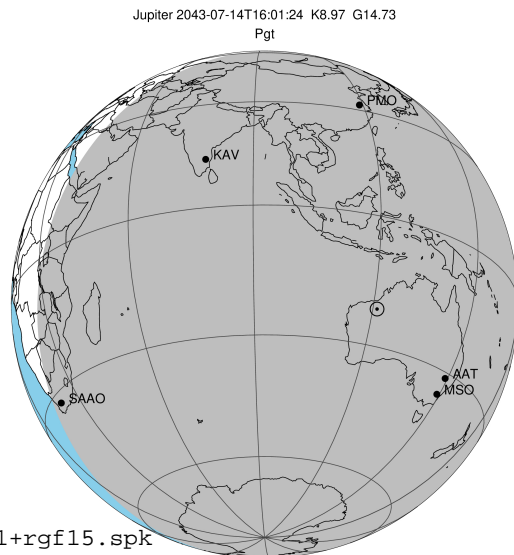


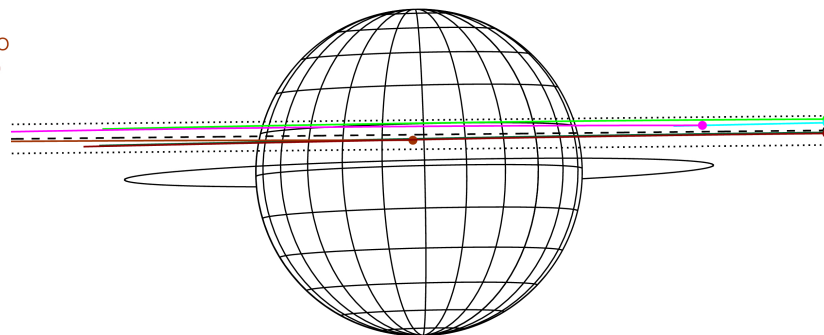
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-07-14T16:01:24.720  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116535078719662208  
 2Mass ID (if available) : 17385988-2303448

Jupiter 2043-07-14T16:01:24 K8.97 G14.73 Pgt

ICRS Star Coord at Epoch: 17h 38m 59.87006s -23:03:45.20372s  
 RUWE (>1.4 is poor) : 1.29  
 K magnitude : 8.973  
 G magnitude : 14.732  
 RP magnitude : 13.261  
 BP magnitude : 17.297  
 DUPflag : 0  
 Distance (au) : 4.328  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -13.41  
 Sun-Target sep (deg) : 153.64  
 Sun-Moon sep (deg) : 57.16  
 B (ring opening deg) : -2.40  
 PA of pole (deg) : 1.42  
 Pole direction: RA (deg): 268.05670  
 Dec (deg): 64.49732  
 C/A sky separation (") : 5.281  
 C/A sky separation (km) : 16574.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



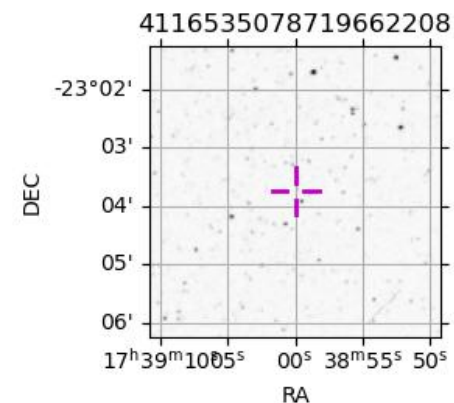
Earth  
 PMO  
 IRTF  
 KAV  
 AAT  
 SAAO  
 MSO



2043-07-14T16:01:24.7200 at: 17 38 59.8701 s: -23 03 45.204 C/A 5.269" PA 180.60 deg v\_sky -13.41 km/s D 04.33 AU  
 Credit: Styled after SORA/Lucky Star

