

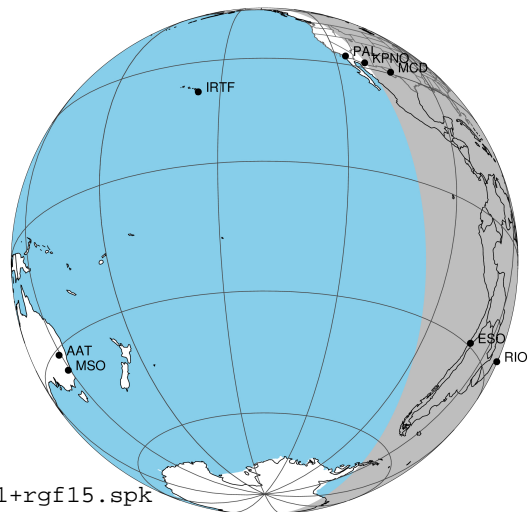
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-30T00:30:44.340
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068812911205528576
 2Mass ID (if available) : 17440864-2316190

Jupiter 2031-10-30T00:30:44 K9.37 G14.52 Pgt

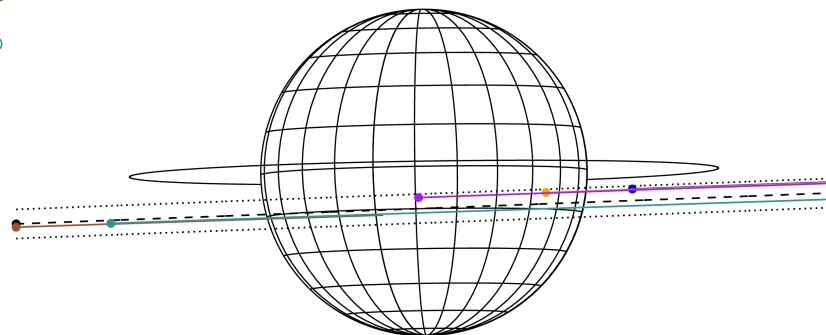
ICRS Star Coord at Epoch: 17h 44m 08.62509s -23:16:19.22395s

RUWE (>1.4 is poor) : 0.94
 K magnitude : 9.366
 G magnitude : 14.524
 RP magnitude : 13.224
 BP magnitude : 16.465
 DUPflag : 0
 Distance (au) : 5.809
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 32.19
 Sun-Target sep (deg) : 50.42
 Sun-Moon sep (deg) : 125.98
 B (ring opening deg) : -2.22
 PA of pole (deg) : 0.87
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 3.736
 C/A sky separation (km) : 15740.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-10-30T00:30:44 K9.37 G14.52
 Pgt



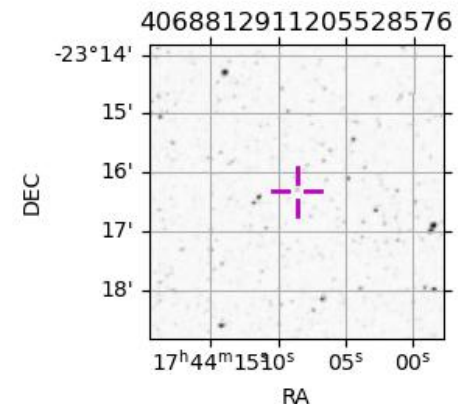
Earth
 PAL
 KPNO
 MCD
 RIO
 ESO



2031-10-30T00:30:44.3400 a: 17 44 08.6251 & -23 16 19.224 C/A 3.744" PA 2.17 deg v_sky +32.19 km/s D 05.81 AU
 Credit: Styled after SORA/Lucky Star

