

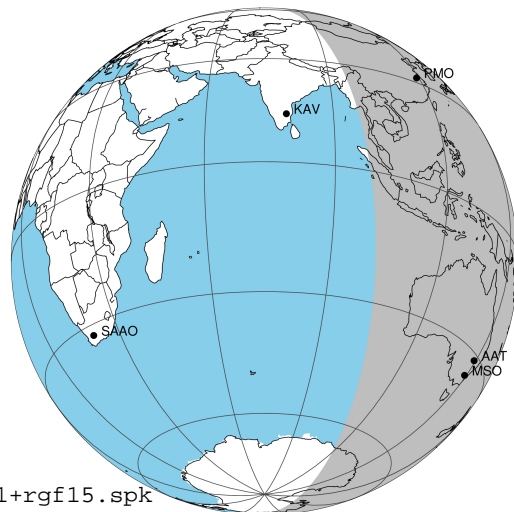
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-10-13T11:11:22.970  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4117422595110657920  
 2Mass ID (if available) : 17315609-2307501

Jupiter 2031-10-13T11:11:22 K8.68 G14.67 Pgt

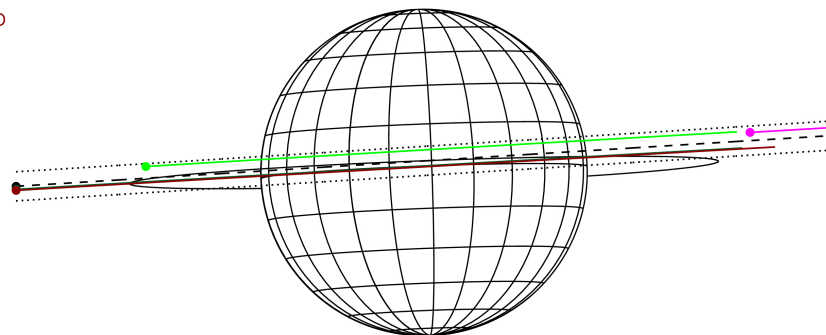
ICRS Star Coord at Epoch: 17h 31m 56.09556s -23:07:50.35544s

RUWE (>1.4 is poor) : 1.08  
 K magnitude : 8.680  
 G magnitude : 14.672  
 RP magnitude : 13.212  
 BP magnitude : 17.470  
 DUPflag : 0  
 Distance (au) : 5.597  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 26.16  
 Sun-Target sep (deg) : 64.07  
 Sun-Moon sep (deg) : 98.46  
 B (ring opening deg) : -2.28  
 PA of pole (deg) : 2.18  
 Pole direction: RA (deg): 268.05682  
 Dec (deg): 64.49652  
 C/A sky separation (") : 1.246  
 C/A sky separation (km) : 5059.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-10-13T11:11:22 K8.68 G14.67  
 Pgt



Earth  
 PMO  
 KAV  
 AAT  
 MSO

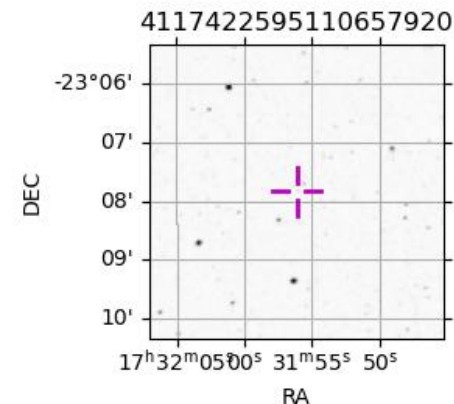


2031-10-13T11:11:22.9700 ex: 17 31 56.09556 s: -23 07 50.355 C/A 1.238" PA 183.55 deg v\_sky +26.16 km/s D 05.60 AU

Credit: Styled after SORA/Lucky Star

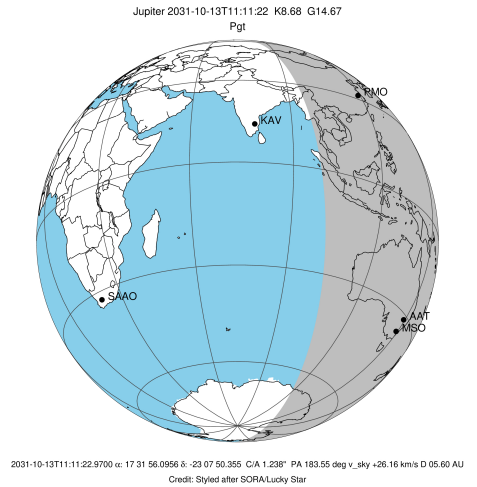
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
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 13 10:28 - OCT 13 11:59	Pie
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 13 10:29 - OCT 13 12:00	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	OCT 13 10:28 - OCT 13 12:00	Pie

