

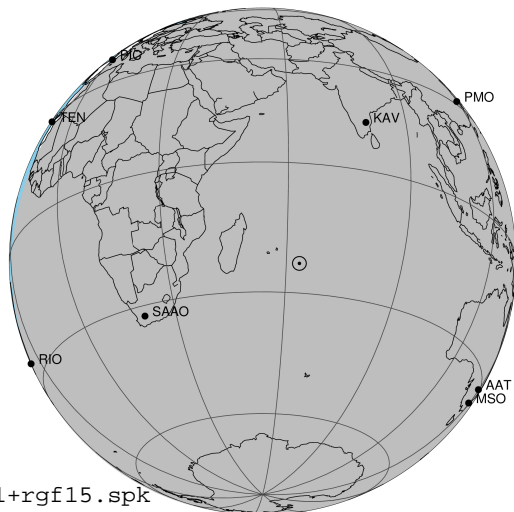
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-27T19:50:08.680
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068789821453703296
 2Mass ID (if available) : 17472887-2304207

Jupiter 2043-06-27T19:50:08 K9.76 G14.50 Pgt

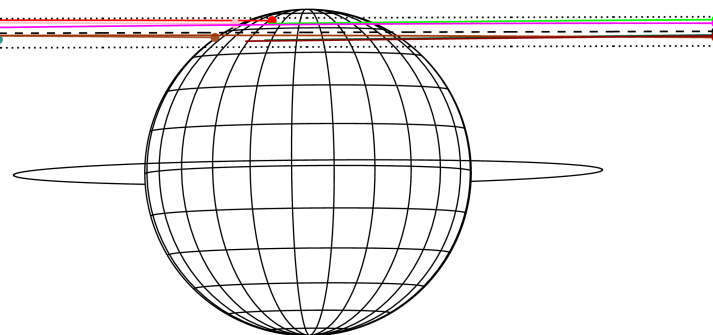
ICRS Star Coord at Epoch: 17h 47m 28.87249s -23:04:20.76792s

RUWE (>1.4 is poor) : 0.90
 K magnitude : 9.759
 G magnitude : 14.502
 RP magnitude : 13.248
 BP magnitude : 16.250
 DUPflag : 0
 Distance (au) : 4.256
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.12
 Sun-Target sep (deg) : 171.64
 Sun-Moon sep (deg) : 69.64
 B (ring opening deg) : -2.43
 PA of pole (deg) : 0.51
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 19.881
 C/A sky separation (km) : 61368.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-27T19:50:08 K9.76 G14.50
 Pgt



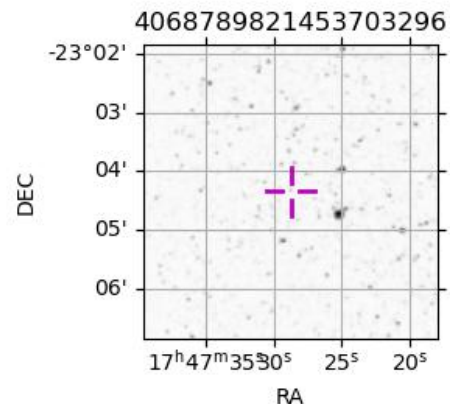
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-06-27T19:50:08.6800 a: 17 47 28.8725 d: -23 04 20.768 C/A ***** PA 180.15 deg v_sky -16.12 km/s D 04.26 AU
 Credit: Styled after SORA/Lucky Star

