

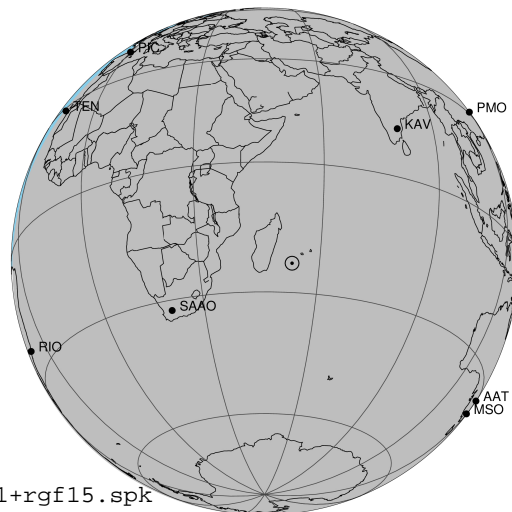
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-25T20:30:00.190
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068869329851348480
 2Mass ID (if available) : 17483367-2304469

Jupiter 2043-06-25T20:30:00 K9.03 G14.70 Pgt

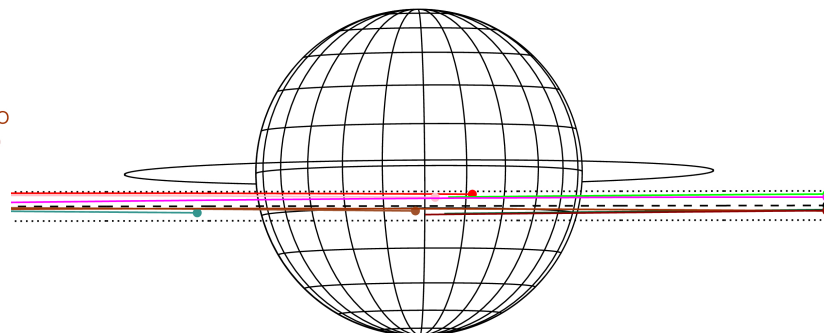
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s

RUWE (>1.4 is poor) : 0.91
 K magnitude : 9.032
 G magnitude : 14.700
 RP magnitude : 13.288
 BP magnitude : 17.220
 DUPflag : 0
 Distance (au) : 4.253
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.25
 Sun-Target sep (deg) : 173.77
 Sun-Moon sep (deg) : 43.95
 B (ring opening deg) : -2.42
 PA of pole (deg) : 0.39
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 4.757
 C/A sky separation (km) : 14673.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-25T20:30:00 K9.03 G14.70
 Pgt



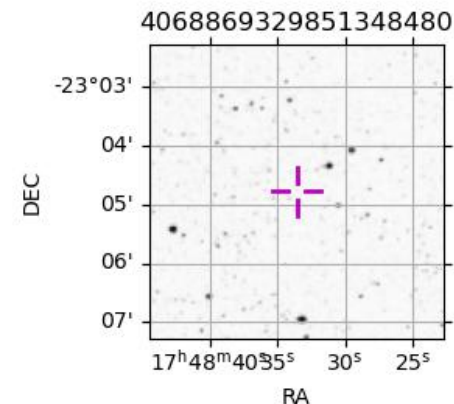
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-06-25T20:30:00.1900 a: 17 48 33.6584 & -23 04 47.182 C/A 4.768" PA 0.07 deg v_sky -16.25 km/s D 04.25 AU
 Credit: Styled after SORA/Lucky Star