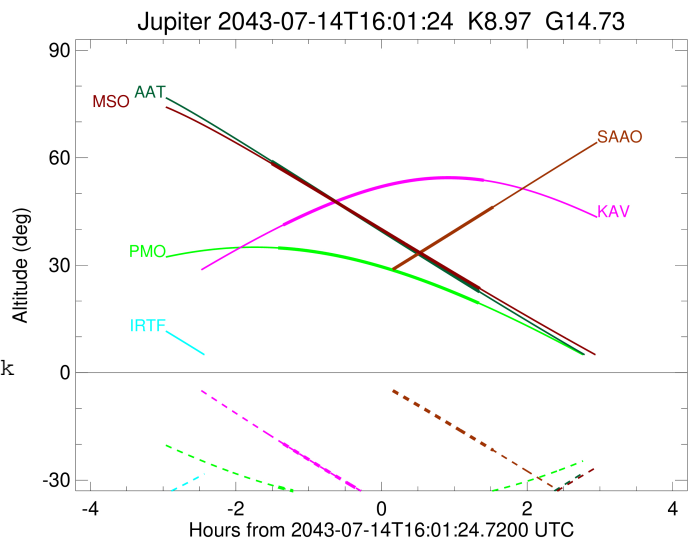
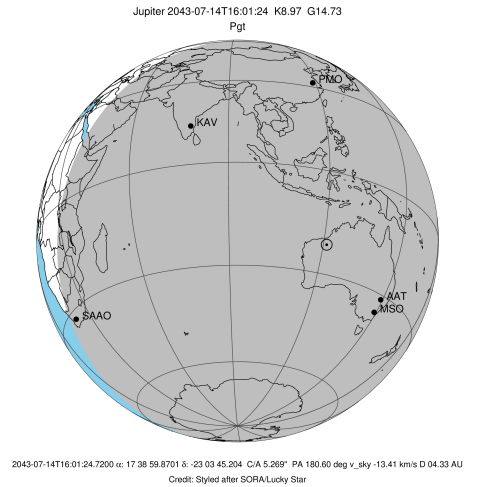
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
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	+ +	JUL 14 14:36 - JUL 14 17:21	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	+ +	JUL 14 14:40 - JUL 14 17:25	Pie
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	+ +	JUL 14 14:30 - JUL 14 17:21	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8		JUL 14 17:33 - JUL 14 17:33	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 14 14:30 - JUL 14 17:22	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-14T15:58:40.620
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        : 4116535078719662208
2Mass ID (if available) : 17385988-2303448
ICRS Star Coord at Epoch: 17h 38m 59.87006s -23:03:45.20372s
RUWE (>1.4 is poor) : 1.29
K magnitude           : 8.973
G magnitude           : 14.732
RP magnitude          : 13.261
BP magnitude          : 17.297
DUPflag              : 0
Distance (au)         : 4.328
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.41
Sun-Target sep (deg)  : 153.64
Sun-Moon sep (deg)   : 57.73
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.42
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 6.882
C/A sky separation (km) : 21600.3
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
    
