

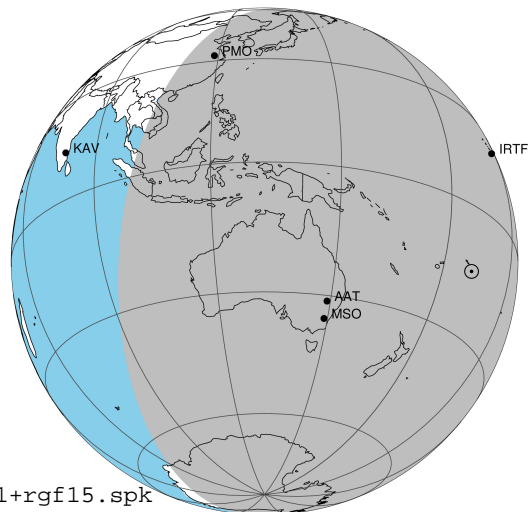
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-08-11T11:24:40.290
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4117438022633925248
 2Mass ID (if available) : 17304469-2303116

Jupiter 2043-08-11T11:24:40 K9.59 G13.53 Pgt

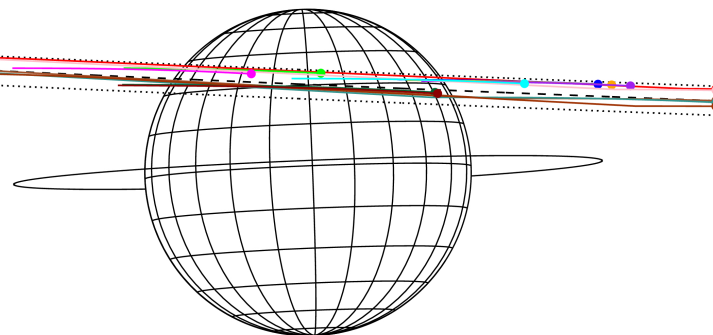
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23°03'11.63440s

RUWE (>1.4 is poor) : 5.79
 K magnitude : 9.590
 G magnitude : 13.527
 RP magnitude : 12.412
 BP magnitude : 14.691
 DUPflag : 0
 Distance (au) : 4.599
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -4.02
 Sun-Target sep (deg) : 125.16
 Sun-Moon sep (deg) : 49.62
 B (ring opening deg) : -2.35
 PA of pole (deg) : 2.31
 Pole direction: RA (deg): 268.05671
 Dec (deg): 64.49731
 C/A sky separation (") : 11.547
 C/A sky separation (km) : 38514.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-08-11T11:24:40 K9.59 G13.53
 Pgt



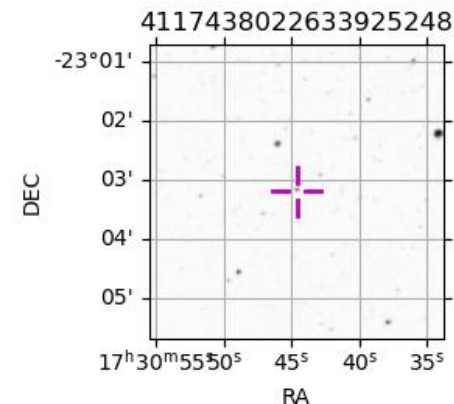
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-08-11T11:24:40.2900 α: 17 30 44.6976 δ: -23 03 11.634 C/A ***** PA 177.59 deg v_sky - 4.02 km/s D 04.60 AU
 Credit: Styled after SORA/Lucky Star

