

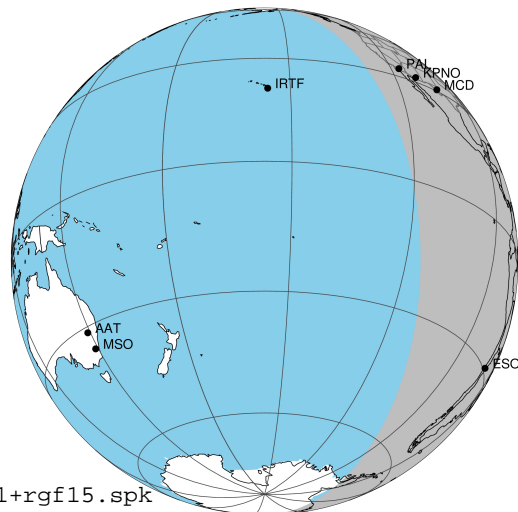
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-28T01:44:26.560
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116482027279400576
 2Mass ID (if available) : 17423611-2315154

Jupiter 2031-10-28T01:44:26 K8.54 G12.08 Pgt

ICRS Star Coord at Epoch: 17h 42m 36.12655s -23:15:15.44887s

RUWE (>1.4 is poor) : 0.74
 K magnitude : 8.543
 G magnitude : 12.078
 RP magnitude : 11.089
 BP magnitude : 13.087
 DUPflag : 0
 Distance (au) : 5.786
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 31.54
 Sun-Target sep (deg) : 52.01
 Sun-Moon sep (deg) : 100.02
 B (ring opening deg) : -2.23
 PA of pole (deg) : 1.04
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 9.749
 C/A sky separation (km) : 40910.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-10-28T01:44:26 K8.54 G12.08
 Pgt

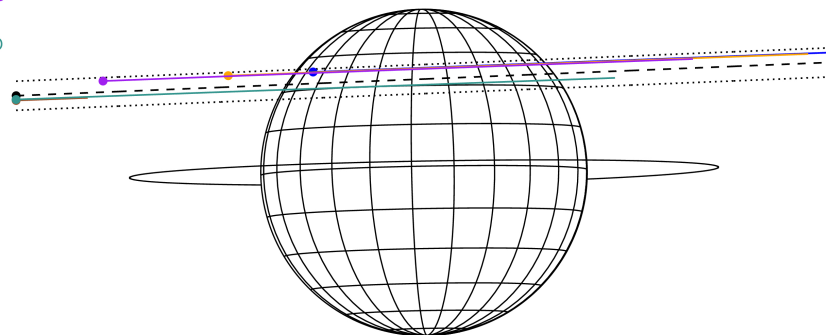


2031-10-28T01:44:26.5600 cc: 17 42 36.1266 s: -23 15 15.449 C/A 9.741" PA 182.34 deg v_sky +31.54 km/s D 05.79 AU

Credit: Styled after SORA/Lucky Star

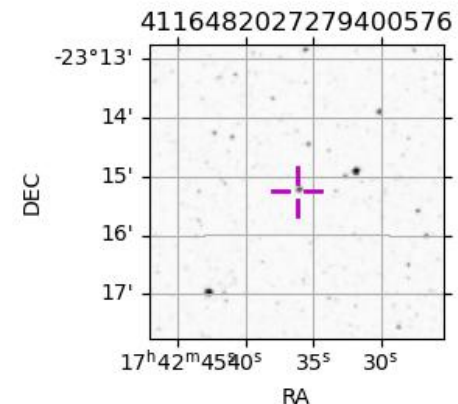
Earth

- PAL
- KPNO
- MCD
- RIO
- ESO



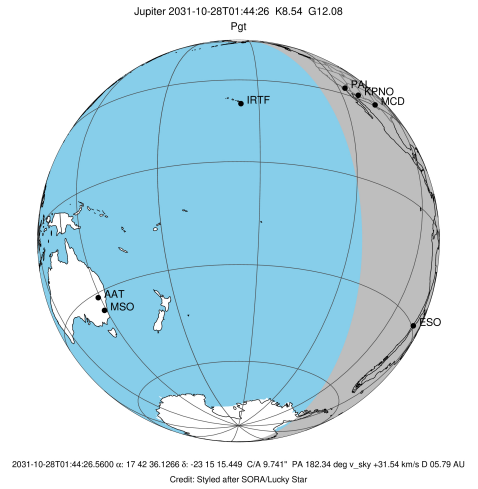
Observable events with sun below -5 deg and altitude above 5 deg

