

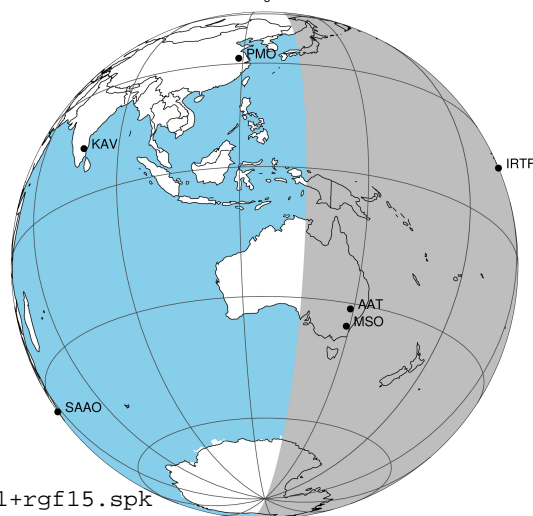
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-09-23T08:51:11.100
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4114623101066955776
 2Mass ID (if available) : 17202008-2255543

Jupiter 2031-09-23T08:51:11 K9.55 G14.38 Pgt

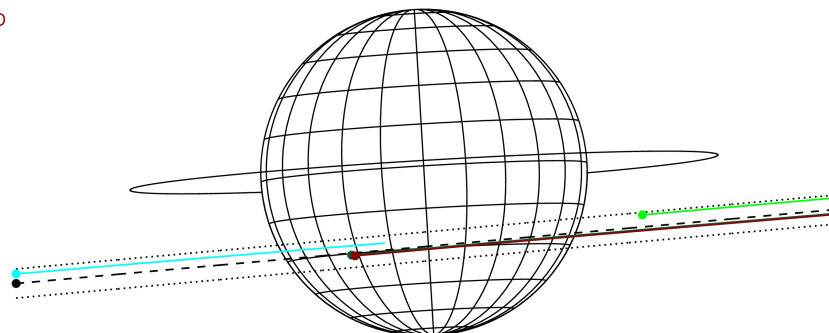
ICRS Star Coord at Epoch: 17h 20m 20.07827s -22:55:54.32219s

RUWE (>1.4 is poor) : 0.99
 K magnitude : 9.549
 G magnitude : 14.378
 RP magnitude : 13.132
 BP magnitude : 16.113
 DUPflag : 0
 Distance (au) : 5.305
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 17.64
 Sun-Target sep (deg) : 81.17
 Sun-Moon sep (deg) : 2.47
 B (ring opening deg) : -2.35
 PA of pole (deg) : 3.43
 Pole direction: RA (deg): 268.05684
 Dec (deg): 64.49652
 C/A sky separation (") : 8.407
 C/A sky separation (km) : 32349.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-09-23T08:51:11 K9.55 G14.38
 Pgt



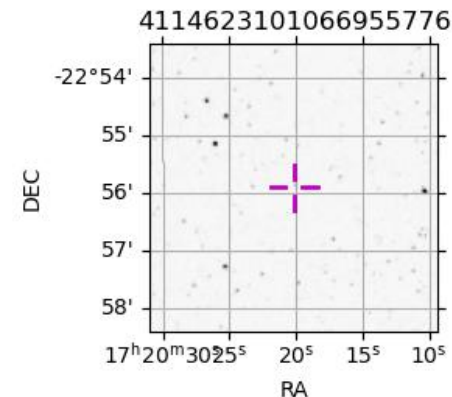
Earth
 PMO
 IRTF
 AAT
 MSO



2031-09-23T08:51:11.1000 α: 17 20 20.0783 δ: -22 55 54.322 C/A 8.416° PA 5.16 deg v_sky +17.64 km/s D 05.31 AU
 Credit: Styled after SORA/Lucky Star

