

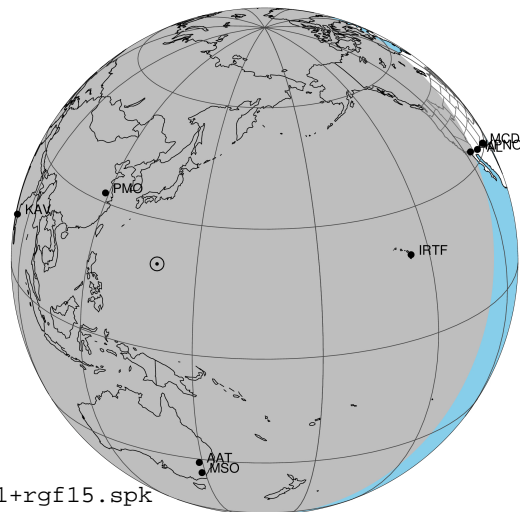
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2036-11-20T14:26:33.320
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3404100025504193536
 2Mass ID (if available) : 05313885+2241014

Jupiter 2036-11-20T14:26:33 K9.16 G13.21 Pgt

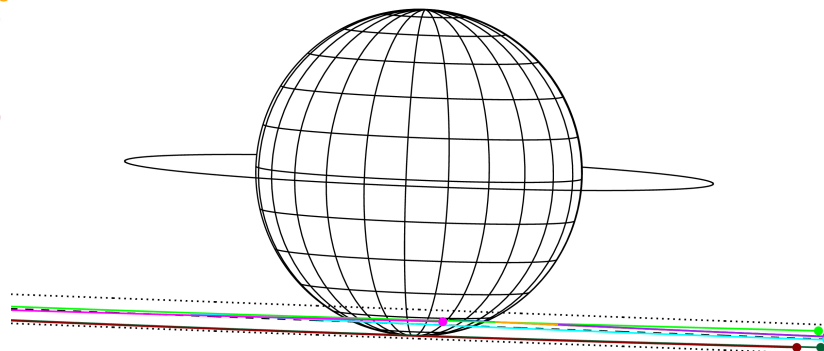
ICRS Star Coord at Epoch: 05h 31m 38.84950s +22:41:01.44871s

RUWE (>1.4 is poor) : 1.05
 K magnitude : 9.165
 G magnitude : 13.211
 RP magnitude : 12.132
 BP magnitude : 14.423
 DUPflag : 0
 Distance (au) : 4.173
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.20
 Sun-Target sep (deg) : 154.88
 Sun-Moon sep (deg) : 173.38
 B (ring opening deg) : 2.73
 PA of pole (deg) : -2.22
 Pole direction: RA (deg): 268.05632
 Dec (deg): 64.49687
 C/A sky separation (") : 21.932
 C/A sky separation (km) : 66376.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2036-11-20T14:26:33 K9.16 G13.21
 Pgt



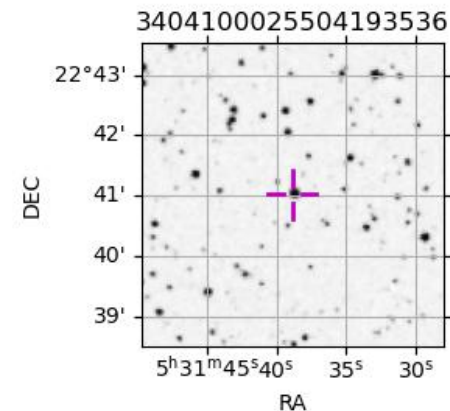
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 AAT
 MSO



2036-11-20T14:26:33.3200 a: 05 31 38.8495 s: +22 41 01.449 C/A ***** PA 357.85 deg v_sky -14.20 km/s D 04.17 AU
 Credit: Styled after SORA/Lucky Star

