

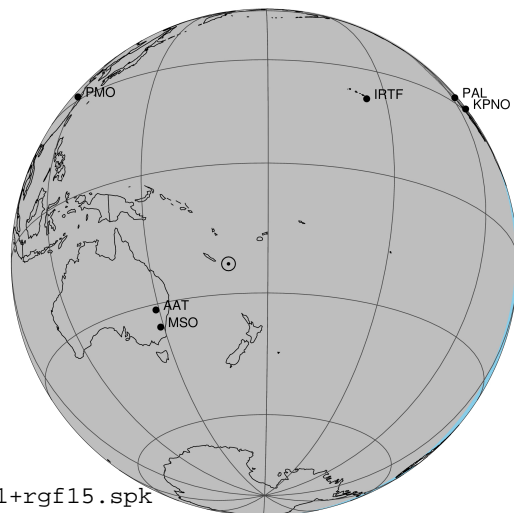
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-12T12:38:47.460
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069387955731021696
 2Mass ID (if available) : 17555546-2304038

Jupiter 2043-06-12T12:38:47 K6.15 G14.09 Pgt

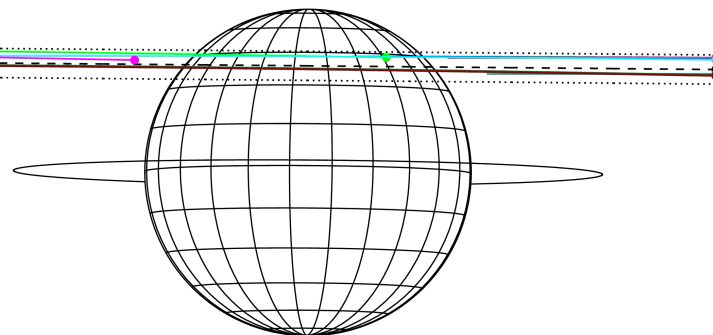
ICRS Star Coord at Epoch: 17h 55m 55.45219s -23:04:04.09766s

RUWE (>1.4 is poor) : 0.91
 K magnitude : 6.146
 G magnitude : 14.094
 RP magnitude : 12.443
 BP magnitude : 19.052
 DUPflag : 0
 Distance (au) : 4.262
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.12
 Sun-Target sep (deg) : 171.80
 Sun-Moon sep (deg) : 120.50
 B (ring opening deg) : -2.43
 PA of pole (deg) : -0.40
 Pole direction: RA (deg): 268.05668
 Dec (deg): 64.49732
 C/A sky separation (") : 15.115
 C/A sky separation (km) : 46723.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-12T12:38:47 K6.15 G14.09
 Pgt



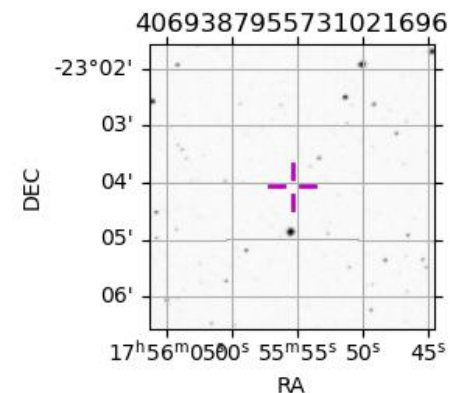
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 ESO
 AAT
 MSO



2043-06-12T12:38:47.4600 a: 17 55 55.4522 d: -23 04 04.098 C/A ***** PA 179.48 deg v_sky -16.12 km/s D 04.26 AU
 Credit: Styled after SORA/Lucky Star

