

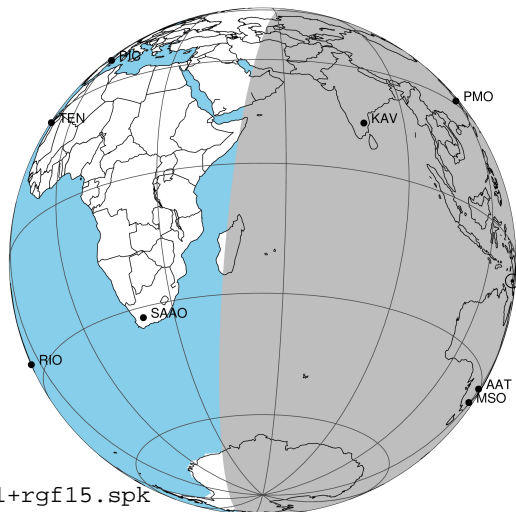
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-09-03T14:46:11.410
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4114549158892964608
 2Mass ID (if available) : 17131141-2245110

Jupiter 2031-09-03T14:46:11 K9.64 G13.98 Pgt

ICRS Star Coord at Epoch: 17h 13m 11.40020s -22:45:11.22467s

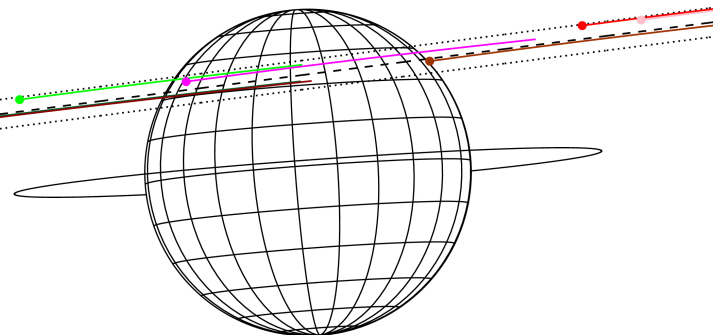
RUWE (>1.4 is poor) : 1.05
 K magnitude : 9.644
 G magnitude : 13.977
 RP magnitude : 12.805
 BP magnitude : 15.442
 DUPflag : 0
 Distance (au) : 5.004
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 8.51
 Sun-Target sep (deg) : 98.74
 Sun-Moon sep (deg) : 111.02
 B (ring opening deg) : -2.42
 PA of pole (deg) : 4.19
 Pole direction: RA (deg): 268.05685
 Dec (deg): 64.49652
 C/A sky separation (") : 11.753
 C/A sky separation (km) : 42653.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-09-03T14:46:11 K9.64 G13.98
 Pgt



Earth

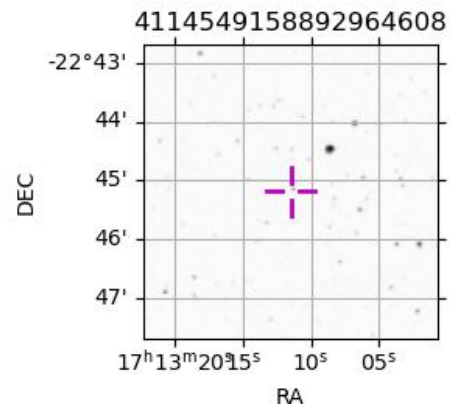
- PIC
- PMO
- TEN
- IRTF
- KAV
- AAT
- SAAO
- MSO



2031-09-03T14:46:11.4100 a: 17 13 11.4002 8: -22 45 11.225 C/A ***** PA 187.35 deg v_sky + 8.51 km/s D 05.00 AU
 Credit: Styled after SORA/Lucky Star