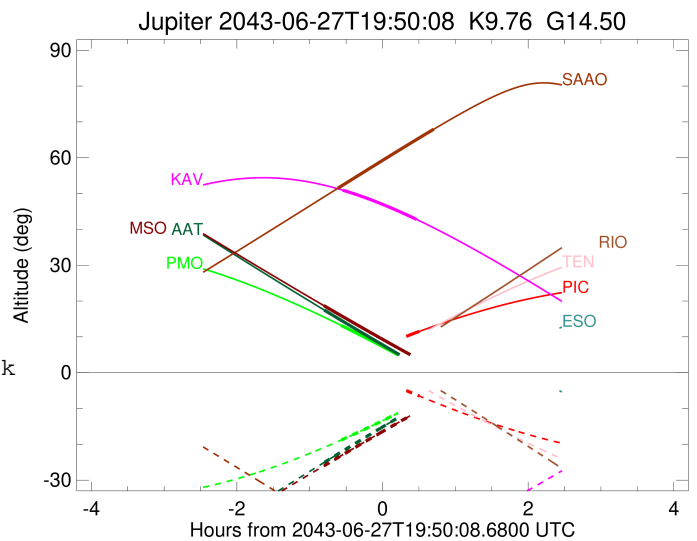
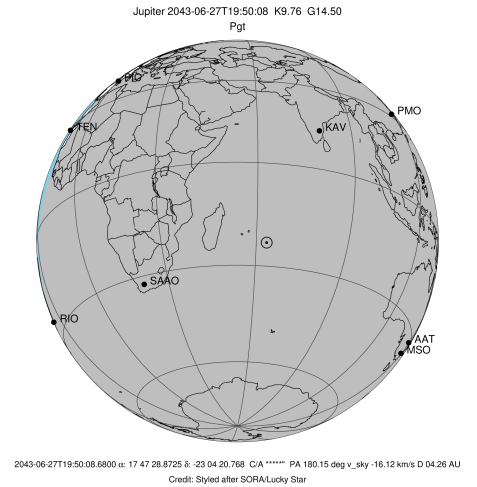
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+	JUN 27 20:20 - JUN 27 20:20	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUN 27 19:16 - JUN 27 19:16	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			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 27 19:17 - JUN 27 20:18	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 27 19:02 - JUN 27 19:02	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 27 19:13 - JUN 27 20:32	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 27 19:01 - JUN 27 19:01	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-27T19:53:33.400
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        : 4068789821453703296
2Mass ID (if available) : 17472887-2304207
ICRS Star Coord at Epoch: 17h 47m 28.87249s -23:04:20.76792s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.759
G magnitude           : 14.502
RP magnitude          : 13.248
BP magnitude          : 16.250
DUPflag              : 0
Distance (au)         : 4.256
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.64
Sun-Moon sep (deg)   : 69.97
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.51
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 21.529
C/A sky separation (km): 66454.9
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
    
