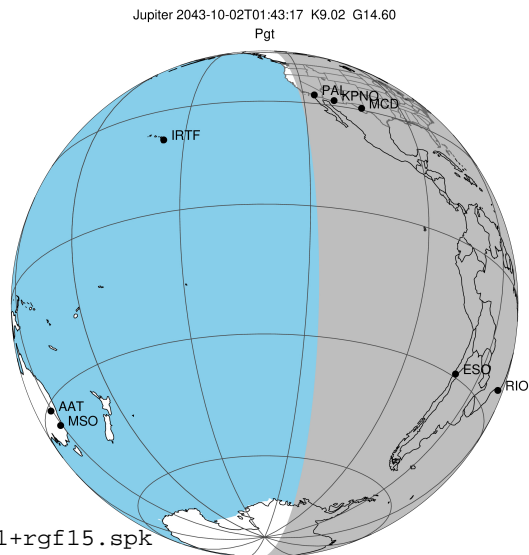


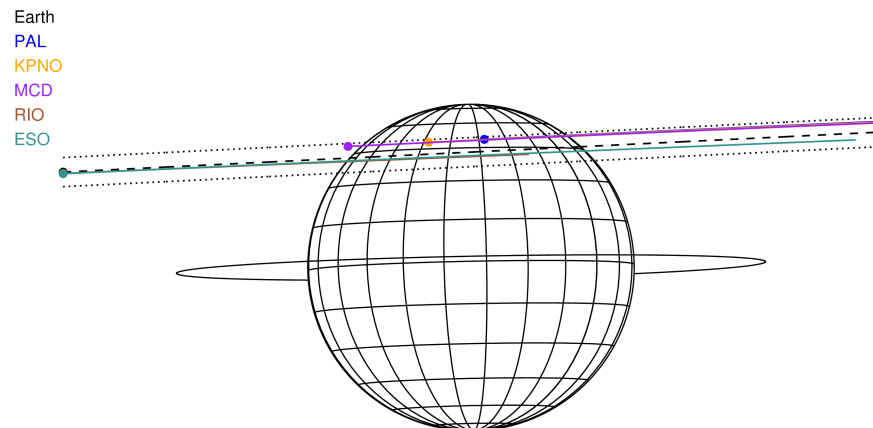
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-10-02T01:43:17.880
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116492472639718400
 2Mass ID (if available) : 17414312-2316468

Jupiter 2043-10-02T01:43:17 K9.02 G14.60 Pgt

ICRS Star Coord at Epoch: 17h 41m 43.12868s -23:16:47.15453s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 9.018
 G magnitude : 14.604
 RP magnitude : 13.233
 BP magnitude : 16.891
 DUPflag : 0
 Distance (au) : 5.352
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 19.49
 Sun-Target sep (deg) : 77.64
 Sun-Moon sep (deg) : 89.88
 B (ring opening deg) : -2.20
 PA of pole (deg) : 1.13
 Pole direction: RA (deg): 268.05674
 Dec (deg): 64.49731
 C/A sky separation (") : 13.007
 C/A sky separation (km) : 50488.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

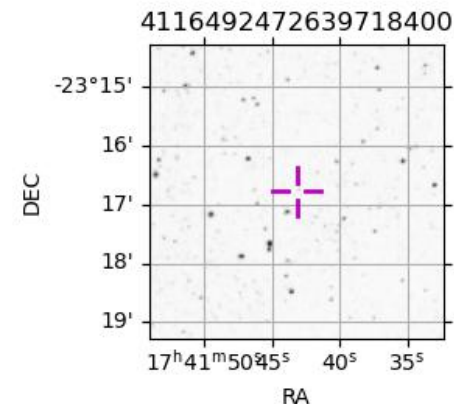


2043-10-02T01:43:17.8800 @: 17 41 43.1287 @: -23 16 47.155 C/A ***** PA 182.80 deg v_sky +19.49 km/s D 05.35 AU
 Credit: Styled after SORA/Lucky Star



