

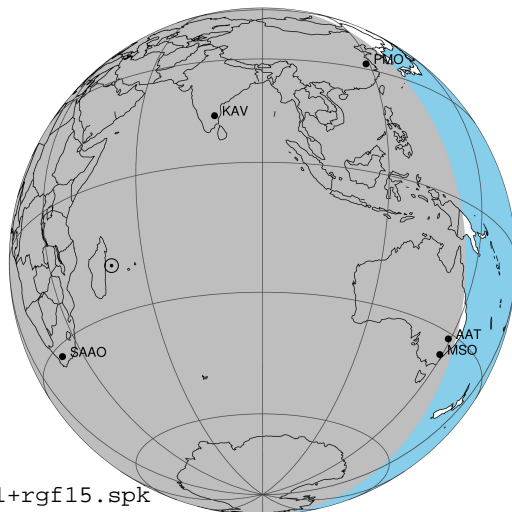
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-05-16T20:32:49.050
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066594886973779456
 2Mass ID (if available) : 18081421-2301255

Jupiter 2043-05-16T20:32:49 K9.85 G13.55 Pgt

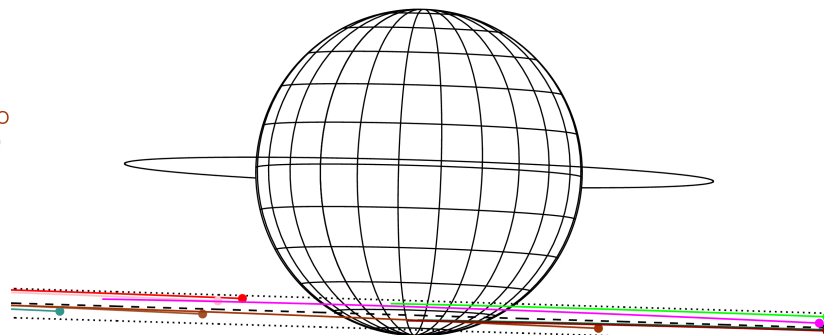
ICRS Star Coord at Epoch: 18h 08m 14.22255s -23°01'25.59357s

RUWE (>1.4 is poor) : 0.95
 K magnitude : 9.853
 G magnitude : 13.546
 RP magnitude : 12.536
 BP magnitude : 14.601
 DUPflag : 0
 Distance (au) : 4.432
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -10.59
 Sun-Target sep (deg) : 143.39
 Sun-Moon sep (deg) : 115.09
 B (ring opening deg) : -2.42
 PA of pole (deg) : -1.72
 Pole direction: RA (deg): 268.05667
 Dec (deg): 64.49732
 C/A sky separation (") : 19.469
 C/A sky separation (km) : 62584.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-05-16T20:32:49 K9.85 G13.55
 Pgt



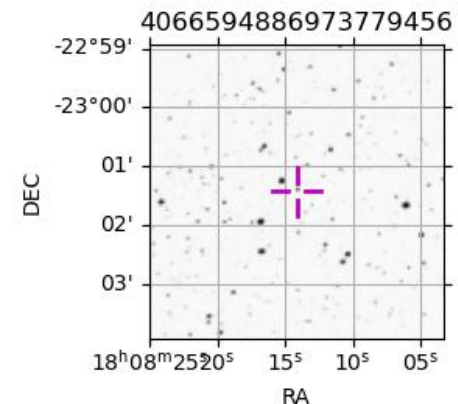
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-05-16T20:32:49.0500 a: 18 08 14.22255 s: -23 01 25.594 C/A ***** PA 358.27 deg v_sky -10.59 km/s D 04.43 AU
 Credit: Styled after SORA/Lucky Star