```

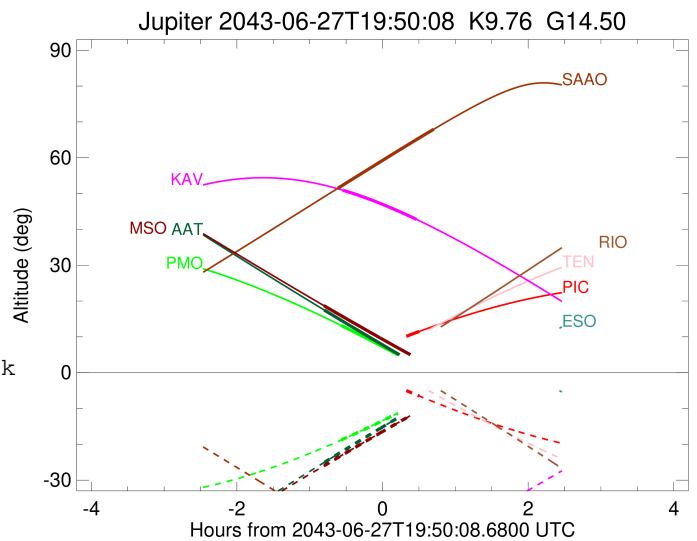
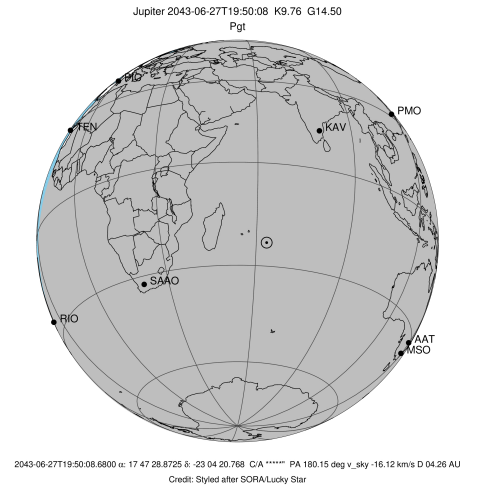


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T19:26:37.154	4.16x	1.52x	71485.2	67.50	69.96
Jupiter	E	2043-06-27T20:20:26.695	11.51	-6.51	71485.0	68.96	71.28

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-27T19:45:42.270
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       : 4068789821453703296
2Mass ID (if available) : 17472887-2304207
ICRS Star Coord at Epoch: 17h 47m 28.87249s -23:04:20.76792s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.759
G magnitude           : 14.502
RP magnitude          : 13.248
BP magnitude          : 16.250
DUPflag              : 0
Distance (au)        : 4.256
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.64
Sun-Moon sep (deg)   : 69.51
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.51
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 21.188
C/A sky separation (km): 65403.0
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
    
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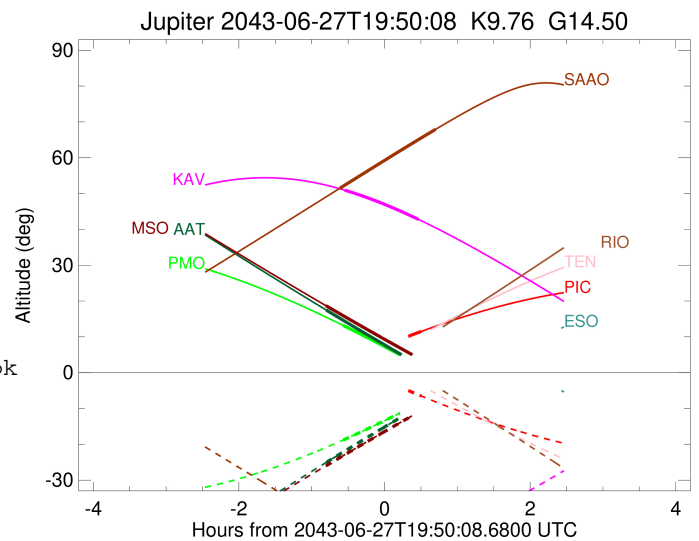
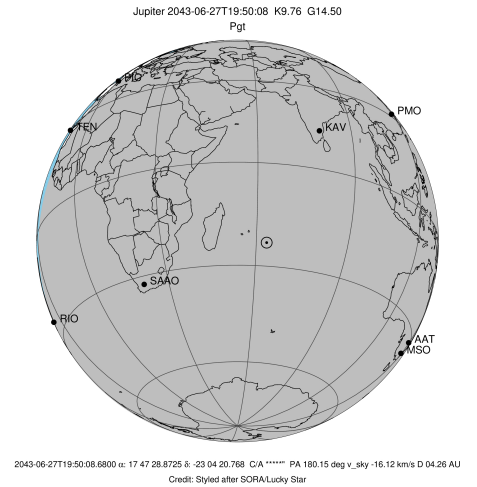


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T19:16:12.965	13.16	-18.78	71485.3	66.19	68.76
Jupiter	E	2043-06-27T20:15:16.498	2.72x	-9.14	71485.3	65.93	68.53

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-27T19:47:48.470
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        : 4068789821453703296
2Mass ID (if available) : 17472887-2304207
ICRS Star Coord at Epoch: 17h 47m 28.87249s -23:04:20.76792s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.759
G magnitude           : 14.502
RP magnitude          : 13.248
BP magnitude          : 16.250
DUPflag              : 0
Distance (au)         : 4.256
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.64
Sun-Moon sep (deg)    : 70.18
B (ring opening deg) : -2.43
PA of pole (deg)      : 0.51
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 21.013
C/A sky separation (km) : 64861.9
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
    
