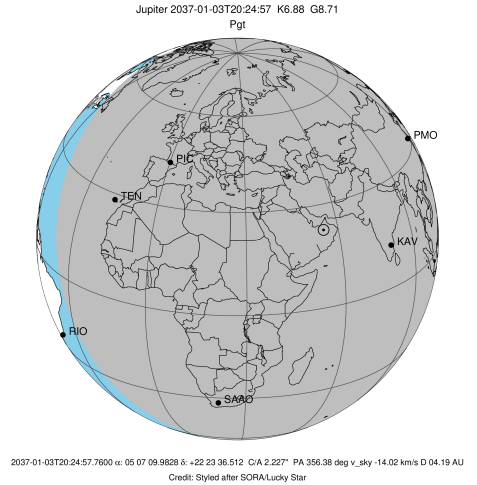


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-01-03T18:54:04.537	29.09	-52.53	71492.0	-2.59	-2.97
Jupiter	E	2037-01-03T21:43:37.487	-4.75x	-16.99	71492.0	-3.82	-4.36

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-01-03T20:29:20.770
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : TEN
Location             : Teide Obs./Tenerife
Latitude (deg)       : 28.30050
E. Longitude (deg)   : 343.48909
Altitude (km)        : 2.395
Gaia source ID       : 3415257220963752320
2Mass ID (if available) : 05070995+2223369
ICRS Star Coord at Epoch: 05h 07m 09.98284s +22:23:36.51204s
RUWE (>1.4 is poor) : 0.00
K magnitude           : 6.882
G magnitude           : 8.708
RP magnitude          : 7.804
BP magnitude          : 8.621
DUPflag              : 0
Distance (au)         : 4.194
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.02
Sun-Target sep (deg) : 154.50
Sun-Moon sep (deg)   : 50.47
B (ring opening deg) : 2.67
PA of pole (deg)     : -4.83
Pole direction: RA (deg): 268.05631
Dec (deg): 64.49687
C/A sky separation ("): 1.770
C/A sky separation (km): 5384.8
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
    
```

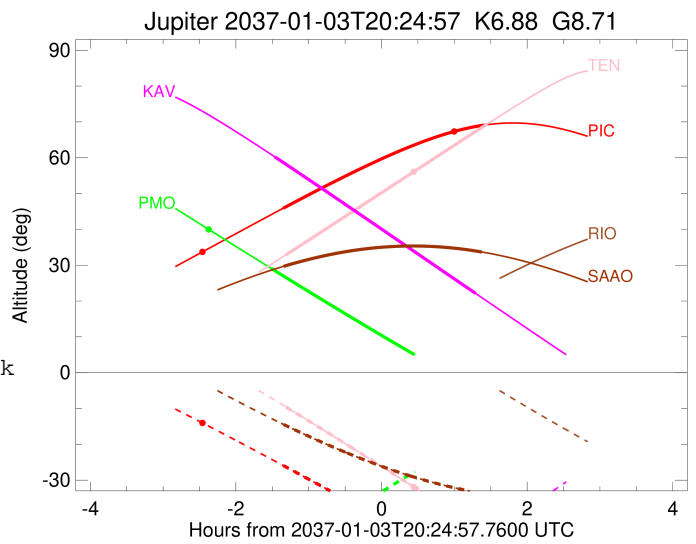
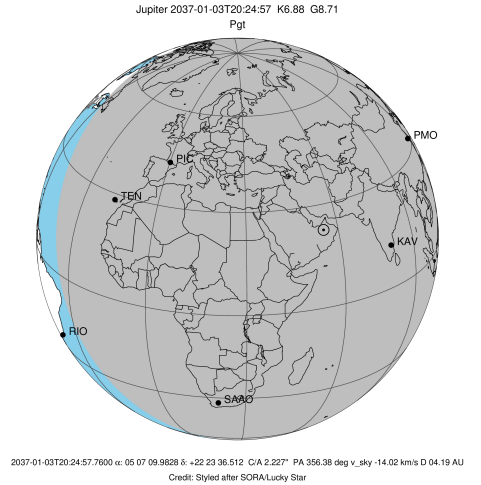


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-01-03T19:06:03.242	32.87	-9.53	71492.0	-2.55	-2.91
Jupiter	E	2037-01-03T21:52:07.392	69.40	-45.13	71491.9	-5.94	-6.78

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-01-03T20:19:22.800
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      : 3415257220963752320
2Mass ID (if available) : 05070995+2223369
ICRS Star Coord at Epoch: 05h 07m 09.98284s +22:23:36.51204s
RUWE (>1.4 is poor) : 0.00
K magnitude         : 6.882
G magnitude         : 8.708
RP magnitude        : 7.804
BP magnitude        : 8.621
DUPflag            : 0
Distance (au)       : 4.194
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -14.02
Sun-Target sep (deg) : 154.50
Sun-Moon sep (deg)  : 49.49
B (ring opening deg) : 2.67
PA of pole (deg)    : -4.83
Pole direction: RA (deg): 268.05631
Dec (deg): 64.49687
C/A sky separation (") : 2.413
C/A sky separation (km) : 7341.1
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
    
```

