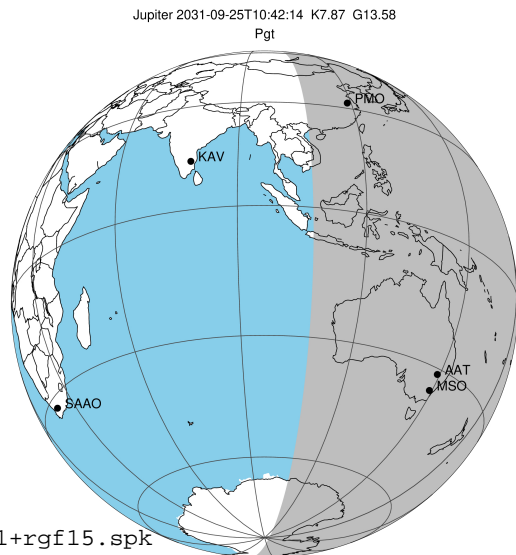


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-09-25T10:42:14.380
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4114617015037743872
 2Mass ID (if available) : 17212094-2256478

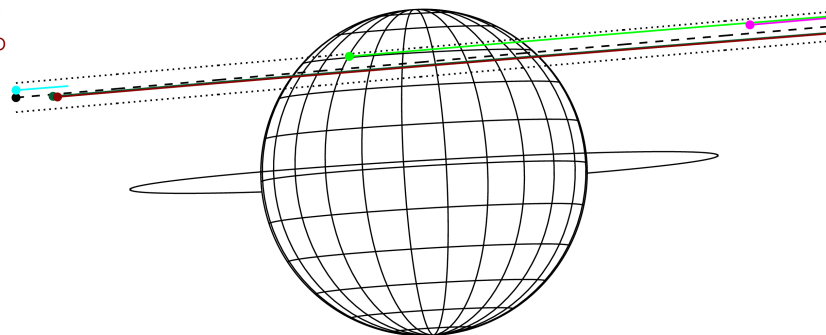
Jupiter 2031-09-25T10:42:14 K7.87 G13.58 Pgt

ICRS Star Coord at Epoch: 17h 21m 20.91993s -22:56:48.02336s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 7.870
 G magnitude : 13.584
 RP magnitude : 12.125
 BP magnitude : 16.357
 DUPflag : 0
 Distance (au) : 5.336
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 18.57
 Sun-Target sep (deg) : 79.37
 Sun-Moon sep (deg) : 29.29
 B (ring opening deg) : -2.35
 PA of pole (deg) : 3.32
 Pole direction: RA (deg): 268.05683
 Dec (deg): 64.49652
 C/A sky separation (") : 12.470
 C/A sky separation (km) : 48265.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



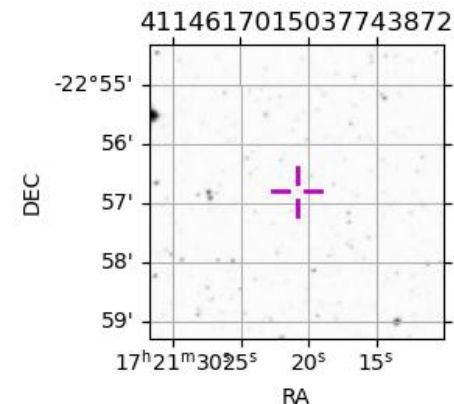
2031-09-25T10:42:14.3800 @: 17 21 20.9199 @: -22 56 48.023 C/A ***** PA 185.00 deg v_sky +18.57 km/s D 05.34 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PMO
 IRTF
 KAV
 AAT
 MSO