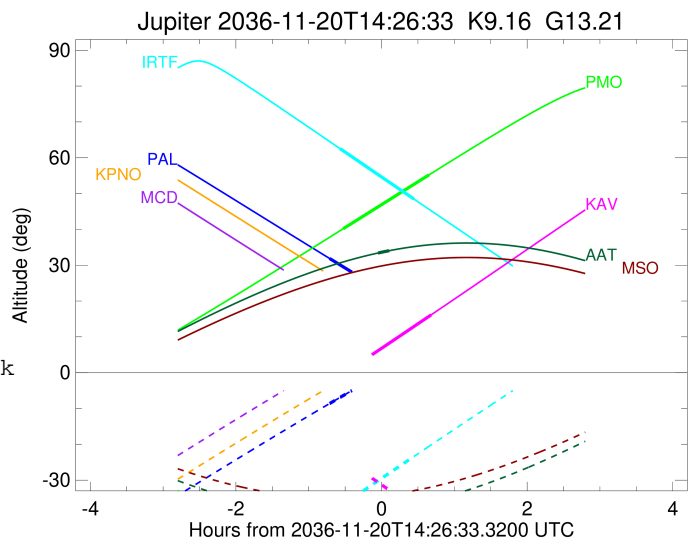
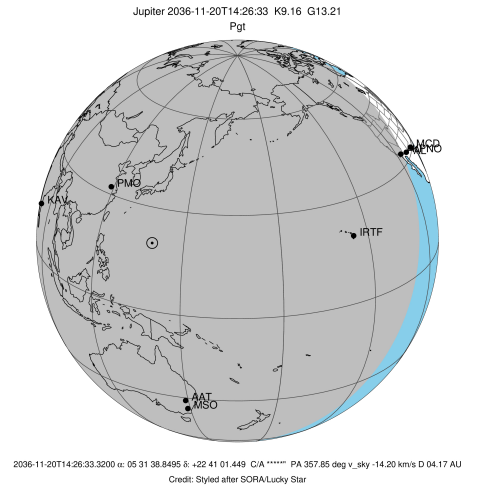
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | + | NOV 20 13:43 - NOV 20 13:43 | Pin |
| PMO | Purple Mtn Obs. Nanking | 32.1 | 118.8 | + + | NOV 20 13:55 - NOV 20 15:05 | 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 | + + | NOV 20 13:52 - NOV 20 14:53 | Pie |
| KAV | Kavalur Observatory | 12.6 | 78.8 | + | NOV 20 15:07 - NOV 20 15:07 | 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 | + + | NOV 20 14:23 - NOV 20 14:32 | Pie |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | | | Pnn |



