

target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-29T02:37:37.780
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068815282028020224
 2Mass ID (if available) : 17432516-2315458

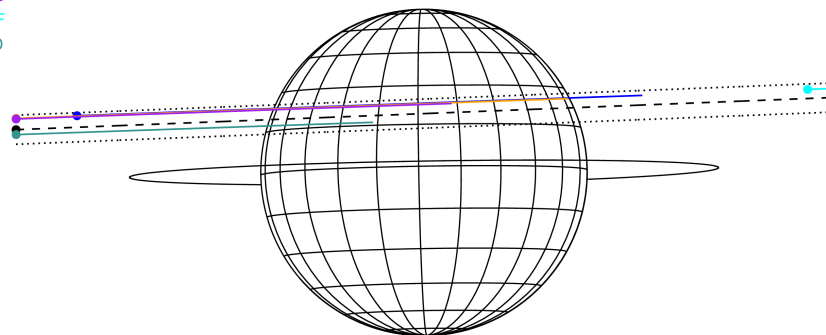
Jupiter 2031-10-29T02:37:37 K7.57 G14.87 Pgt

ICRS Star Coord at Epoch: 17h 43m 25.16121s -23:15:46.19506s
 RUWE (>1.4 is poor) : 0.81
 K magnitude : 7.570
 G magnitude : 14.872
 RP magnitude : 13.238
 BP magnitude : 19.174
 DUPflag : 0
 Distance (au) : 5.798
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 31.89
 Sun-Target sep (deg) : 51.16
 Sun-Moon sep (deg) : 113.94
 B (ring opening deg) : -2.22
 PA of pole (deg) : 0.95
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 6.129
 C/A sky separation (km) : 25776.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



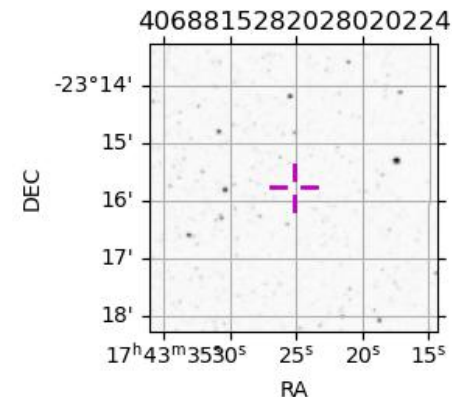
2031-10-29T02:37:37.7800 cc: 17 43 25.1612 s: -23 15 46.195 C/A 6.121" PA 182.25 deg v_sky +31.89 km/s D 05.80 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 KPNO
 MCD
 IRTF
 ESO



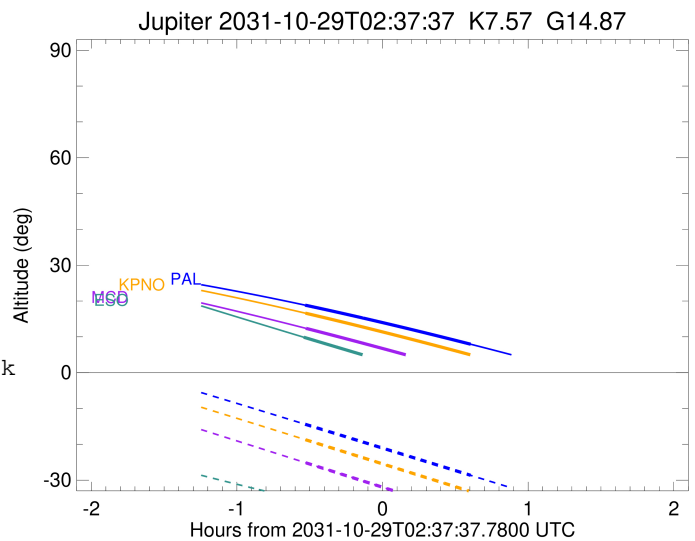
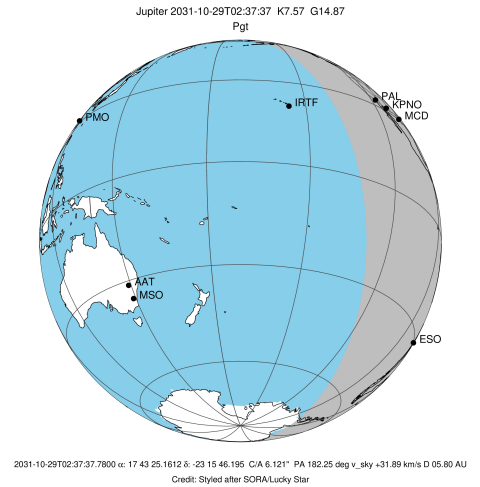
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	OCT 29 02:05 - OCT 29 03:13	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	OCT 29 02:05 - OCT 29 02:05	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	OCT 29 02:06 - OCT 29 02:06	Pin
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	+	OCT 29 02:05 - OCT 29 02:05	Pin
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            : 2031-10-29T02:39:51.510
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      : 4068815282028020224
2Mass ID (if available) : 17432516-2315458
ICRS Star Coord at Epoch: 17h 43m 25.16121s -23:15:46.19506s
RUWE (>1.4 is poor) : 0.81
K magnitude          : 7.570
G magnitude          : 14.872
RP magnitude         : 13.238
BP magnitude         : 19.174
DUPflag             : 0
Distance (au)       : 5.798
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.89
Sun-Target sep (deg) : 51.16
Sun-Moon sep (deg)  : 114.42
B (ring opening deg) : -2.22
PA of pole (deg)    : 0.95
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (" ) : 7.222
C/A sky separation (km) : 30371.9
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
    