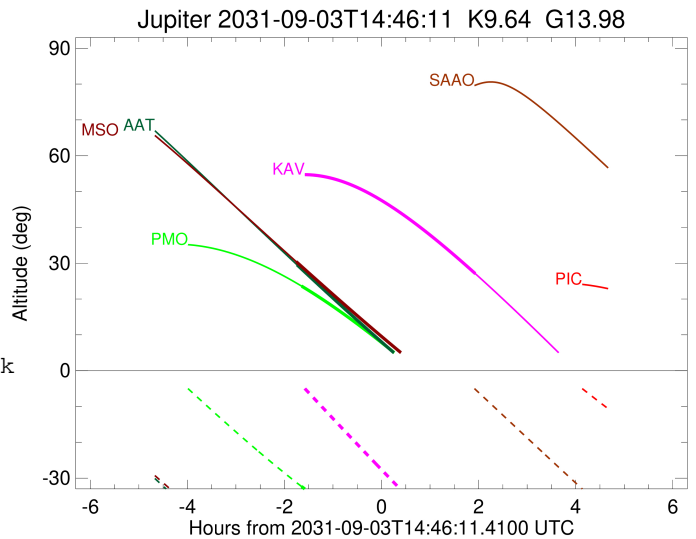
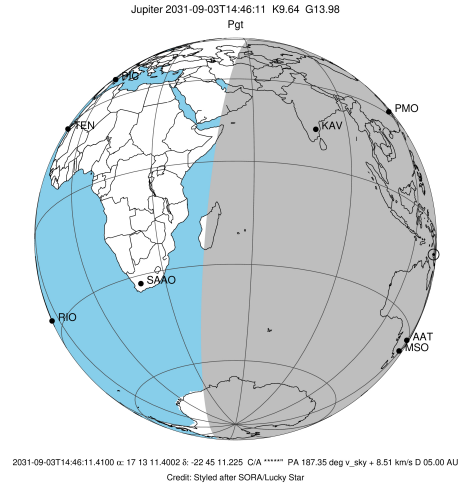
Observable events with sun below -5 deg and altitude above 5 deg

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 03 13:07 - SEP 03 13:07	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	+	SEP 03 16:42 - SEP 03 16:42	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 03 13:01 - SEP 03 13:01	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	SEP 03 13:00 - SEP 03 13:00	Pin



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-03T14:56:12.820
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      : 4114549158892964608
2Mass ID (if available) : 17131141-2245110
ICRS Star Coord at Epoch: 17h 13m 11.40020s -22:45:11.22467s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 9.644
G magnitude          : 13.977
RP magnitude         : 12.805
BP magnitude         : 15.442
DUPflag             : 0
Distance (au)       : 5.004
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 8.51
Sun-Target sep (deg) : 98.74
Sun-Moon sep (deg)  : 111.41
B (ring opening deg) : -2.42
PA of pole (deg)    : 4.19
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 13.000
C/A sky separation (km) : 47181.0
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
    
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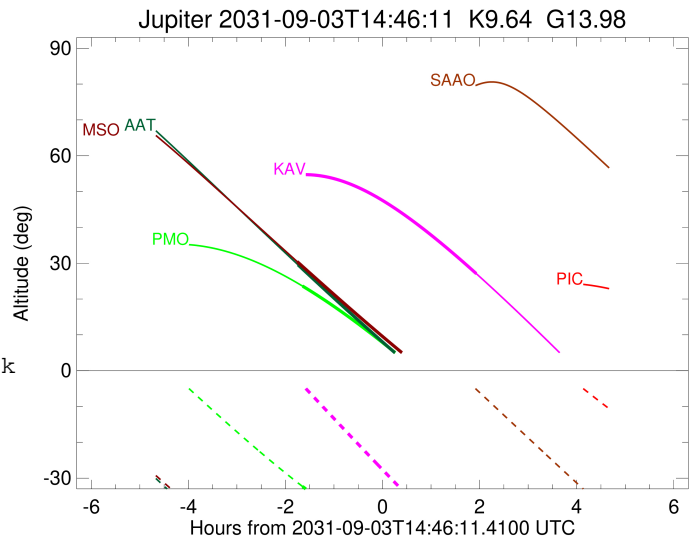
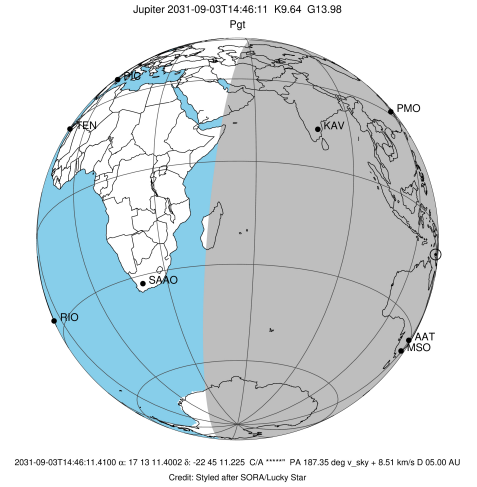


