

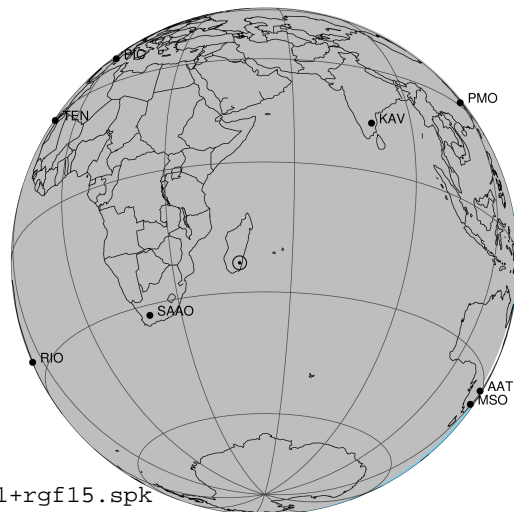
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-14T20:52:06.170
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4070135447503446656
 2Mass ID (if available) : 17543855-2304465

Jupiter 2043-06-14T20:52:06 K9.96 G14.92 Pgt

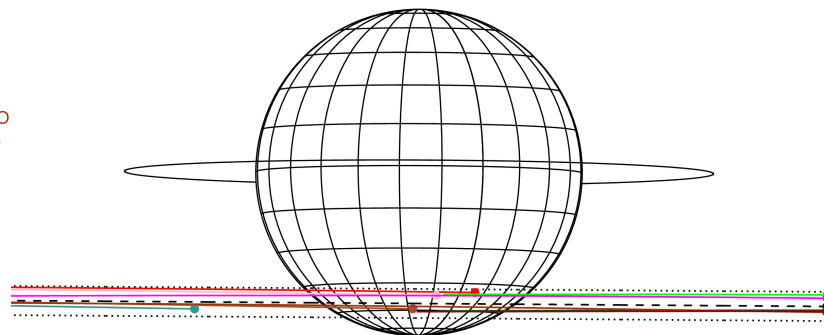
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23°04'46.44524s

RUWE (>1.4 is poor) : 0.93
 K magnitude : 9.956
 G magnitude : 14.923
 RP magnitude : 13.668
 BP magnitude : 16.628
 DUPflag : 0
 Distance (au) : 4.257
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.27
 Sun-Target sep (deg) : 174.33
 Sun-Moon sep (deg) : 90.67
 B (ring opening deg) : -2.42
 PA of pole (deg) : -0.26
 Pole direction: RA (deg): 268.05668
 Dec (deg): 64.49732
 C/A sky separation (") : 18.588
 C/A sky separation (km) : 57384.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-14T20:52:06 K9.96 G14.92
 Pgt



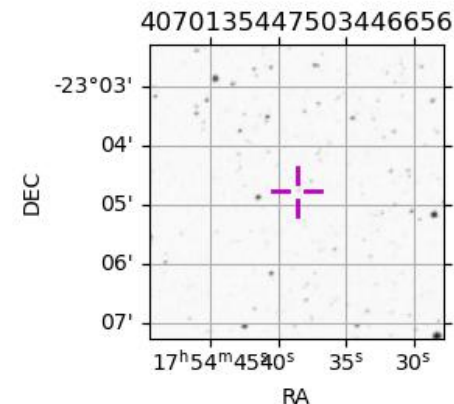
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-06-14T20:52:06.1700 a: 17 54 38.56272 s: -23 04 46.445 C/A ***** PA 359.59 deg v_sky -16.27 km/s D 04.26 AU
 Credit: Styled after SORA/Lucky Star

