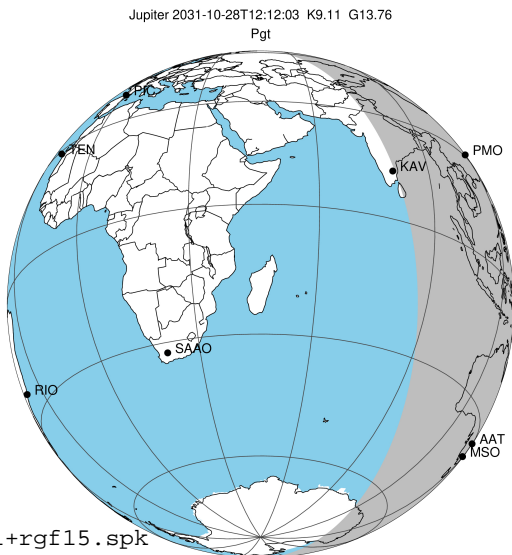


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-28T12:12:03.600
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116854113267598720
 2Mass ID (if available) : 17425667-2315358

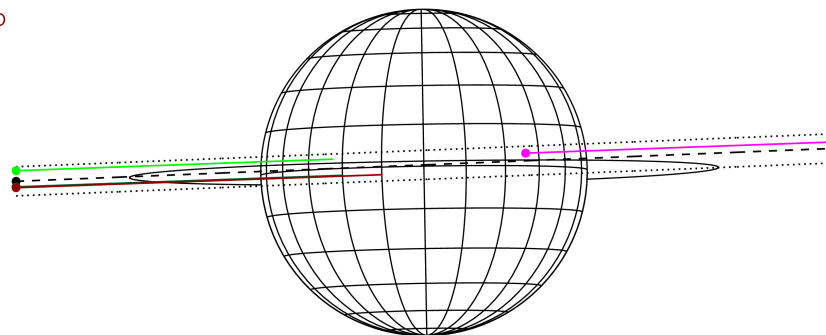
Jupiter 2031-10-28T12:12:03 K9.11 G13.76 Pgt

ICRS Star Coord at Epoch: 17h 42m 56.66111s -23:15:35.89830s
 RUWE (>1.4 is poor) : 0.90
 K magnitude : 9.109
 G magnitude : 13.757
 RP magnitude : 12.553
 BP magnitude : 15.358
 DUPflag : 0
 Distance (au) : 5.791
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 31.69
 Sun-Target sep (deg) : 51.65
 Sun-Moon sep (deg) : 105.90
 B (ring opening deg) : -2.22
 PA of pole (deg) : 1.00
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 0.795
 C/A sky separation (km) : 3337.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



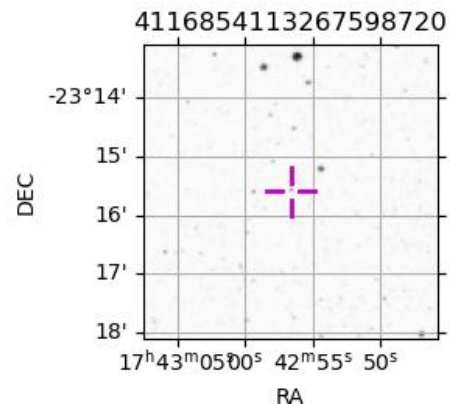
2031-10-28T12:12:03.6000 cc: 17 42 56.66111 s: -23 15 35.898 C/A 0.786° PA 182.30 deg v_sky +31.69 km/s D 05.79 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PMO
 KAV
 AAT
 MSO