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-03T13:07:16.776	23.62	-32.31	71488.9	38.72	42.41
Jupiter	E	2031-09-03T16:42:27.359	-14.45x	-49.62	71488.2	43.46	47.17

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target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2031-09-03T14:50:47.030
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        : 4114549158892964608
2Mass ID (if available) : 17131141-2245110
ICRS Star Coord at Epoch: 17h 13m 11.40020s -22:45:11.22467s
RUWE (>1.4 is poor)  : 1.05
K magnitude           : 9.644
G magnitude           : 13.977
RP magnitude          : 12.805
BP magnitude          : 15.442
DUPflag              : 0
Distance (au)         : 5.004
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 8.51
Sun-Target sep (deg)  : 98.74
Sun-Moon sep (deg)    : 111.83
B (ring opening deg)  : -2.42
PA of pole (deg)      : 4.19
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 12.788
C/A sky separation (km) : 46410.5
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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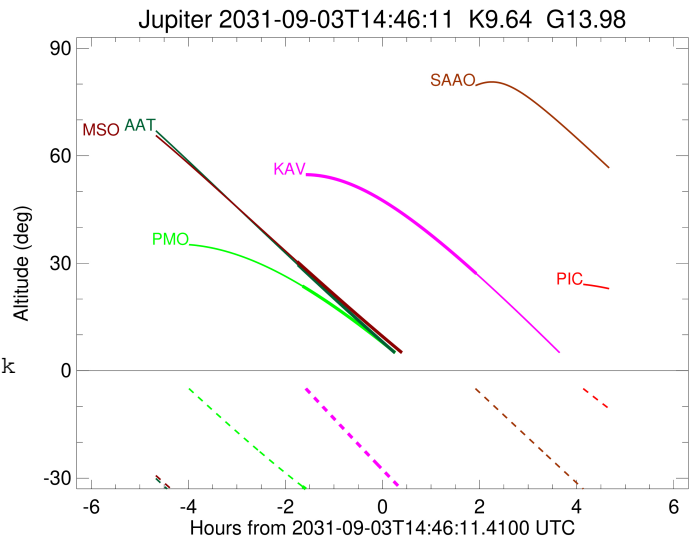
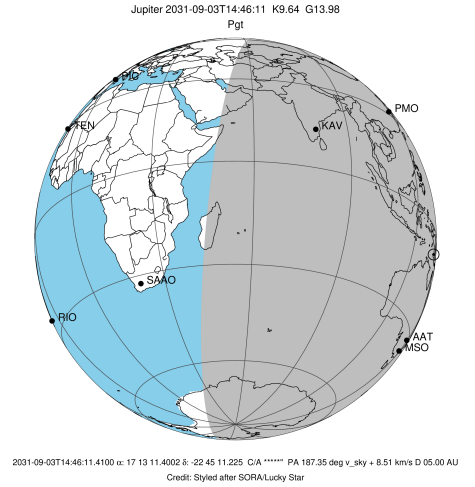