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 28 02:15 - OCT 28 02:15	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	OCT 28 01:17 - OCT 28 02:15	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	OCT 28 01:17 - OCT 28 02:16	Pie
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 28 01:15 - OCT 28 02:19	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

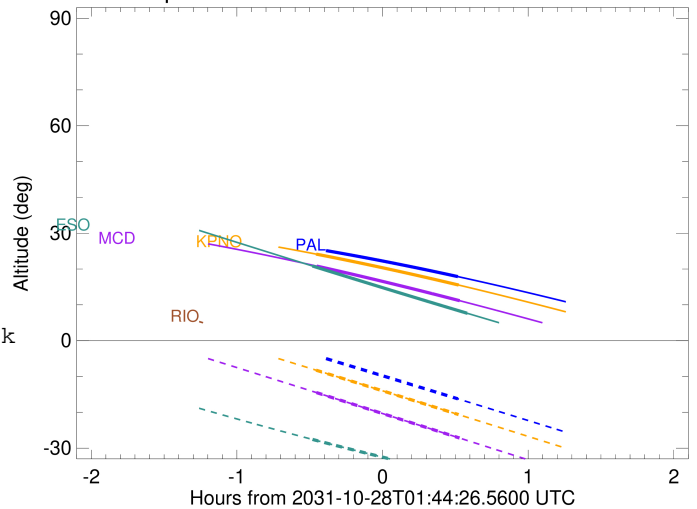


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-28T01:46:12.990
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4116482027279400576
2Mass ID (if available) : 17423611-2315154
ICRS Star Coord at Epoch: 17h 42m 36.12655s -23:15:15.44887s
RUWE (>1.4 is poor) : 0.74
K magnitude          : 8.543
G magnitude          : 12.078
RP magnitude         : 11.089
BP magnitude         : 13.087
DUPflag             : 0
Distance (au)        : 5.786
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.54
Sun-Target sep (deg) : 52.01
Sun-Moon sep (deg)   : 100.48
B (ring opening deg) : -2.23
PA of pole (deg)     : 1.04
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation ("): 10.928
C/A sky separation (km): 45858.8
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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Jupiter 2031-10-28T01:44:26 K8.54 G12.08

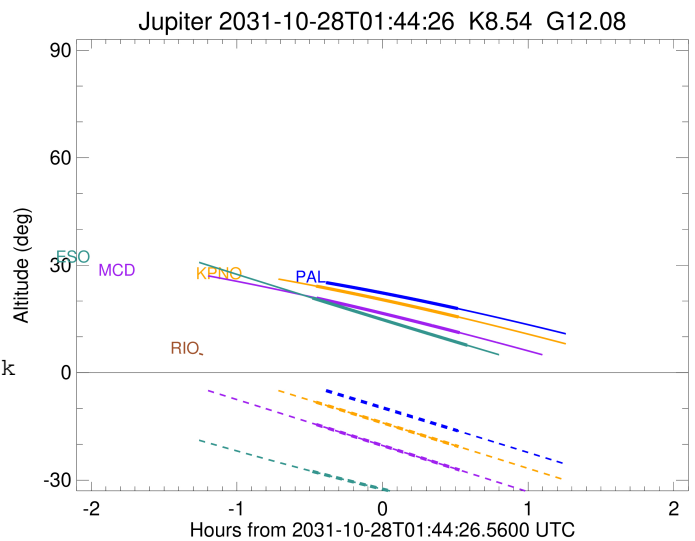
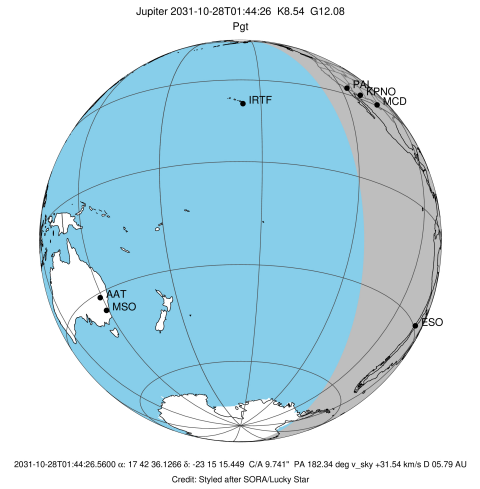