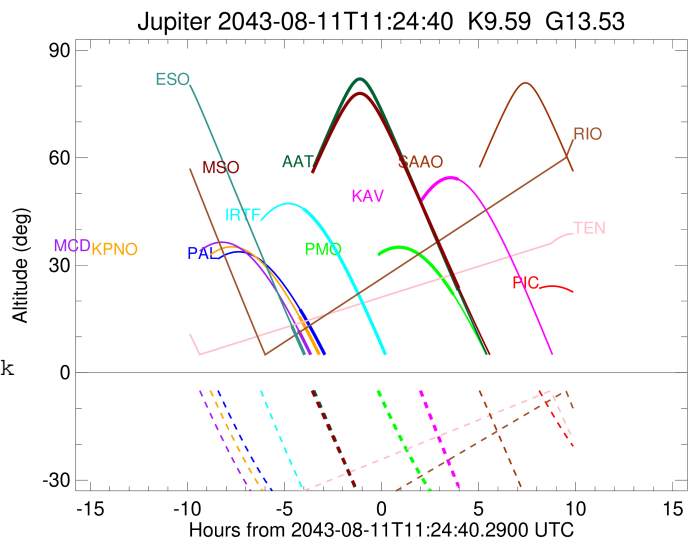
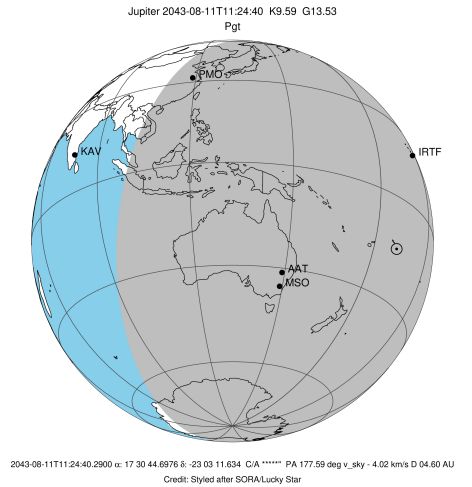
Observable events with sun below -5 deg and altitude above 5 deg

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	+	AUG 11 07:13 - AUG 11 07:13	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	AUG 11 15:06 - AUG 11 15:06	Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	AUG 11 07:10 - AUG 11 07:10	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	AUG 11 07:08 - AUG 11 07:08	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	AUG 11 07:23 - AUG 11 07:23	Pin
KAV	Kavalur Observatory	12.6	78.8	+	AUG 11 15:22 - AUG 11 15:22	Pne
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	AUG 11 06:47 - AUG 11 06:47	Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+	AUG 11 15:21 - AUG 11 15:21	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	AUG 11 15:23 - AUG 11 15:23	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-11T11:09:09.740
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PAL
Location            : Palomar Mt (200")
Latitude (deg)      : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)       : 1.706
Gaia source ID      : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude         : 9.590
G magnitude         : 13.527
RP magnitude        : 12.412
BP magnitude        : 14.691
DUPflag            : 0
Distance (au)       : 4.599
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg)  : 49.74
B (ring opening deg) : -2.35
PA of pole (deg)    : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (") : 12.263
C/A sky separation (km) : 40900.4
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
    
