

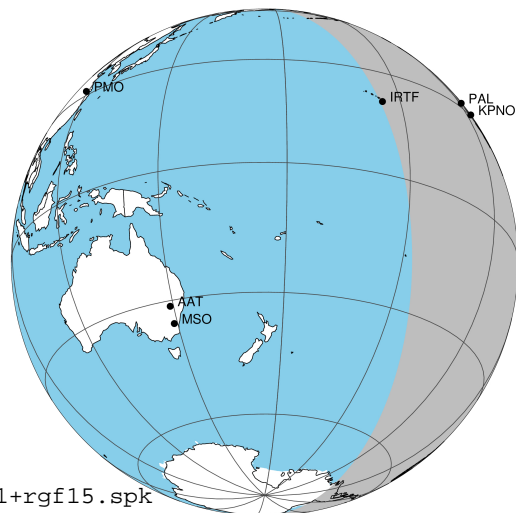
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-25T03:49:12.120
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116537243382550912
 2Mass ID (if available) : 17402073-2313551

Jupiter 2031-10-25T03:49:12 K7.69 G13.96 Pgt

ICRS Star Coord at Epoch: 17h 40m 20.72677s -23:13:55.31216s

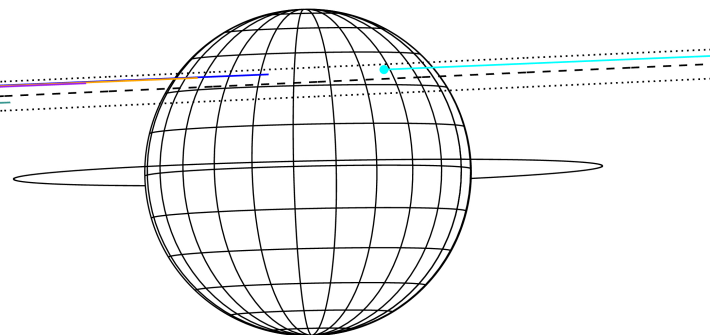
RUWE (>1.4 is poor) : 0.93
 K magnitude : 7.690
 G magnitude : 13.957
 RP magnitude : 12.399
 BP magnitude : 17.556
 DUPflag : 0
 Distance (au) : 5.751
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 30.54
 Sun-Target sep (deg) : 54.39
 Sun-Moon sep (deg) : 60.01
 B (ring opening deg) : -2.24
 PA of pole (deg) : 1.28
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 9.463
 C/A sky separation (km) : 39465.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-10-25T03:49:12 K7.69 G13.96
 Pgt



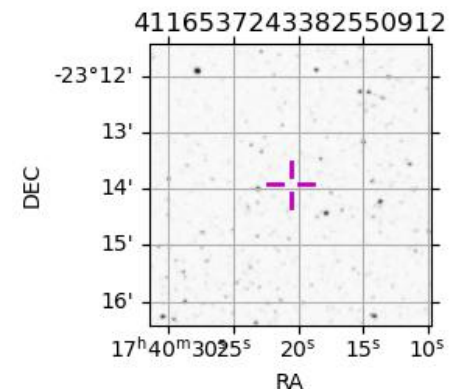
2031-10-25T03:49:12.1200 cc: 17 40 20.7268 s: -23 13 55.312 C/A 9.454" PA 182.60 deg v_sky +30.54 km/s D 05.75 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 KPNO
 MCD
 IRTF
 ESO



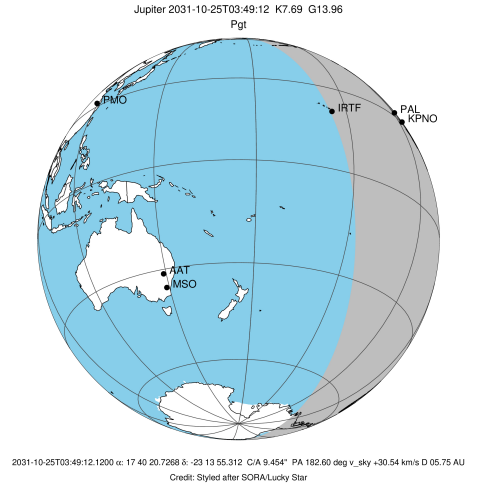
Observable events with sun below -5 deg and altitude above 5 deg