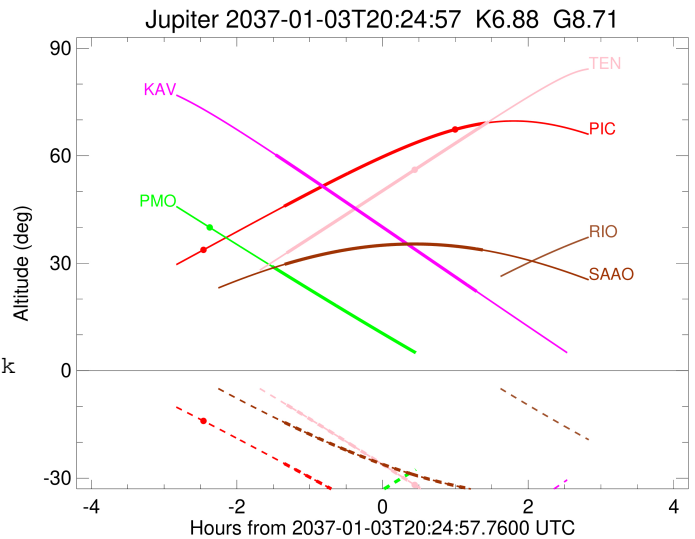
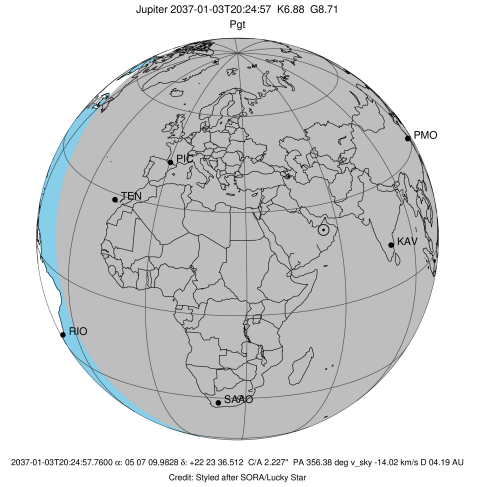


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-01-03T18:56:57.602	60.25	-79.61	71491.9	-5.03	-5.75
Jupiter	E	2037-01-03T21:42:34.641	22.11	-47.66	71491.9	-6.55	-7.48

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2037-01-03T20:25:59.020
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        : 3415257220963752320
2Mass ID (if available) : 05070995+2223369
ICRS Star Coord at Epoch: 05h 07m 09.98284s +22:23:36.51204s
RUWE (>1.4 is poor)  : 0.00
K magnitude            : 6.882
G magnitude            : 8.708
RP magnitude           : 7.804
BP magnitude           : 8.621
DUPflag                : 0
Distance (au)         : 4.194
f0 (km)                : 0.00
g0 (km)                : 0.00
skyplane vel. (km/s)  : -14.02
Sun-Target sep (deg)  : 154.50
Sun-Moon sep (deg)    : 50.05
B (ring opening deg)  : 2.67
PA of pole (deg)      : -4.83
Pole direction: RA (deg): 268.05631
Dec (deg): 64.49687
C/A sky separation (") : 3.929
C/A sky separation (km) : 11952.1
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
    
```



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	2037-01-03T19:04:23.093	29.69	-14.47	71491.8	-8.15	-9.29
Jupiter	E	2037-01-03T21:47:33.179	33.69	-33.59	71491.7	-10.87	-12.39