

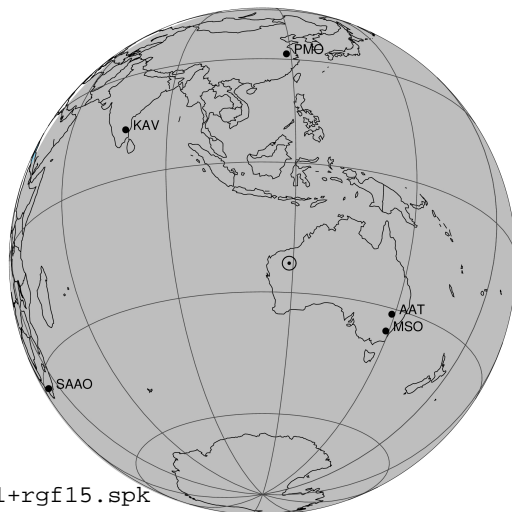
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-25T16:06:38.290
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068869359862458624
 2Mass ID (if available) : 17483969-2304520

Jupiter 2043-06-25T16:06:38 K9.66 G14.15 Pgt

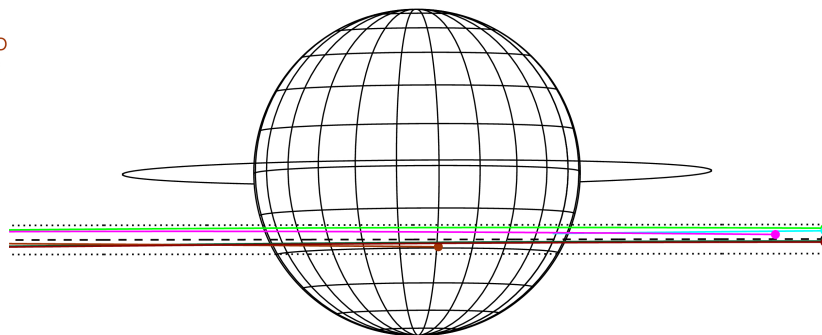
ICRS Star Coord at Epoch: 17h 48m 39.69321s -23:04:52.04256s

RUWE (>1.4 is poor) : 0.88
 K magnitude : 9.658
 G magnitude : 14.155
 RP magnitude : 12.958
 BP magnitude : 15.664
 DUPflag : 0
 Distance (au) : 4.253
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.26
 Sun-Target sep (deg) : 173.97
 Sun-Moon sep (deg) : 41.62
 B (ring opening deg) : -2.42
 PA of pole (deg) : 0.38
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 9.516
 C/A sky separation (km) : 29350.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-25T16:06:38 K9.66 G14.15
 Pgt



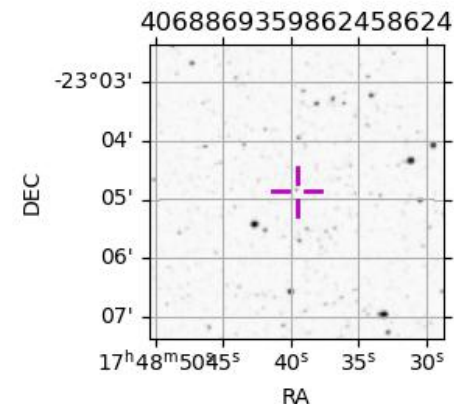
Earth
 PMO
 IRTF
 KAV
 AAT
 SAAO
 MSO



2043-06-25T16:06:38.2900 a: 17 48 39.6932 s: -23 04 52.043 C/A 9.527" PA 0.07 deg v_sky -16.26 km/s D 04.25 AU
 Credit: Styled after SORA/Lucky Star

