

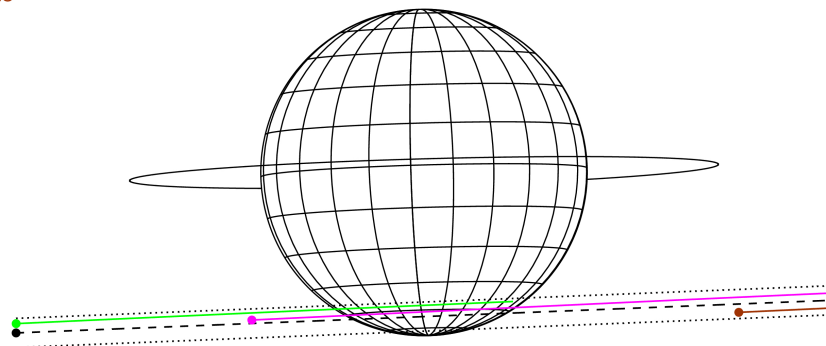
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-02-23T21:53:31.380  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116745360312484608  
 2Mass ID (if available) : 17372809-2248043

Jupiter 2031-02-23T21:53:31 K8.15 G14.87 Pgt

ICRS Star Coord at Epoch: 17h 37m 28.09147s -22:48:04.47001s  
 RUWE (>1.4 is poor) : 0.93  
 K magnitude : 8.155  
 G magnitude : 14.874  
 RP magnitude : 13.311  
 BP magnitude : 18.539  
 DUPflag : 0  
 Distance (au) : 5.576  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 23.40  
 Sun-Target sep (deg) : 69.84  
 Sun-Moon sep (deg) : 99.02  
 B (ring opening deg) : -2.66  
 PA of pole (deg) : 1.59  
 Pole direction: RA (deg): 268.05701  
 Dec (deg): 64.49651  
 C/A sky separation (") : 15.595  
 C/A sky separation (km) : 63070.6  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



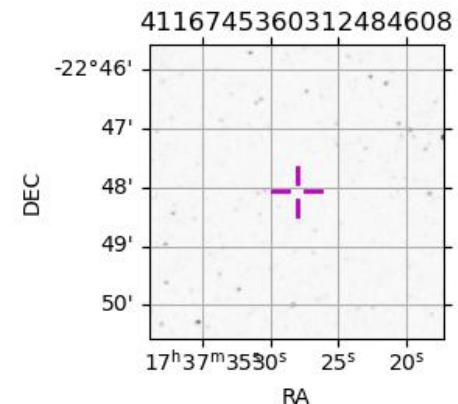
Earth  
 PMO  
 KAV  
 SAAO



2031-02-23T21:53:31.3800 α: 17 37 28.0915 δ: -22 48 04.470 C/A \*\*\*\*\* PA 2.29 deg v\_sky +23.40 km/s D 05.58 AU  
 Credit: Styled after SORA/Lucky Star

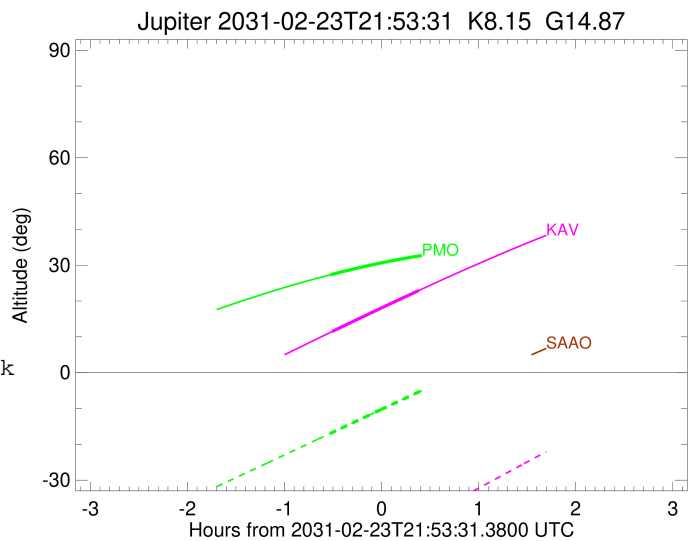
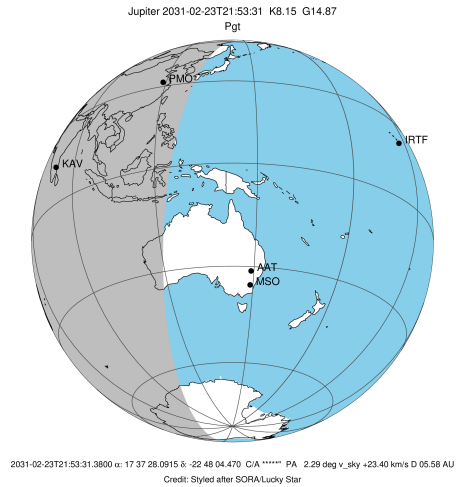
Observable events with sun below -5 deg and altitude above 5 deg