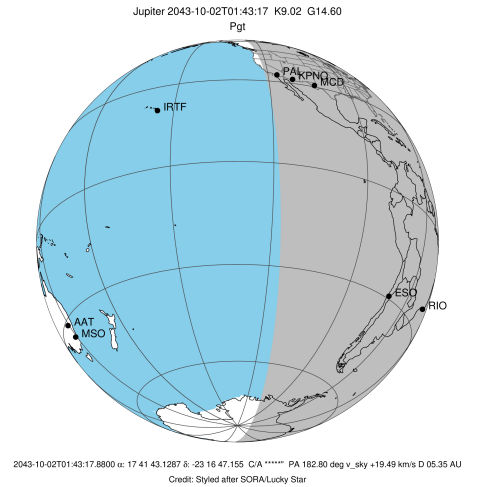
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | + | OCT 02 02:23 - OCT 02 02:23 | Pne |
| PMO | Purple Mtn Obs. Nanking | 32.1 | 118.8 | | | Pnn |
| KPNO | Kitt Peak Natl Obs | 32.0 | 248.4 | + | OCT 02 02:23 - OCT 02 02:23 | Pne |
| MCD | McDonald Obs. 2.7m | 30.7 | 256.0 | + + | OCT 02 01:06 - OCT 02 02:24 | Pie |
| 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 | | | Pnn |
| RIO | Rio de Janeiro | -22.9 | 316.8 | + | OCT 02 01:03 - OCT 02 01:03 | Pin |
| ESO | European Southern Obs. (3.6m) | -29.3 | 289.3 | + + | OCT 02 01:02 - OCT 02 02:32 | Pie |
| AAT | Siding Spring (AAT) | -31.3 | 149.1 | | | Pnn |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | | | Pnn |

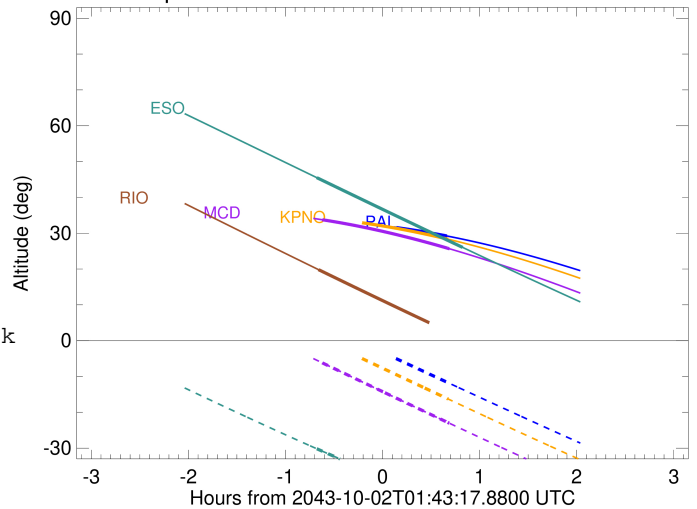


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-10-02T01:44:14.190
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       : 4116492472639718400
2Mass ID (if available) : 17414312-2316468
ICRS Star Coord at Epoch: 17h 41m 43.12868s -23:16:47.15453s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 9.018
G magnitude           : 14.604
RP magnitude         : 13.233
BP magnitude         : 16.891
DUPflag              : 0
Distance (au)        : 5.352
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 19.49
Sun-Target sep (deg) : 77.64
Sun-Moon sep (deg)   : 90.37
B (ring opening deg) : -2.20
PA of pole (deg)     : 1.13
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 14.373
C/A sky separation (km) : 55791.9
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
    