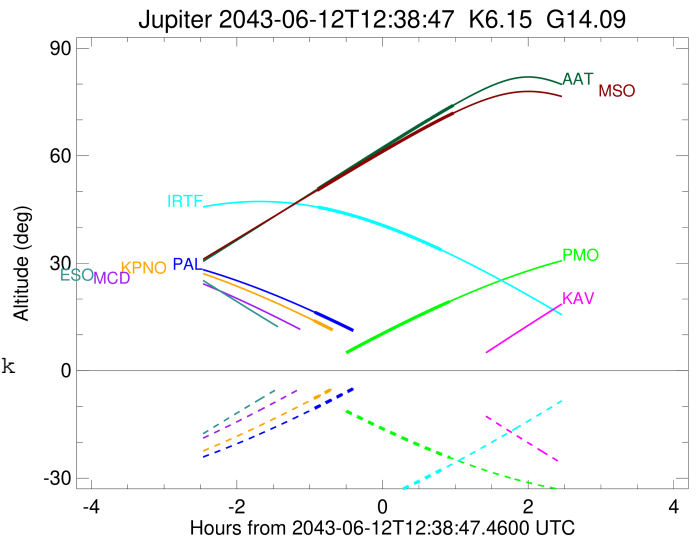
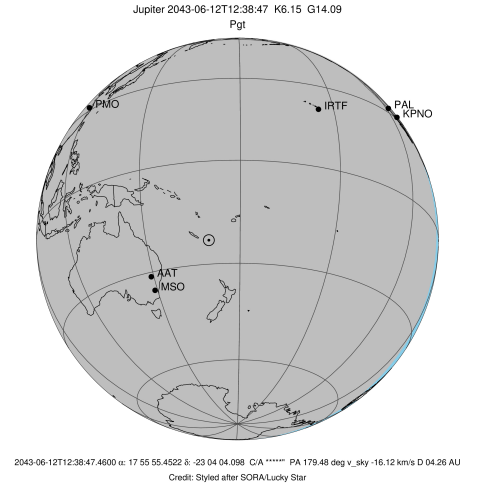
Observable events with sun below -5 deg and altitude above 5 deg

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	+	JUN 12 11:42 - JUN 12 11:42	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUN 12 13:34 - JUN 12 13:34	Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	JUN 12 11:42 - JUN 12 11:42	Pin
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 12 11:45 - JUN 12 13:27	Pie
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	+	JUN 12 11:45 - JUN 12 13:37	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 12 11:44 - JUN 12 13:37	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-12T12:34:16.250
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     : 4069387955731021696
2Mass ID (if available) : 1755546-2304038
ICRS Star Coord at Epoch: 17h 55m 55.45219s -23:04:04.09766s
RUWE (>1.4 is poor) : 0.91
K magnitude         : 6.146
G magnitude         : 14.094
RP magnitude        : 12.443
BP magnitude        : 19.052
DUPflag            : 0
Distance (au)      : 4.262
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.80
Sun-Moon sep (deg) : 120.26
B (ring opening deg) : -2.43
PA of pole (deg)   : -0.40
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (" ) : 16.441
C/A sky separation (km) : 50823.6
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
    
```

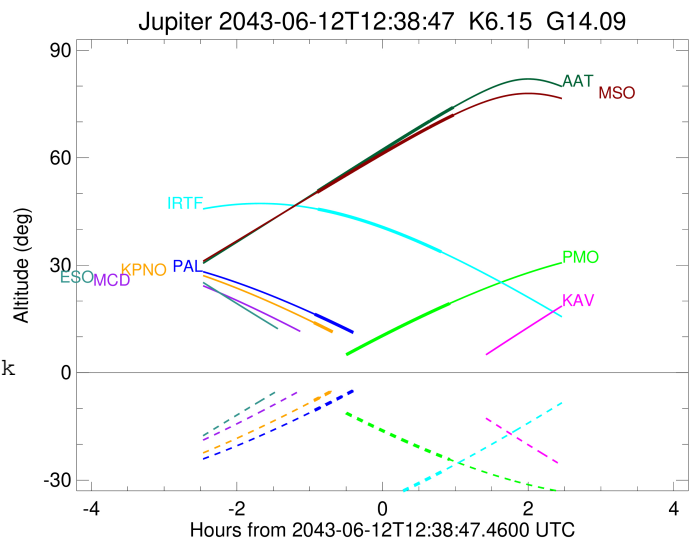
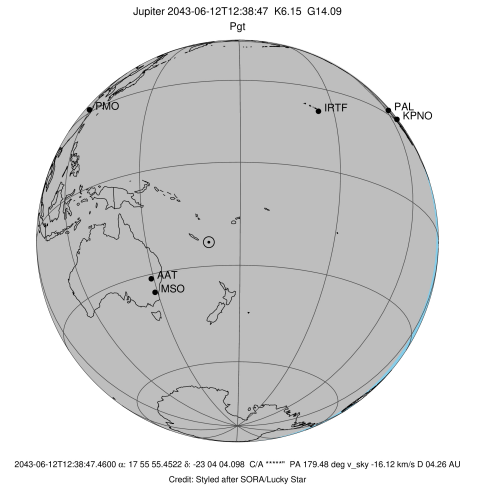


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-12T11:42:55.762	16.32	-10.50	71487.9	45.59	49.29
Jupiter	E	2043-06-12T13:25:50.554	-1.44x	8.24x	71488.0	44.87	48.58

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-12T12:43:07.240
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      : 4069387955731021696
2Mass ID (if available) : 1755546-2304038
ICRS Star Coord at Epoch: 17h 55m 55.45219s -23:04:04.09766s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 6.146
G magnitude          : 14.094
RP magnitude         : 12.443
BP magnitude         : 19.052
DUPflag             : 0
Distance (au)        : 4.262
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.80
Sun-Moon sep (deg)   : 121.02
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.40
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 16.488
C/A sky separation (km): 50968.8
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
    
```