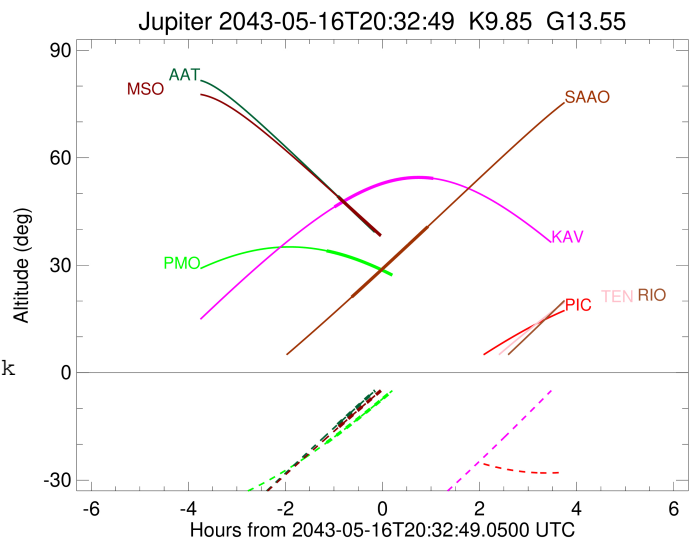
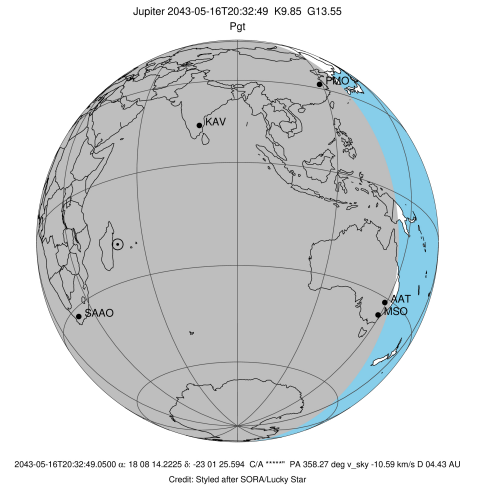
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | + | MAY 16 19:23 - MAY 16 19:23 | 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 | | | Pnn |
| IRTF | Mauna Kea/IRTF | 19.8 | 204.5 | | | Pnn |
| KAV | Kavalur Observatory | 12.6 | 78.8 | + + | MAY 16 19:33 - MAY 16 21:35 | 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 | + | MAY 16 19:37 - MAY 16 19:37 | Pin |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | + + | MAY 16 19:54 - MAY 16 21:28 | Pie |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + | MAY 16 19:39 - MAY 16 19:39 | Pin |



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-16T20:27:54.780
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      : 4066594886973779456
2Mass ID (if available) : 18081421-2301255
ICRS Star Coord at Epoch: 18h 08m 14.22255s -23:01:25.59357s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 9.853
G magnitude          : 13.546
RP magnitude         : 12.536
BP magnitude         : 14.601
DUPflag             : 0
Distance (au)       : 4.432
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.59
Sun-Target sep (deg) : 143.39
Sun-Moon sep (deg)  : 115.34
B (ring opening deg) : -2.42
PA of pole (deg)    : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 17.950
C/A sky separation (km): 57702.2
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
    
```

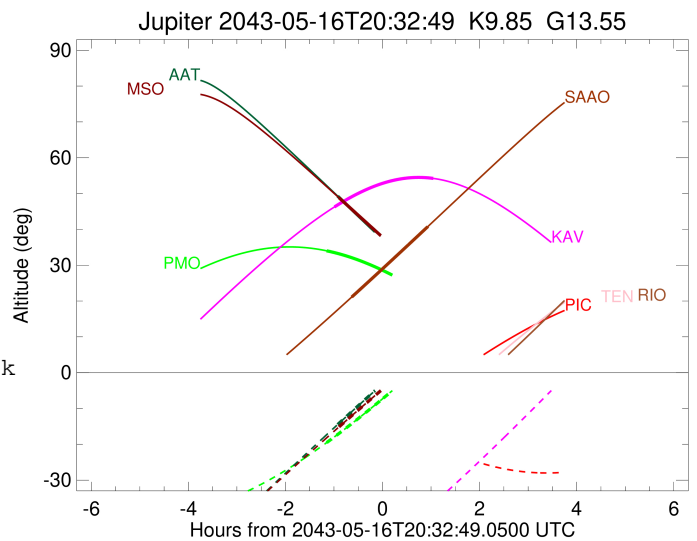
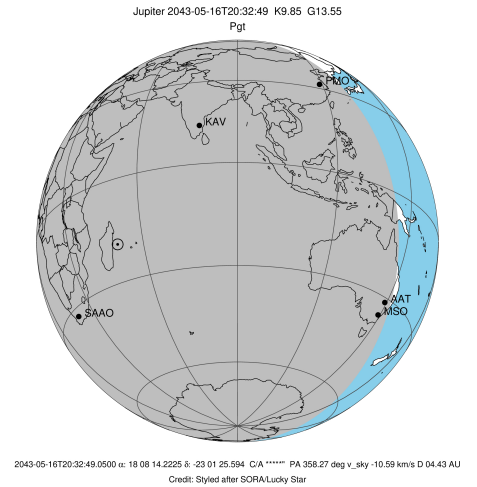


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-05-16T19:23:49.406 | 34.01 | -19.52 | 71486.8 | -53.43 | -56.88 |
| Jupiter | E | 2043-05-16T21:32:14.762 | 21.01 | 4.21x | 71486.7 | -54.27 | -57.68 |

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-05-16T20:34:35.630
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        : 4066594886973779456
2Mass ID (if available) : 18081421-2301255
ICRS Star Coord at Epoch: 18h 08m 14.22255s -23:01:25.59357s
RUWE (>1.4 is poor)  : 0.95
K magnitude            : 9.853
G magnitude            : 13.546
RP magnitude          : 12.536
BP magnitude          : 14.601
DUPflag               : 0
Distance (au)         : 4.432
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -10.59
Sun-Target sep (deg)  : 143.39
Sun-Moon sep (deg)    : 115.84
B (ring opening deg)  : -2.42
PA of pole (deg)      : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 18.318
C/A sky separation (km) : 58884.7
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
    
```