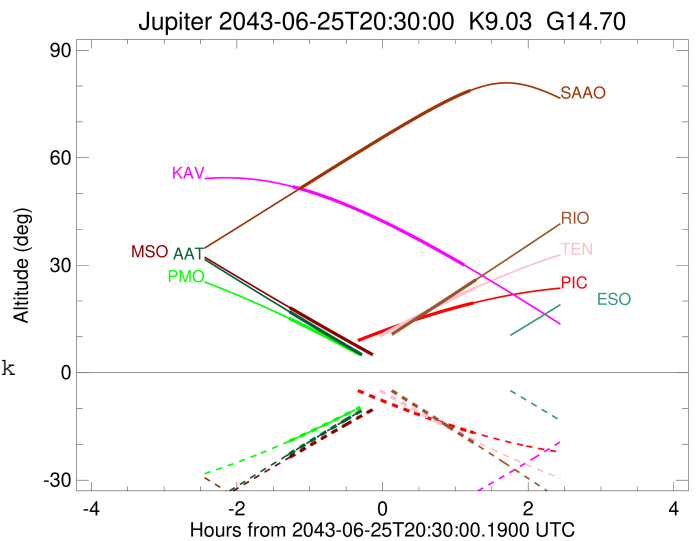
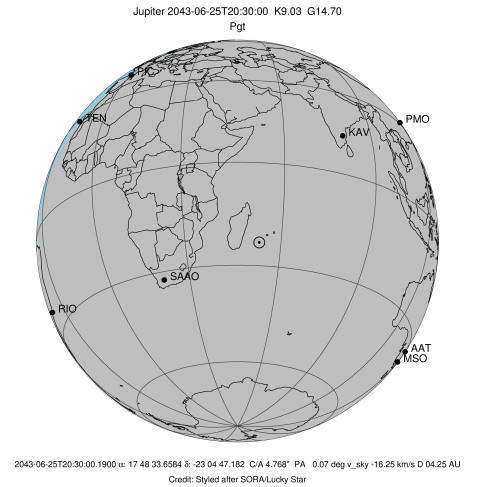
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	JUN 25 21:44 - JUN 25 21:44	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUN 25 19:13 - JUN 25 19:13	Pin
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	+	JUN 25 21:46 - JUN 25 21:46	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 25 19:16 - JUN 25 21:37	Pie
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 25 21:47 - JUN 25 21:47	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+	JUN 25 19:13 - JUN 25 19:13	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 25 19:22 - JUN 25 21:42	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 25 19:13 - JUN 25 19:13	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-25T20:33:27.410
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 4068869329851348480
2Mass ID (if available) : 17483367-2304469
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.032
G magnitude           : 14.700
RP magnitude          : 13.288
BP magnitude          : 17.220
DUPflag              : 0
Distance (au)        : 4.253
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.25
Sun-Target sep (deg) : 173.77
Sun-Moon sep (deg)   : 44.50
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.39
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 3.046
C/A sky separation (km): 9395.9
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
    
```

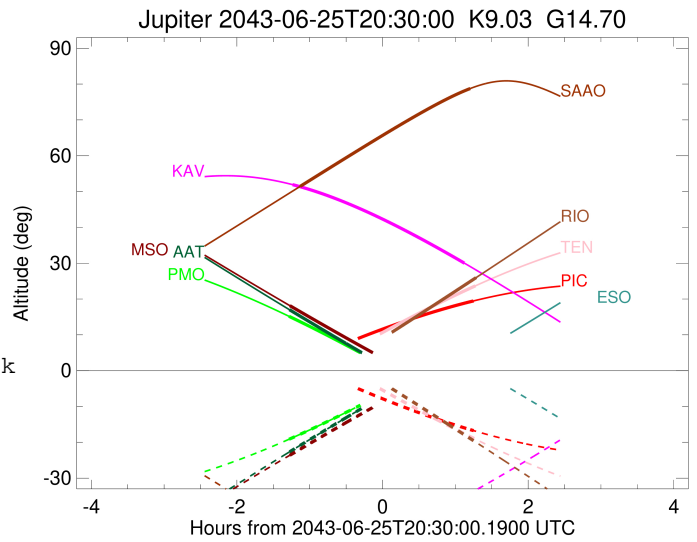
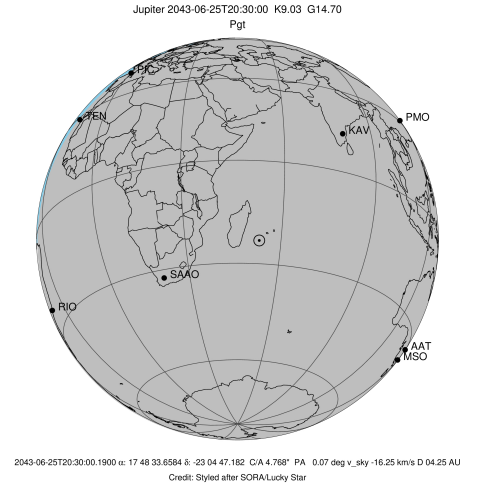


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T19:21:39.824	2.08x	2.29x	71491.8	-8.24	-9.40
Jupiter	E	2043-06-25T21:44:55.971	19.46	-16.72	71491.9	-6.95	-7.94

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T20:24:38.480
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      : 4068869329851348480
2Mass ID (if available) : 17483367-2304469
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 9.032
G magnitude          : 14.700
RP magnitude         : 13.288
BP magnitude         : 17.220
DUPflag             : 0
Distance (au)       : 4.253
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.25
Sun-Target sep (deg) : 173.77
Sun-Moon sep (deg)  : 43.48
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.39
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 3.535
C/A sky separation (km) : 10905.3
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
    
```