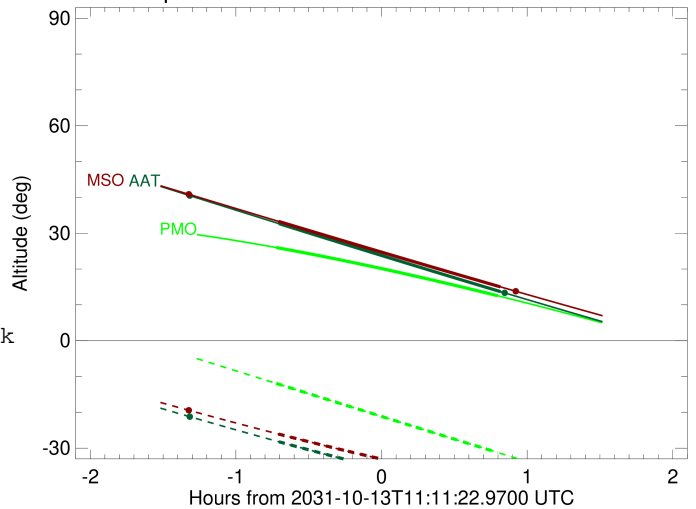


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-13T11:13:41.590
Event type          : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code       : PMO
Location            : Purple Mtn Obs. Nanking
Latitude (deg)      : 32.06667
E. Longitude (deg)  : 118.82089
Altitude (km)       : 0.364
Gaia source ID      : 4117422595110657920
2Mass ID (if available) : 17315609-2307501
ICRS Star Coord at Epoch: 17h 31m 56.09556s -23:07:50.35544s
RUWE (>1.4 is poor) : 1.08
K magnitude          : 8.680
G magnitude          : 14.672
RP magnitude         : 13.212
BP magnitude         : 17.470
DUPflag             : 0
Distance (au)       : 5.597
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 26.16
Sun-Target sep (deg) : 64.07
Sun-Moon sep (deg)  : 98.69
B (ring opening deg) : -2.28
PA of pole (deg)    : 2.18
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (" ) : 2.429
C/A sky separation (km) : 9862.9
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
    
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Jupiter 2031-10-13T11:11:22 K8.68 G14.67

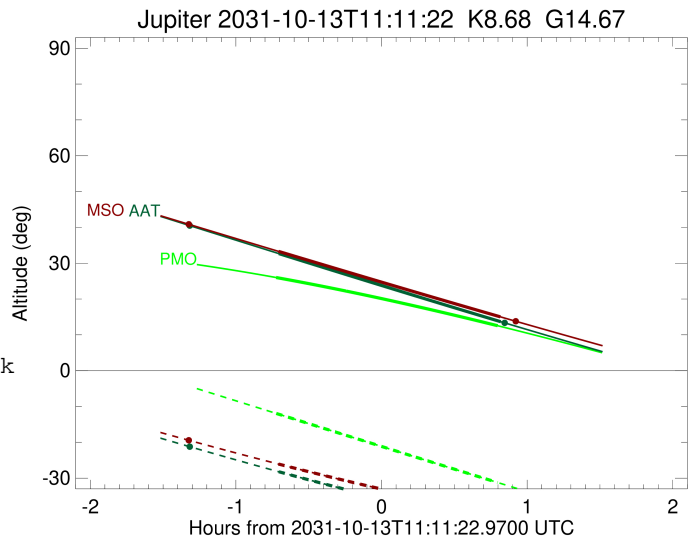
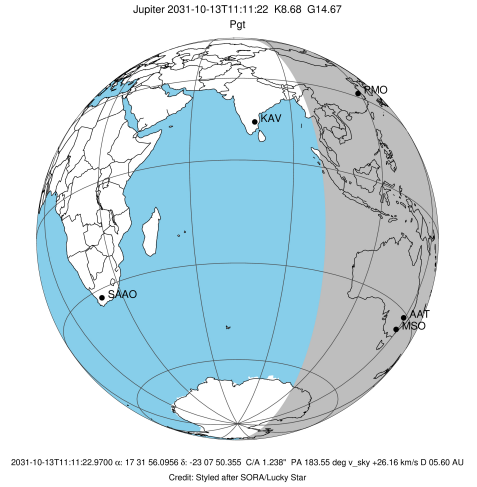