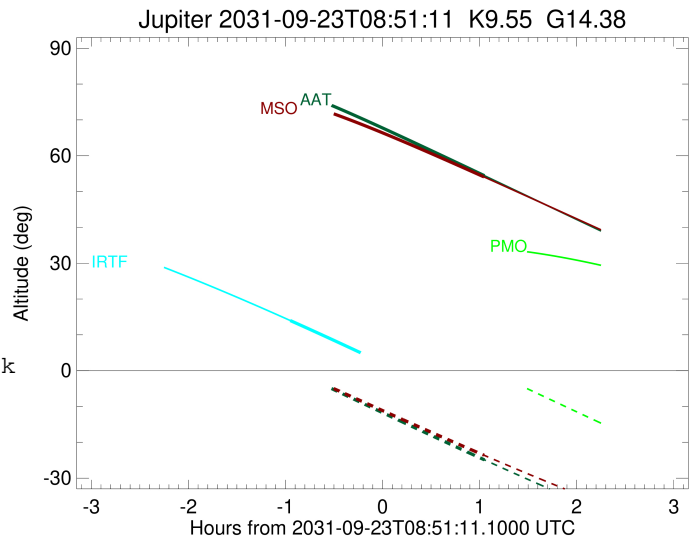
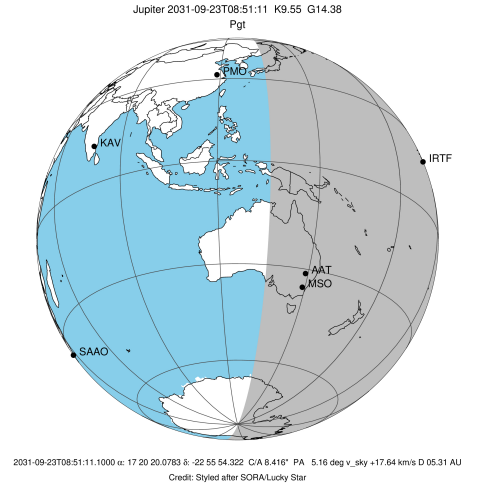
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
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	+	SEP 23 07:54 - SEP 23 07:54	Pin
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 23 09:54 - SEP 23 09:54	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	SEP 23 09:53 - SEP 23 09:53	Pne



```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2031-09-23T08:56:18.160
Event type             : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : IRTF
Location              : Mauna Kea/IRTF
Latitude (deg)        : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 4114623101066955776
2Mass ID (if available) : 17202008-2255543
ICRS Star Coord at Epoch: 17h 20m 20.07827s -22:55:54.32219s
RUWE (>1.4 is poor)  : 0.99
K magnitude           : 9.549
G magnitude           : 14.378
RP magnitude          : 13.132
BP magnitude          : 16.113
DUPflag              : 0
Distance (au)         : 5.305
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 17.64
Sun-Target sep (deg)  : 81.17
Sun-Moon sep (deg)    : 2.26
B (ring opening deg) : -2.35
PA of pole (deg)      : 3.43
Pole direction: RA (deg): 268.05684
Dec (deg): 64.49652
C/A sky separation (") : 7.657
C/A sky separation (km) : 29462.1
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
    
```

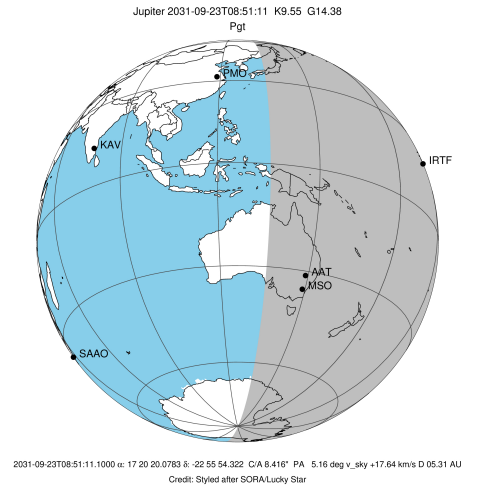


x: target alt < 5.0 deg or sun > -5.0 deg

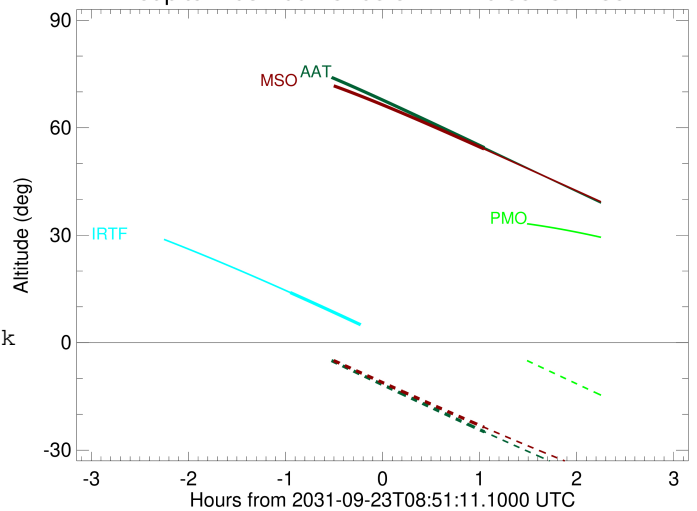
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-23T07:54:14.046	13.98	-50.46	71490.6	-25.56	-28.63
Jupiter	E	2031-09-23T09:57:53.825	-12.39x	-69.97	71490.8	-23.13	-26.00