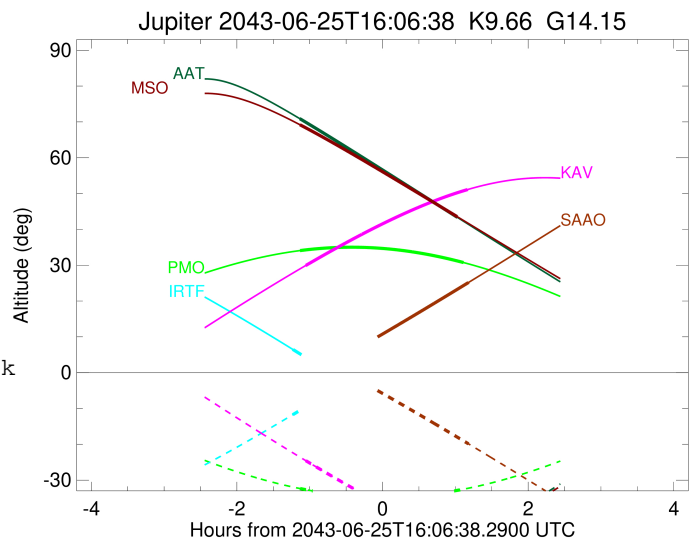
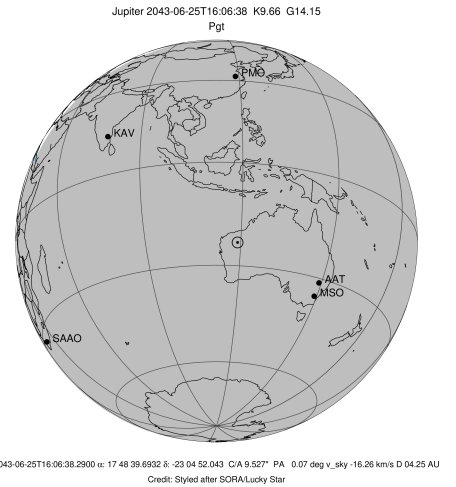
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUN 25 14:58 - JUN 25 17:13	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	+	JUN 25 14:52 - JUN 25 14:52	Pin
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 25 15:03 - JUN 25 17:16	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	+ +	JUN 25 14:58 - JUN 25 17:08	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUN 25 17:17 - JUN 25 17:17	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 25 14:58 - JUN 25 17:08	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T16:05:59.580
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      : 4068869359862458624
2Mass ID (if available) : 17483969-2304520
ICRS Star Coord at Epoch: 17h 48m 39.69321s -23:04:52.04256s
RUWE (>1.4 is poor) : 0.88
K magnitude         : 9.658
G magnitude         : 14.155
RP magnitude        : 12.958
BP magnitude        : 15.664
DUPflag            : 0
Distance (au)       : 4.253
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -16.26
Sun-Target sep (deg) : 173.97
Sun-Moon sep (deg)  : 41.99
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.38
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 7.828
C/A sky separation (km) : 24145.3
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
    
```

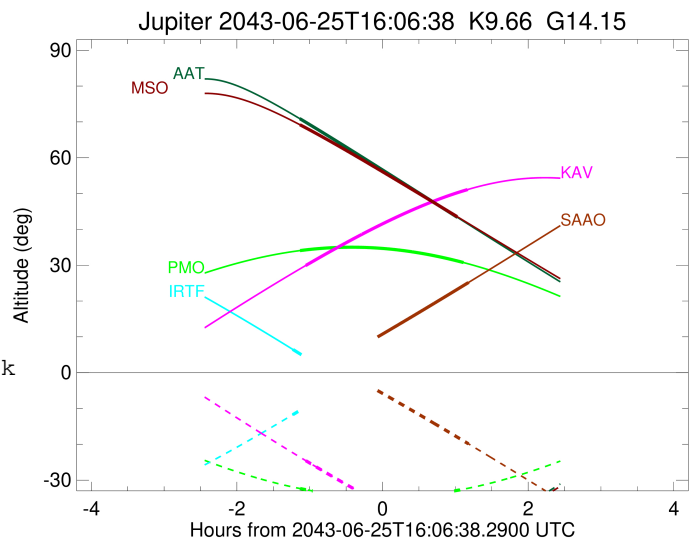
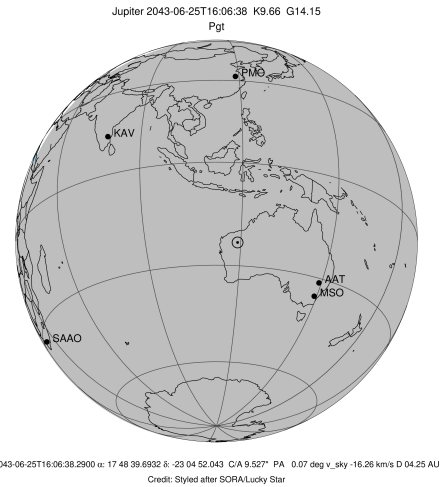


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T14:58:41.496	34.08	-32.34	71491.1	-20.05	-22.63
Jupiter	E	2043-06-25T17:13:21.346	30.74	-32.53	71491.1	-19.54	-22.07

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T16:00:10.720
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       : 4068869359862458624
2Mass ID (if available) : 17483969-2304520
ICRS Star Coord at Epoch: 17h 48m 39.69321s -23:04:52.04256s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 9.658
G magnitude           : 14.155
RP magnitude          : 12.958
BP magnitude          : 15.664
DUPflag              : 0
Distance (au)        : 4.253
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.26
Sun-Target sep (deg) : 173.97
Sun-Moon sep (deg)   : 40.89
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.38
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 8.887
C/A sky separation (km): 27412.5
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
    
```