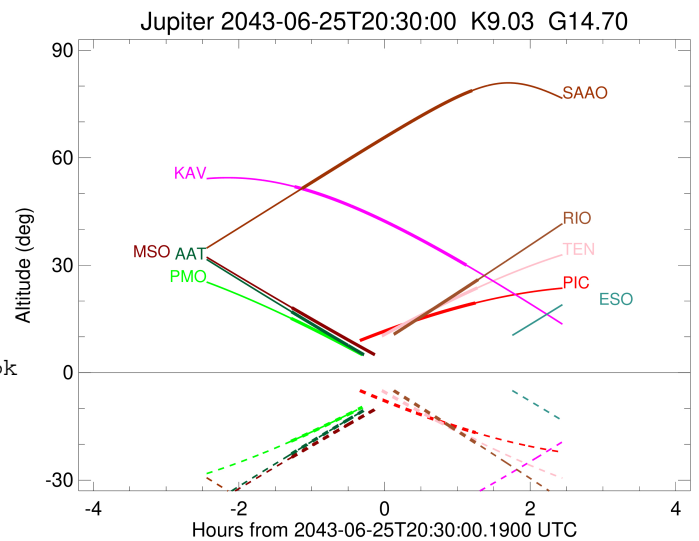
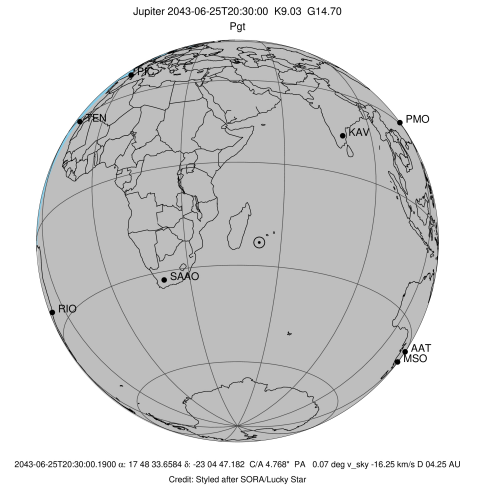


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T19:13:00.302	15.16	-19.14	71491.8	-8.61	-9.82
Jupiter	E	2043-06-25T21:36:48.209	-11.30x	6.07x	71491.8	-8.98	-10.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T20:35:09.490
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : TEN
Location             : Teide Obs./Tenerife
Latitude (deg)       : 28.30050
E. Longitude (deg)   : 343.48909
Altitude (km)        : 2.395
Gaia source ID       : 4068869329851348480
2Mass ID (if available) : 17483367-2304469
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 9.032
G magnitude          : 14.700
RP magnitude         : 13.288
BP magnitude         : 17.220
DUPflag             : 0
Distance (au)        : 4.253
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.25
Sun-Target sep (deg) : 173.77
Sun-Moon sep (deg)   : 44.64
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.39
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 3.515
C/A sky separation (km): 10843.4
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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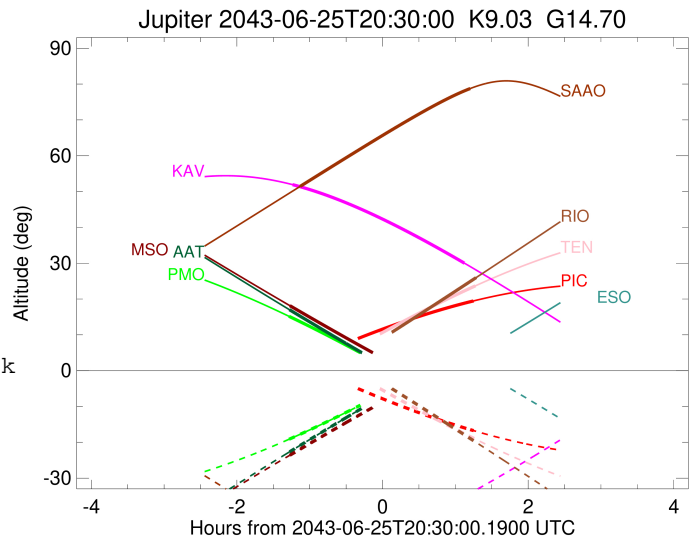
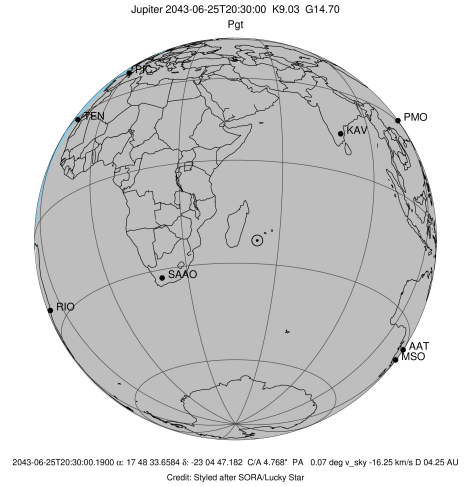