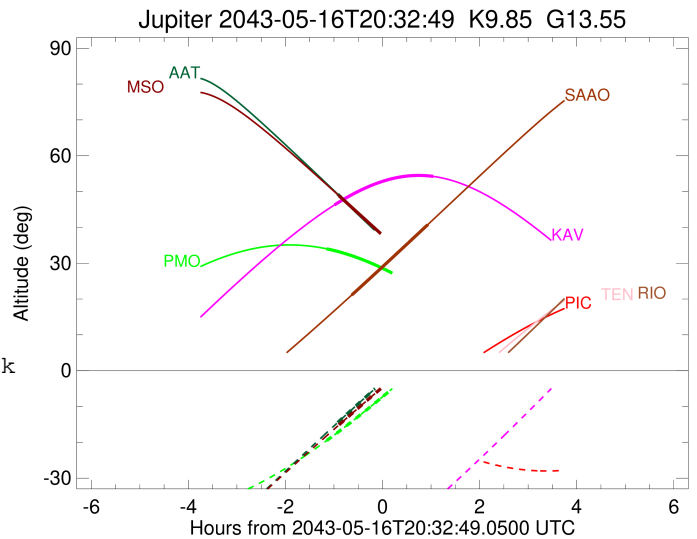
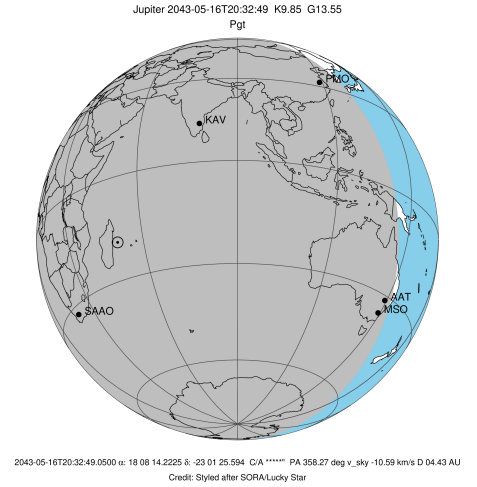


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-05-16T19:33:26.125 | 46.26 | -55.76 | 71486.5 | -55.61 | -58.95 |
| Jupiter | E | 2043-05-16T21:35:33.932 | 54.22 | -36.58 | 71486.5 | -55.41 | -58.75 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-16T20:24:25.550
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      : 4066594886973779456
2Mass ID (if available) : 18081421-2301255
ICRS Star Coord at Epoch: 18h 08m 14.22255s -23:01:25.59357s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 9.853
G magnitude          : 13.546
RP magnitude         : 12.536
BP magnitude         : 14.601
DUPflag             : 0
Distance (au)       : 4.432
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.59
Sun-Target sep (deg) : 143.39
Sun-Moon sep (deg)  : 115.30
B (ring opening deg) : -2.42
PA of pole (deg)    : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 20.101
C/A sky separation (km): 64614.3
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
    