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-11-20T14:21:08.510
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      : 3404100025504193536
2Mass ID (if available) : 05313885+2241014
ICRS Star Coord at Epoch: 05h 31m 38.84950s +22:41:01.44871s
RUWE (>1.4 is poor) : 1.05
K magnitude         : 9.165
G magnitude         : 13.211
RP magnitude        : 12.132
BP magnitude        : 14.423
DUPflag            : 0
Distance (au)       : 4.173
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -14.20
Sun-Target sep (deg) : 154.88
Sun-Moon sep (deg)  : 172.85
B (ring opening deg) : 2.73
PA of pole (deg)    : -2.22
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (" ) : 21.102
C/A sky separation (km) : 63864.6
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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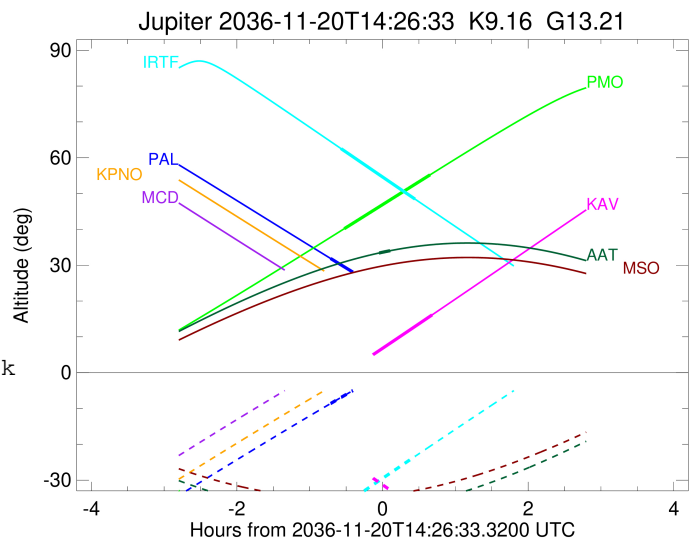
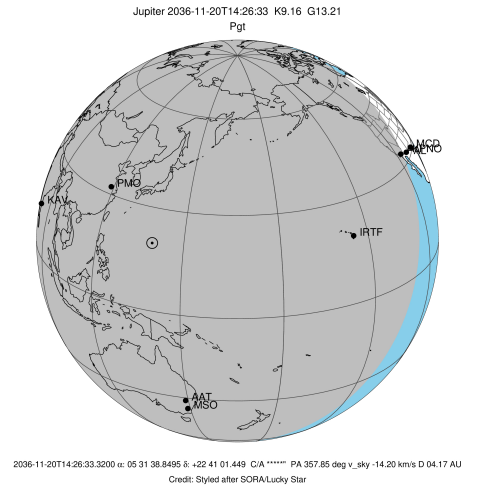


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2036-11-20T13:43:45.384 | 31.88 | -8.62 | 71483.9 | -63.65 | -66.44 |
| Jupiter | E | 2036-11-20T14:58:39.984 | 16.53 | 5.76x | 71484.0 | -62.67 | -65.53 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-11-20T14:30:29.380
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       : 3404100025504193536
2Mass ID (if available) : 05313885+2241014
ICRS Star Coord at Epoch: 05h 31m 38.84950s +22:41:01.44871s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 9.165
G magnitude           : 13.211
RP magnitude          : 12.132
BP magnitude          : 14.423
DUPflag              : 0
Distance (au)        : 4.173
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.20
Sun-Target sep (deg) : 154.88
Sun-Moon sep (deg)   : 174.08
B (ring opening deg) : 2.73
PA of pole (deg)     : -2.22
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 21.335
C/A sky separation (km) : 64570.1
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
    