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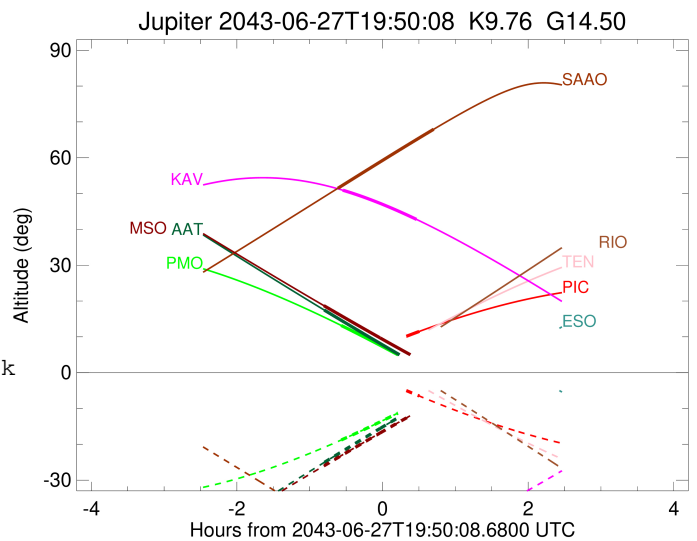
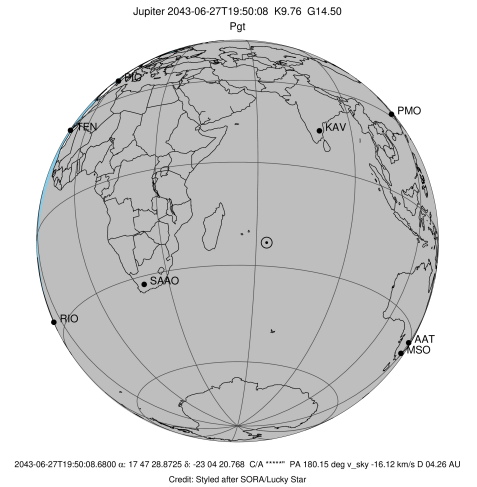


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T19:17:29.723	50.92	-53.48	71485.4	64.89	67.57
Jupiter	E	2043-06-27T20:18:09.977	42.78	-47.93	71485.4	65.10	67.77

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-27T19:45:06.150
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        : 4068789821453703296
2Mass ID (if available) : 17472887-2304207
ICRS Star Coord at Epoch: 17h 47m 28.87249s -23:04:20.76792s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.759
G magnitude           : 14.502
RP magnitude          : 13.248
BP magnitude          : 16.250
DUPflag              : 0
Distance (au)         : 4.256
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg)  : 171.64
Sun-Moon sep (deg)    : 69.47
B (ring opening deg) : -2.43
PA of pole (deg)      : 0.51
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 18.853
C/A sky separation (km) : 58194.9
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
    
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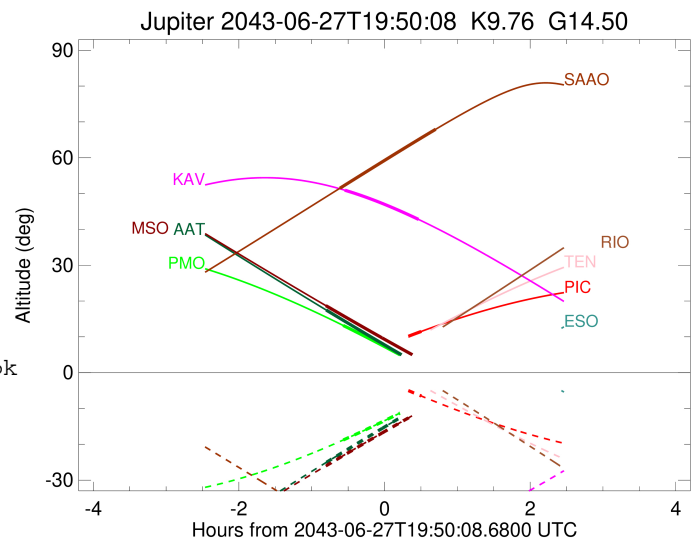
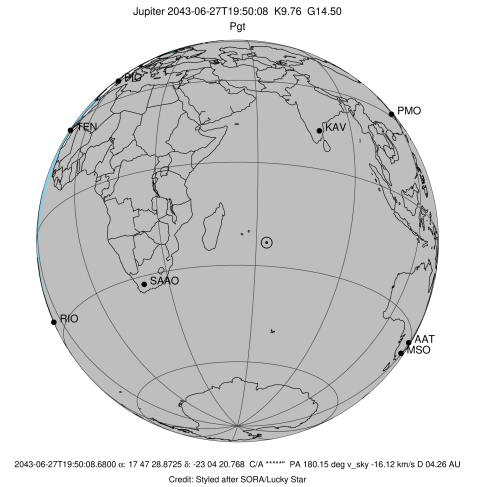


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T19:02:12.852	17.46	-25.04	71486.7	54.62	58.01
Jupiter	E	2043-06-27T20:28:11.323	0.34x	-7.54	71486.7	54.23	57.64

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-27T19:52:50.710
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      : 4068789821453703296
2Mass ID (if available) : 17472887-2304207
ICRS Star Coord at Epoch: 17h 47m 28.87249s -23:04:20.76792s
RUWE (>1.4 is poor) : 0.90
K magnitude          : 9.759
G magnitude          : 14.502
RP magnitude         : 13.248
BP magnitude         : 16.250
DUPflag             : 0
Distance (au)       : 4.256
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.64
Sun-Moon sep (deg)  : 70.55
B (ring opening deg) : -2.43
PA of pole (deg)    : 0.51
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 19.447
C/A sky separation (km): 60029.8
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
    
```