```



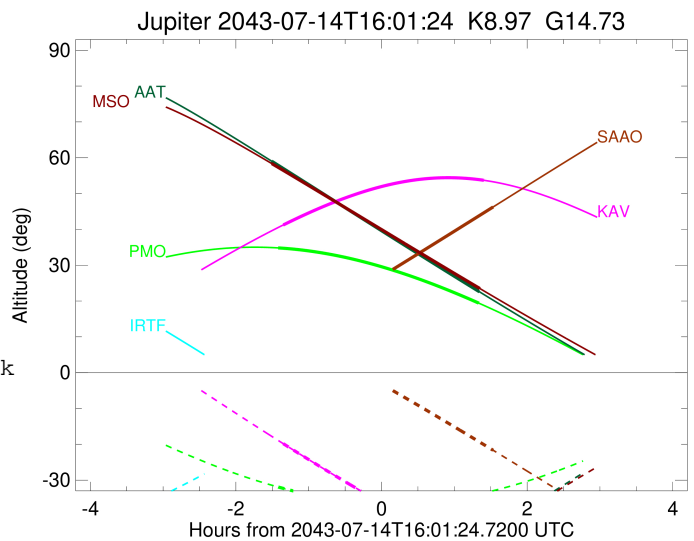
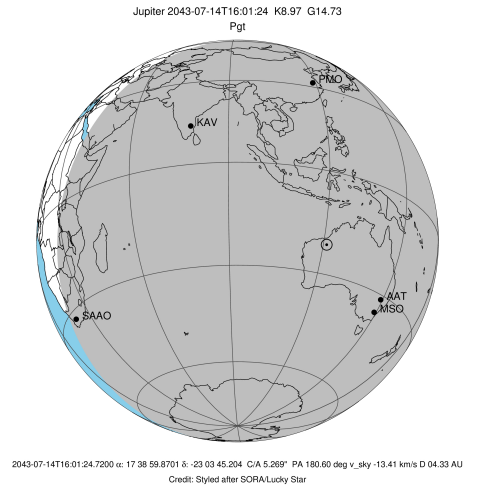
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-14T14:36:16.604	34.82	-31.92	71491.3	16.90	19.15
Jupiter	E	2043-07-14T17:21:30.621	19.42	-33.87	71491.2	18.03	20.40



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-14T15:56:00.400
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       : 4116535078719662208
2Mass ID (if available) : 17385988-2303448
ICRS Star Coord at Epoch: 17h 38m 59.87006s -23:03:45.20372s
RUWE (>1.4 is poor) : 1.29
K magnitude           : 8.973
G magnitude           : 14.732
RP magnitude          : 13.261
BP magnitude          : 17.297
DUPflag              : 0
Distance (au)        : 4.328
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.41
Sun-Target sep (deg) : 153.64
Sun-Moon sep (deg)   : 57.99
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.42
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 4.714
C/A sky separation (km): 14796.9
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
    
```

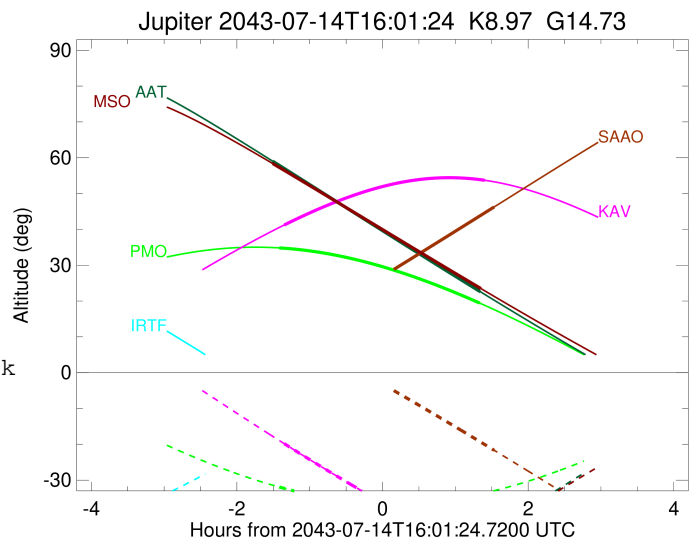
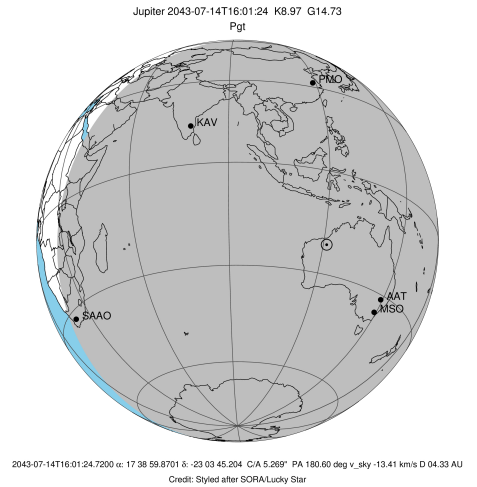