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-03T12:57:35.952	54.59	-1.66x	71489.1	37.12	40.78
Jupiter	E	2031-09-03T16:42:14.789	27.06	-53.77	71488.3	43.13	46.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-03T14:58:58.060
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      : 4114549158892964608
2Mass ID (if available) : 17131141-2245110
ICRS Star Coord at Epoch: 17h 13m 11.40020s -22:45:11.22467s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 9.644
G magnitude          : 13.977
RP magnitude         : 12.805
BP magnitude         : 15.442
DUPflag             : 0
Distance (au)       : 5.004
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 8.51
Sun-Target sep (deg) : 98.74
Sun-Moon sep (deg)  : 111.45
B (ring opening deg) : -2.42
PA of pole (deg)    : 4.19
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 11.034
C/A sky separation (km) : 40045.2
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
    
```

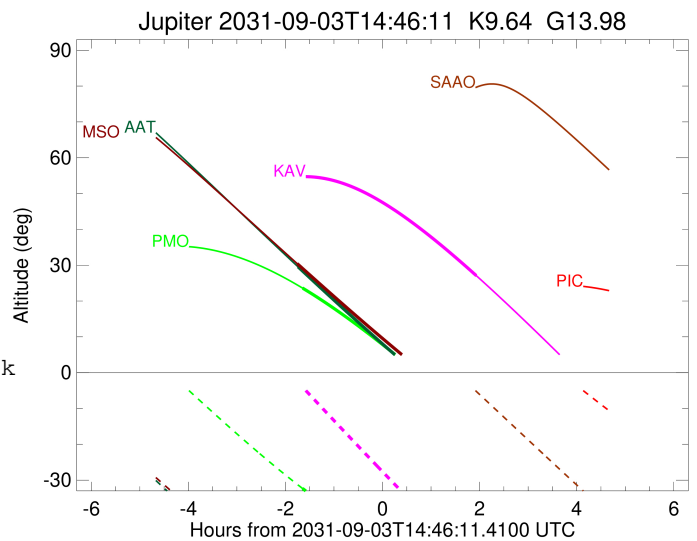
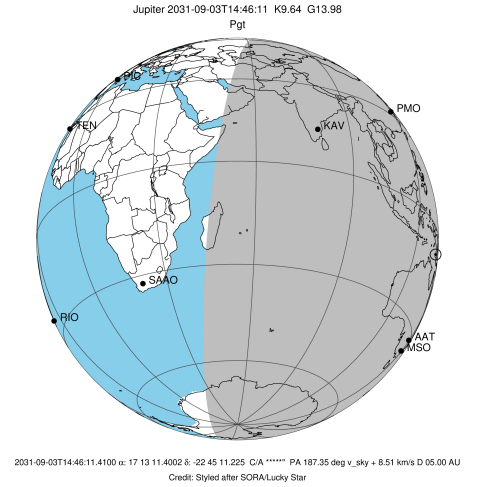


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-03T13:01:40.619	29.56	-62.37	71489.8	31.85	35.31
Jupiter	E	2031-09-03T16:52:57.105	-15.40x	-43.88	71489.2	36.13	39.77

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-03T14:58:29.910
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        : 4114549158892964608
2Mass ID (if available) : 17131141-2245110
ICRS Star Coord at Epoch: 17h 13m 11.40020s -22:45:11.22467s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 9.644
G magnitude           : 13.977
RP magnitude          : 12.805
BP magnitude          : 15.442
DUPflag              : 0
Distance (au)         : 5.004
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.51
Sun-Target sep (deg) : 98.74
Sun-Moon sep (deg)   : 111.46
B (ring opening deg) : -2.42
PA of pole (deg)     : 4.19
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 10.936
C/A sky separation (km) : 39690.3
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	2031-09-03T13:00:45.381	30.43	-58.85	71489.8	31.46	34.91
Jupiter	E	2031-09-03T16:53:01.888	-12.80x	-42.30	71489.3	35.84	39.46