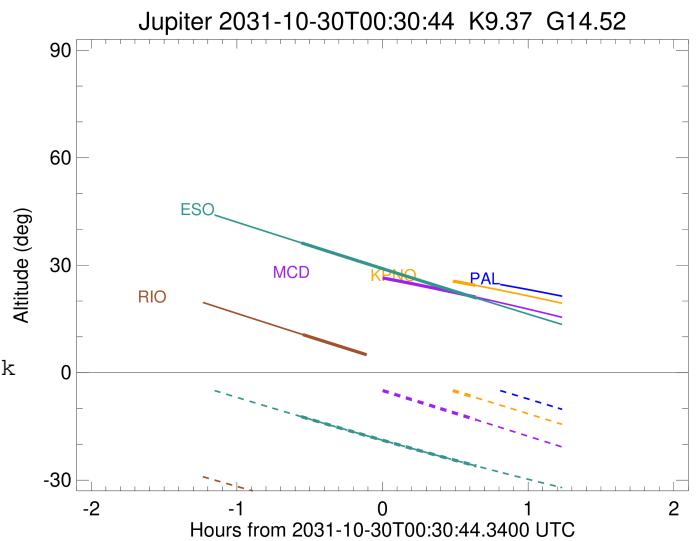
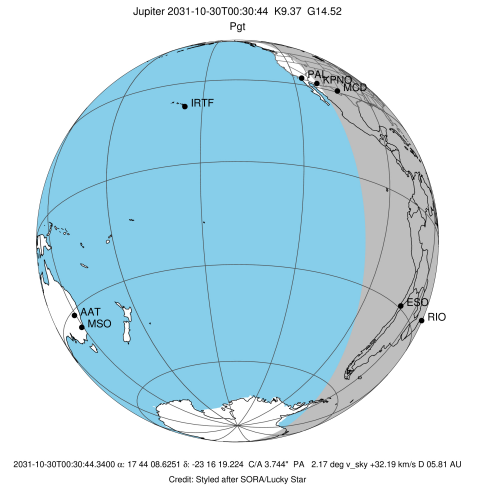
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	OCT 30 01:08 - OCT 30 01:08	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	OCT 30 01:09 - OCT 30 01:09	Pne
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 29 23:57 - OCT 29 23:57	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	OCT 29 23:57 - OCT 30 01:09	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



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-30T00:31:57.360
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        : 4068812911205528576
2Mass ID (if available) : 17440864-2316190
ICRS Star Coord at Epoch: 17h 44m 08.62509s -23:16:19.22395s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.366
G magnitude           : 14.524
RP magnitude          : 13.224
BP magnitude          : 16.465
DUPflag              : 0
Distance (au)         : 5.809
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 32.19
Sun-Target sep (deg)  : 50.42
Sun-Moon sep (deg)    : 126.57
B (ring opening deg) : -2.22
PA of pole (deg)      : 0.87
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 2.535
C/A sky separation (km) : 10680.5
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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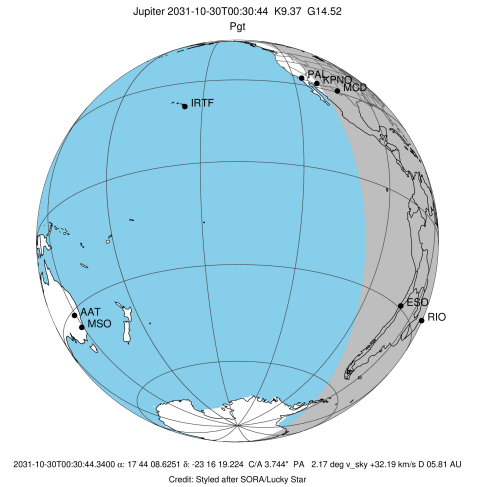