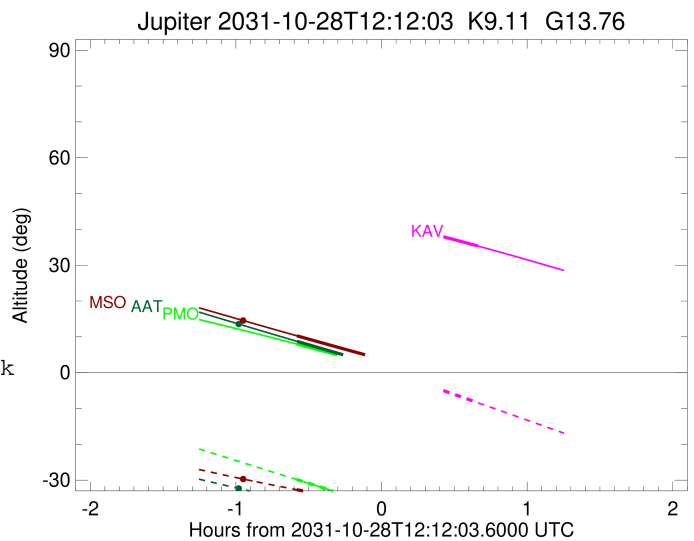
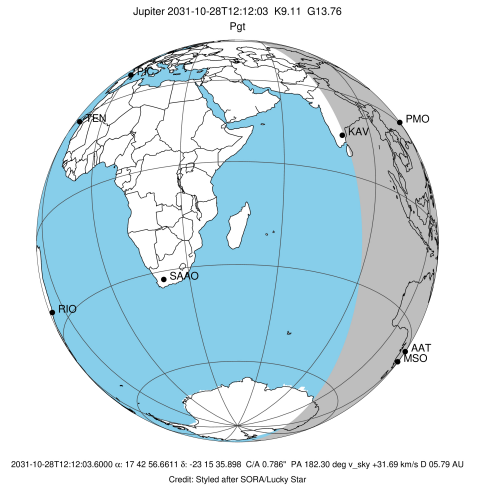
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	OCT 28 11:37 - OCT 28 11:37	Pin
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
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	+	OCT 28 12:51 - OCT 28 12:51	Pne
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	+	OCT 28 11:37 - OCT 28 11:37	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	OCT 28 11:37 - OCT 28 11:37	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-28T12:14:43.420
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 4116854113267598720
2Mass ID (if available) : 17425667-2315358
ICRS Star Coord at Epoch: 17h 42m 56.66111s -23:15:35.89830s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.109
G magnitude           : 13.757
RP magnitude          : 12.553
BP magnitude          : 15.358
DUPflag              : 0
Distance (au)         : 5.791
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 31.69
Sun-Target sep (deg)  : 51.65
Sun-Moon sep (deg)   : 106.15
B (ring opening deg) : -2.22
PA of pole (deg)     : 1.00
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 1.725
C/A sky separation (km) : 7245.7
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
    