```



Jupiter 2043-10-02T01:43:17 K9.02 G14.60

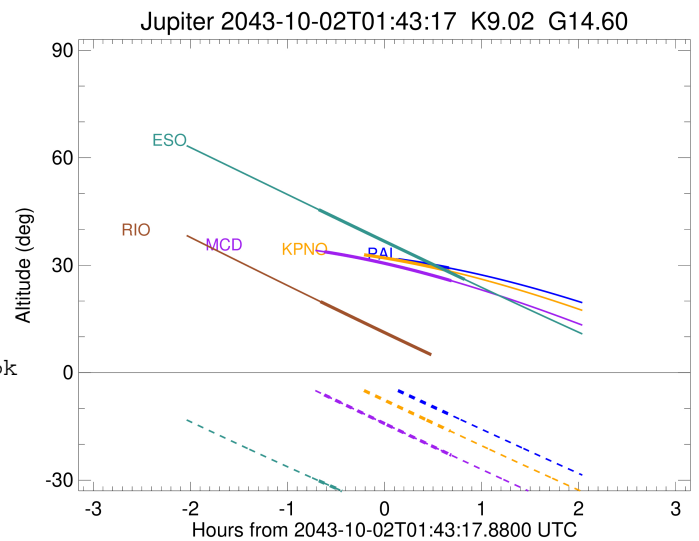
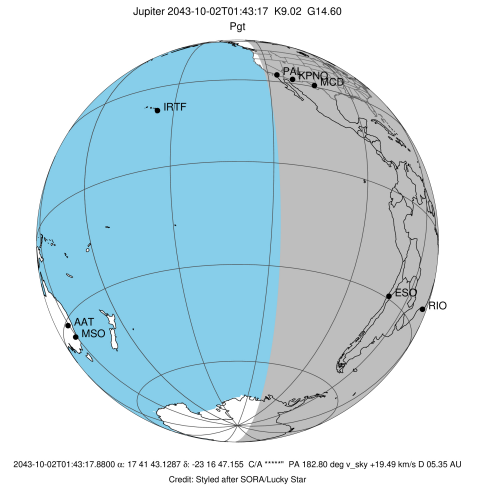


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-10-02T01:05:11.737 | 33.39 | 4.70x | 71488.2 | 49.60 | 53.20 |
| Jupiter | E | 2043-10-02T02:23:13.130 | 29.21 | -11.61 | 71487.8 | 52.82 | 56.29 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-10-02T01:44:42.760
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        : 4116492472639718400
2Mass ID (if available) : 17414312-2316468
ICRS Star Coord at Epoch: 17h 41m 43.12868s -23:16:47.15453s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 9.018
G magnitude           : 14.604
RP magnitude          : 13.233
BP magnitude          : 16.891
DUPflag              : 0
Distance (au)         : 5.352
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 19.49
Sun-Target sep (deg)  : 77.64
Sun-Moon sep (deg)    : 90.37
B (ring opening deg) : -2.20
PA of pole (deg)      : 1.13
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 14.342
C/A sky separation (km) : 55670.3
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
    
```

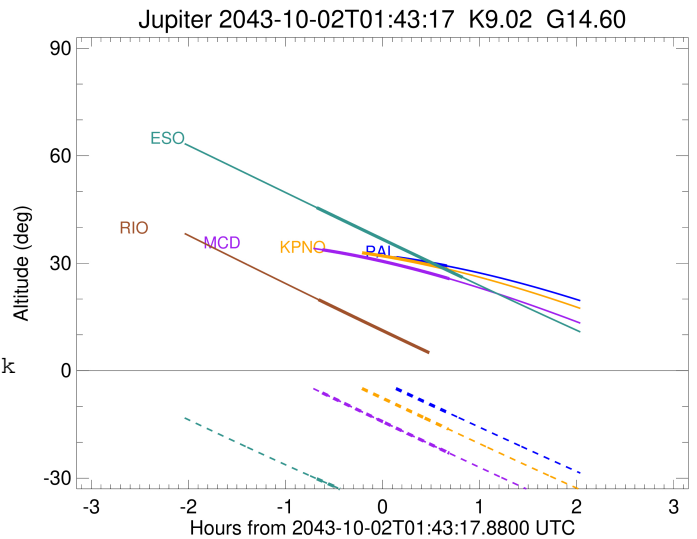
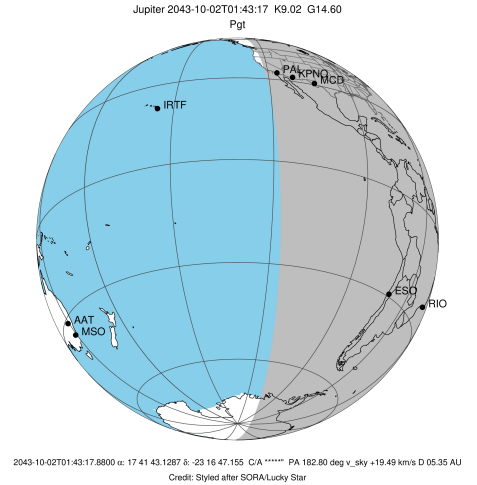