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T19:23:18.221	-2.22x	7.78x	71491.8	-9.56	-10.90
Jupiter	E	2043-06-25T21:46:32.057	23.67	-19.12	71491.8	-7.96	-9.08

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-25T20:26:34.940
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        : 4068869329851348480
2Mass ID (if available) : 17483367-2304469
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.032
G magnitude           : 14.700
RP magnitude          : 13.288
BP magnitude          : 17.220
DUPflag              : 0
Distance (au)         : 4.253
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.25
Sun-Target sep (deg)  : 173.77
Sun-Moon sep (deg)   : 44.09
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.39
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 3.675
C/A sky separation (km) : 11334.3
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
    
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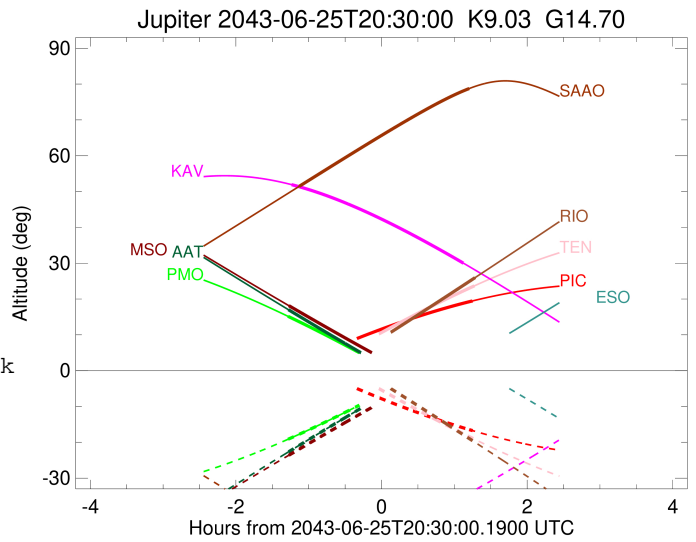
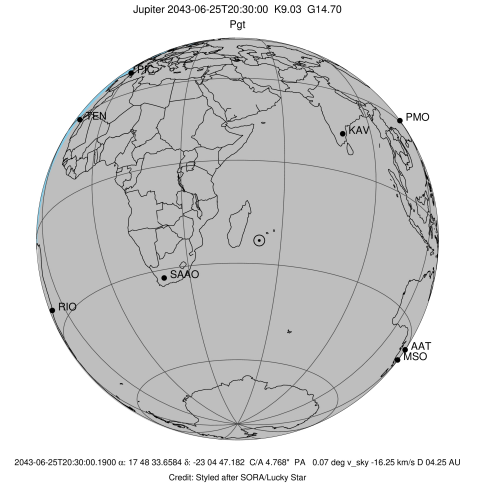