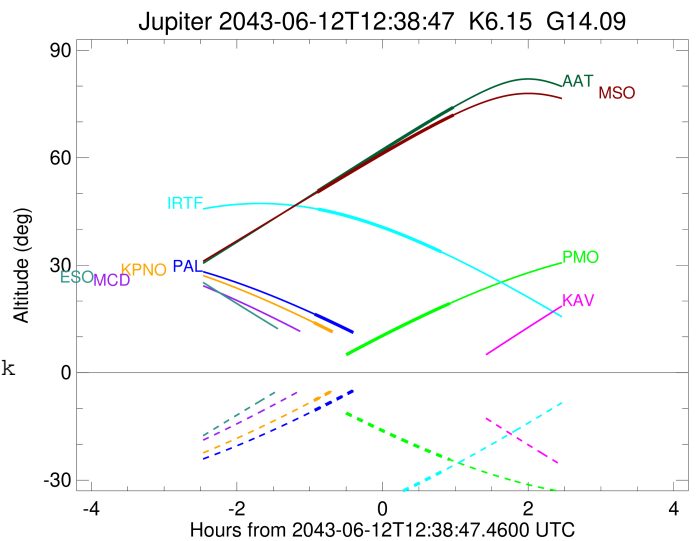
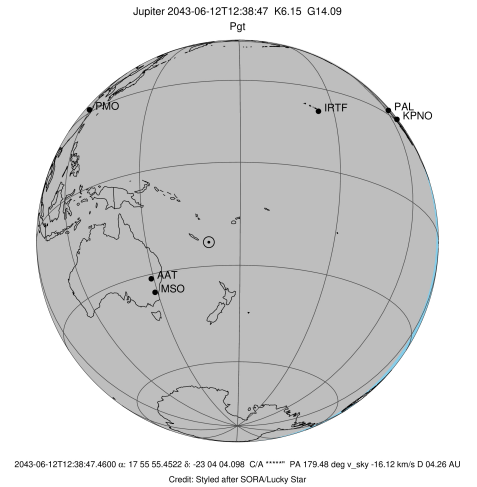


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-12T11:51:46.579	1.85x	-8.29	71488.0	44.82	48.52
Jupiter	E	2043-06-12T13:34:13.636	19.33	-24.25	71487.8	45.96	49.65

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-12T12:34:00.540
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        : 4069387955731021696
2Mass ID (if available) : 17555546-2304038
ICRS Star Coord at Epoch: 17h 55m 55.45219s -23:04:04.09766s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 6.146
G magnitude           : 14.094
RP magnitude          : 12.443
BP magnitude          : 19.052
DUPflag              : 0
Distance (au)         : 4.262
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg)  : 171.80
Sun-Moon sep (deg)   : 120.19
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.40
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 16.350
C/A sky separation (km) : 50540.4
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
    