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-10-02T01:05:32.490 | 34.18 | 0.35x | 71488.2 | 49.49 | 53.09 |
| Jupiter | E | 2043-10-02T02:23:48.701 | 28.32 | -16.27 | 71487.8 | 52.62 | 56.10 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-10-02T01:45:22.570
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : MCD
Location             : McDonald Obs. 2.7m
Latitude (deg)       : 30.67158
E. Longitude (deg)   : 255.97844
Altitude (km)        : 2.075
Gaia source ID       : 4116492472639718400
2Mass ID (if available) : 17414312-2316468
ICRS Star Coord at Epoch: 17h 41m 43.12868s -23:16:47.15453s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 9.018
G magnitude           : 14.604
RP magnitude         : 13.233
BP magnitude         : 16.891
DUPflag              : 0
Distance (au)        : 5.352
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 19.49
Sun-Target sep (deg) : 77.64
Sun-Moon sep (deg)   : 90.35
B (ring opening deg) : -2.20
PA of pole (deg)     : 1.13
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 14.298
C/A sky separation (km) : 55502.4
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
    
```

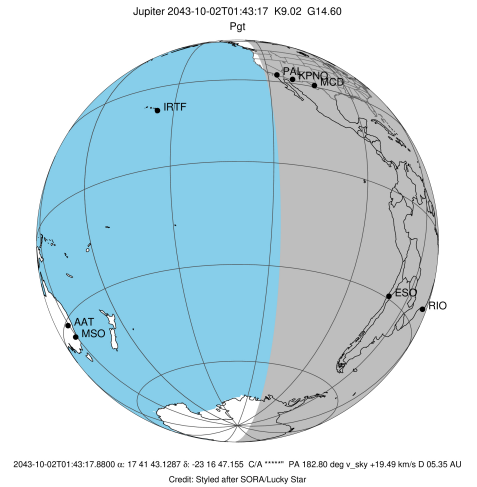


x: target alt < 5.0 deg or sun > -5.0 deg

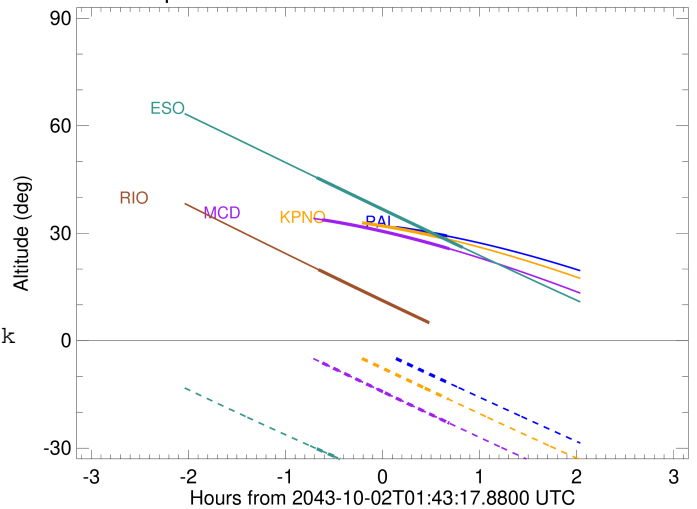
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-10-02T01:06:02.811 | 33.75 | -6.18 | 71488.2 | 49.34 | 52.94 |
| Jupiter | E | 2043-10-02T02:24:36.852 | 25.66 | -23.04 | 71487.9 | 52.34 | 55.84 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-10-02T01:48:45.740
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : RIO
Location             : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)  : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 4116492472639718400
2Mass ID (if available) : 17414312-2316468
ICRS Star Coord at Epoch: 17h 41m 43.12868s -23:16:47.15453s
RUWE (>1.4 is poor) : 0.99
K magnitude          : 9.018
G magnitude          : 14.604
RP magnitude         : 13.233
BP magnitude         : 16.891
DUPflag             : 0
Distance (au)        : 5.352
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 19.49
Sun-Target sep (deg) : 77.64
Sun-Moon sep (deg)  : 90.06
B (ring opening deg) : -2.20
PA of pole (deg)    : 1.13
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 12.506
C/A sky separation (km) : 48545.0
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
    
```



