

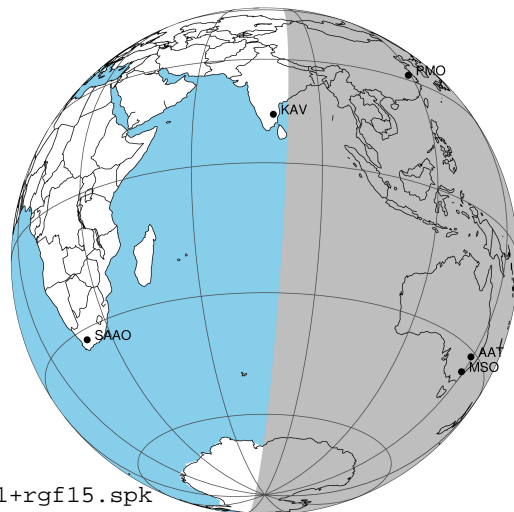
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-09-17T12:27:21.950
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4114312901354775936
 2Mass ID (if available) : 17174453-2252126

Jupiter 2031-09-17T12:27:21 K8.99 G13.98 Pgt

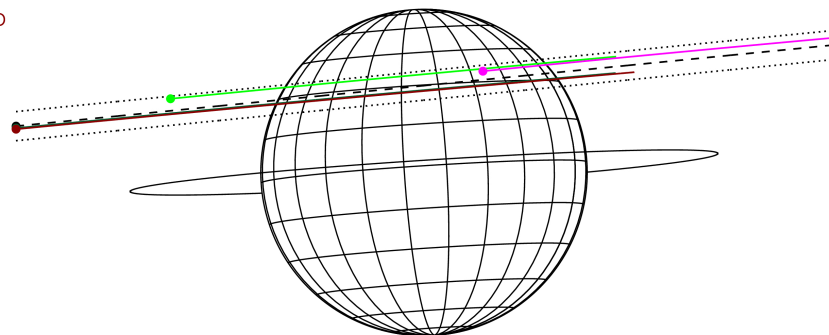
ICRS Star Coord at Epoch: 17h 17m 44.52959s -22:52:12.58938s

RUWE (>1.4 is poor) : 0.95
 K magnitude : 8.988
 G magnitude : 13.980
 RP magnitude : 12.722
 BP magnitude : 15.771
 DUPflag : 0
 Distance (au) : 5.216
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 14.98
 Sun-Target sep (deg) : 86.28
 Sun-Moon sep (deg) : 77.68
 B (ring opening deg) : -2.38
 PA of pole (deg) : 3.70
 Pole direction: RA (deg): 268.05684
 Dec (deg): 64.49652
 C/A sky separation (") : 10.011
 C/A sky separation (km) : 37871.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-09-17T12:27:21 K8.99 G13.98
 Pgt



Earth
 PMO
 KAV
 AAT
 MSO

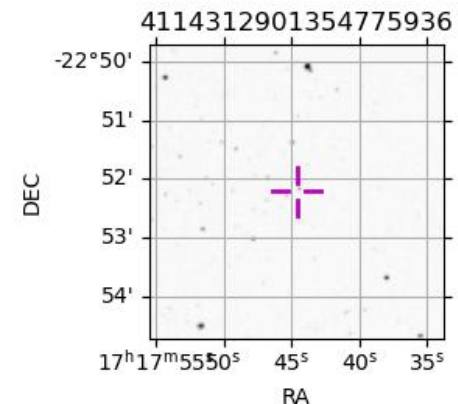


2031-09-17T12:27:21.9500 a: 17 17 44.5296 b: -22 52 12.589 C/A ***** PA 185.67 deg v_sky +14.98 km/s D 05.22 AU