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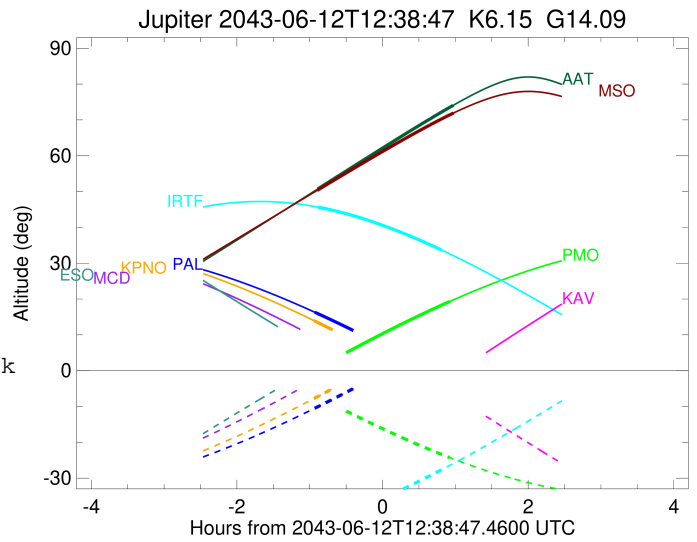
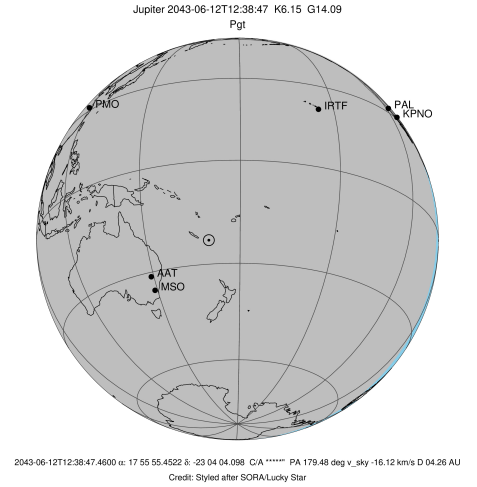


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-12T11:42:17.703	13.97	-7.77	71487.9	45.30	49.00
Jupiter	E	2043-06-12T13:25:58.278	-4.87x	11.90x	71488.0	44.53	48.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-12T12:36:22.770
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      : 4069387955731021696
2Mass ID (if available) : 1755546-2304038
ICRS Star Coord at Epoch: 17h 55m 55.45219s -23:04:04.09766s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 6.146
G magnitude          : 14.094
RP magnitude         : 12.443
BP magnitude         : 19.052
DUPflag             : 0
Distance (au)        : 4.262
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.80
Sun-Moon sep (deg)   : 120.85
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.40
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 16.436
C/A sky separation (km): 50805.8
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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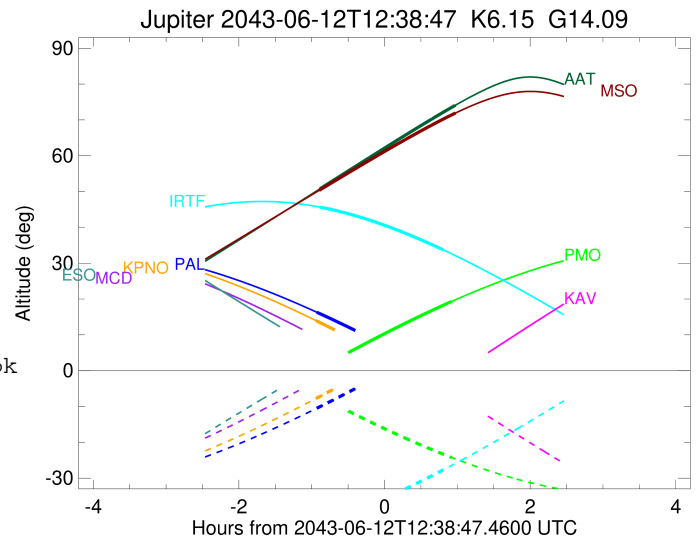
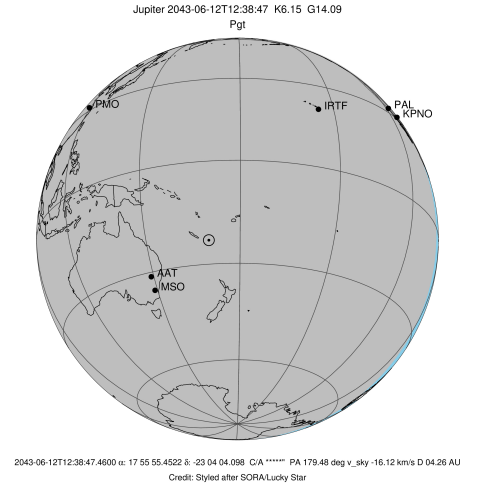