```

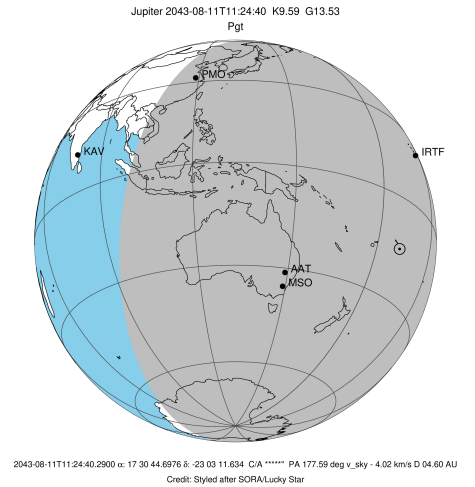


x: target alt < 5.0 deg or sun > -5.0 deg

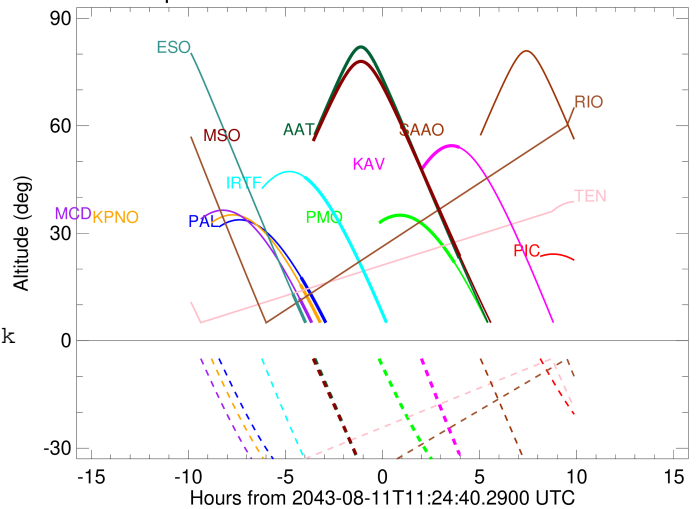
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-11T07:13:00.403	17.66	-40.64	71489.9	32.21	35.70
Jupiter	E	2043-08-11T15:30:01.613	-77.86x	28.43x	71489.1	38.39	42.07

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-11T11:27:55.890
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      : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude          : 9.590
G magnitude          : 13.527
RP magnitude        : 12.412
BP magnitude        : 14.691
DUPflag             : 0
Distance (au)       : 4.599
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg)  : 49.90
B (ring opening deg) : -2.35
PA of pole (deg)    : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (" ) : 13.111
C/A sky separation (km) : 43731.9
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 2043-08-11T11:24:40 K9.59 G13.53

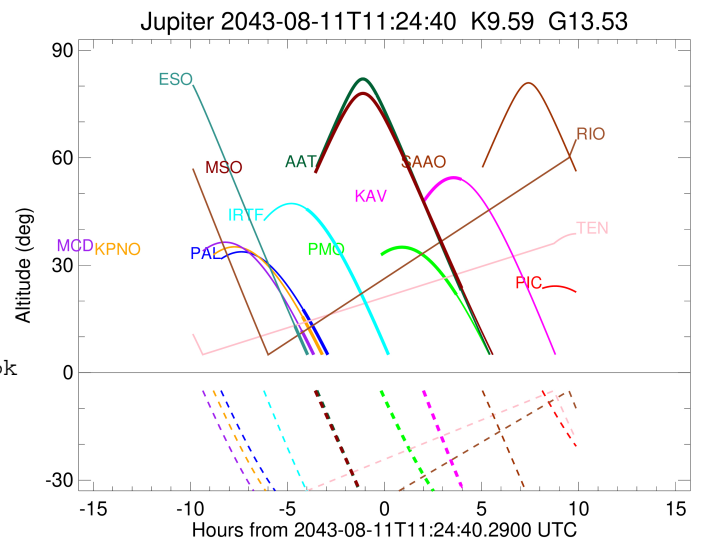
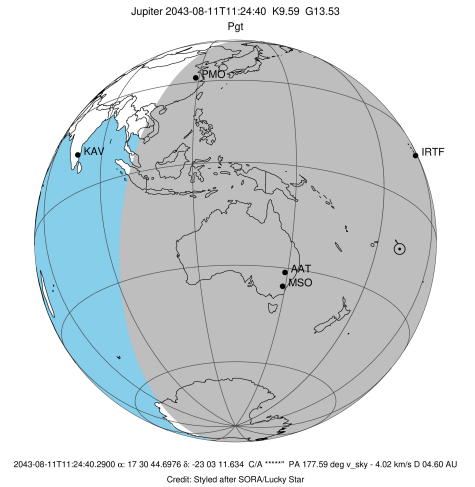


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-11T07:48:39.260	5.14	37.78x	71489.9	31.90	35.38
Jupiter	E	2043-08-11T15:06:55.472	21.79	-40.58	71488.7	41.71	45.43

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-11T11:09:25.000
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)   : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude           : 9.590
G magnitude           : 13.527
RP magnitude          : 12.412
BP magnitude          : 14.691
DUPflag              : 0
Distance (au)         : 4.599
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg)   : 49.69
B (ring opening deg) : -2.35
PA of pole (deg)     : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (") : 12.169
C/A sky separation (km) : 40588.5
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
    
```