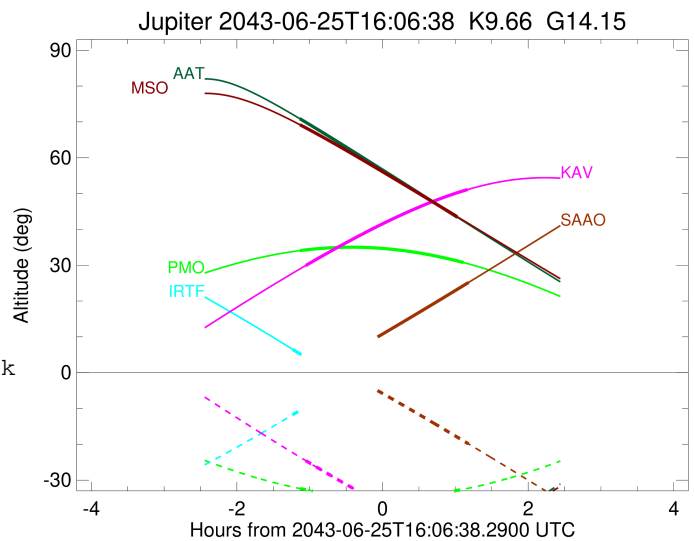
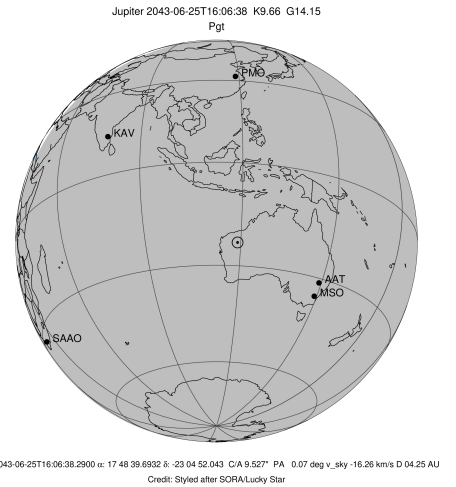


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T14:52:46.270	6.48	-11.72	71490.8	-22.25	-25.04
Jupiter	E	2043-06-25T17:08:08.439	-23.12x	17.28x	71490.8	-22.81	-25.65

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-25T16:10:13.680
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        : 4068869359862458624
2Mass ID (if available) : 17483969-2304520
ICRS Star Coord at Epoch: 17h 48m 39.69321s -23:04:52.04256s
RUWE (>1.4 is poor)  : 0.88
K magnitude           : 9.658
G magnitude           : 14.155
RP magnitude          : 12.958
BP magnitude          : 15.664
DUPflag              : 0
Distance (au)         : 4.253
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.26
Sun-Target sep (deg)  : 173.97
Sun-Moon sep (deg)    : 42.46
B (ring opening deg)  : -2.42
PA of pole (deg)      : 0.38
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 8.434
C/A sky separation (km) : 26014.8
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
    
