

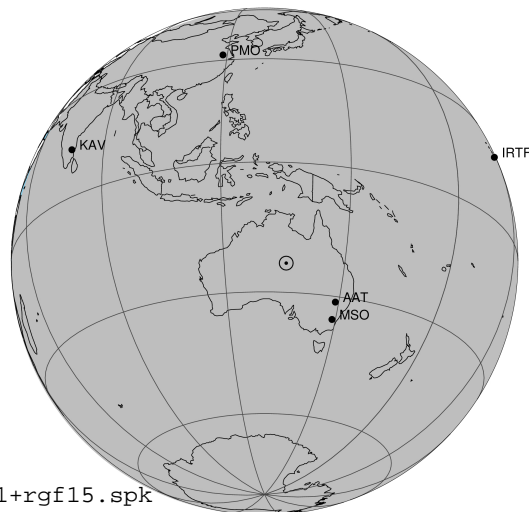
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-06-24T15:01:05.770  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4068871735035515136  
 2Mass ID (if available) : 17491422-2304520

Jupiter 2043-06-24T15:01:05 K9.95 G13.70 Pgt

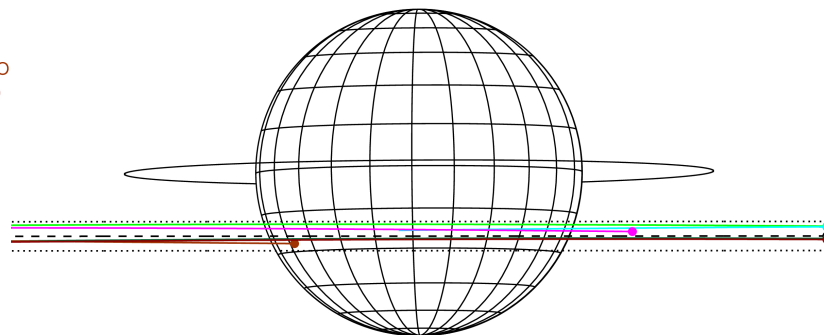
ICRS Star Coord at Epoch: 17h 49m 14.26537s -23:04:51.93830s

RUWE (>1.4 is poor) : 0.94  
 K magnitude : 9.952  
 G magnitude : 13.703  
 RP magnitude : 12.589  
 BP magnitude : 14.625  
 DUPflag : 0  
 Distance (au) : 4.252  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -16.31  
 Sun-Target sep (deg) : 175.09  
 Sun-Moon sep (deg) : 28.47  
 B (ring opening deg) : -2.42  
 PA of pole (deg) : 0.32  
 Pole direction: RA (deg): 268.05669  
 Dec (deg): 64.49732  
 C/A sky separation (") : 9.041  
 C/A sky separation (km) : 27880.0  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-06-24T15:01:05 K9.95 G13.70  
 Pgt



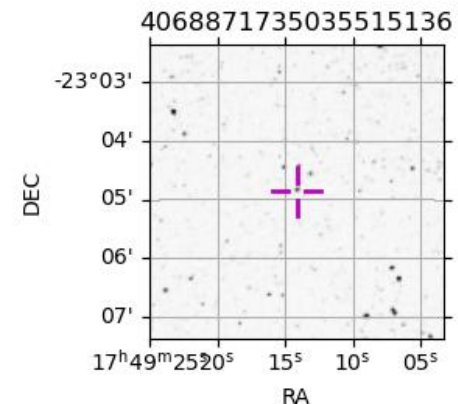
Earth  
 PAL  
 PMO  
 IRTF  
 KAV  
 AAT  
 SAAO  
 MSO



2043-06-24T15:01:05.7700 a: 17 49 14.2654 ð -23 04 51.938 C/A 9.053° PA 0.02 deg v\_sky -16.31 km/s D 04.25 AU  
 Credit: Styled after SORA/Lucky Star