x: target alt < 5.0 deg or sun > -5.0 deg

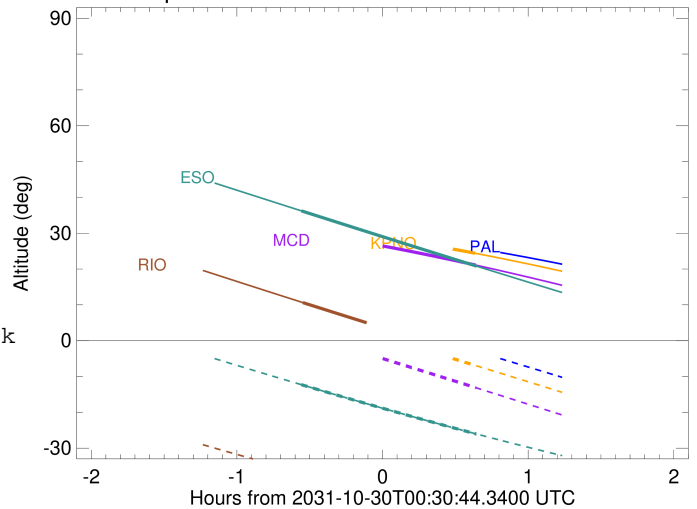
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-29T23:54:56.306	32.08	8.15x	71491.8	-9.80	-11.17
Jupiter	E	2031-10-30T01:08:55.679	24.40	-6.91	71491.9	-7.41	-8.46

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-30T00:32:17.840
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        : 4068812911205528576
2Mass ID (if available) : 17440864-2316190
ICRS Star Coord at Epoch: 17h 44m 08.62509s -23:16:19.22395s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.366
G magnitude           : 14.524
RP magnitude          : 13.224
BP magnitude          : 16.465
DUPflag              : 0
Distance (au)         : 5.809
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 32.19
Sun-Target sep (deg)  : 50.42
Sun-Moon sep (deg)    : 126.60
B (ring opening deg)  : -2.22
PA of pole (deg)      : 0.87
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 2.586
C/A sky separation (km) : 10897.2
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 2031-10-30T00:30:44 K9.37 G14.52

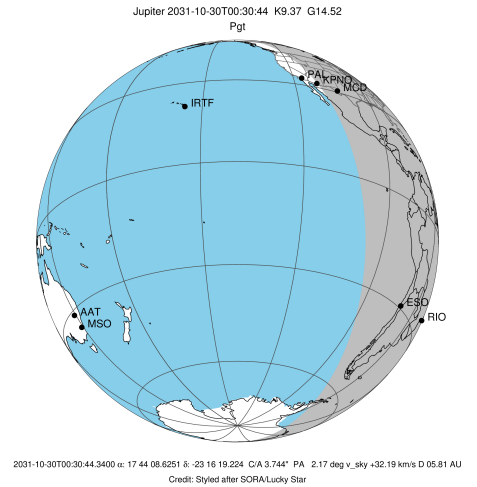


x: target alt < 5.0 deg or sun > -5.0 deg

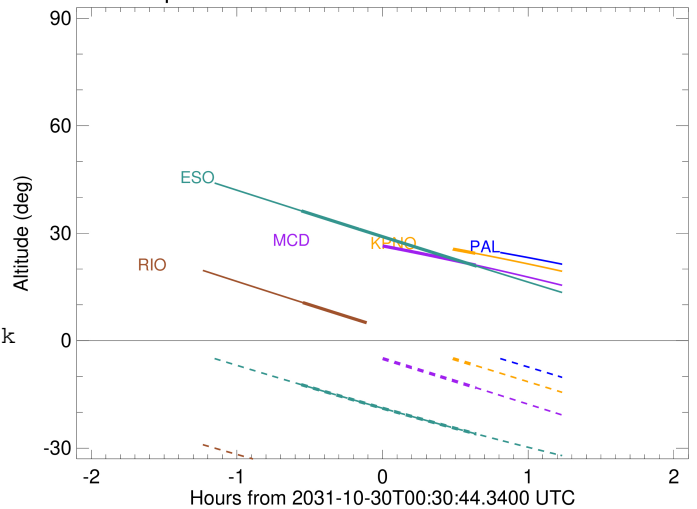
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-29T23:55:19.141	30.54	2.39x	71491.8	-9.94	-11.33
Jupiter	E	2031-10-30T01:09:13.269	21.08	-13.13	71491.9	-7.62	-8.70