Jupiter 2043-10-02T01:43:17 K9.02 G14.60

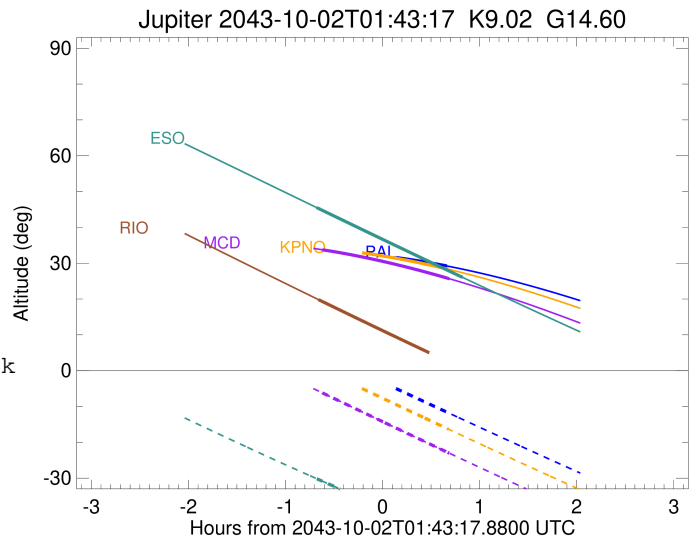
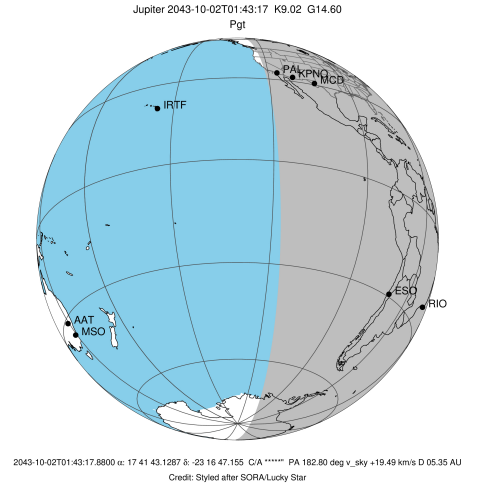


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-10-02T01:03:43.517 | 19.83 | -54.41 | 71489.1 | 41.55 | 45.27 |
| Jupiter | E | 2043-10-02T02:33:33.918 | 0.50x | -63.66 | 71488.8 | 43.90 | 47.61 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-10-02T01:47:48.370
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : ESO
Location              : European Southern Obs. (3.6m)
Latitude (deg)        : -29.26097
E. Longitude (deg)    : 289.26831
Altitude (km)         : 2.400
Gaia source ID        : 4116492472639718400
2Mass ID (if available) : 17414312-2316468
ICRS Star Coord at Epoch: 17h 41m 43.12868s -23:16:47.15453s
RUWE (>1.4 is poor)  : 0.99
K magnitude           : 9.018
G magnitude           : 14.604
RP magnitude          : 13.233
BP magnitude          : 16.891
DUPflag              : 0
Distance (au)         : 5.352
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 19.49
Sun-Target sep (deg)  : 77.64
Sun-Moon sep (deg)    : 90.43
B (ring opening deg)  : -2.20
PA of pole (deg)      : 1.13
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 12.606
C/A sky separation (km) : 48932.8
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 | 2043-10-02T01:02:39.036 | 45.51 | -30.16 | 71489.1 | 41.85 | 45.56 |
| Jupiter | E | 2043-10-02T02:32:45.595 | 26.04 | -46.60 | 71488.8 | 44.41 | 48.12 |