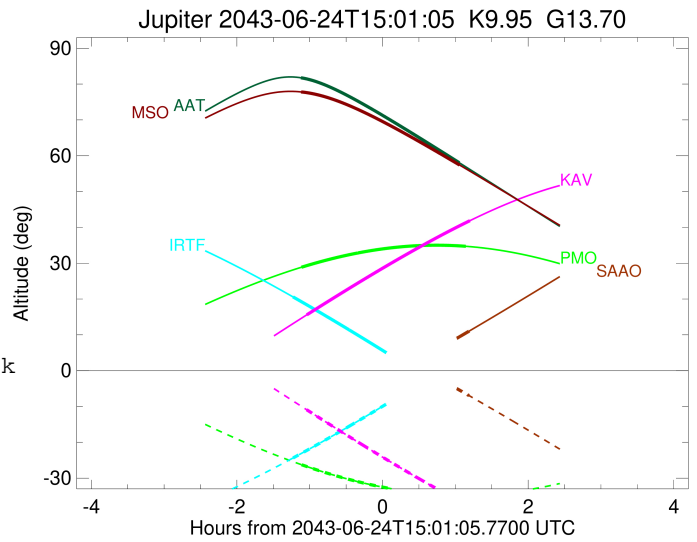
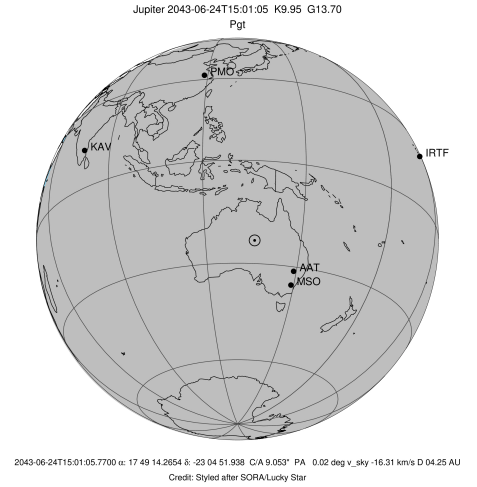
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
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 24 13:54 - JUN 24 16:09	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 24 13:47 - JUN 24 13:47	Pin
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 24 13:58 - JUN 24 16:13	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 24 13:54 - JUN 24 16:04	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUN 24 16:12 - JUN 24 16:12	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 24 13:54 - JUN 24 16:04	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T15:02:09.580
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      : 4068871735035515136
2Mass ID (if available) : 17491422-2304520
ICRS Star Coord at Epoch: 17h 49m 14.26537s -23:04:51.93830s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.952
G magnitude          : 13.703
RP magnitude         : 12.589
BP magnitude         : 14.625
DUPflag             : 0
Distance (au)       : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 175.09
Sun-Moon sep (deg)  : 28.99
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.32
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 7.360
C/A sky separation (km) : 22695.0
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
    
```

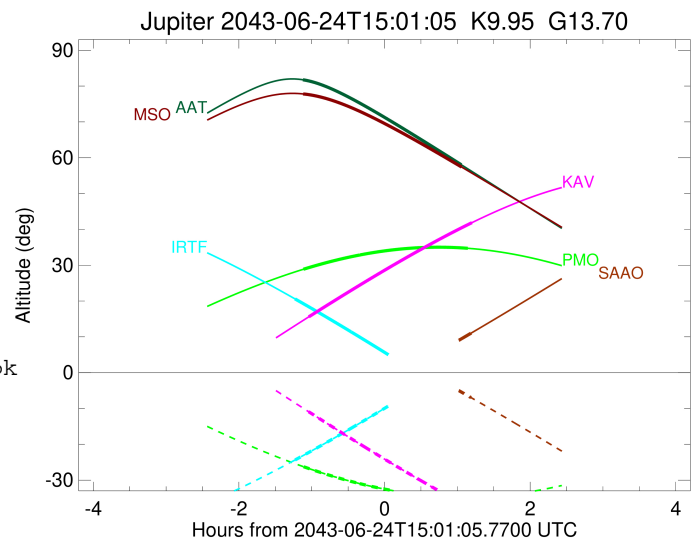
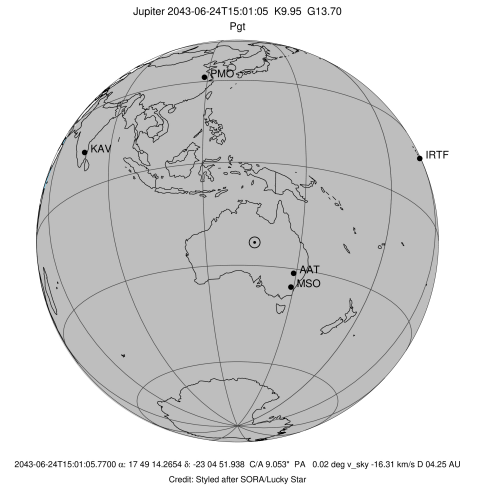


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T13:54:27.795	28.88	-26.26	71491.2	-18.96	-21.43
Jupiter	E	2043-06-24T16:09:46.500	34.71	-34.70	71491.2	-18.18	-20.56

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T14:54:57.460
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      : 4068871735035515136
2Mass ID (if available) : 17491422-2304520
ICRS Star Coord at Epoch: 17h 49m 14.26537s -23:04:51.93830s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.952
G magnitude          : 13.703
RP magnitude         : 12.589
BP magnitude         : 14.625
DUPflag             : 0
Distance (au)       : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 175.09
Sun-Moon sep (deg)  : 27.86
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.32
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 8.184
C/A sky separation (km) : 25237.2
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
    
```