```

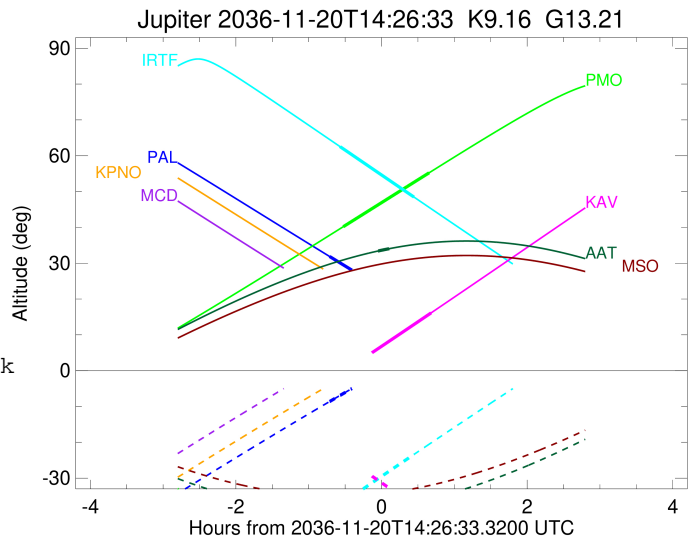
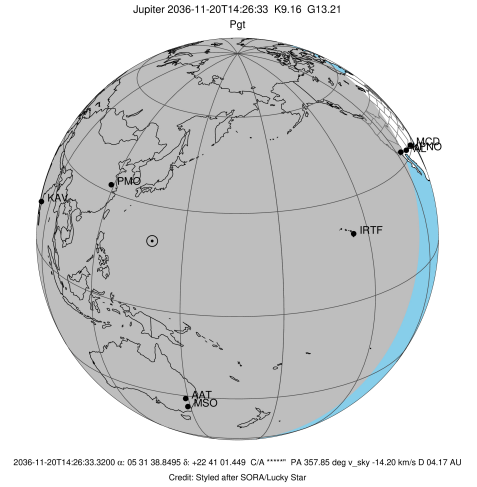


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2036-11-20T13:55:02.619 | 40.18 | -61.53 | 71483.8 | -63.89 | -66.66 |
| Jupiter | E | 2036-11-20T15:05:49.014 | 55.23 | -74.39 | 71483.7 | -64.97 | -67.65 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-11-20T14:22:47.650
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      : 3404100025504193536
2Mass ID (if available) : 05313885+2241014
ICRS Star Coord at Epoch: 05h 31m 38.84950s +22:41:01.44871s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 9.165
G magnitude          : 13.211
RP magnitude         : 12.132
BP magnitude         : 14.423
DUPflag             : 0
Distance (au)        : 4.173
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.20
Sun-Target sep (deg) : 154.88
Sun-Moon sep (deg)  : 172.98
B (ring opening deg) : 2.73
PA of pole (deg)    : -2.22
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 21.929
C/A sky separation (km) : 66367.6
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
    
```

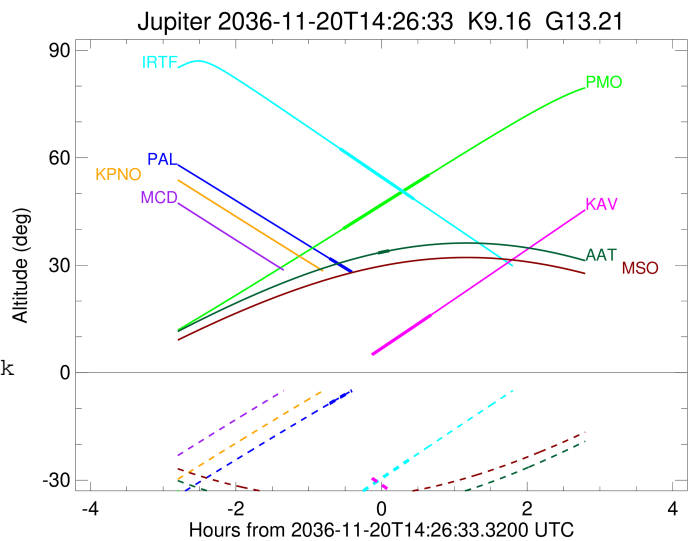
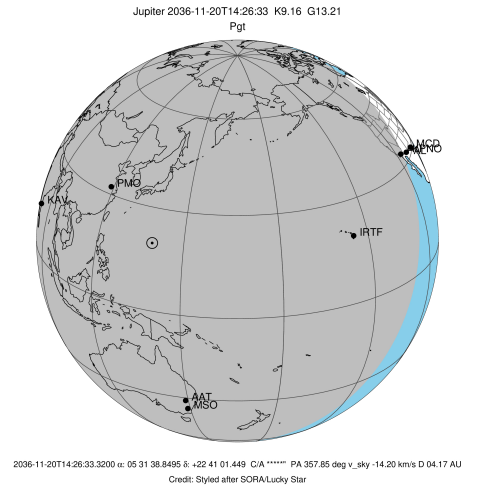