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-14T14:30:52.701	59.03	-79.40	71491.7	11.55	13.15
Jupiter	E	2043-07-14T17:21:57.878	22.61	-46.23	71491.6	12.17	13.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-14T16:07:30.970
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : SAAO
Location             : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)       : -32.37953
E. Longitude (deg)   : 20.81070
Altitude (km)        : 1.768
Gaia source ID       : 4116535078719662208
2Mass ID (if available) : 17385988-2303448
ICRS Star Coord at Epoch: 17h 38m 59.87006s -23:03:45.20372s
RUWE (>1.4 is poor) : 1.29
K magnitude           : 8.973
G magnitude           : 14.732
RP magnitude         : 13.261
BP magnitude         : 17.297
DUPflag              : 0
Distance (au)        : 4.328
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.41
Sun-Target sep (deg) : 153.64
Sun-Moon sep (deg)   : 57.10
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.42
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 4.503
C/A sky separation (km) : 14134.7
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
    
```

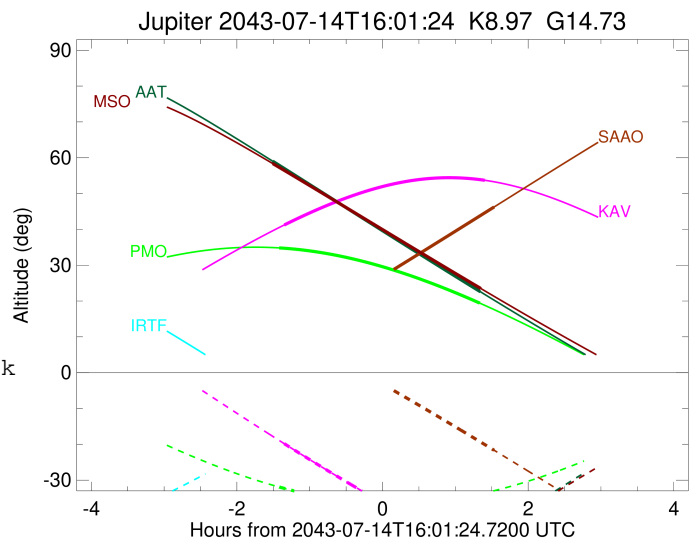
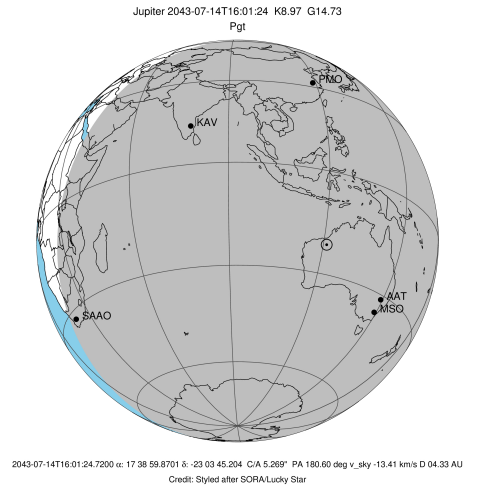


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-14T14:40:48.894	10.46	11.67x	71491.8	9.92	11.31
Jupiter	E	2043-07-14T17:33:25.747	46.25	-21.66	71491.6	12.78	14.53

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-14T15:56:14.580
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      : 4116535078719662208
2Mass ID (if available) : 17385988-2303448
ICRS Star Coord at Epoch: 17h 38m 59.87006s -23:03:45.20372s
RUWE (>1.4 is poor) : 1.29
K magnitude          : 8.973
G magnitude          : 14.732
RP magnitude         : 13.261
BP magnitude         : 17.297
DUPflag             : 0
Distance (au)       : 4.328
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.41
Sun-Target sep (deg) : 153.64
Sun-Moon sep (deg)  : 57.98
B (ring opening deg) : -2.40
PA of pole (deg)    : 1.42
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 4.586
C/A sky separation (km) : 14395.7
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	2043-07-14T14:30:56.110	58.37	-75.72	71491.7	11.21	12.76
Jupiter	E	2043-07-14T17:22:21.026	23.51	-46.01	71491.7	11.87	13.50