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T19:16:01.477	51.91	-53.46	71491.8	-9.20	-10.49
Jupiter	E	2043-06-25T21:37:27.791	30.01	-35.09	71491.8	-9.20	-10.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T20:36:12.880
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : RIO
Location             : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)   : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 4068869329851348480
2Mass ID (if available) : 17483367-2304469
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.032
G magnitude           : 14.700
RP magnitude          : 13.288
BP magnitude          : 17.220
DUPflag              : 0
Distance (au)         : 4.253
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.25
Sun-Target sep (deg)  : 173.77
Sun-Moon sep (deg)   : 44.64
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.39
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 5.461
C/A sky separation (km) : 16845.4
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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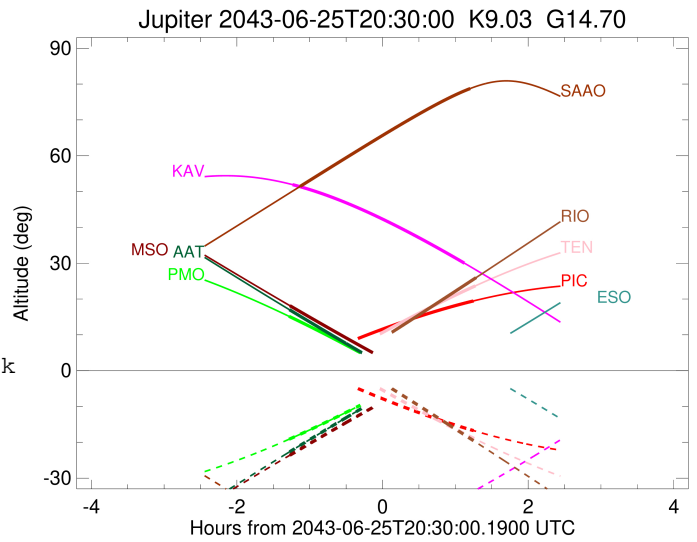
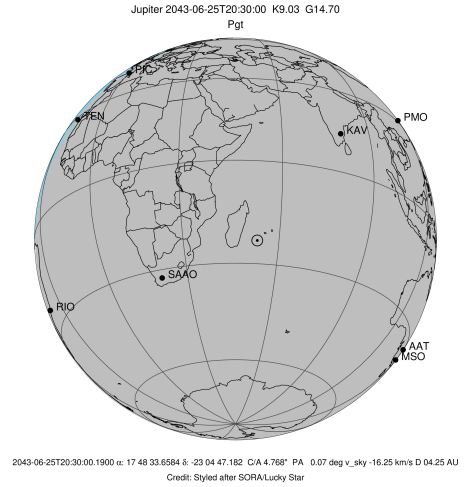


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T19:24:44.425	-4.70x	9.98x	71491.5	-14.53	-16.49
Jupiter	E	2043-06-25T21:47:06.944	25.97	-20.01	71491.6	-12.72	-14.47

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-06-25T20:24:21.000
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        : 4068869329851348480
2Mass ID (if available) : 17483367-2304469
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s
RUWE (>1.4 is poor)  : 0.91
K magnitude           : 9.032
G magnitude           : 14.700
RP magnitude          : 13.288
BP magnitude          : 17.220
DUPflag              : 0
Distance (au)         : 4.253
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -16.25
Sun-Target sep (deg)  : 173.77
Sun-Moon sep (deg)    : 43.37
B (ring opening deg)  : -2.42
PA of pole (deg)      : 0.39
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 5.880
C/A sky separation (km) : 18138.2
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
    
```

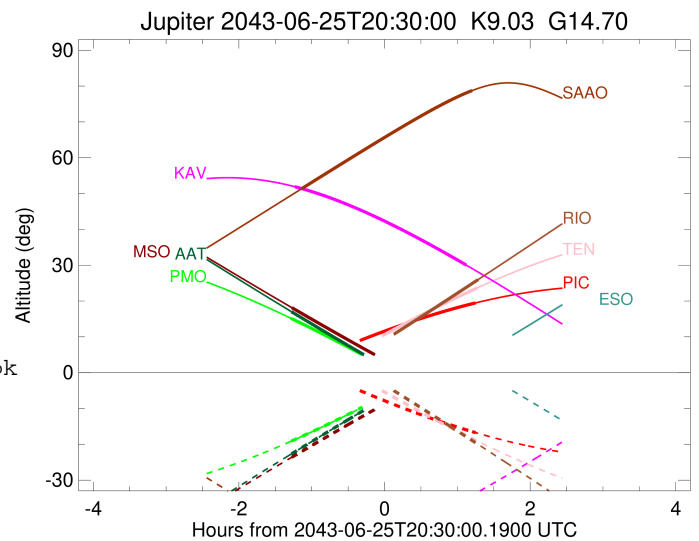
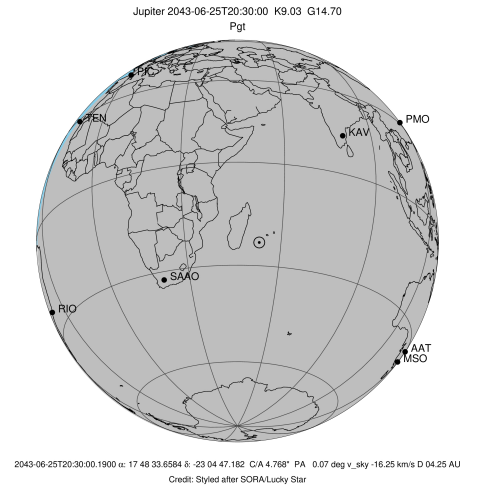


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T19:13:21.884	17.01	-22.66	71491.5	-14.46	-16.42
Jupiter	E	2043-06-25T21:35:53.082	-10.46x	5.40x	71491.5	-14.88	-16.89

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-25T20:32:24.400
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      : 4068869329851348480
2Mass ID (if available) : 17483367-2304469
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 9.032
G magnitude          : 14.700
RP magnitude        : 13.288
BP magnitude        : 17.220
DUPflag            : 0
Distance (au)       : 4.253
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.25
Sun-Target sep (deg) : 173.77
Sun-Moon sep (deg)  : 44.78
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.39
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 5.146
C/A sky separation (km) : 15873.4
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
    
```