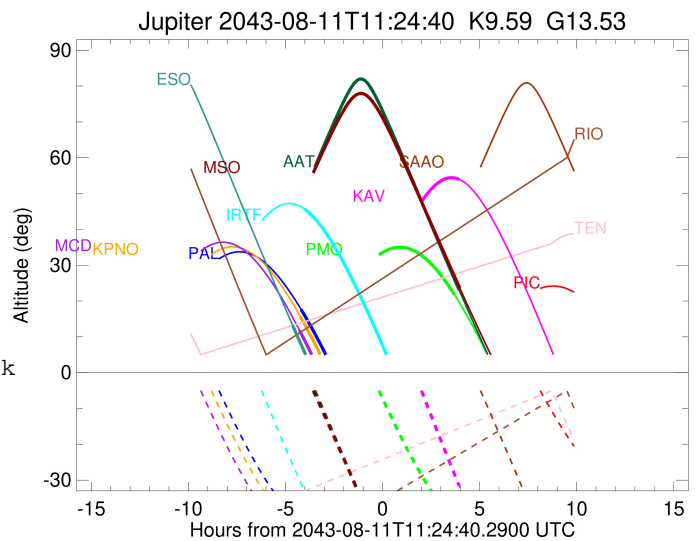
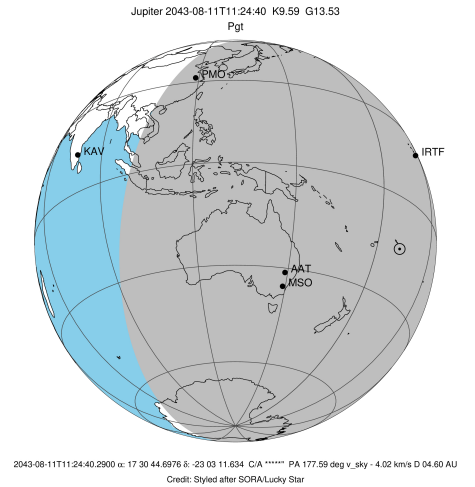


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-11T07:10:52.689	15.66	-42.69	71489.9	31.96	35.44
Jupiter	E	2043-08-11T15:32:46.587	-81.16x	33.48x	71489.1	38.25	41.93

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-08-11T11:10:09.470
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MCD
Location              : McDonald Obs. 2.7m
Latitude (deg)       : 30.67158
E. Longitude (deg)   : 255.97844
Altitude (km)        : 2.075
Gaia source ID       : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude           : 9.590
G magnitude           : 13.527
RP magnitude          : 12.412
BP magnitude          : 14.691
DUPflag              : 0
Distance (au)        : 4.599
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg)   : 49.60
B (ring opening deg) : -2.35
PA of pole (deg)     : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (") : 12.057
C/A sky separation (km) : 40212.4
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
    
```

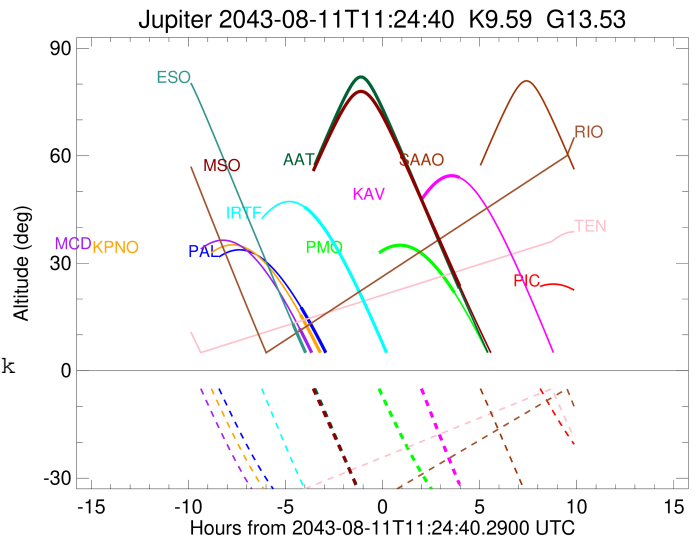
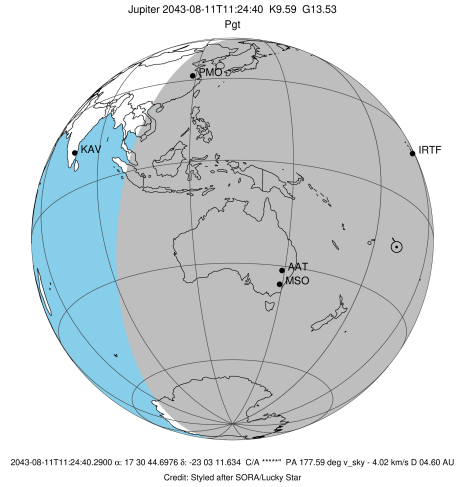


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-11T07:08:11.861	11.83	-44.20	71489.9	31.64	35.09
Jupiter	E	2043-08-11T15:36:27.943	-80.44x	40.83x	71489.1	38.16	41.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-11T11:07:53.230
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      : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude          : 9.590
G magnitude          : 13.527
RP magnitude         : 12.412
BP magnitude         : 14.691
DUPflag             : 0
Distance (au)       : 4.599
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg)  : 50.24
B (ring opening deg) : -2.35
PA of pole (deg)    : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 12.337
C/A sky separation (km): 41146.0
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
    
```

