

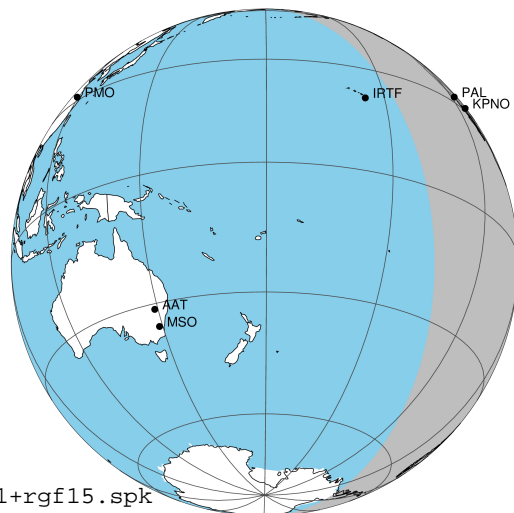
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-02T03:05:32.400
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068780265061739648
 2Mass ID (if available) : 17463934-2317178

Jupiter 2031-11-02T03:05:32 K9.54 G14.54 Pgt

ICRS Star Coord at Epoch: 17h 46m 39.33952s -23:17:17.92686s

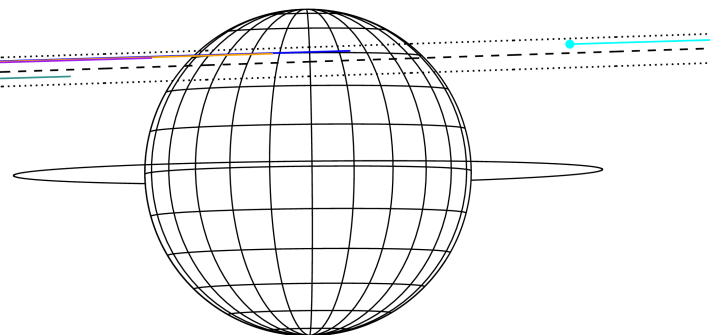
RUWE (>1.4 is poor) : 1.15
 K magnitude : 9.541
 G magnitude : 14.541
 RP magnitude : 13.228
 BP magnitude : 16.404
 DUPflag : 0
 Distance (au) : 5.845
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 33.20
 Sun-Target sep (deg) : 47.89
 Sun-Moon sep (deg) : 165.11
 B (ring opening deg) : -2.21
 PA of pole (deg) : 0.60
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 11.435
 C/A sky separation (km) : 48475.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-11-02T03:05:32 K9.54 G14.54
 Pgt



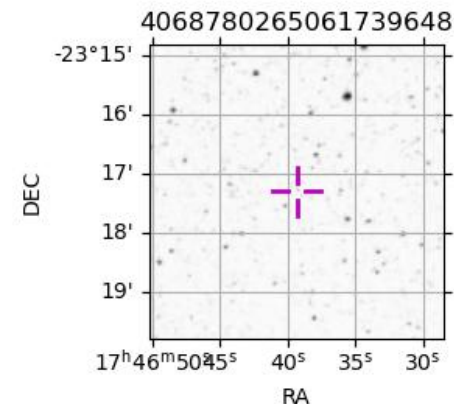
2031-11-02T03:05:32.4000 a: 17 46 39.3395 s: -23 17 17.927 C/A ***** PA 181.90 deg v_sky +33.20 km/s D 05.84 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 KPNO
 MCD
 IRTF
 ESO



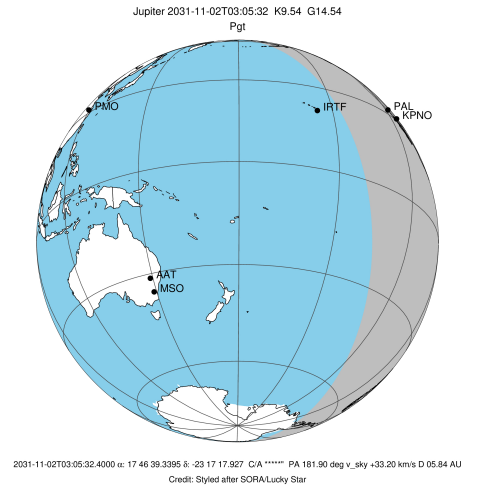
Observable events with sun below -5 deg and altitude above 5 deg

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 02 02:43 - NOV 02 02:43	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	NOV 02 02:43 - NOV 02 02:43	Pin
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			Pnn
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