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-28T01:16:56.088	25.64	-4.13x	71489.3	38.70	42.39
Jupiter	E	2031-10-28T02:15:27.652	17.89	-16.23	71489.1	41.00	44.71

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-28T01:46:27.310
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       : 4116482027279400576
2Mass ID (if available) : 17423611-2315154
ICRS Star Coord at Epoch: 17h 42m 36.12655s -23:15:15.44887s
RUWE (>1.4 is poor) : 0.74
K magnitude           : 8.543
G magnitude           : 12.078
RP magnitude          : 11.089
BP magnitude          : 13.087
DUPflag              : 0
Distance (au)        : 5.786
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 31.54
Sun-Target sep (deg) : 52.01
Sun-Moon sep (deg)   : 100.46
B (ring opening deg) : -2.23
PA of pole (deg)     : 1.04
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 10.877
C/A sky separation (km) : 45647.0
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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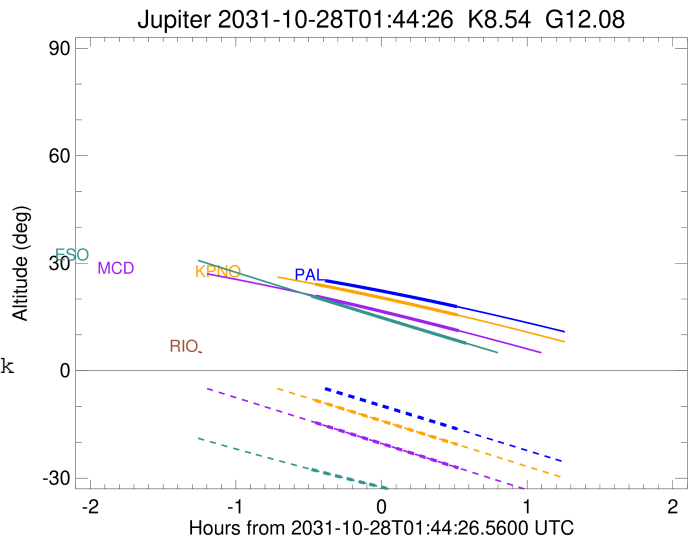
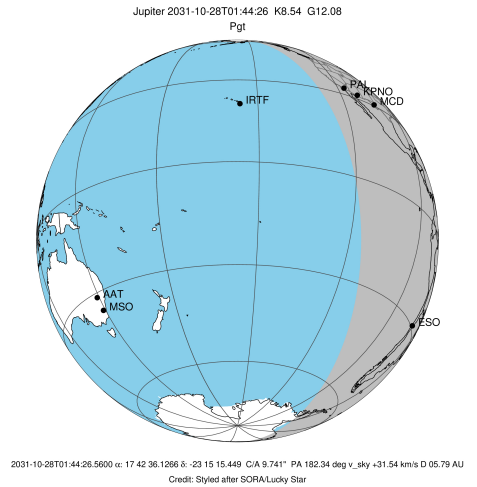


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-28T01:17:05.762	24.16	-8.24	71489.4	38.51	42.19
Jupiter	E	2031-10-28T02:15:46.366	15.53	-20.63	71489.1	40.75	44.47