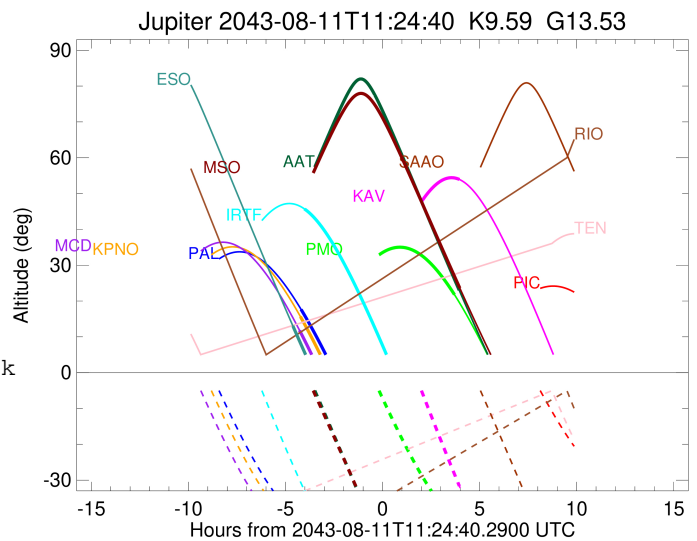
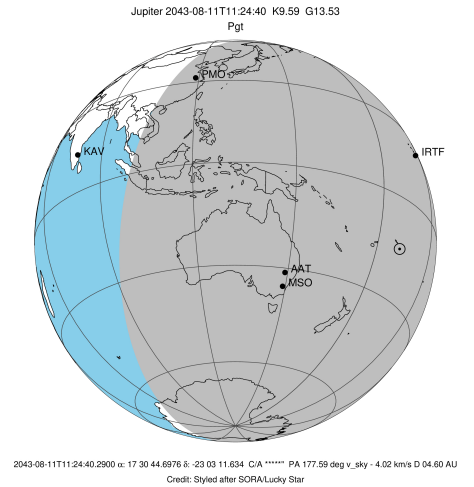


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-11T07:23:31.035	45.70	-32.91	71489.9	32.00	35.48
Jupiter	E	2043-08-11T15:16:15.706	-43.78x	-10.84	71489.2	37.56	41.23

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-08-11T11:38:56.850
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        : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude           : 9.590
G magnitude           : 13.527
RP magnitude          : 12.412
BP magnitude          : 14.691
DUPflag              : 0
Distance (au)         : 4.599
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg)   : 49.47
B (ring opening deg) : -2.35
PA of pole (deg)     : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 12.470
C/A sky separation (km): 41592.5
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
    