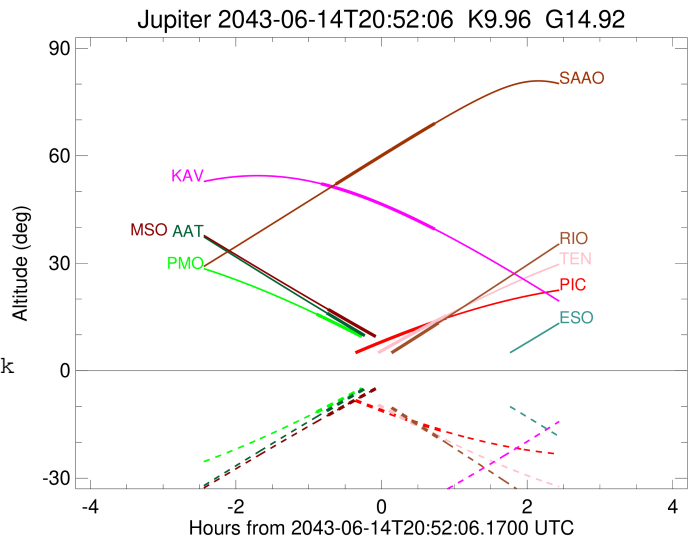
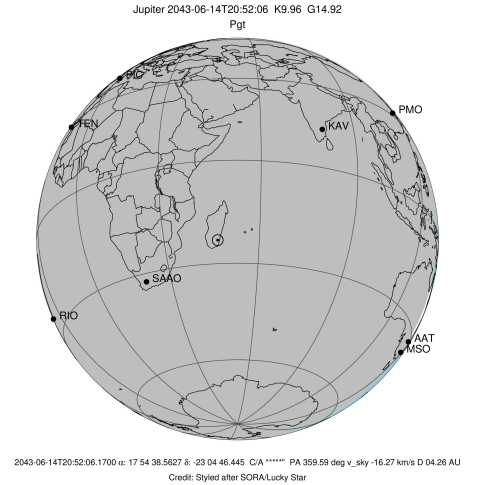
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+	JUN 14 21:45 - JUN 14 21:45	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUN 14 19:58 - JUN 14 19:58	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 14 21:45 - JUN 14 21:45	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 14 20:02 - JUN 14 21:36	Pie
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 14 21:38 - JUN 14 21:38	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+	JUN 14 20:07 - JUN 14 20:07	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 14 20:14 - JUN 14 21:36	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 14 20:08 - JUN 14 20:08	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-14T20:56:09.290
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      : 4070135447503446656
2Mass ID (if available) : 17543855-2304465
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23:04:46.44524s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.956
G magnitude          : 14.923
RP magnitude        : 13.668
BP magnitude        : 16.628
DUPflag            : 0
Distance (au)       : 4.257
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.27
Sun-Target sep (deg) : 174.33
Sun-Moon sep (deg)  : 90.81
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.26
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 16.920
C/A sky separation (km) : 52236.8
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
    
```

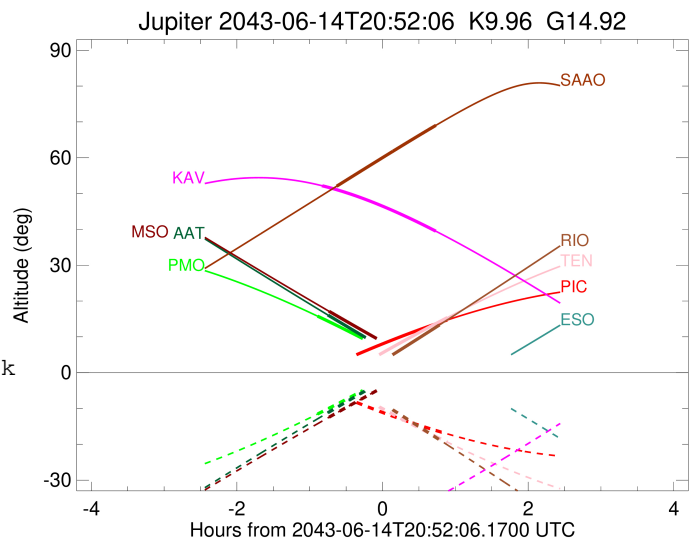
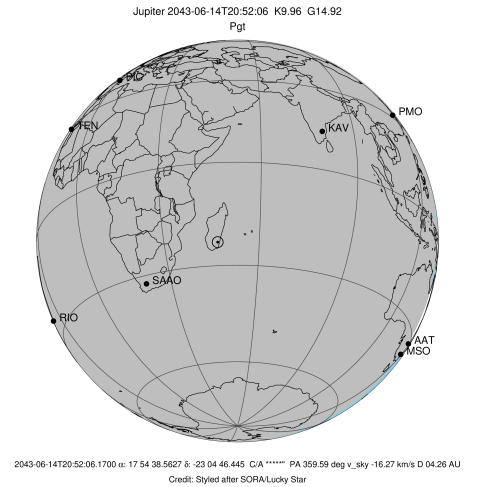


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-14T20:06:44.735	1.45x	-4.97x	71487.6	-47.43	-51.09
Jupiter	E	2043-06-14T21:45:22.962	14.69	-17.07	71487.8	-46.42	-50.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-14T20:46:35.670
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       : 4070135447503446656
2Mass ID (if available) : 17543855-2304465
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23:04:46.44524s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.956
G magnitude          : 14.923
RP magnitude         : 13.668
BP magnitude         : 16.628
DUPflag             : 0
Distance (au)        : 4.257
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.27
Sun-Target sep (deg) : 174.33
Sun-Moon sep (deg)   : 90.77
B (ring opening deg) : -2.42
PA of pole (deg)     : -0.26
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 17.305
C/A sky separation (km): 53424.7
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
    
```