| Obs  | Location                          | lat   | Elon  | Target | Observed Events Interval    | OEncode |
|------|-----------------------------------|-------|-------|--------|-----------------------------|---------|
| 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 | +      | FEB 23 21:21 - FEB 23 21:21 | 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  | + +    | FEB 23 21:23 - FEB 23 22:16 | 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  |        |                             | Pnn     |
| MSO  | Mt. Stromlo Observatory           | -35.3 | 149.0 |        |                             | Pnn     |



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-23T21:51:56.170
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       : 4116745360312484608
2Mass ID (if available) : 17372809-2248043
ICRS Star Coord at Epoch: 17h 37m 28.09147s -22:48:04.47001s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 8.155
G magnitude           : 14.874
RP magnitude          : 13.311
BP magnitude          : 18.539
DUPflag              : 0
Distance (au)        : 5.576
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 23.40
Sun-Target sep (deg) : 69.84
Sun-Moon sep (deg)   : 99.45
B (ring opening deg) : -2.66
PA of pole (deg)     : 1.59
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 14.376
C/A sky separation (km) : 58142.8
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
    
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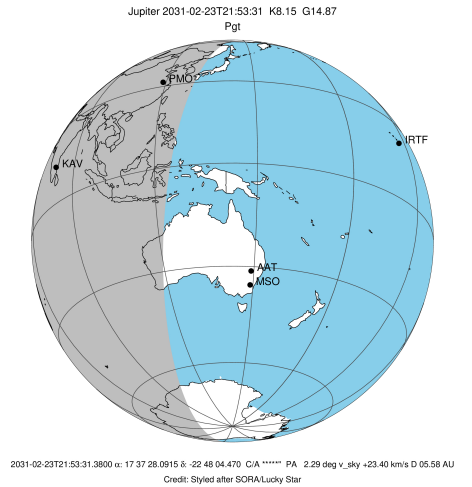


x: target alt < 5.0 deg or sun > -5.0 deg

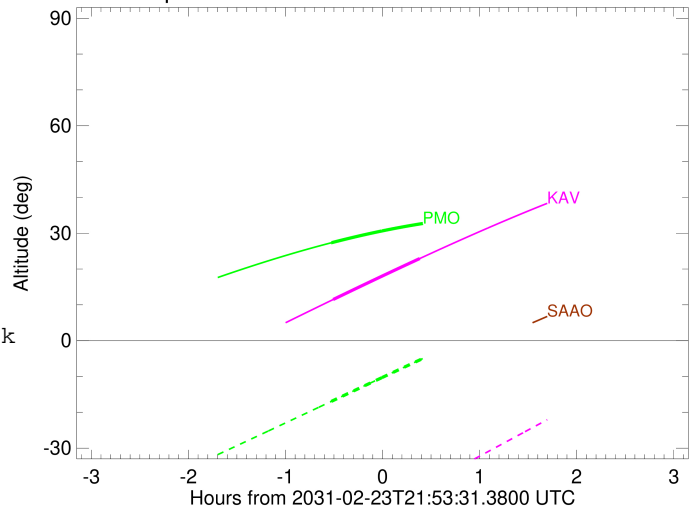
| Target  | I/E | UTC                     | alt   | alt-sun | radius  | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I   | 2031-02-23T21:21:53.957 | 27.33 | -16.95  | 71485.5 | -55.25  | -58.61       |
| Jupiter | E   | 2031-02-23T22:22:00.902 | 32.95 | -4.23x  | 71485.8 | -53.47  | -56.92       |

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-23T21:49:45.550
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      : 4116745360312484608
2Mass ID (if available) : 17372809-2248043
ICRS Star Coord at Epoch: 17h 37m 28.09147s -22:48:04.47001s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 8.155
G magnitude          : 14.874
RP magnitude         : 13.311
BP magnitude         : 18.539
DUPflag             : 0
Distance (au)       : 5.576
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.40
Sun-Target sep (deg) : 69.84
Sun-Moon sep (deg)  : 99.18
B (ring opening deg) : -2.66
PA of pole (deg)    : 1.59
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 15.079
C/A sky separation (km) : 60987.4
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
    
```



Jupiter 2031-02-23T21:53:31 K8.15 G14.87



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   | 2031-02-23T21:23:01.820 | 11.49 | -54.32  | 71484.8 | -59.57  | -62.66       |
| Jupiter | E   | 2031-02-23T22:16:33.195 | 22.93 | -41.26  | 71485.1 | -57.36  | -60.59       |