Credit: Styled after SORA/Lucky Star

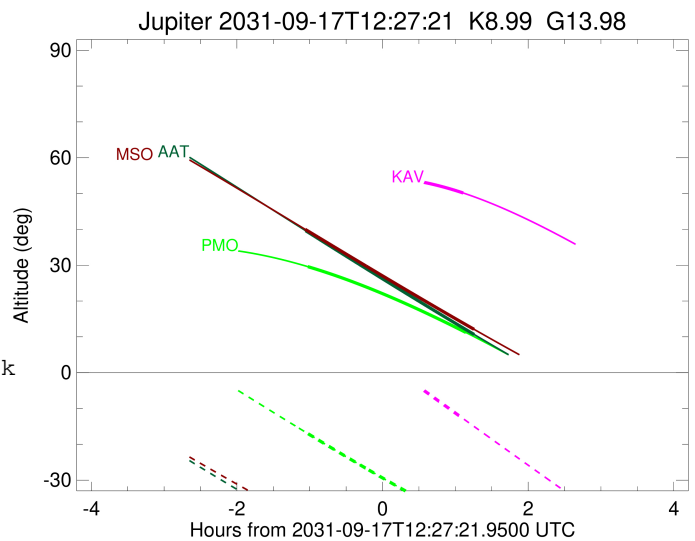
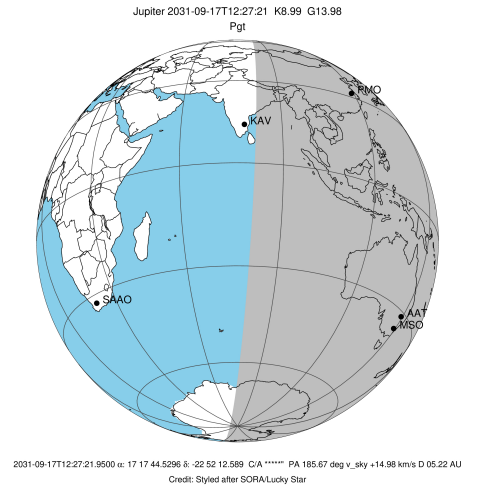
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	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 17 11:25 - SEP 17 13:36	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	+	SEP 17 13:33 - SEP 17 13:33	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	+ +	SEP 17 11:24 - SEP 17 13:42	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	SEP 17 11:23 - SEP 17 13:42	Pie



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-17T12:31:12.370
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       : 4114312901354775936
2Mass ID (if available) : 17174453-2252126
ICRS Star Coord at Epoch: 17h 17m 44.52959s -22:52:12.58938s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.988
G magnitude           : 13.980
RP magnitude          : 12.722
BP magnitude          : 15.771
DUPflag              : 0
Distance (au)        : 5.216
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 14.98
Sun-Target sep (deg)  : 86.28
Sun-Moon sep (deg)   : 78.13
B (ring opening deg) : -2.38
PA of pole (deg)     : 3.70
Pole direction: RA (deg): 268.05684
Dec (deg): 64.49652
C/A sky separation (") : 11.325
C/A sky separation (km) : 42844.7
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
    
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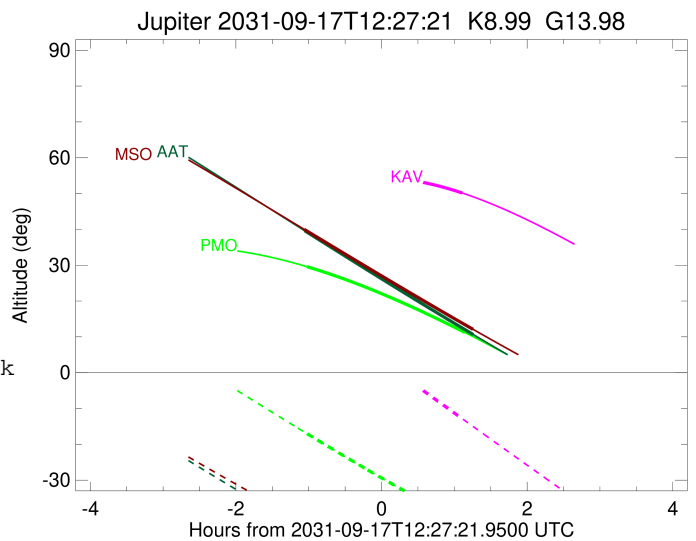
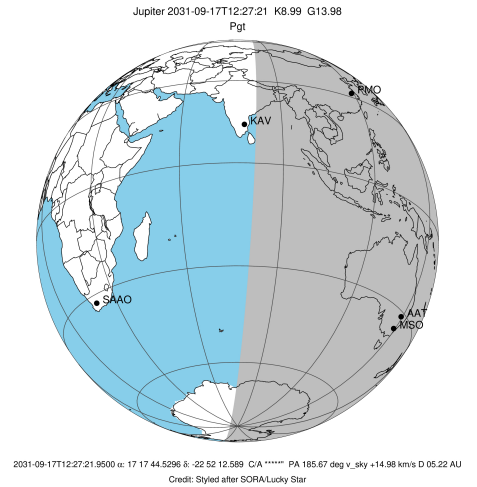