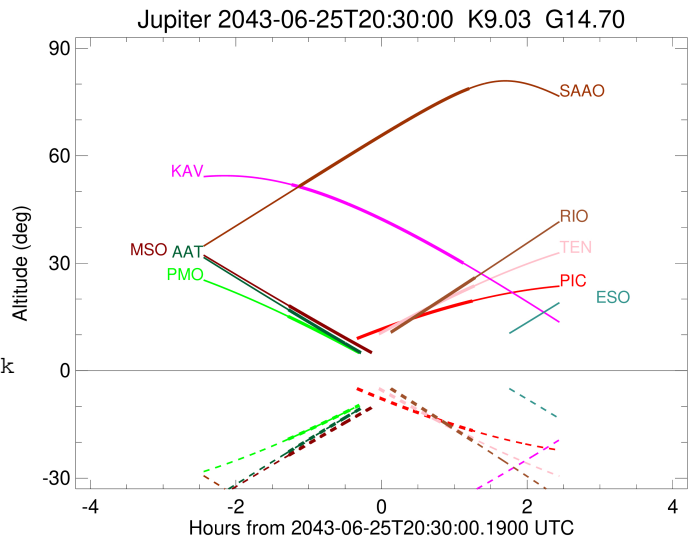
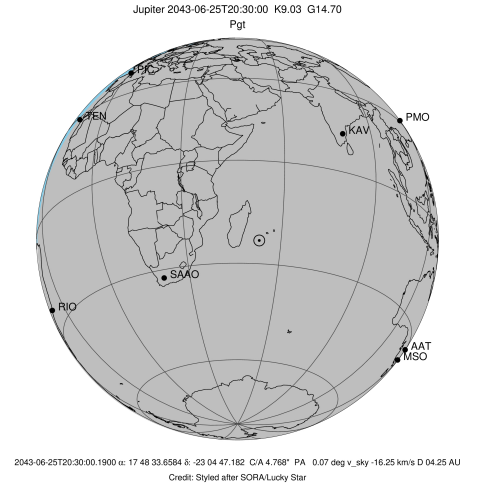


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-25T19:22:20.938	51.48	-45.90	71491.6	-13.43	-15.26
Jupiter	E	2043-06-25T21:42:15.729	78.75	-74.59	71491.6	-12.35	-14.05


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-25T20:24:36.250
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       : 4068869329851348480
2Mass ID (if available) : 17483367-2304469
ICRS Star Coord at Epoch: 17h 48m 33.65840s -23:04:47.18224s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.032
G magnitude           : 14.700
RP magnitude         : 13.288
BP magnitude         : 17.220
DUPflag              : 0
Distance (au)        : 4.253
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.25
Sun-Target sep (deg) : 173.77
Sun-Moon sep (deg)   : 43.41
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.39
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 5.986
C/A sky separation (km): 18463.2
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	2043-06-25T19:13:42.583	18.13	-23.59	71491.5	-14.75	-16.75
Jupiter	E	2043-06-25T21:36:01.327	-8.10x	3.27x	71491.5	-15.13	-17.17