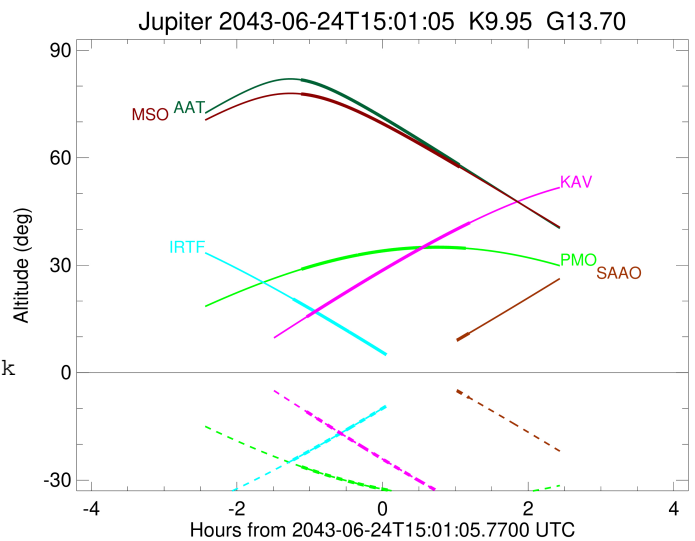
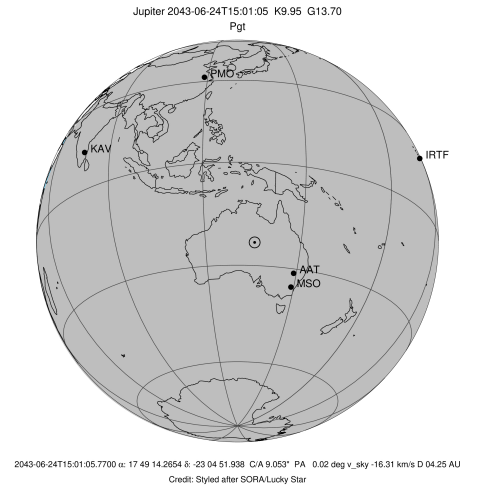


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T13:47:24.596	20.58	-24.36	71491.0	-20.41	-23.03
Jupiter	E	2043-06-24T16:03:01.747	-7.65x	3.07x	71491.0	-20.95	-23.61

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T15:06:09.550
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      : 4068871735035515136
2Mass ID (if available) : 17491422-2304520
ICRS Star Coord at Epoch: 17h 49m 14.26537s -23:04:51.93830s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.952
G magnitude          : 13.703
RP magnitude         : 12.589
BP magnitude         : 14.625
DUPflag             : 0
Distance (au)       : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 175.09
Sun-Moon sep (deg)  : 29.36
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.32
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 8.114
C/A sky separation (km) : 25018.7
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
    