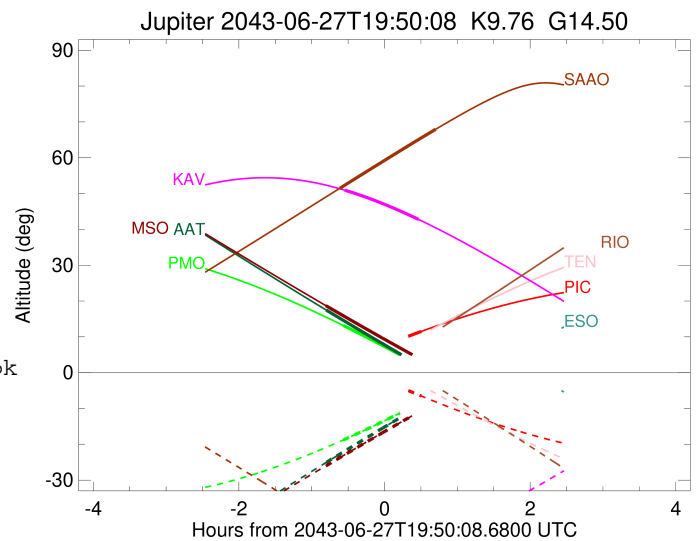
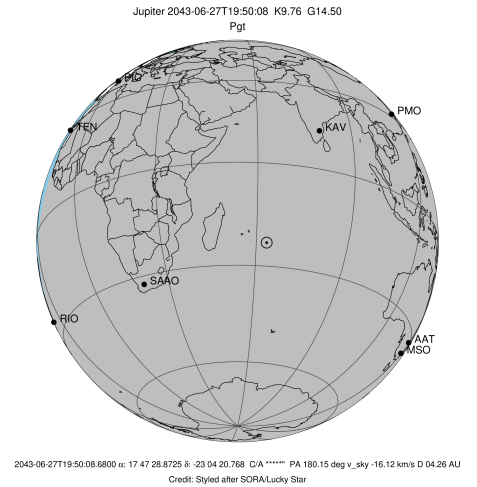


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T19:13:26.176	51.49	-43.90	71486.4	56.35	59.65
Jupiter	E	2043-06-27T20:32:10.460	67.90	-60.50	71486.3	57.64	60.86

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-27T19:45:19.680
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      : 4068789821453703296
2Mass ID (if available) : 17472887-2304207
ICRS Star Coord at Epoch: 17h 47m 28.87249s -23:04:20.76792s
RUWE (>1.4 is poor) : 0.90
K magnitude          : 9.759
G magnitude          : 14.502
RP magnitude         : 13.248
BP magnitude         : 16.250
DUPflag             : 0
Distance (au)       : 4.256
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.64
Sun-Moon sep (deg)  : 69.50
B (ring opening deg) : -2.43
PA of pole (deg)    : 0.51
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 18.743
C/A sky separation (km) : 57856.7
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	2043-06-27T19:01:57.221	18.69	-25.99	71486.7	54.13	57.54
Jupiter	E	2043-06-27T20:28:53.744	2.09x	-8.99	71486.8	53.80	57.23