```

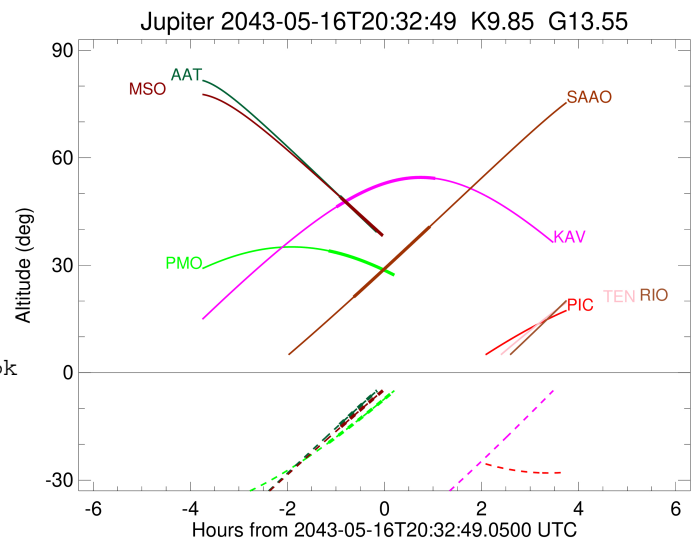
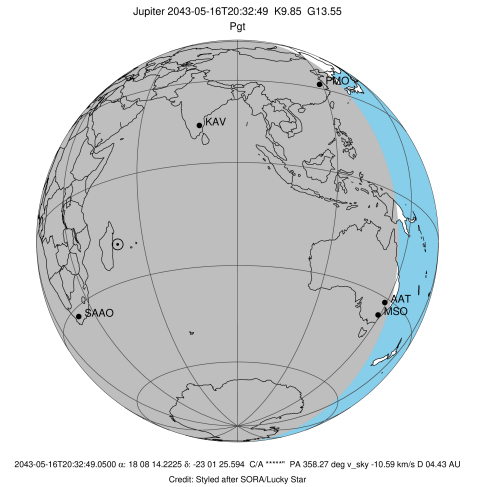


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-05-16T19:37:25.728 | 49.27 | -14.47 | 71485.5 | -63.89 | -66.66 |
| Jupiter | E | 2043-05-16T21:11:41.852 | 29.16 | 4.49x | 71485.3 | -65.32 | -67.97 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-16T20:42:02.300
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        : 4066594886973779456
2Mass ID (if available) : 18081421-2301255
ICRS Star Coord at Epoch: 18h 08m 14.22255s -23:01:25.59357s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 9.853
G magnitude           : 13.546
RP magnitude          : 12.536
BP magnitude          : 14.601
DUPflag              : 0
Distance (au)         : 4.432
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -10.59
Sun-Target sep (deg)  : 143.39
Sun-Moon sep (deg)    : 115.81
B (ring opening deg) : -2.42
PA of pole (deg)     : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 20.133
C/A sky separation (km) : 64715.4
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
    
```

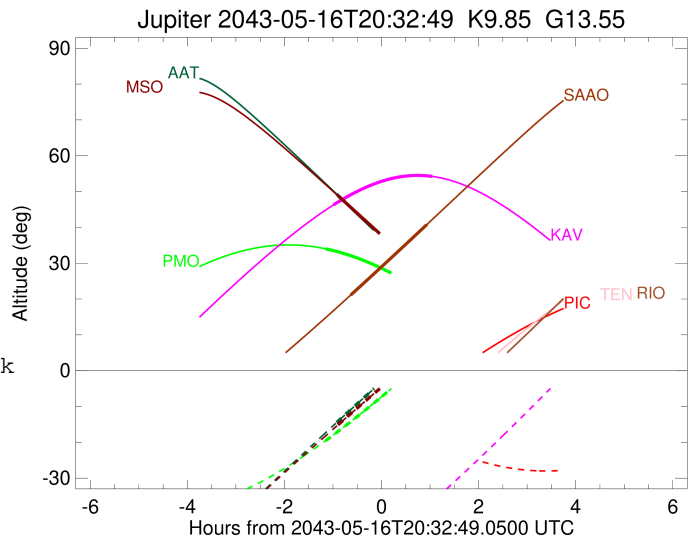
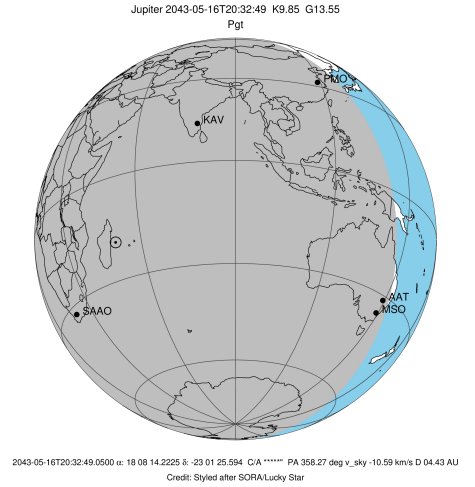


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-05-16T19:54:49.808 | 21.11 | -52.31 | 71485.3 | -65.52 | -68.15 |
| Jupiter | E | 2043-05-16T21:28:51.999 | 40.78 | -70.61 | 71485.5 | -64.07 | -66.82 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-16T20:24:49.150
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        : 4066594886973779456
2Mass ID (if available) : 18081421-2301255
ICRS Star Coord at Epoch: 18h 08m 14.22255s -23:01:25.59357s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 9.853
G magnitude           : 13.546
RP magnitude          : 12.536
BP magnitude          : 14.601
DUPflag              : 0
Distance (au)         : 4.432
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -10.59
Sun-Target sep (deg)  : 143.39
Sun-Moon sep (deg)    : 115.32
B (ring opening deg) : -2.42
PA of pole (deg)      : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 20.222
C/A sky separation (km) : 65005.1
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 | 2043-05-16T19:39:03.538 | 48.82 | -15.13 | 71485.4 | -64.66 | -67.37 |
| Jupiter | E | 2043-05-16T21:10:49.591 | 30.05 | 2.53x | 71485.3 | -66.02 | -68.61 |