```

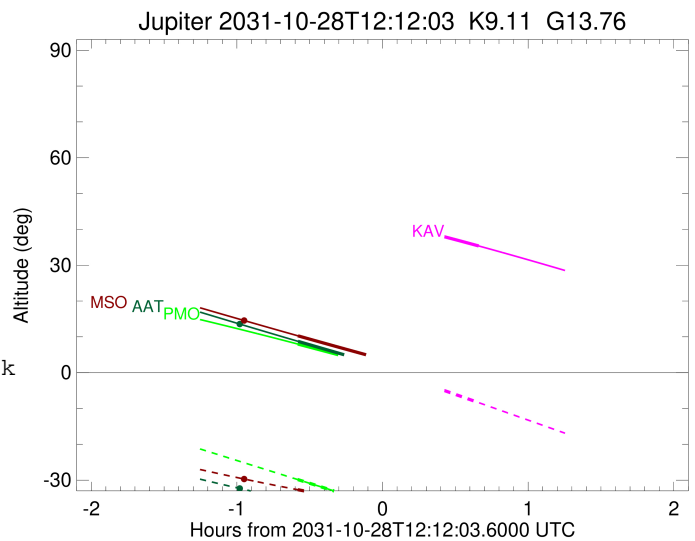
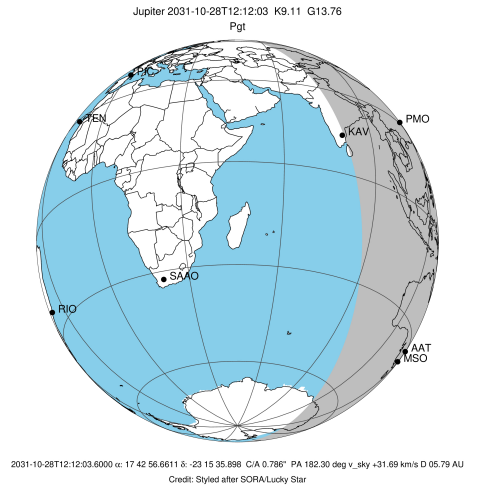


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-28T11:37:07.974	7.99	-29.84	71492.0	4.76	5.44
Jupiter	E	2031-10-28T12:52:13.725	-6.01x	-45.59	71491.9	6.85	7.82

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-28T12:13:46.390
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : KAV
Location              : Kavalur Observatory
Latitude (deg)        : 12.57556
E. Longitude (deg)    : 78.83167
Altitude (km)         : 0.722
Gaia source ID        : 4116854113267598720
2Mass ID (if available) : 17425667-2315358
ICRS Star Coord at Epoch: 17h 42m 56.66111s -23:15:35.89830s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.109
G magnitude           : 13.757
RP magnitude          : 12.553
BP magnitude          : 15.358
DUPflag              : 0
Distance (au)         : 5.791
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 31.69
Sun-Target sep (deg)  : 51.65
Sun-Moon sep (deg)   : 106.67
B (ring opening deg) : -2.22
PA of pole (deg)     : 1.00
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 1.618
C/A sky separation (km) : 6796.7
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
    
```

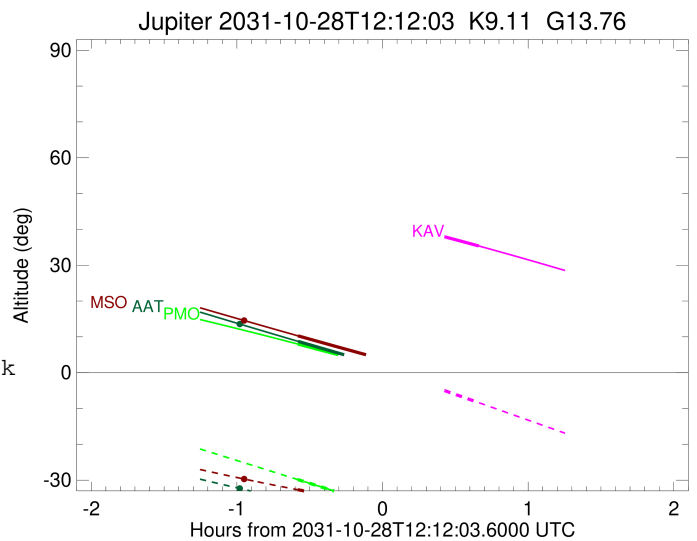
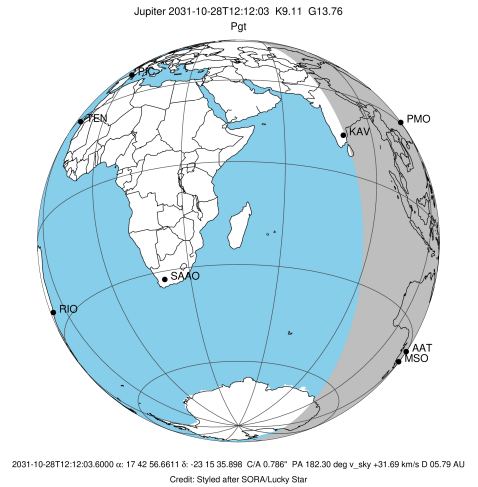