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-23T08:53:17.610
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        : 4114623101066955776
2Mass ID (if available) : 17202008-2255543
ICRS Star Coord at Epoch: 17h 20m 20.07827s -22:55:54.32219s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 9.549
G magnitude           : 14.378
RP magnitude          : 13.132
BP magnitude          : 16.113
DUPflag              : 0
Distance (au)         : 5.305
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 17.64
Sun-Target sep (deg)  : 81.17
Sun-Moon sep (deg)    : 2.69
B (ring opening deg) : -2.35
PA of pole (deg)     : 3.43
Pole direction: RA (deg): 268.05684
Dec (deg): 64.49652
C/A sky separation (") : 8.639
C/A sky separation (km) : 33238.9
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
    
```



Jupiter 2031-09-23T08:51:11 K9.55 G14.38

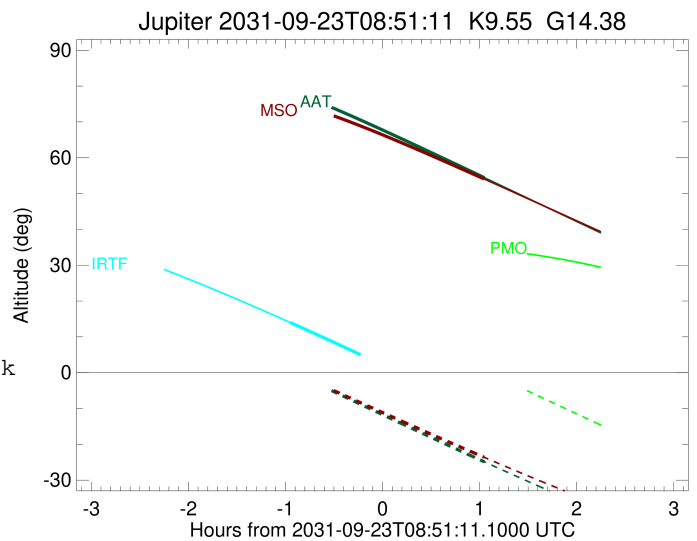
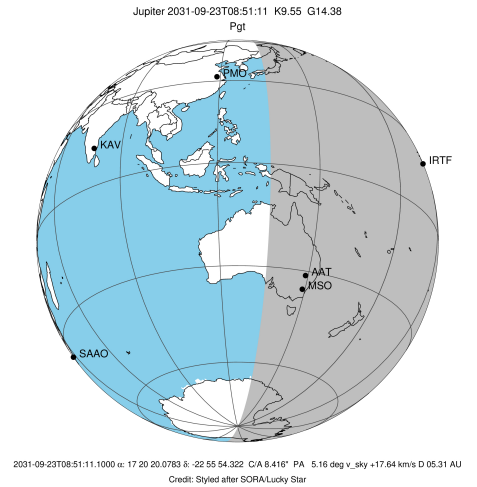


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-23T07:52:10.296	78.87	0.89x	71490.2	-29.38	-32.71
Jupiter	E	2031-09-23T09:54:12.234	54.42	-24.90	71490.5	-26.12	-29.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-23T08:53:13.890
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      : 4114623101066955776
2Mass ID (if available) : 17202008-2255543
ICRS Star Coord at Epoch: 17h 20m 20.07827s -22:55:54.32219s
RUWE (>1.4 is poor) : 0.99
K magnitude         : 9.549
G magnitude         : 14.378
RP magnitude        : 13.132
BP magnitude        : 16.113
DUPflag            : 0
Distance (au)       : 5.305
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 17.64
Sun-Target sep (deg) : 81.17
Sun-Moon sep (deg)  : 2.75
B (ring opening deg) : -2.35
PA of pole (deg)    : 3.43
Pole direction: RA (deg): 268.05684
Dec (deg): 64.49652
C/A sky separation (") : 8.753
C/A sky separation (km) : 33678.2
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	2031-09-23T07:52:23.637	75.73	0.85x	71490.1	-29.78	-33.14
Jupiter	E	2031-09-23T09:53:51.979	54.09	-23.59	71490.5	-26.51	-29.66