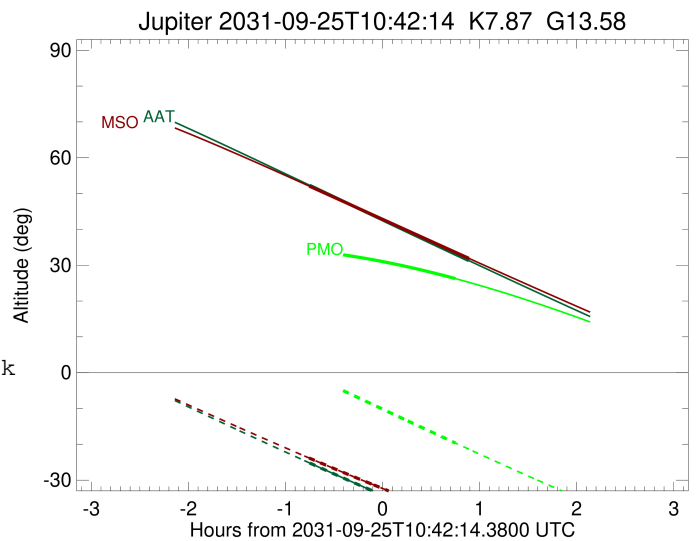
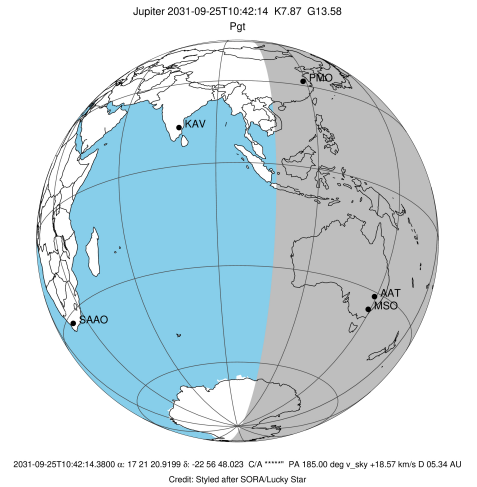
Observable events with sun below -5 deg and altitude above 5 deg

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	+	SEP 25 11:27 - SEP 25 11:27	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	+ +	SEP 25 09:57 - SEP 25 11:35	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	SEP 25 09:56 - SEP 25 11:35	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-25T10:43:49.880
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        : 4114617015037743872
2Mass ID (if available) : 17212094-2256478
ICRS Star Coord at Epoch: 17h 21m 20.91993s -22:56:48.02336s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 7.870
G magnitude           : 13.584
RP magnitude          : 12.125
BP magnitude          : 16.357
DUPflag              : 0
Distance (au)         : 5.336
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 18.57
Sun-Target sep (deg)  : 79.37
Sun-Moon sep (deg)    : 29.21
B (ring opening deg) : -2.35
PA of pole (deg)     : 3.32
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation (") : 13.815
C/A sky separation (km) : 53468.7
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
    
```

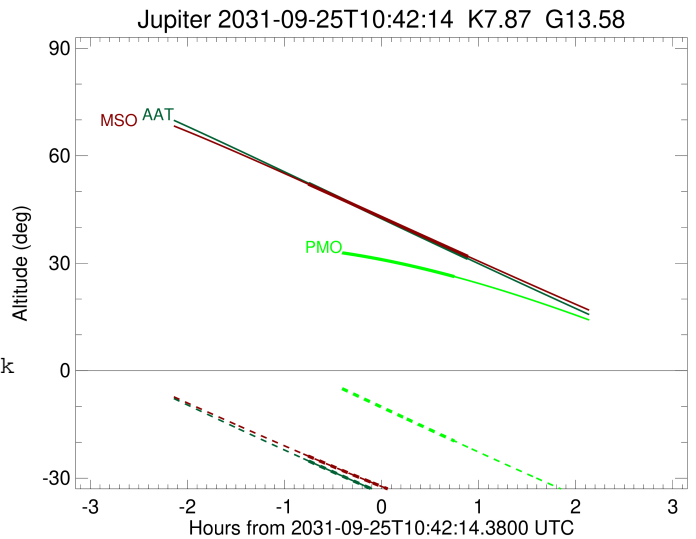
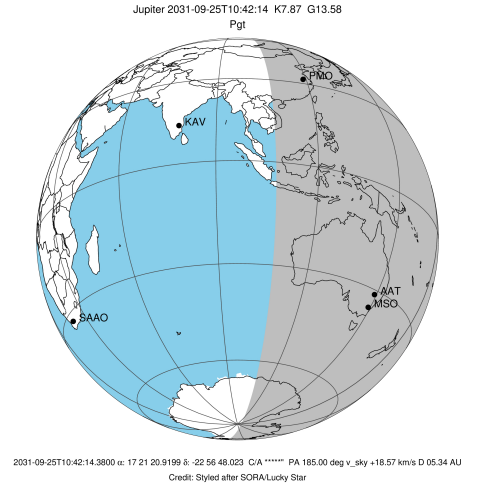


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-25T10:00:17.572	33.92	-1.27x	71488.0	46.73	50.40
Jupiter	E	2031-09-25T11:27:16.092	26.26	-19.62	71487.6	49.90	53.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-25T10:46:33.750
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      : 4114617015037743872
2Mass ID (if available) : 17212094-2256478
ICRS Star Coord at Epoch: 17h 21m 20.91993s -22:56:48.02336s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 7.870
G magnitude          : 13.584
RP magnitude         : 12.125
BP magnitude         : 16.357
DUPflag             : 0
Distance (au)       : 5.337
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 18.57
Sun-Target sep (deg) : 79.37
Sun-Moon sep (deg)  : 29.05
B (ring opening deg) : -2.35
PA of pole (deg)    : 3.32
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation (") : 12.108
C/A sky separation (km) : 46864.2
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
    
```

