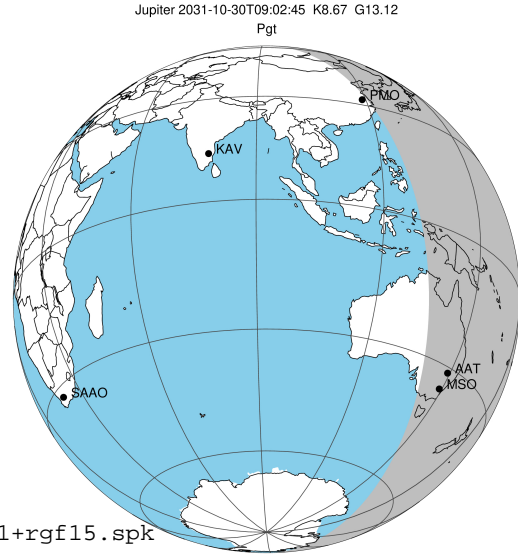


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-30T09:02:45.410
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068817923335259008
 2Mass ID (if available) : 17442568-2316227

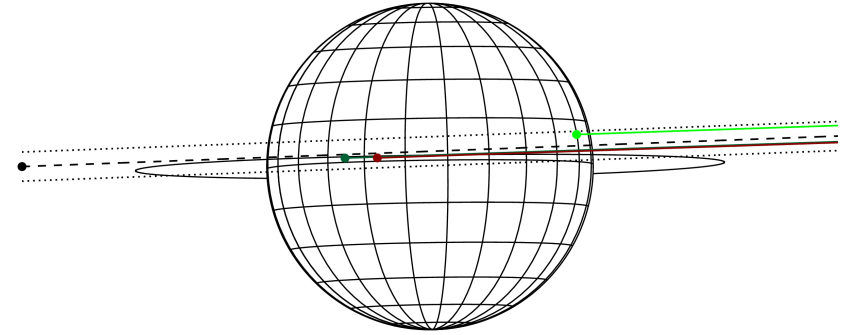
Jupiter 2031-10-30T09:02:45 K8.67 G13.12 Pgt

ICRS Star Coord at Epoch: 17h 44m 25.68836s -23:16:22.77054s
 RUWE (>1.4 is poor) : 0.83
 K magnitude : 8.667
 G magnitude : 13.124
 RP magnitude : 11.910
 BP magnitude : 14.431
 DUPflag : 0
 Distance (au) : 5.813
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 32.31
 Sun-Target sep (deg) : 50.13
 Sun-Moon sep (deg) : 130.61
 B (ring opening deg) : -2.22
 PA of pole (deg) : 0.84
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 1.578
 C/A sky separation (km) : 6652.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp



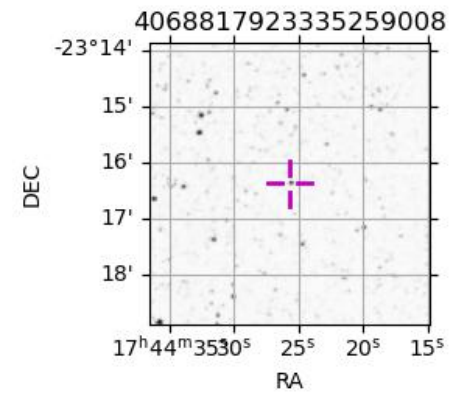
2031-10-30T09:02:45.4100 cc: 17 44 25.6884 s: -23 16 22.771 C/A 1.578° PA 182.14 deg v_sky +32.31 km/s D 05.81 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PMO
 AAT
 MSO