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2036-11-20T13:52:20.853 | 62.54 | -37.41 | 71483.3 | -68.27 | -70.66 |
| Jupiter | E | 2036-11-20T14:53:18.037 | 48.46 | -23.38 | 71483.3 | -67.71 | -70.15 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-11-20T14:32:51.460
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        : 3404100025504193536
2Mass ID (if available) : 05313885+2241014
ICRS Star Coord at Epoch: 05h 31m 38.84950s +22:41:01.44871s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 9.165
G magnitude           : 13.211
RP magnitude          : 12.132
BP magnitude          : 14.423
DUPflag              : 0
Distance (au)         : 4.173
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.20
Sun-Target sep (deg)  : 154.88
Sun-Moon sep (deg)    : 174.29
B (ring opening deg) : 2.73
PA of pole (deg)      : -2.22
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 21.497
C/A sky separation (km) : 65058.9
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
    
```

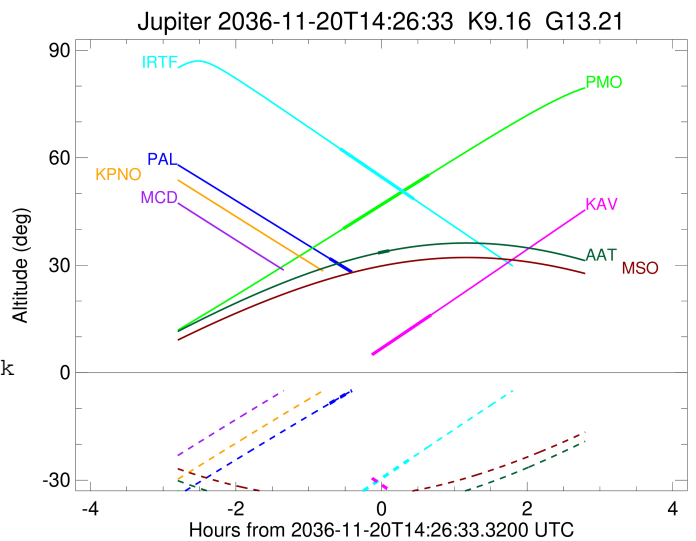
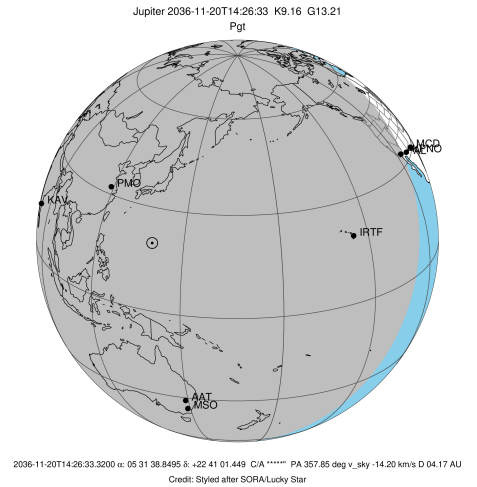


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2036-11-20T13:58:03.414 | 0.34x | -24.60 | 71483.7 | -64.61 | -67.32 |
| Jupiter | E | 2036-11-20T15:07:29.082 | 16.14 | -40.90 | 71483.5 | -66.15 | -68.73 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-11-20T14:28:18.410
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        : 3404100025504193536
2Mass ID (if available) : 05313885+2241014
ICRS Star Coord at Epoch: 05h 31m 38.84950s +22:41:01.44871s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 9.165
G magnitude           : 13.211
RP magnitude          : 12.132
BP magnitude          : 14.423
DUPflag              : 0
Distance (au)         : 4.173
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.20
Sun-Target sep (deg)  : 154.88
Sun-Moon sep (deg)    : 173.35
B (ring opening deg) : 2.73
PA of pole (deg)      : -2.22
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 23.582
C/A sky separation (km) : 71370.8
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 | 2036-11-20T14:23:44.580 | 33.40 | -38.34 | 71481.9 | -85.57 | -86.09 |
| Jupiter | E | 2036-11-20T14:32:52.186 | 34.04 | -37.94 | 71481.9 | -86.02 | -86.49 |