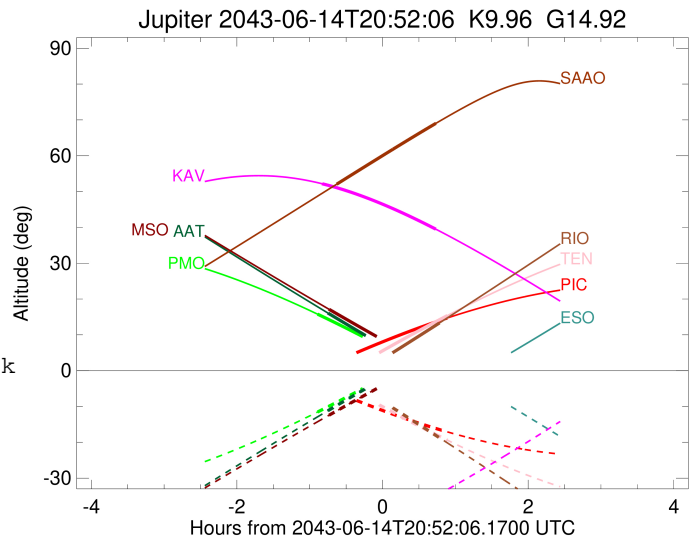
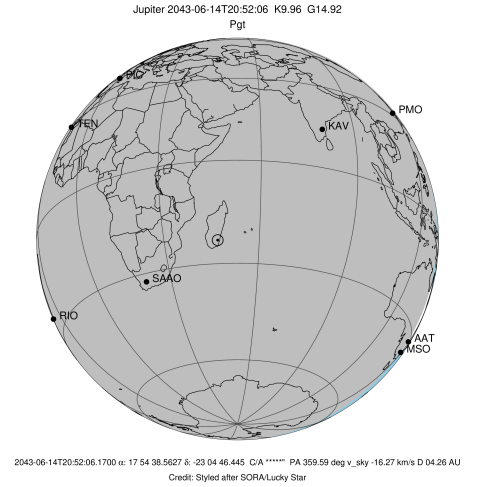


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-14T19:58:34.692	15.77	-11.54	71487.5	-47.99	-51.64
Jupiter	E	2043-06-14T21:34:49.868	-1.28x	6.10x	71487.5	-48.66	-52.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-14T20:57:54.170
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       : 4070135447503446656
2Mass ID (if available) : 17543855-2304465
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23:04:46.44524s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.956
G magnitude           : 14.923
RP magnitude          : 13.668
BP magnitude          : 16.628
DUPflag              : 0
Distance (au)        : 4.257
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.27
Sun-Target sep (deg) : 174.33
Sun-Moon sep (deg)   : 90.77
B (ring opening deg) : -2.42
PA of pole (deg)     : -0.26
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 17.408
C/A sky separation (km) : 53743.8
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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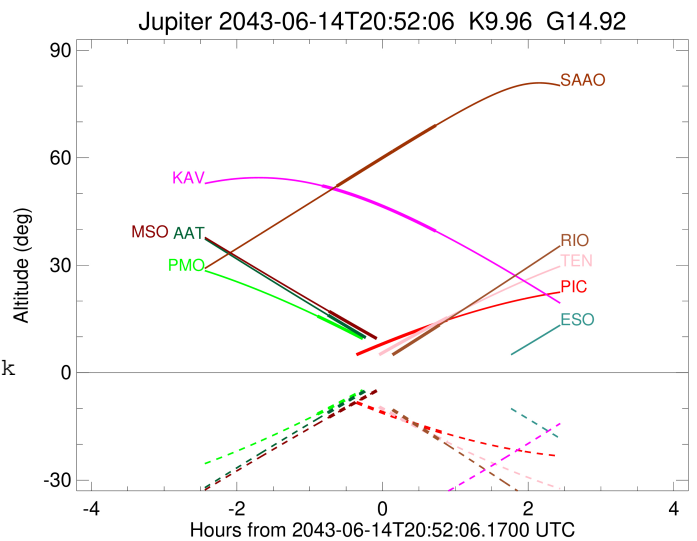
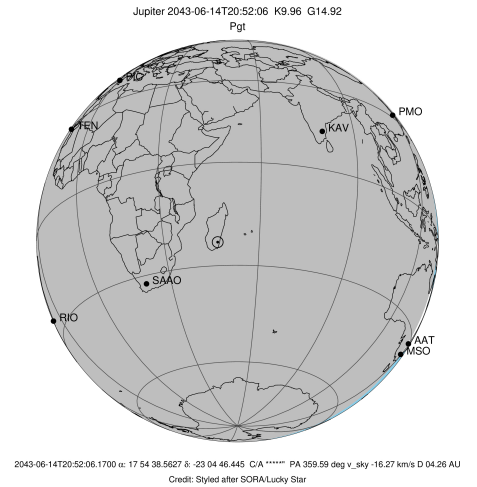