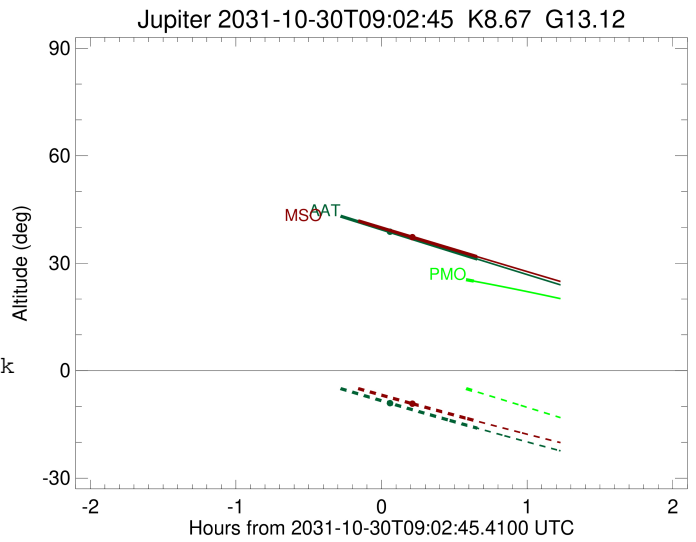
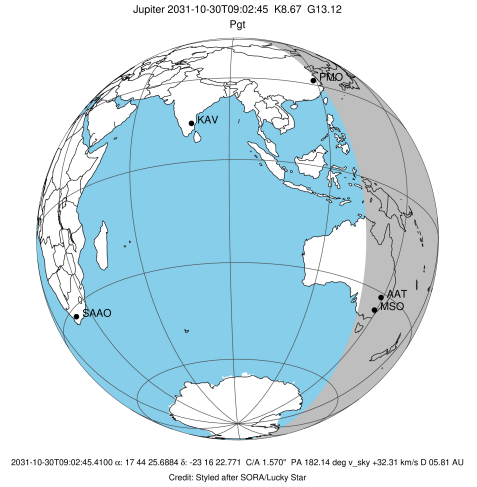
Observable events with sun below -5 deg and altitude above 5 deg

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	+	OCT 30 09:40 - OCT 30 09:40	Pne
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			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	+	OCT 30 09:42 - OCT 30 09:42	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	OCT 30 09:42 - OCT 30 09:42	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-30T09:03:56.020
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     : 4068817923335259008
2Mass ID (if available) : 17442568-2316227
ICRS Star Coord at Epoch: 17h 44m 25.68836s -23:16:22.77054s
RUWE (>1.4 is poor) : 0.83
K magnitude         : 8.667
G magnitude         : 13.124
RP magnitude        : 11.910
BP magnitude        : 14.431
DUPflag            : 0
Distance (au)      : 5.813
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 32.31
Sun-Target sep (deg) : 50.13
Sun-Moon sep (deg)  : 131.19
B (ring opening deg) : -2.22
PA of pole (deg)    : 0.84
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 2.783
C/A sky separation (km) : 11735.0
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
    
```

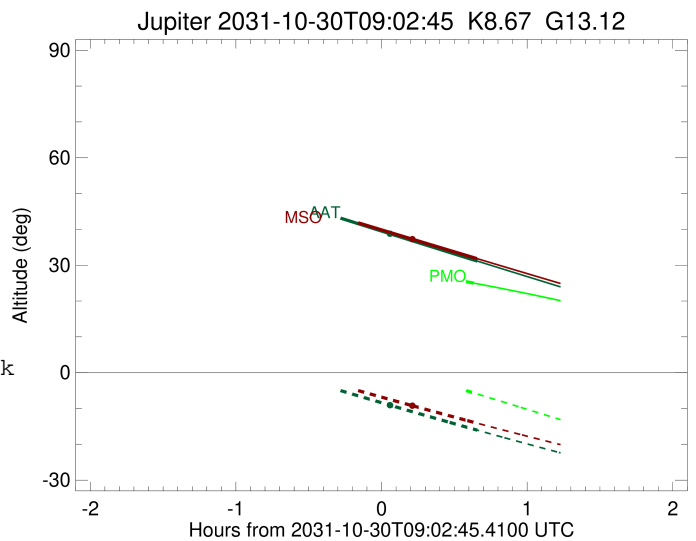
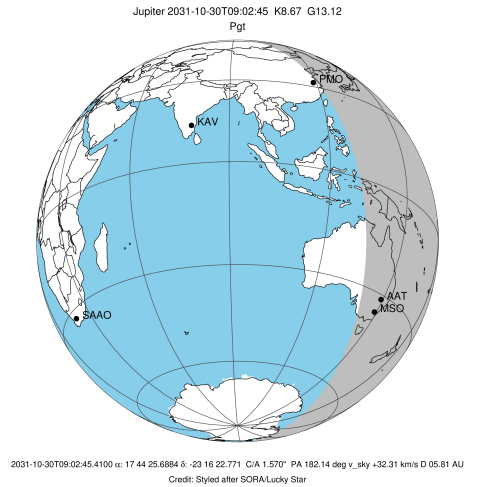


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-30T08:27:07.928	32.34	9.24x	71491.9	8.22	9.38
Jupiter	E	2031-10-30T09:40:41.485	25.01	-5.64	71491.8	10.62	12.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-30T09:05:09.940
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      : 4068817923335259008
2Mass ID (if available) : 17442568-2316227
ICRS Star Coord at Epoch: 17h 44m 25.68836s -23:16:22.77054s
RUWE (>1.4 is poor) : 0.83
K magnitude          : 8.667
G magnitude          : 13.124
RP magnitude         : 11.910
BP magnitude         : 14.431
DUPflag             : 0
Distance (au)       : 5.813
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 32.31
Sun-Target sep (deg) : 50.13
Sun-Moon sep (deg)  : 131.51
B (ring opening deg) : -2.22
PA of pole (deg)    : 0.84
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (" ) : 1.174
C/A sky separation (km) : 4951.2
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
    
```