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-13T10:28:01.404	25.99	-11.94	71491.9	6.72	7.68
Jupiter	E	2031-10-13T11:59:14.420	12.55	-31.22	71491.8	9.06	10.34

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-13T11:14:51.430
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        : 4117422595110657920
2Mass ID (if available) : 17315609-2307501
ICRS Star Coord at Epoch: 17h 31m 56.09556s -23:07:50.35544s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 8.680
G magnitude           : 14.672
RP magnitude          : 13.212
BP magnitude          : 17.470
DUPflag              : 0
Distance (au)         : 5.597
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 26.16
Sun-Target sep (deg)  : 64.07
Sun-Moon sep (deg)    : 98.72
B (ring opening deg) : -2.28
PA of pole (deg)      : 2.18
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (" ) : 0.705
C/A sky separation (km) : 2861.7
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
    
```

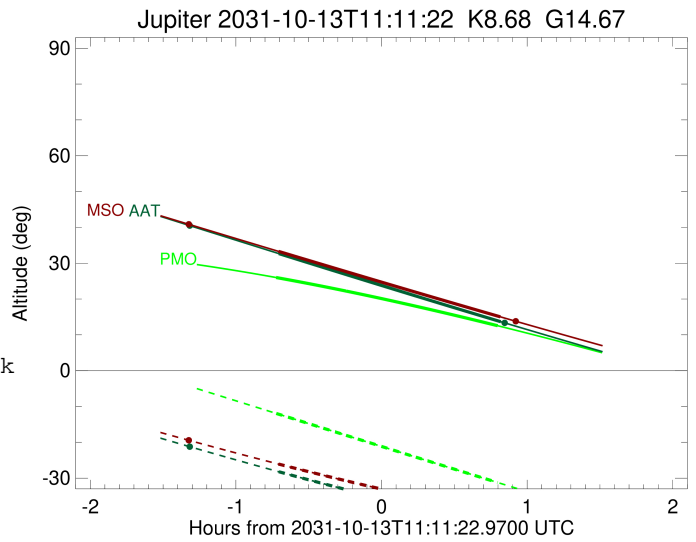
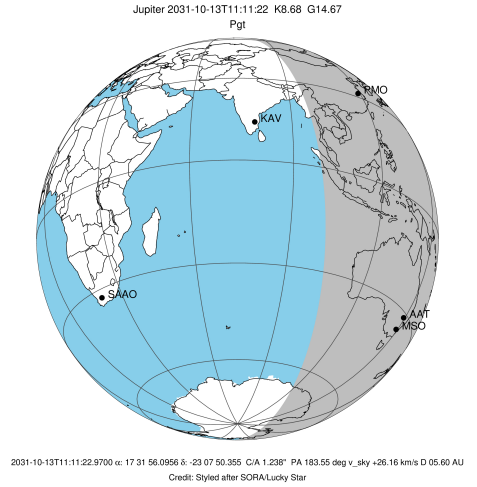


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-13T10:29:04.875	32.67	-28.21	71492.0	1.22	1.39
Jupiter	E	2031-10-13T12:00:28.402	13.68	-43.09	71492.0	3.34	3.81

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target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2031-10-13T11:14:42.930
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        : 4117422595110657920
2Mass ID (if available) : 17315609-2307501
ICRS Star Coord at Epoch: 17h 31m 56.09556s -23:07:50.35544s
RUWE (>1.4 is poor)  : 1.08
K magnitude            : 8.680
G magnitude            : 14.672
RP magnitude           : 13.212
BP magnitude           : 17.470
DUPflag               : 0
Distance (au)         : 5.597
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 26.16
Sun-Target sep (deg)  : 64.07
Sun-Moon sep (deg)    : 98.73
B (ring opening deg)  : -2.28
PA of pole (deg)      : 2.18
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (") : 0.612
C/A sky separation (km) : 2483.7
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	2031-10-13T10:28:56.445	33.30	-26.07	71492.0	0.90	1.03
Jupiter	E	2031-10-13T12:00:20.205	15.03	-39.85	71492.0	3.05	3.49