```

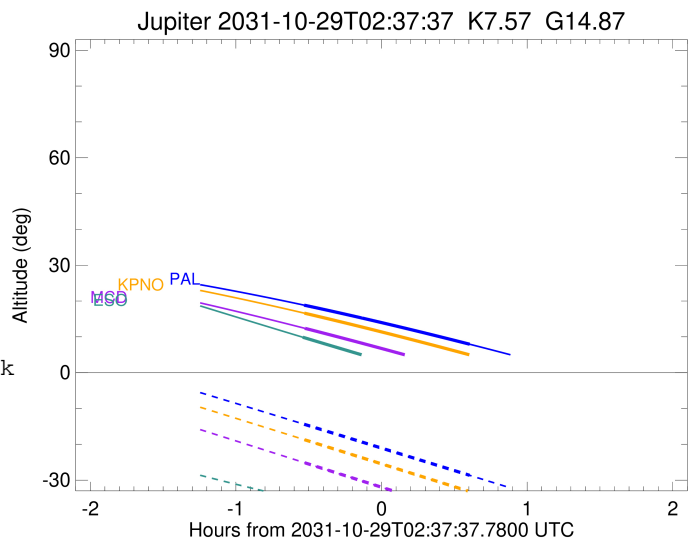
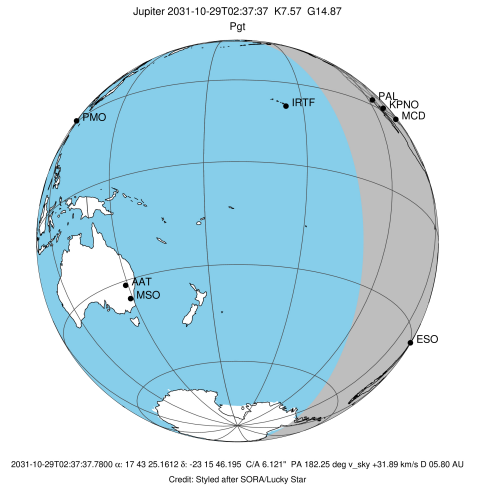


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-29T02:05:45.375	18.84	-14.40	71490.9	24.01	26.96
Jupiter	E	2031-10-29T03:13:54.002	7.95	-28.64	71490.7	26.20	29.32

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-29T02:40:02.870
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      : 4068815282028020224
2Mass ID (if available) : 17432516-2315458
ICRS Star Coord at Epoch: 17h 43m 25.16121s -23:15:46.19506s
RUWE (>1.4 is poor) : 0.81
K magnitude          : 7.570
G magnitude          : 14.872
RP magnitude         : 13.238
BP magnitude         : 19.174
DUPflag             : 0
Distance (au)        : 5.798
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.89
Sun-Target sep (deg) : 51.16
Sun-Moon sep (deg)  : 114.41
B (ring opening deg) : -2.22
PA of pole (deg)    : 0.95
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (" ) : 7.162
C/A sky separation (km) : 30118.9
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
    
```

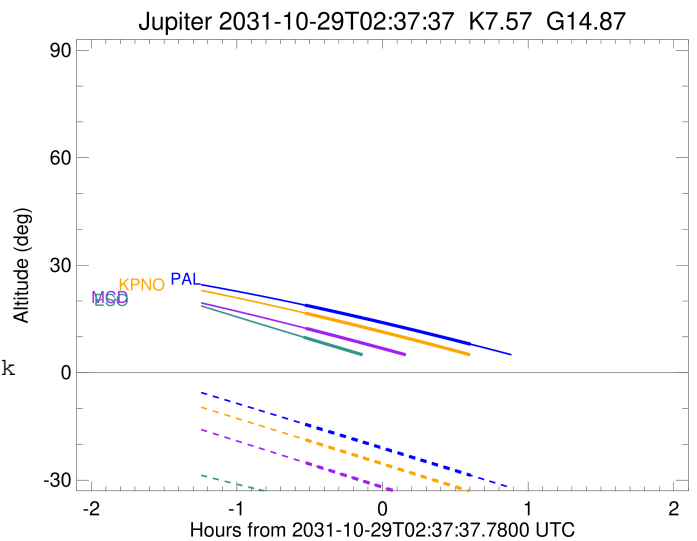
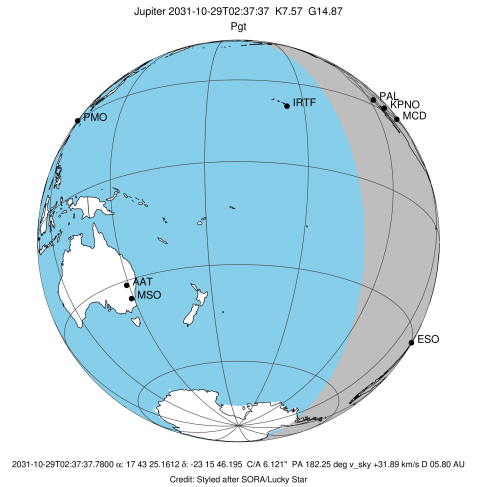