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-30T00:33:45.300
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        : 4068812911205528576
2Mass ID (if available) : 17440864-2316190
ICRS Star Coord at Epoch: 17h 44m 08.62509s -23:16:19.22395s
RUWE (>1.4 is poor)  : 0.94
K magnitude           : 9.366
G magnitude           : 14.524
RP magnitude          : 13.224
BP magnitude          : 16.465
DUPflag              : 0
Distance (au)         : 5.809
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 32.19
Sun-Target sep (deg)  : 50.42
Sun-Moon sep (deg)    : 126.54
B (ring opening deg)  : -2.22
PA of pole (deg)      : 0.87
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 4.291
C/A sky separation (km) : 18079.8
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
    
```



Jupiter 2031-10-30T00:30:44 K9.37 G14.52

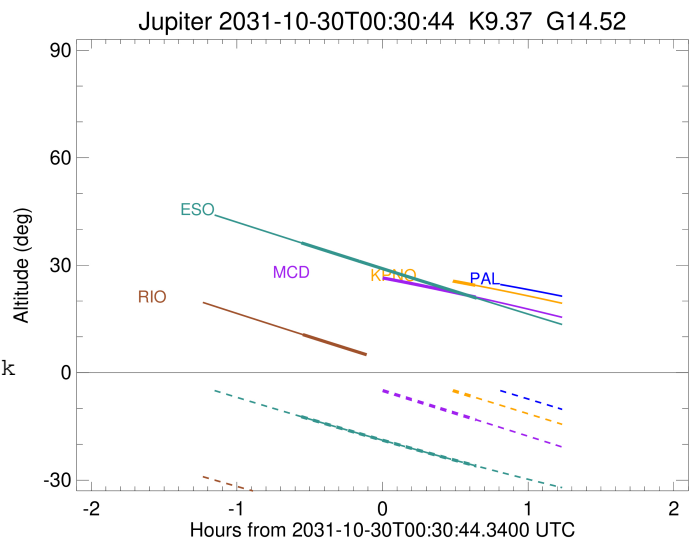
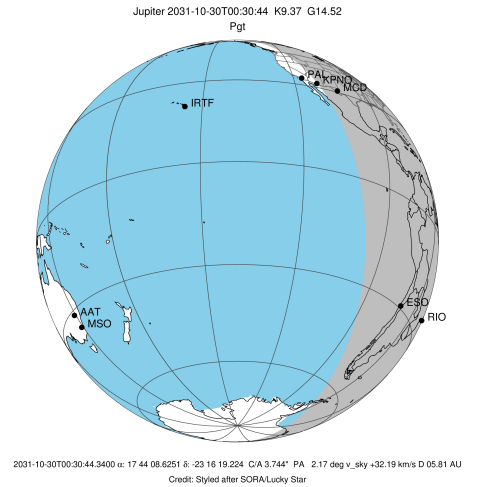


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-29T23:57:57.390	10.62	-36.78	71491.5	-15.64	-17.74
Jupiter	E	2031-10-30T01:09:28.158	-4.45x	-47.80	71491.6	-13.64	-15.50

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-30T00:33:25.800
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        : 4068812911205528576
2Mass ID (if available) : 17440864-2316190
ICRS Star Coord at Epoch: 17h 44m 08.62509s -23:16:19.22395s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.366
G magnitude           : 14.524
RP magnitude          : 13.224
BP magnitude          : 16.465
DUPflag              : 0
Distance (au)         : 5.809
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 32.19
Sun-Target sep (deg)  : 50.42
Sun-Moon sep (deg)    : 126.81
B (ring opening deg)  : -2.22
PA of pole (deg)      : 0.87
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 4.184
C/A sky separation (km) : 17627.5
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	2031-10-29T23:57:21.586	36.22	-12.29	71491.5	-15.32	-17.38
Jupiter	E	2031-10-30T01:09:25.357	20.82	-26.04	71491.6	-13.23	-15.04