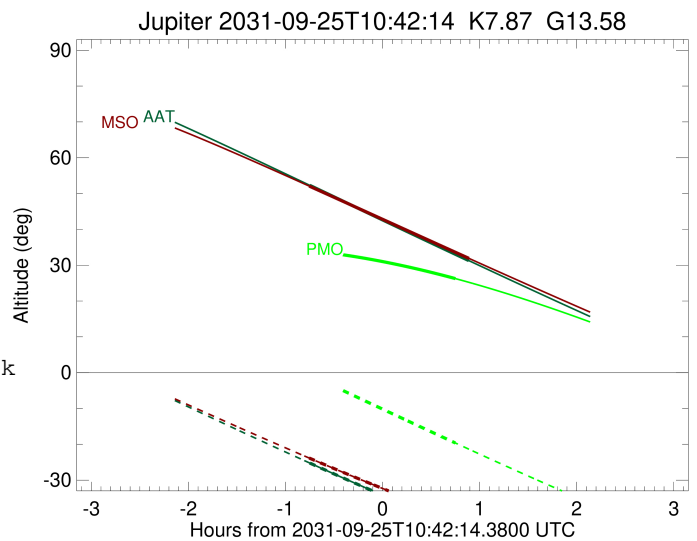
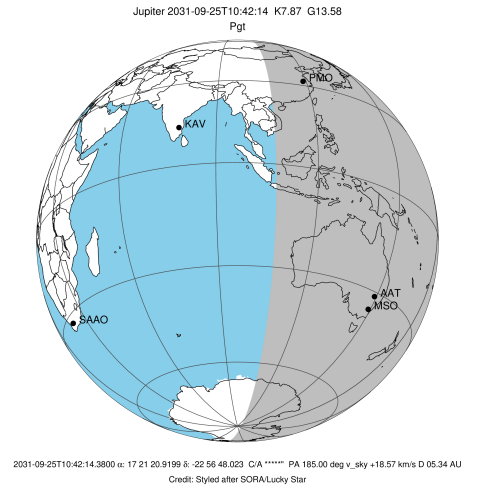


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-25T09:57:19.287	52.28	-25.23	71488.9	39.53	43.23
Jupiter	E	2031-09-25T11:35:34.439	31.28	-43.91	71488.6	42.23	45.95

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2031-09-25T10:46:23.750
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        : 4114617015037743872
2Mass ID (if available) : 17212094-2256478
ICRS Star Coord at Epoch: 17h 21m 20.91993s -22:56:48.02336s
RUWE (>1.4 is poor)  : 1.01
K magnitude            : 7.870
G magnitude           : 13.584
RP magnitude          : 12.125
BP magnitude          : 16.357
DUPflag              : 0
Distance (au)        : 5.337
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 18.57
Sun-Target sep (deg) : 79.37
Sun-Moon sep (deg)   : 29.09
B (ring opening deg) : -2.35
PA of pole (deg)     : 3.32
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation (") : 12.001
C/A sky separation (km) : 46449.7
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	2031-09-25T09:56:51.746	52.09	-23.82	71489.0	39.08	42.77
Jupiter	E	2031-09-25T11:35:42.351	31.89	-41.37	71488.7	41.81	45.53