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-28T01:46:45.340
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       : 4116482027279400576
2Mass ID (if available) : 17423611-2315154
ICRS Star Coord at Epoch: 17h 42m 36.12655s -23:15:15.44887s
RUWE (>1.4 is poor) : 0.74
K magnitude          : 8.543
G magnitude          : 12.078
RP magnitude         : 11.089
BP magnitude         : 13.087
DUPflag             : 0
Distance (au)        : 5.786
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.54
Sun-Target sep (deg) : 52.01
Sun-Moon sep (deg)   : 100.41
B (ring opening deg) : -2.23
PA of pole (deg)     : 1.04
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation ("): 10.808
C/A sky separation (km): 45357.3
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
    
```

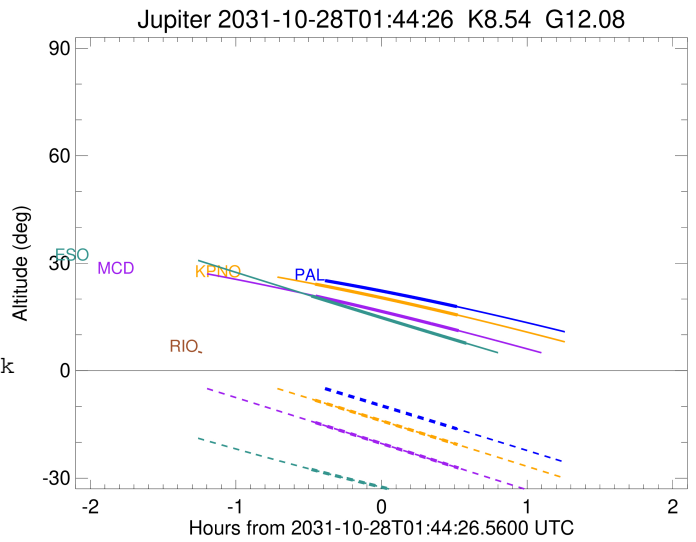
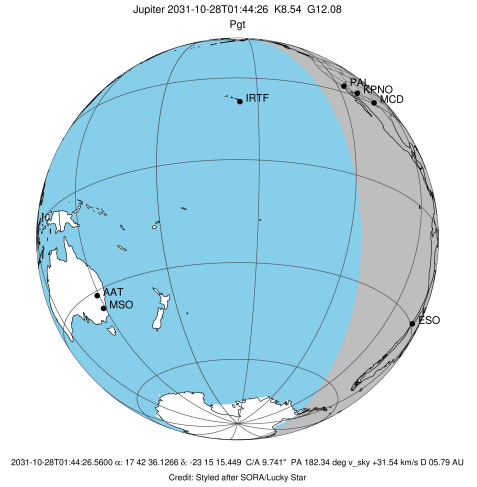


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-28T01:17:18.064	20.82	-14.51	71489.4	38.24	41.92
Jupiter	E	2031-10-28T02:16:09.827	11.17	-27.17	71489.1	40.43	44.14

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-28T01:47:32.020
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        : 4116482027279400576
2Mass ID (if available) : 17423611-2315154
ICRS Star Coord at Epoch: 17h 42m 36.12655s -23:15:15.44887s
RUWE (>1.4 is poor) : 0.74
K magnitude           : 8.543
G magnitude           : 12.078
RP magnitude          : 11.089
BP magnitude          : 13.087
DUPflag              : 0
Distance (au)         : 5.786
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 31.54
Sun-Target sep (deg)  : 52.01
Sun-Moon sep (deg)   : 100.41
B (ring opening deg) : -2.23
PA of pole (deg)      : 1.04
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 9.155
C/A sky separation (km) : 38417.3
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
    
```



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	2031-10-28T01:15:36.689	20.83	-27.57	71490.2	31.45	34.90
Jupiter	E	2031-10-28T02:19:23.350	7.64	-37.87	71489.9	33.49	37.03