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-12T11:45:36.924	45.64	-42.51	71487.9	45.32	49.02
Jupiter	E	2043-06-12T13:27:15.492	33.71	-27.68	71488.0	45.03	48.74

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-12T12:41:22.630
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      : 4069387955731021696
2Mass ID (if available) : 1755546-2304038
ICRS Star Coord at Epoch: 17h 55m 55.45219s -23:04:04.09766s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 6.146
G magnitude          : 14.094
RP magnitude         : 12.443
BP magnitude         : 19.052
DUPflag             : 0
Distance (au)        : 4.262
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.80
Sun-Moon sep (deg)   : 121.42
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.40
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 14.749
C/A sky separation (km): 45593.0
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
    
```

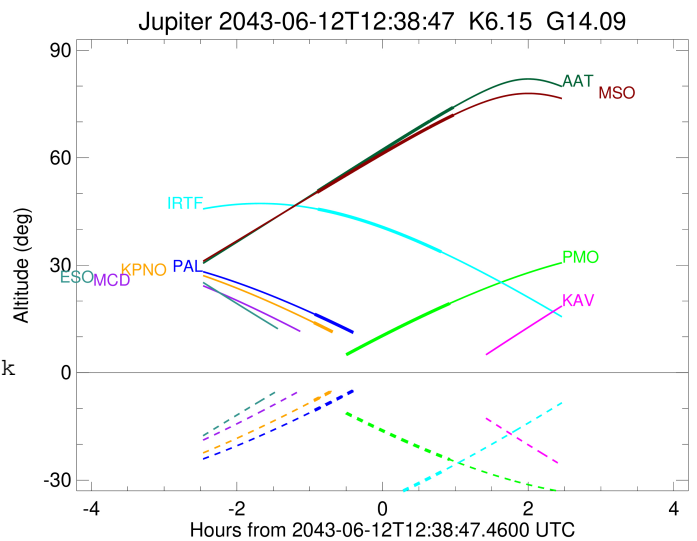
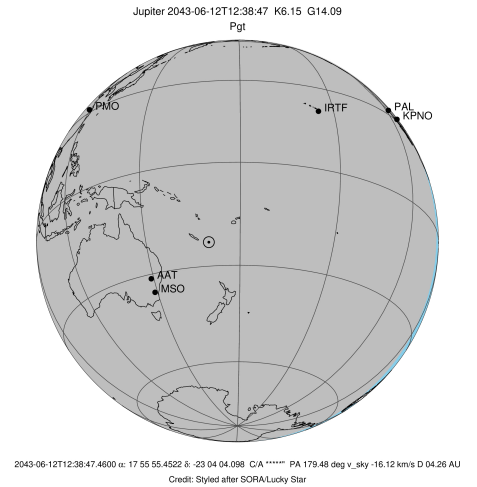


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-12T11:45:29.801	50.72	-58.41	71488.8	39.15	42.85
Jupiter	E	2043-06-12T13:37:05.565	74.07	-80.11	71488.7	39.89	43.60

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-12T12:41:16.510
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       : 4069387955731021696
2Mass ID (if available) : 17555546-2304038
ICRS Star Coord at Epoch: 17h 55m 55.45219s -23:04:04.09766s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 6.146
G magnitude           : 14.094
RP magnitude          : 12.443
BP magnitude          : 19.052
DUPflag              : 0
Distance (au)        : 4.262
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.80
Sun-Moon sep (deg)   : 121.40
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.40
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 14.610
C/A sky separation (km) : 45161.3
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	2043-06-12T11:44:59.138	50.34	-57.62	71488.8	38.72	42.41
Jupiter	E	2043-06-12T13:37:24.230	71.93	-76.72	71488.7	39.44	43.14