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-14T20:09:58.589	-2.75x	-2.05x	71487.4	-49.38	-52.98
Jupiter	E	2043-06-14T21:45:35.283	15.38	-19.41	71487.5	-48.05	-51.69

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-14T20:49:06.960
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        : 4070135447503446656
2Mass ID (if available) : 17543855-2304465
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23:04:46.44524s
RUWE (>1.4 is poor)  : 0.93
K magnitude           : 9.956
G magnitude           : 14.923
RP magnitude          : 13.668
BP magnitude          : 16.628
DUPflag              : 0
Distance (au)         : 4.257
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -16.27
Sun-Target sep (deg)  : 174.33
Sun-Moon sep (deg)    : 91.33
B (ring opening deg)  : -2.42
PA of pole (deg)      : -0.26
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (" ) : 17.469
C/A sky separation (km) : 53932.1
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
    
```

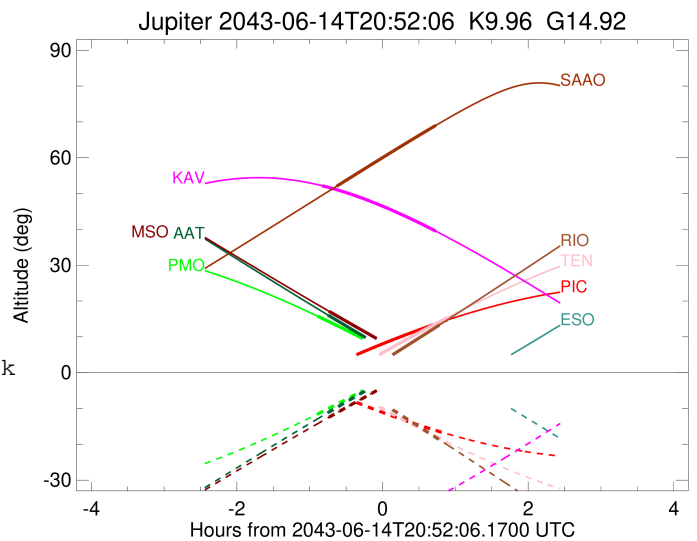
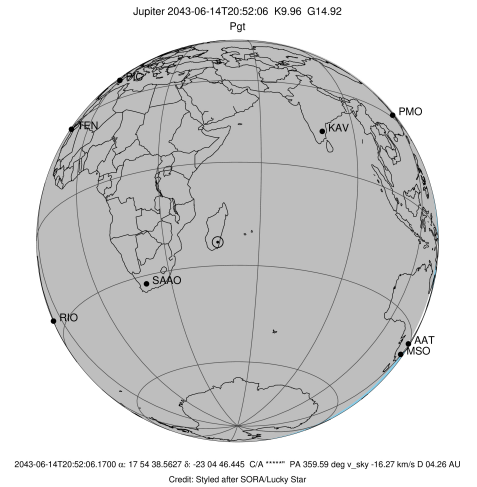


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-14T20:02:20.478	52.17	-49.53	71487.4	-48.86	-52.48
Jupiter	E	2043-06-14T21:35:59.990	39.50	-34.97	71487.4	-49.09	-52.71

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-14T20:58:45.930
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      : 4070135447503446656
2Mass ID (if available) : 17543855-2304465
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23:04:46.44524s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.956
G magnitude          : 14.923
RP magnitude         : 13.668
BP magnitude         : 16.628
DUPflag             : 0
Distance (au)       : 4.257
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.27
Sun-Target sep (deg) : 174.33
Sun-Moon sep (deg)  : 90.73
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.26
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 19.363
C/A sky separation (km): 59779.2
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
    
```