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-17T11:25:58.069	29.58	-17.03	71489.5	35.04	38.64
Jupiter	E	2031-09-17T13:36:00.795	11.23	-41.90	71489.0	38.37	42.06

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-17T12:27:05.270
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       : 4114312901354775936
2Mass ID (if available) : 17174453-2252126
ICRS Star Coord at Epoch: 17h 17m 44.52959s -22:52:12.58938s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.988
G magnitude           : 13.980
RP magnitude          : 12.722
BP magnitude          : 15.771
DUPflag              : 0
Distance (au)         : 5.216
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 14.98
Sun-Target sep (deg)  : 86.28
Sun-Moon sep (deg)   : 78.43
B (ring opening deg) : -2.38
PA of pole (deg)     : 3.70
Pole direction: RA (deg): 268.05684
Dec (deg): 64.49652
C/A sky separation (") : 10.988
C/A sky separation (km) : 41567.2
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
    
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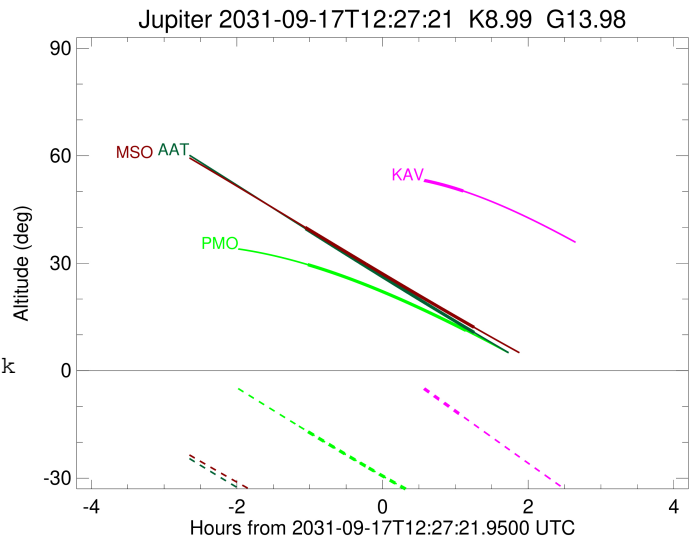
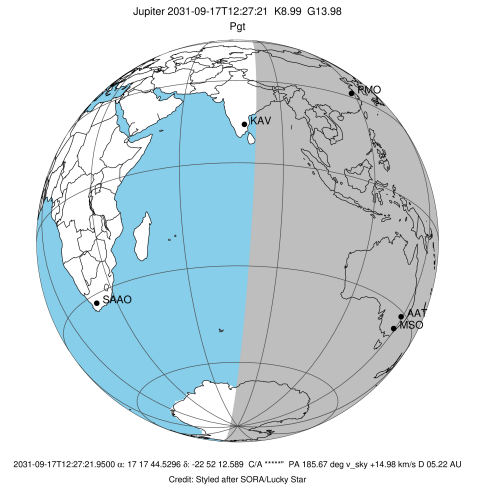


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-17T11:20:14.007	51.75	19.76x	71489.7	33.31	36.84
Jupiter	E	2031-09-17T13:33:50.409	50.16	-12.84	71489.1	37.52	41.19