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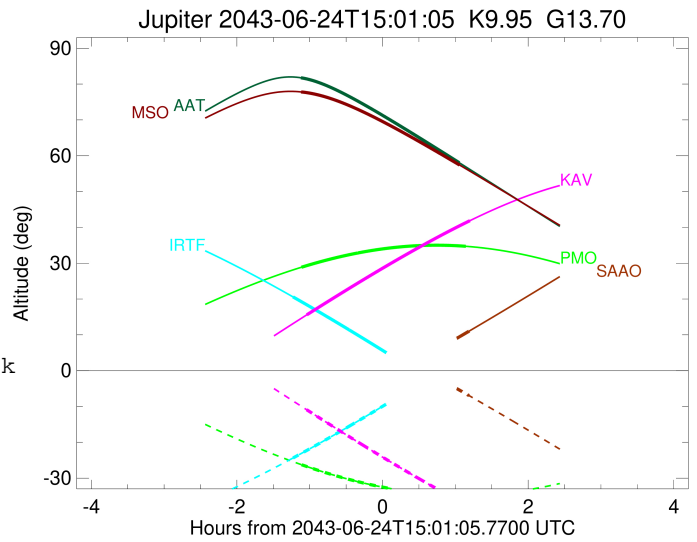
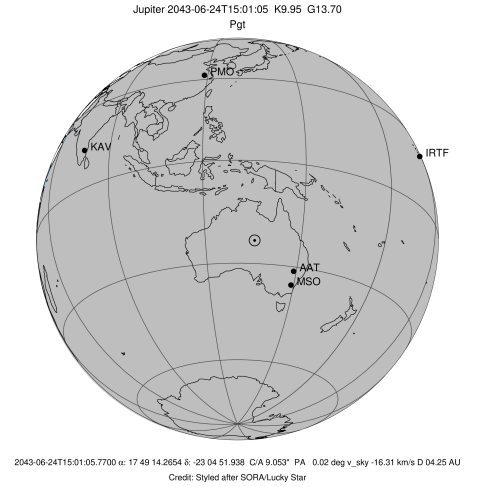


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T13:58:44.577	15.59	-10.93	71490.9	-21.28	-23.99
Jupiter	E	2043-06-24T16:13:10.123	41.87	-37.98	71491.1	-19.77	-22.32

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T14:59:13.920
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       : 4068871735035515136
2Mass ID (if available) : 17491422-2304520
ICRS Star Coord at Epoch: 17h 49m 14.26537s -23:04:51.93830s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.952
G magnitude           : 13.703
RP magnitude         : 12.589
BP magnitude         : 14.625
DUPflag              : 0
Distance (au)        : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 175.09
Sun-Moon sep (deg)  : 28.65
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.32
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 9.368
C/A sky separation (km): 28887.6
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
    
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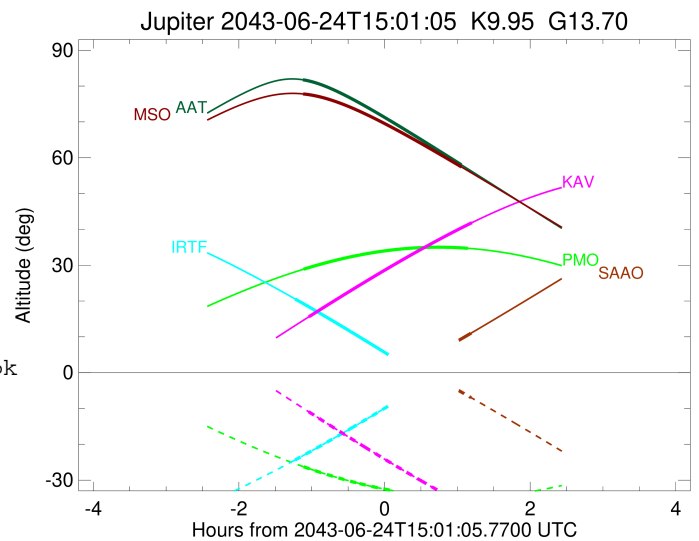
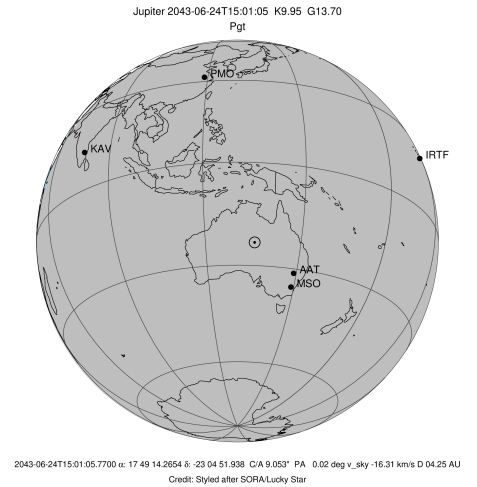