```

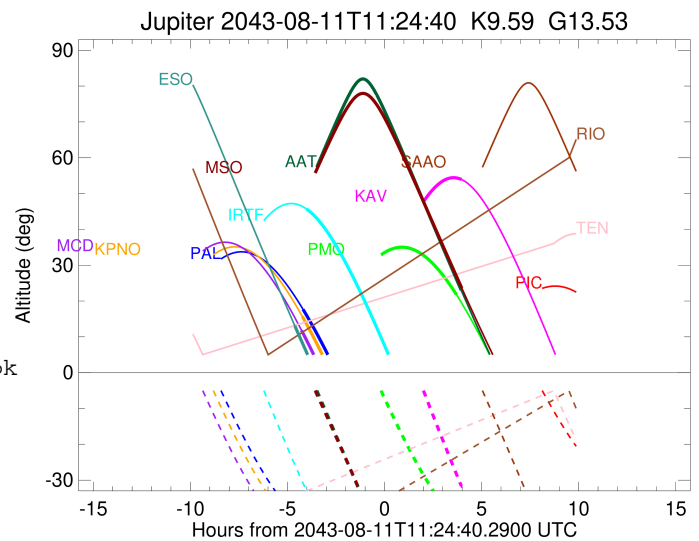
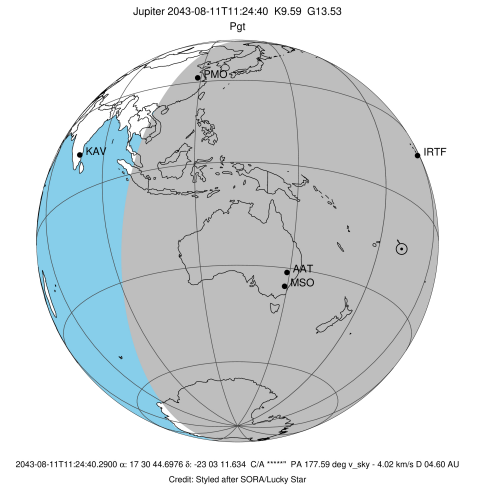


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-11T07:43:14.234	-22.17x	76.77x	71490.3	28.60	31.88
Jupiter	E	2043-08-11T15:22:13.581	53.93	-31.66	71488.8	40.88	44.60

```

target           : Jupiter
target radius (km) : 71492.00
C/A epoch       : 2043-08-11T11:17:50.240
Event type      : Pgt
                 : Jupiter occs: geocentric, topocentric
                 : Not a ringed target
Observer code   : ESO
Location        : European Southern Obs. (3.6m)
Latitude (deg)  : -29.26097
E. Longitude (deg) : 289.26831
Altitude (km)   : 2.400
Gaia source ID  : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude     : 9.590
G magnitude     : 13.527
RP magnitude    : 12.412
BP magnitude    : 14.691
DUPflag        : 0
Distance (au)   : 4.599
f0 (km)         : 0.00
g0 (km)         : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg) : 49.43
B (ring opening deg) : -2.35
PA of pole (deg) : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (") : 10.068
C/A sky separation (km) : 33578.8
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
    
```

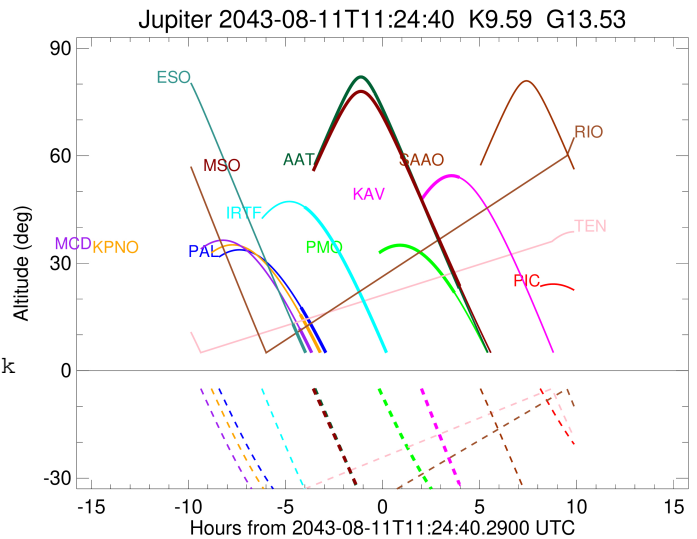
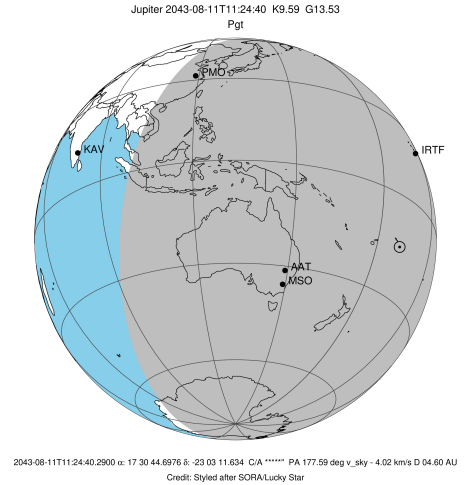


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-11T06:47:53.474	13.01	-59.16	71490.6	25.08	28.11
Jupiter	E	2043-08-11T16:04:43.522	-20.85x	44.52x	71489.7	33.49	37.03


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-11T11:20:50.860
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      : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude          : 9.590
G magnitude          : 13.527
RP magnitude         : 12.412
BP magnitude         : 14.691
DUPflag             : 0
Distance (au)       : 4.599
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg)   : 50.43
B (ring opening deg) : -2.35
PA of pole (deg)     : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 11.237
C/A sky separation (km): 37480.1
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
    
```