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-29T02:05:54.622	16.60	-18.72	71490.9	23.81	26.74
Jupiter	E	2031-10-29T03:14:07.224	4.94x	-33.20	71490.7	25.96	29.06

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-29T02:40:15.960
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        : 4068815282028020224
2Mass ID (if available) : 17432516-2315458
ICRS Star Coord at Epoch: 17h 43m 25.16121s -23:15:46.19506s
RUWE (>1.4 is poor) : 0.81
K magnitude           : 7.570
G magnitude           : 14.872
RP magnitude          : 13.238
BP magnitude          : 19.174
DUPflag              : 0
Distance (au)         : 5.798
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 31.89
Sun-Target sep (deg)  : 51.16
Sun-Moon sep (deg)    : 114.36
B (ring opening deg) : -2.22
PA of pole (deg)      : 0.95
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 7.081
C/A sky separation (km) : 29778.2
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
    
```

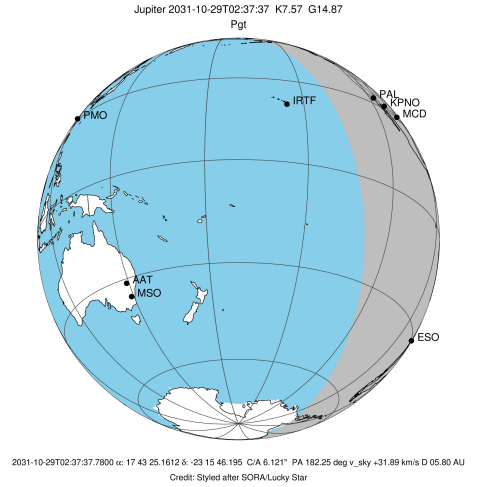


x: target alt < 5.0 deg or sun > -5.0 deg

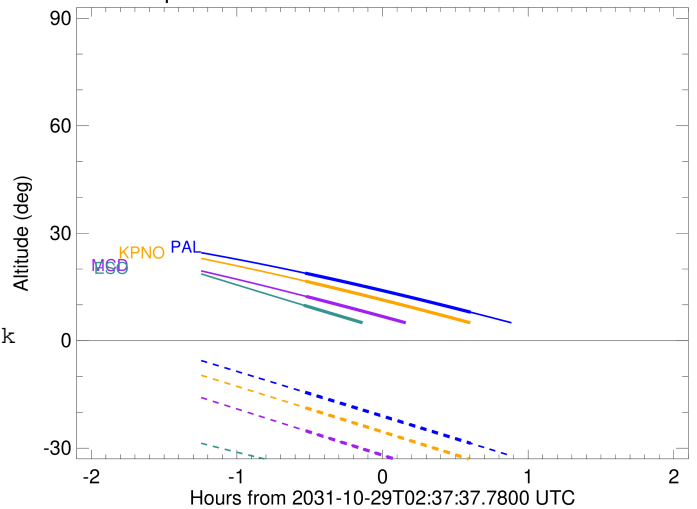
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-29T02:06:05.513	12.37	-25.17	71490.9	23.53	26.44
Jupiter	E	2031-10-29T03:14:22.231	-0.14x	-39.84	71490.7	25.64	28.72

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-29T02:40:36.750
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       : 4068815282028020224
2Mass ID (if available) : 17432516-2315458
ICRS Star Coord at Epoch: 17h 43m 25.16121s -23:15:46.19506s
RUWE (>1.4 is poor) : 0.81
K magnitude          : 7.570
G magnitude          : 14.872
RP magnitude         : 13.238
BP magnitude         : 19.174
DUPflag             : 0
Distance (au)        : 5.798
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.89
Sun-Target sep (deg) : 51.16
Sun-Moon sep (deg)  : 114.33
B (ring opening deg) : -2.22
PA of pole (deg)    : 0.95
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 5.406
C/A sky separation (km) : 22733.3
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
    
```



Jupiter 2031-10-29T02:37:37 K7.57 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	2031-10-29T02:05:13.635	9.88	-35.54	71491.4	17.51	19.82
Jupiter	E	2031-10-29T03:15:55.082	-4.10x	-44.24	71491.2	19.55	22.08