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-28T11:35:51.259	47.63	9.62x	71492.0	4.27	4.88
Jupiter	E	2031-10-28T12:51:37.865	35.38	-8.35	71491.9	6.58	7.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-28T12:14:55.210
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : AAT
Location             : Siding Spring (AAT)
Latitude (deg)       : -31.27703
E. Longitude (deg)   : 149.06608
Altitude (km)        : 1.164
Gaia source ID       : 4116854113267598720
2Mass ID (if available) : 17425667-2315358
ICRS Star Coord at Epoch: 17h 42m 56.66111s -23:15:35.89830s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.109
G magnitude           : 13.757
RP magnitude          : 12.553
BP magnitude          : 15.358
DUPflag              : 0
Distance (au)        : 5.791
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.69
Sun-Target sep (deg) : 51.65
Sun-Moon sep (deg)   : 106.15
B (ring opening deg) : -2.22
PA of pole (deg)     : 1.00
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 0.006
C/A sky separation (km) : 25.9
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
    
```

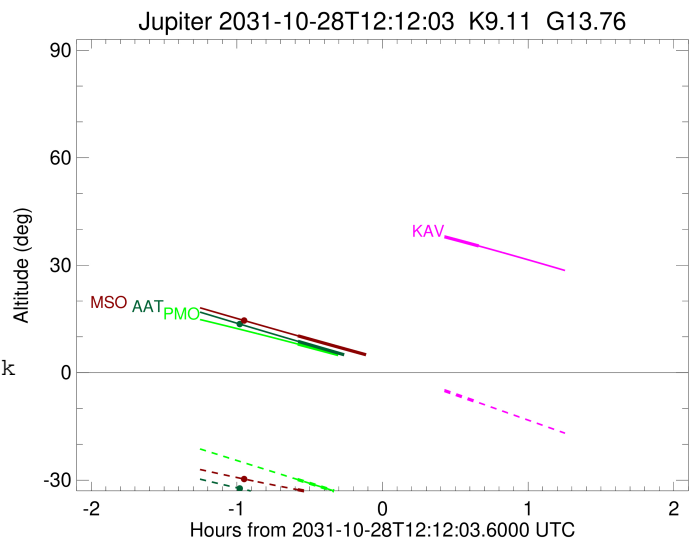
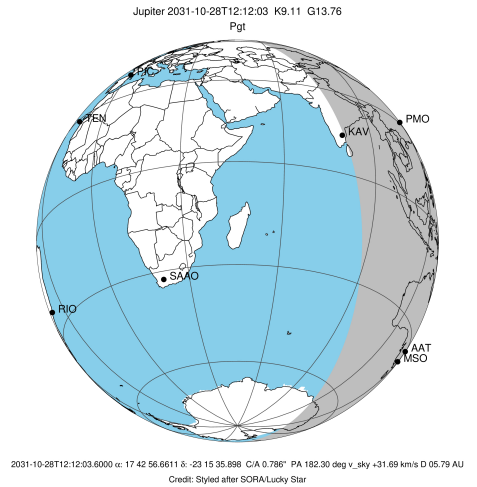


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-28T11:37:22.751	8.72	-35.84	71492.0	-1.01	-1.15
Jupiter	E	2031-10-28T12:52:22.426	-5.64x	-43.80	71492.0	1.04	1.19

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-28T12:14:48.020
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MSO
Location              : Mt. Stromlo Observatory
Latitude (deg)        : -35.32000
E. Longitude (deg)    : 149.00833
Altitude (km)         : 0.770
Gaia source ID        : 4116854113267598720
2Mass ID (if available) : 17425667-2315358
ICRS Star Coord at Epoch: 17h 42m 56.66111s -23:15:35.89830s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.109
G magnitude           : 13.757
RP magnitude          : 12.553
BP magnitude          : 15.358
DUPflag              : 0
Distance (au)         : 5.791
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 31.69
Sun-Target sep (deg)  : 51.65
Sun-Moon sep (deg)    : 106.17
B (ring opening deg) : -2.22
PA of pole (deg)      : 1.00
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (" ) : 0.074
C/A sky separation (km) : 311.4
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	2031-10-28T11:37:15.368	10.28	-32.68	71492.0	-1.28	-1.47
Jupiter	E	2031-10-28T12:52:15.635	-3.47x	-39.95	71492.0	0.79	0.90