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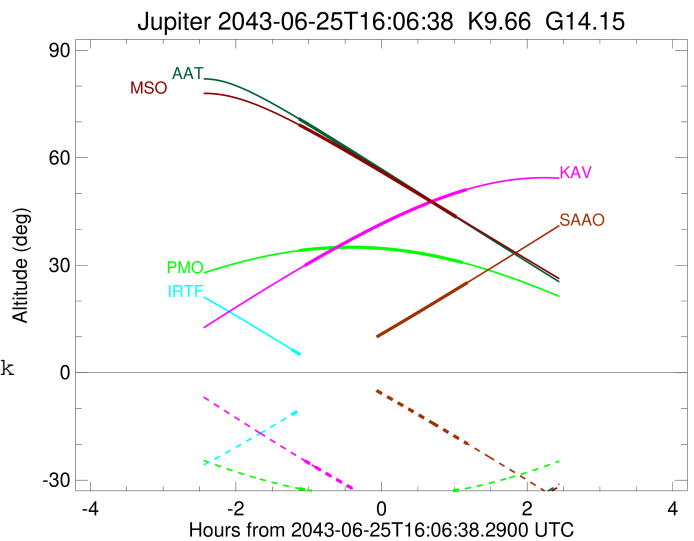
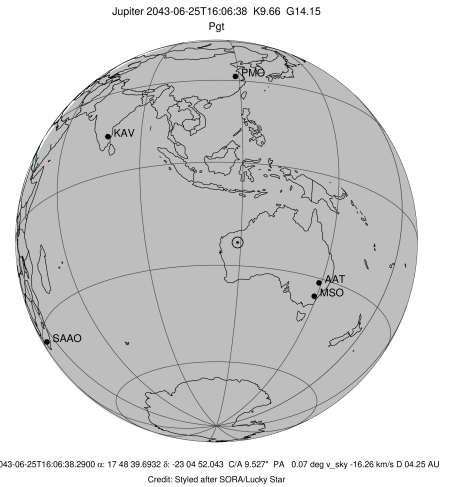


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T15:03:25.310	29.92	-24.56	71490.9	-22.04	-24.81
Jupiter	E	2043-06-25T17:16:45.382	51.11	-47.84	71491.0	-20.76	-23.41

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T16:03:11.980
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      : 4068869359862458624
2Mass ID (if available) : 17483969-2304520
ICRS Star Coord at Epoch: 17h 48m 39.69321s -23:04:52.04256s
RUWE (>1.4 is poor) : 0.88
K magnitude          : 9.658
G magnitude          : 14.155
RP magnitude         : 12.958
BP magnitude         : 15.664
DUPflag             : 0
Distance (au)       : 4.253
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.26
Sun-Target sep (deg) : 173.97
Sun-Moon sep (deg)  : 41.77
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.38
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 9.938
C/A sky separation (km): 30653.3
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
    
```

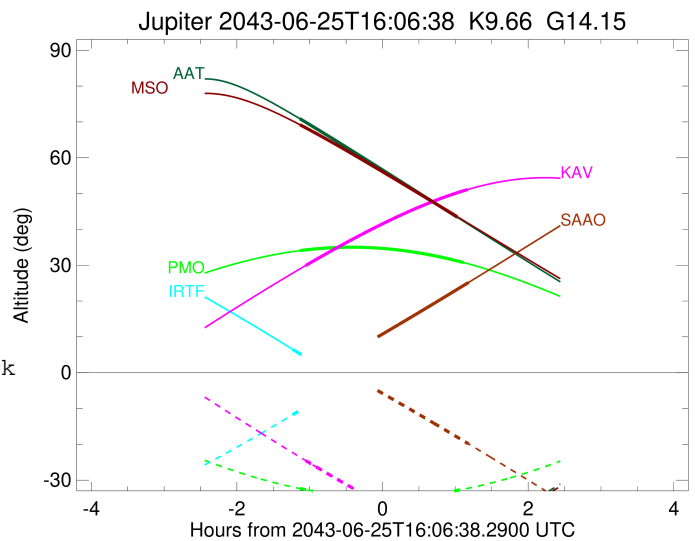
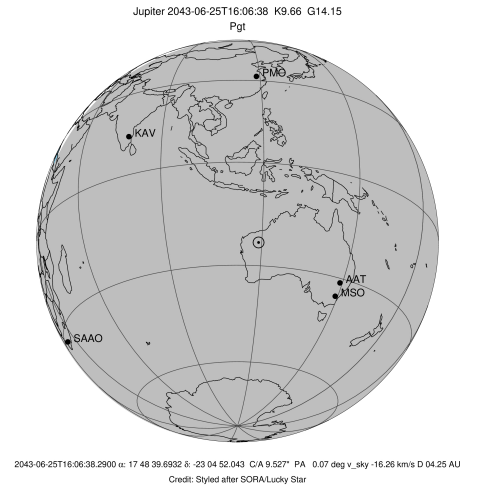


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T14:58:26.754	70.90	-76.10	71490.5	-25.43	-28.49
Jupiter	E	2043-06-25T17:08:13.387	43.38	-49.14	71490.5	-25.43	-28.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T16:12:29.540
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      : 4068869359862458624
2Mass ID (if available) : 17483969-2304520
ICRS Star Coord at Epoch: 17h 48m 39.69321s -23:04:52.04256s
RUWE (>1.4 is poor) : 0.88
K magnitude         : 9.658
G magnitude         : 14.155
RP magnitude        : 12.958
BP magnitude        : 15.664
DUPflag            : 0
Distance (au)      : 4.253
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -16.26
Sun-Target sep (deg) : 173.97
Sun-Moon sep (deg)  : 42.28
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.38
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 10.525
C/A sky separation (km) : 32464.0
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
    
```