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	+	OCT 25 03:20 - OCT 25 03:20	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	OCT 25 03:20 - OCT 25 03:20	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	+	OCT 25 04:22 - OCT 25 04:22	Pne
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

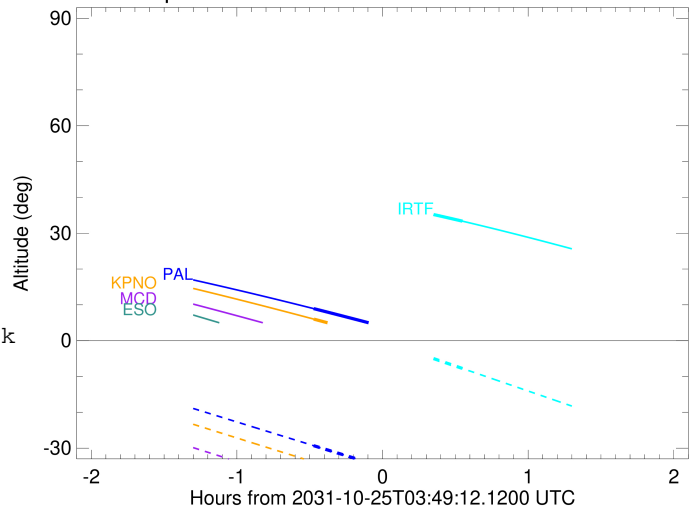


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-25T03:51:55.950
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PAL
Location              : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4116537243382550912
2Mass ID (if available) : 17402073-2313551
ICRS Star Coord at Epoch: 17h 40m 20.72677s -23:13:55.31216s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 7.690
G magnitude           : 13.957
RP magnitude          : 12.399
BP magnitude          : 17.556
DUPflag              : 0
Distance (au)        : 5.751
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 30.54
Sun-Target sep (deg) : 54.39
Sun-Moon sep (deg)   : 59.66
B (ring opening deg) : -2.24
PA of pole (deg)     : 1.28
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation ("): 10.462
C/A sky separation (km): 43633.7
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
    
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Jupiter 2031-10-25T03:49:12 K7.69 G13.96

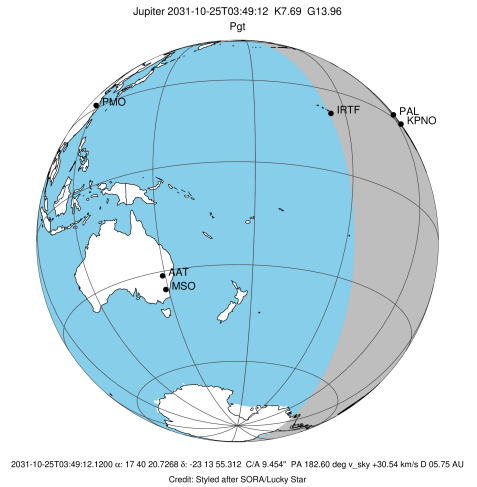


x: target alt < 5.0 deg or sun > -5.0 deg

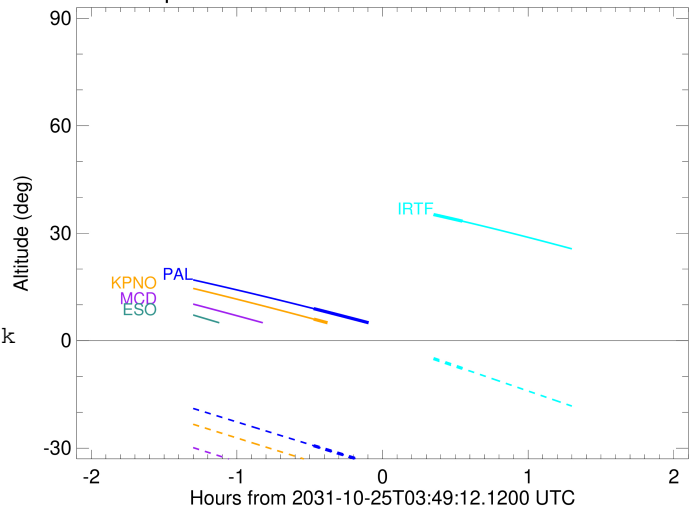
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-25T03:20:50.937	8.94	-29.31	71489.6	36.52	40.16
Jupiter	E	2031-10-25T04:22:57.355	-2.22x	-42.12	71489.3	38.63	42.32