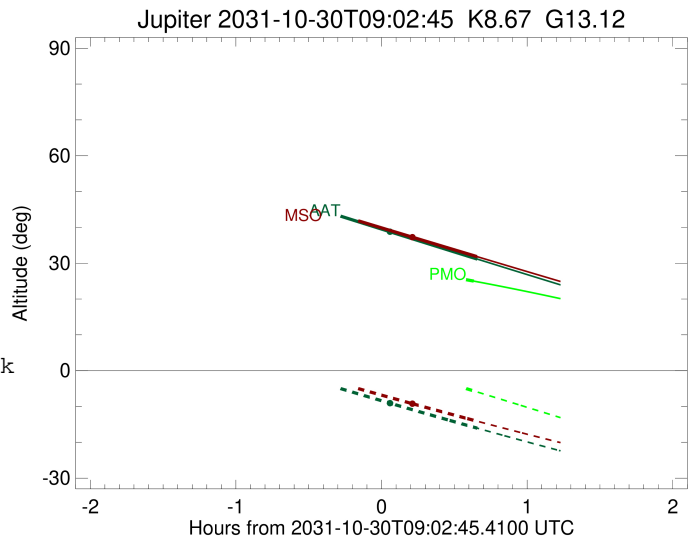
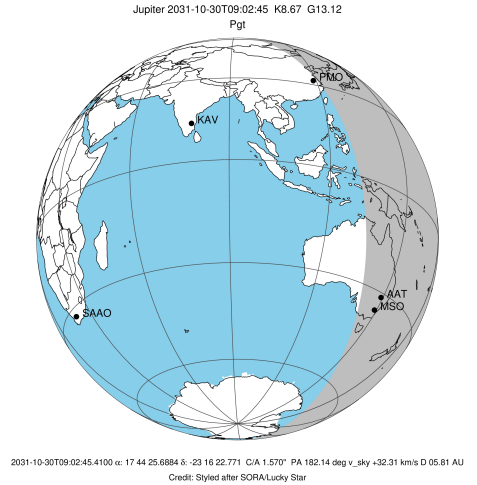


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-30T08:28:05.457	46.95	-1.38x	71492.0	2.87	3.28
Jupiter	E	2031-10-30T09:42:09.995	31.16	-16.04	71491.9	5.03	5.75

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-30T09:05:03.740
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        : 4068817923335259008
2Mass ID (if available) : 17442568-2316227
ICRS Star Coord at Epoch: 17h 44m 25.68836s -23:16:22.77054s
RUWE (>1.4 is poor) : 0.83
K magnitude           : 8.667
G magnitude           : 13.124
RP magnitude          : 11.910
BP magnitude          : 14.431
DUPflag              : 0
Distance (au)         : 5.813
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 32.31
Sun-Target sep (deg)  : 50.13
Sun-Moon sep (deg)    : 131.49
B (ring opening deg) : -2.22
PA of pole (deg)      : 0.84
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 1.079
C/A sky separation (km) : 4550.0
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
    
```



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	2031-10-30T08:27:59.165	46.99	-0.14x	71492.0	2.54	2.91
Jupiter	E	2031-10-30T09:42:04.061	31.84	-14.09	71492.0	4.72	5.40