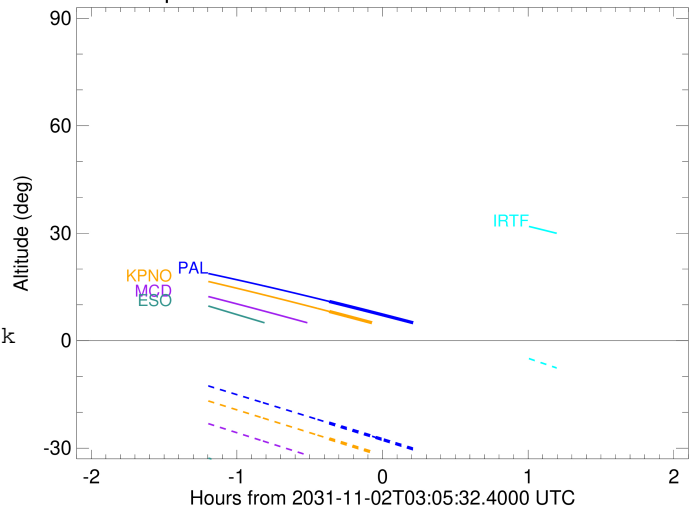


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-02T03:07:59.690
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PAL
Location              : Palomar Mt (200")
Latitude (deg)        : 33.35622
E. Longitude (deg)    : 243.13601
Altitude (km)         : 1.706
Gaia source ID        : 4068780265061739648
2Mass ID (if available) : 17463934-2317178
ICRS Star Coord at Epoch: 17h 46m 39.33952s -23:17:17.92686s
RUWE (>1.4 is poor) : 1.15
K magnitude           : 9.541
G magnitude           : 14.541
RP magnitude          : 13.228
BP magnitude          : 16.404
DUPflag              : 0
Distance (au)         : 5.845
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.20
Sun-Target sep (deg)  : 47.89
Sun-Moon sep (deg)   : 165.70
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.60
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 12.441
C/A sky separation (km) : 52739.0
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
    
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Jupiter 2031-11-02T03:05:32 K9.54 G14.54

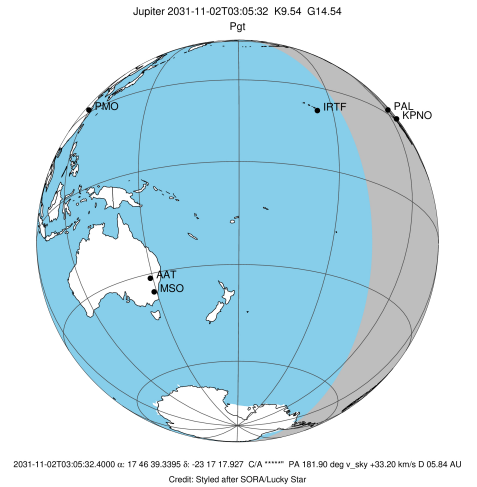


x: target alt < 5.0 deg or sun > -5.0 deg

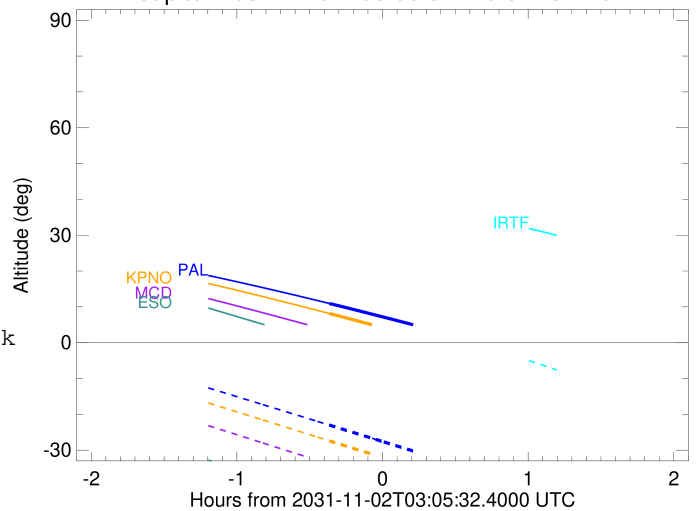
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-02T02:43:37.316	10.94	-23.00	71488.5	46.41	50.09
Jupiter	E	2031-11-02T03:32:20.095	2.45x	-33.19	71488.3	48.55	52.18

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-02T03:08:08.520
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        : 4068780265061739648
2Mass ID (if available) : 17463934-2317178
ICRS Star Coord at Epoch: 17h 46m 39.33952s -23:17:17.92686s
RUWE (>1.4 is poor) : 1.15
K magnitude           : 9.541
G magnitude           : 14.541
RP magnitude          : 13.228
BP magnitude          : 16.404
DUPflag               : 0
Distance (au)         : 5.845
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.20
Sun-Target sep (deg) : 47.89
Sun-Moon sep (deg)   : 165.73
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.60
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 12.375
C/A sky separation (km) : 52460.2
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
    
```



Jupiter 2031-11-02T03:05:32 K9.54 G14.54



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	2031-11-02T02:43:38.322	8.14	-27.40	71488.5	46.10	49.79
Jupiter	E	2031-11-02T03:32:36.650	-0.84x	-37.79	71488.3	48.21	51.85