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-25T03:52:04.420
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        : 4116537243382550912
2Mass ID (if available) : 17402073-2313551
ICRS Star Coord at Epoch: 17h 40m 20.72677s -23:13:55.31216s
RUWE (>1.4 is poor)  : 0.93
K magnitude           : 7.690
G magnitude           : 13.957
RP magnitude          : 12.399
BP magnitude          : 17.556
DUPflag              : 0
Distance (au)         : 5.751
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 30.54
Sun-Target sep (deg)  : 54.39
Sun-Moon sep (deg)    : 59.60
B (ring opening deg) : -2.24
PA of pole (deg)      : 1.28
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (" ) : 10.394
C/A sky separation (km) : 43349.0
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 2031-10-25T03:49:12 K7.69 G13.96

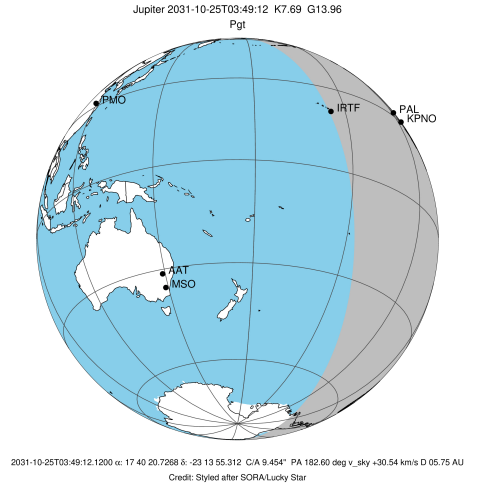


x: target alt < 5.0 deg or sun > -5.0 deg

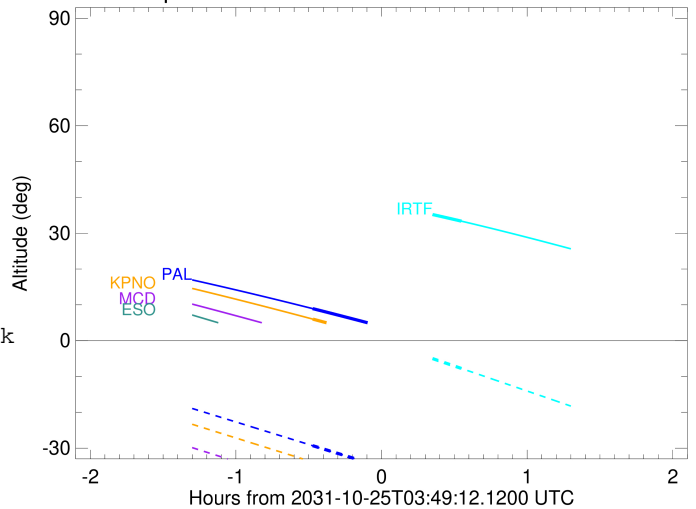
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-25T03:20:54.164	6.02	-33.88	71489.6	36.25	39.88
Jupiter	E	2031-10-25T04:23:10.917	-5.69x	-46.81	71489.4	38.33	42.01

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-25T03:50:48.210
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        : 4116537243382550912
2Mass ID (if available) : 17402073-2313551
ICRS Star Coord at Epoch: 17h 40m 20.72677s -23:13:55.31216s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 7.690
G magnitude           : 13.957
RP magnitude          : 12.399
BP magnitude          : 17.556
DUPflag              : 0
Distance (au)         : 5.751
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 30.54
Sun-Target sep (deg) : 54.39
Sun-Moon sep (deg)   : 60.29
B (ring opening deg) : -2.24
PA of pole (deg)     : 1.28
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (" ) : 10.458
C/A sky separation (km) : 43617.2
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 2031-10-25T03:49:12 K7.69 G13.96



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	2031-10-25T03:19:28.473	41.91	6.64x	71489.6	36.36	40.00
Jupiter	E	2031-10-25T04:22:05.542	33.36	-7.75	71489.3	38.72	42.41