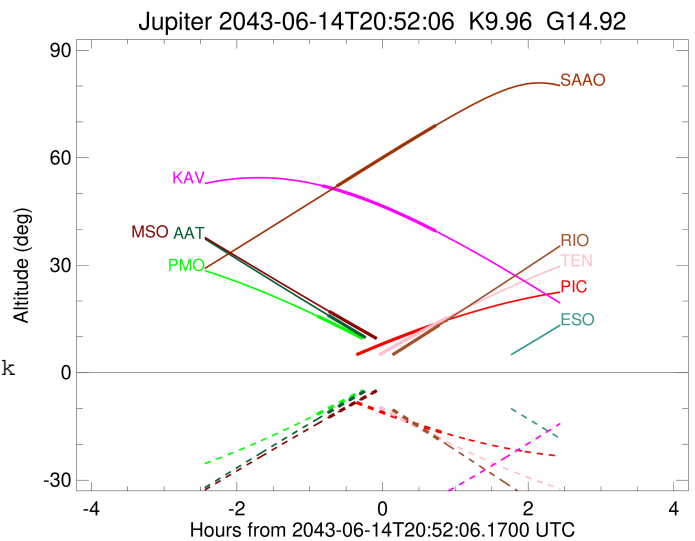
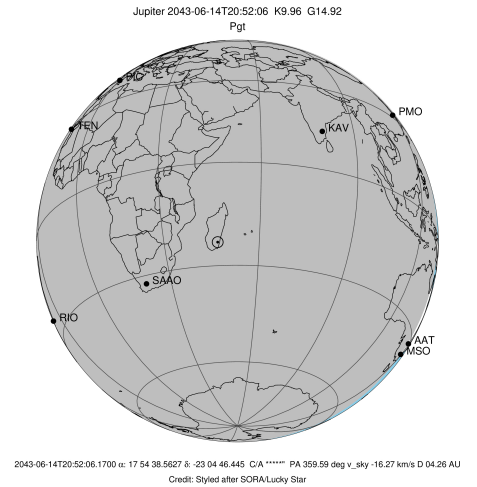


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-14T20:18:26.150	-3.80x	-1.42x	71486.3	-57.41	-60.64
Jupiter	E	2043-06-14T21:38:53.985	13.29	-18.70	71486.5	-55.92	-59.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-14T20:45:58.490
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        : 4070135447503446656
2Mass ID (if available) : 17543855-2304465
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23:04:46.44524s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.956
G magnitude           : 14.923
RP magnitude          : 13.668
BP magnitude          : 16.628
DUPflag              : 0
Distance (au)         : 4.257
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.27
Sun-Target sep (deg)  : 174.33
Sun-Moon sep (deg)    : 90.77
B (ring opening deg) : -2.42
PA of pole (deg)     : -0.26
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 19.642
C/A sky separation (km) : 60641.6
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
    