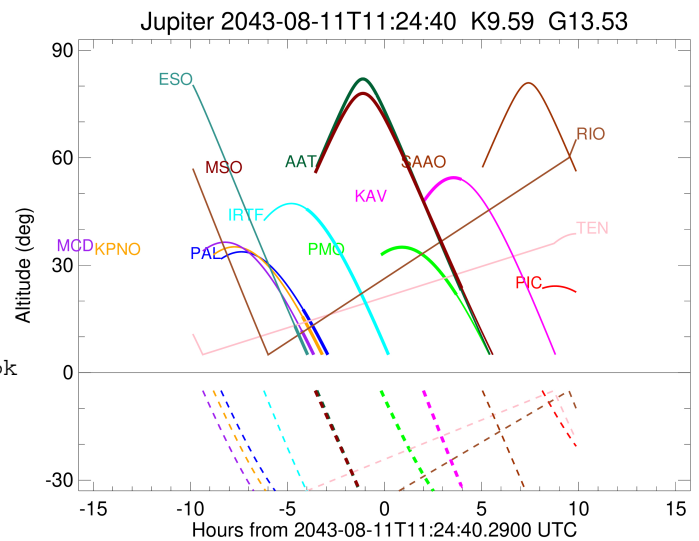
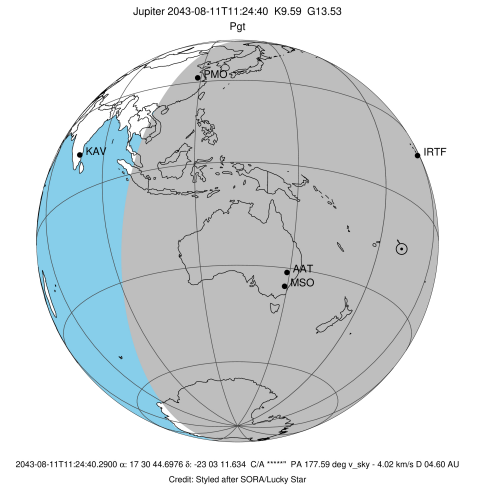


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-11T07:29:21.140	51.77	0.35x	71490.5	26.69	29.84
Jupiter	E	2043-08-11T15:21:34.735	23.04	-66.98	71489.6	34.74	38.33

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-11T11:21:05.770
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      : 4117438022633925248
2Mass ID (if available) : 17304469-2303116
ICRS Star Coord at Epoch: 17h 30m 44.69763s -23:03:11.63440s
RUWE (>1.4 is poor) : 5.79
K magnitude          : 9.590
G magnitude          : 13.527
RP magnitude         : 12.412
BP magnitude         : 14.691
DUPflag             : 0
Distance (au)       : 4.599
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.02
Sun-Target sep (deg) : 125.16
Sun-Moon sep (deg)  : 50.41
B (ring opening deg) : -2.35
PA of pole (deg)    : 2.31
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 11.107
C/A sky separation (km): 37045.8
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	2043-08-11T07:27:48.707	51.13	-0.56x	71490.5	26.28	29.41
Jupiter	E	2043-08-11T15:23:31.204	23.61	-63.98	71489.6	34.40	37.98