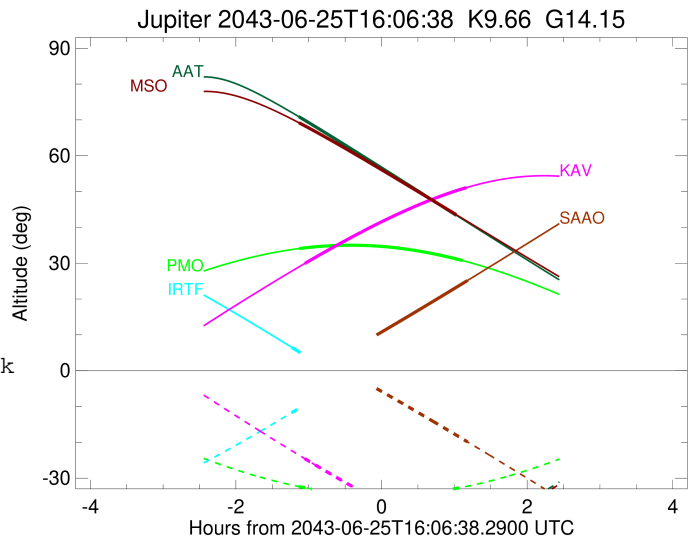
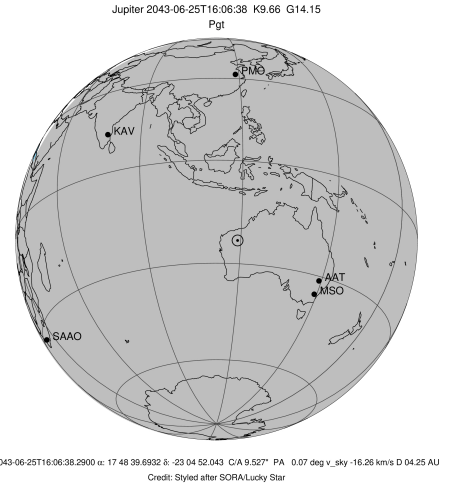


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T15:06:59.263	-0.76x	5.35x	71490.2	-27.84	-31.07
Jupiter	E	2043-06-25T17:17:32.993	25.18	-19.88	71490.4	-26.13	-29.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T16:03:21.350
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       : 4068869359862458624
2Mass ID (if available) : 17483969-2304520
ICRS Star Coord at Epoch: 17h 48m 39.69321s -23:04:52.04256s
RUWE (>1.4 is poor) : 0.88
K magnitude          : 9.658
G magnitude          : 14.155
RP magnitude         : 12.958
BP magnitude         : 15.664
DUPflag             : 0
Distance (au)        : 4.253
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.26
Sun-Target sep (deg) : 173.97
Sun-Moon sep (deg)   : 41.78
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.38
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 10.075
C/A sky separation (km): 31075.4
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	2043-06-25T14:58:44.504	69.18	-73.67	71490.5	-25.82	-28.91
Jupiter	E	2043-06-25T17:08:13.600	43.53	-49.07	71490.5	-25.78	-28.87