```

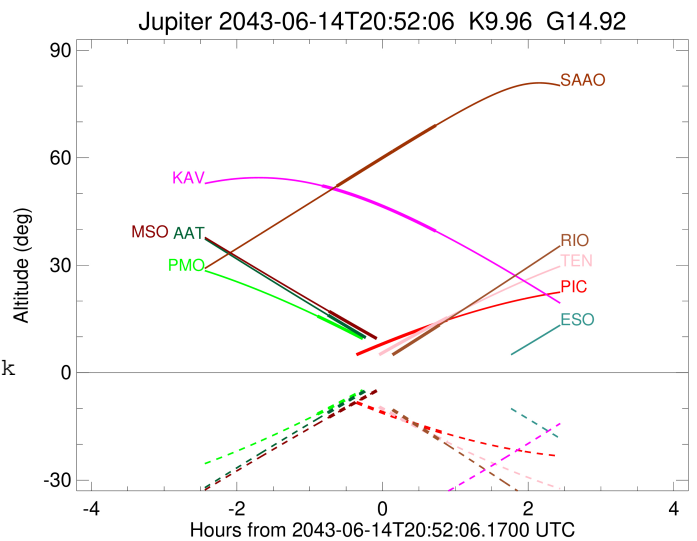
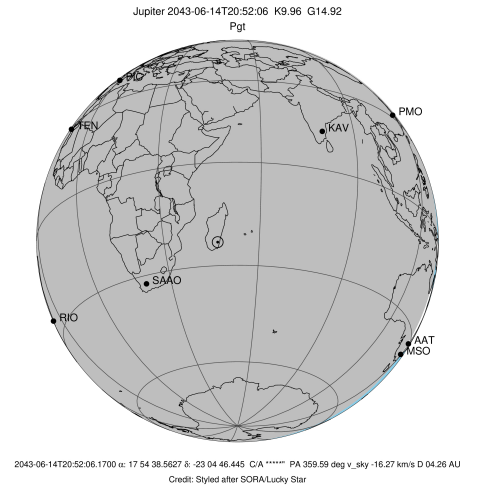


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-14T20:07:12.547	16.07	-11.16	71486.3	-57.55	-60.78
Jupiter	E	2043-06-14T21:24:54.247	0.63x	3.86x	71486.2	-58.33	-61.51


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-14T20:55:17.550
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      : 4070135447503446656
2Mass ID (if available) : 17543855-2304465
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23:04:46.44524s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.956
G magnitude          : 14.923
RP magnitude         : 13.668
BP magnitude         : 16.628
DUPflag             : 0
Distance (au)       : 4.257
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.27
Sun-Target sep (deg) : 174.33
Sun-Moon sep (deg)  : 91.48
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.26
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (" ) : 19.006
C/A sky separation (km) : 58676.1
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
    
```

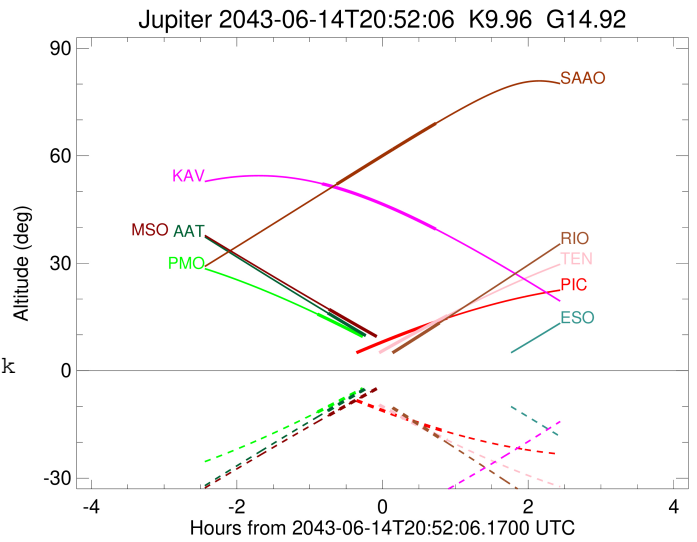
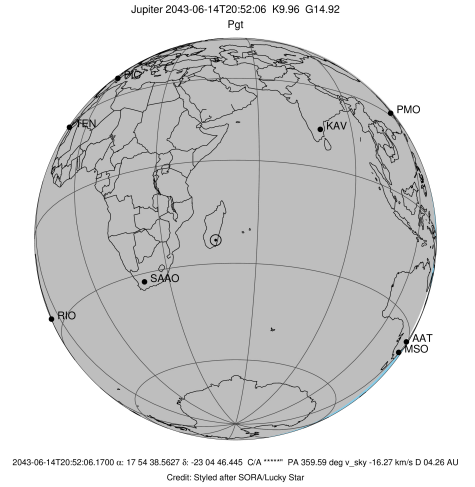


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-14T20:14:18.420	52.04	-57.34	71486.5	-55.55	-58.89
Jupiter	E	2043-06-14T21:36:10.944	69.05	-73.87	71486.6	-54.72	-58.10


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-14T20:46:15.270
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      : 4070135447503446656
2Mass ID (if available) : 17543855-2304465
ICRS Star Coord at Epoch: 17h 54m 38.56272s -23:04:46.44524s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.956
G magnitude          : 14.923
RP magnitude         : 13.668
BP magnitude         : 16.628
DUPflag             : 0
Distance (au)       : 4.257
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.27
Sun-Target sep (deg) : 174.33
Sun-Moon sep (deg)  : 90.80
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.26
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 19.751
C/A sky separation (km) : 60976.2
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	2043-06-14T20:08:02.499	17.14	-12.43	71486.2	-58.09	-61.28
Jupiter	E	2043-06-14T21:24:37.137	2.54x	1.73x	71486.1	-58.82	-61.96