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T13:54:00.824	81.74	-81.84	71490.7	-24.01	-26.95
Jupiter	E	2043-06-24T16:04:36.053	57.98	-62.67	71490.7	-23.76	-26.68

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T15:06:39.190
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       : 4068871735035515136
2Mass ID (if available) : 17491422-2304520
ICRS Star Coord at Epoch: 17h 49m 14.26537s -23:04:51.93830s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.952
G magnitude           : 13.703
RP magnitude          : 12.589
BP magnitude          : 14.625
DUPflag              : 0
Distance (au)        : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 175.09
Sun-Moon sep (deg)   : 29.00
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.32
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 10.258
C/A sky separation (km): 31631.3
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
    
```

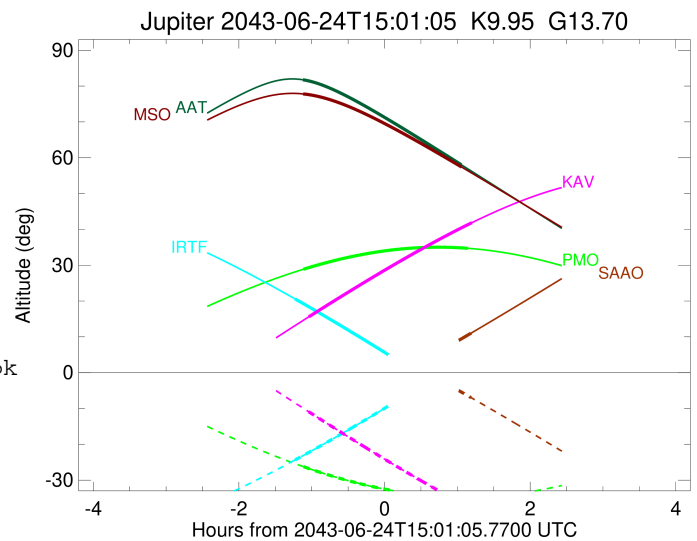
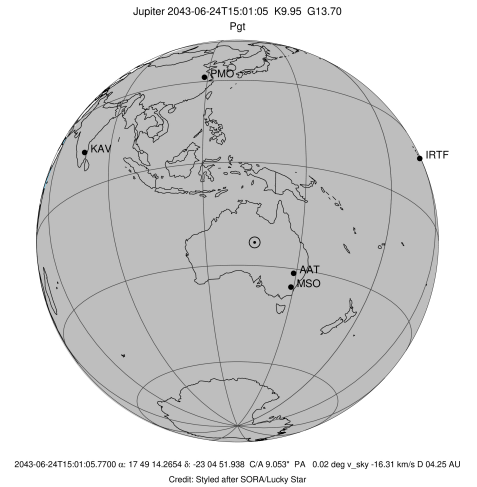


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-24T14:00:26.140	-13.35x	16.51x	71490.3	-27.03	-30.21
Jupiter	E	2043-06-24T16:12:25.915	11.03	-6.96	71490.5	-25.40	-28.46

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T14:59:19.210
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       : 4068871735035515136
2Mass ID (if available) : 17491422-2304520
ICRS Star Coord at Epoch: 17h 49m 14.26537s -23:04:51.93830s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.952
G magnitude           : 13.703
RP magnitude          : 12.589
BP magnitude          : 14.625
DUPflag              : 0
Distance (au)        : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.31
Sun-Target sep (deg) : 175.09
Sun-Moon sep (deg)   : 28.64
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.32
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 9.509
C/A sky separation (km): 29323.0
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	2043-06-24T13:54:13.553	77.80	-77.97	71490.6	-24.40	-27.37
Jupiter	E	2043-06-24T16:04:33.479	57.41	-61.83	71490.7	-24.13	-27.08