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-17T12:33:48.150
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       : 4114312901354775936
2Mass ID (if available) : 17174453-2252126
ICRS Star Coord at Epoch: 17h 17m 44.52959s -22:52:12.58938s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 8.988
G magnitude           : 13.980
RP magnitude         : 12.722
BP magnitude         : 15.771
DUPflag             : 0
Distance (au)        : 5.216
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 14.98
Sun-Target sep (deg) : 86.28
Sun-Moon sep (deg)   : 78.24
B (ring opening deg) : -2.38
PA of pole (deg)     : 3.70
Pole direction: RA (deg): 268.05684
Dec (deg): 64.49652
C/A sky separation ("): 9.500
C/A sky separation (km): 35941.2
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
    
```

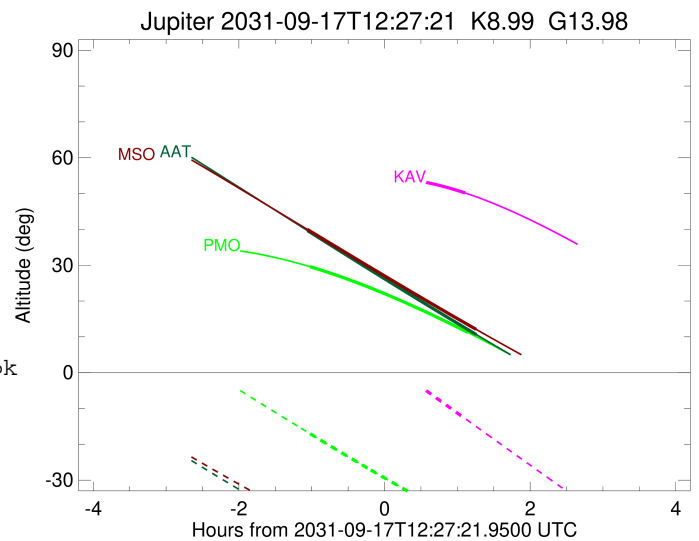
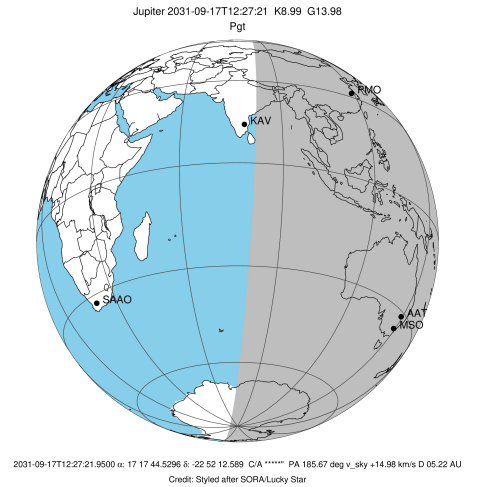


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-17T11:24:06.532	39.61	-43.57	71490.2	28.67	31.96
Jupiter	E	2031-09-17T13:42:50.396	10.67	-60.86	71489.9	31.55	35.00

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-17T12:33:33.280
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       : 4114312901354775936
2Mass ID (if available) : 17174453-2252126
ICRS Star Coord at Epoch: 17h 17m 44.52959s -22:52:12.58938s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 8.988
G magnitude          : 13.980
RP magnitude         : 12.722
BP magnitude         : 15.771
DUPflag             : 0
Distance (au)        : 5.216
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 14.98
Sun-Target sep (deg) : 86.28
Sun-Moon sep (deg)   : 78.24
B (ring opening deg) : -2.38
PA of pole (deg)     : 3.70
Pole direction: RA (deg): 268.05684
Dec (deg): 64.49652
C/A sky separation ("): 9.398
C/A sky separation (km): 35552.2
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	2031-09-17T11:23:38.592	40.00	-41.29	71490.3	28.28	31.55
Jupiter	E	2031-09-17T13:42:49.880	12.09	-56.85	71489.9	31.21	34.65