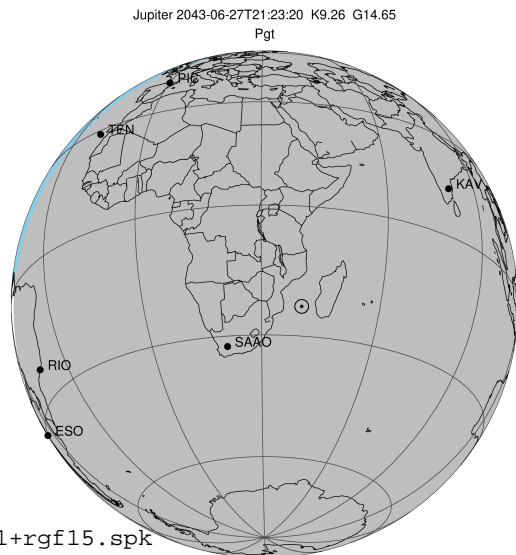


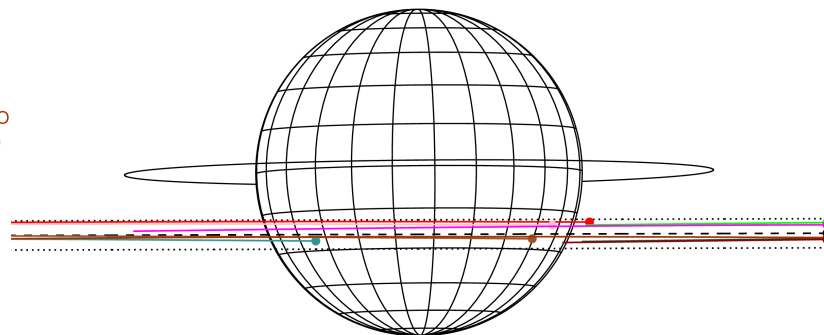
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-27T21:23:20.540
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068789782776086912
 2Mass ID (if available) : 17472676-2304489

Jupiter 2043-06-27T21:23:20 K9.26 G14.65 Pgt

ICRS Star Coord at Epoch: 17h 47m 26.75103s -23:04:49.34771s
 RUWE (>1.4 is poor) : 0.90
 K magnitude : 9.260
 G magnitude : 14.650
 RP magnitude : 13.250
 BP magnitude : 16.998
 DUPflag : 0
 Distance (au) : 4.256
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.12
 Sun-Target sep (deg) : 171.57
 Sun-Moon sep (deg) : 70.50
 B (ring opening deg) : -2.42
 PA of pole (deg) : 0.52
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 8.778
 C/A sky separation (km) : 27096.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp



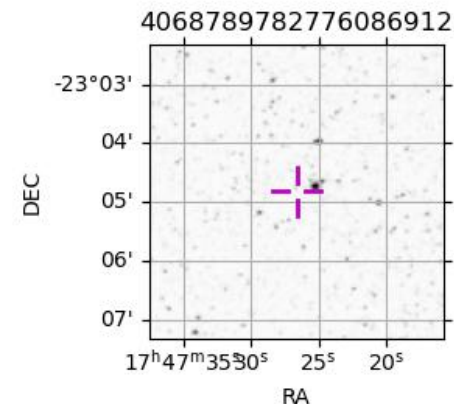
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-06-27T21:23:20.5400 a: 17 47 26.7510 s: -23 04 49.348 C/A 8.789° PA 0.16 deg v_sky -16.12 km/s D 04.26 AU
 Credit: Styled after SORA/Lucky Star

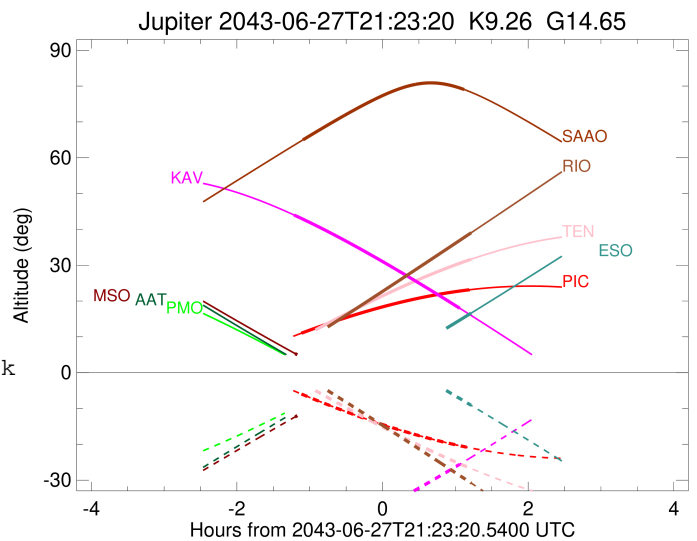
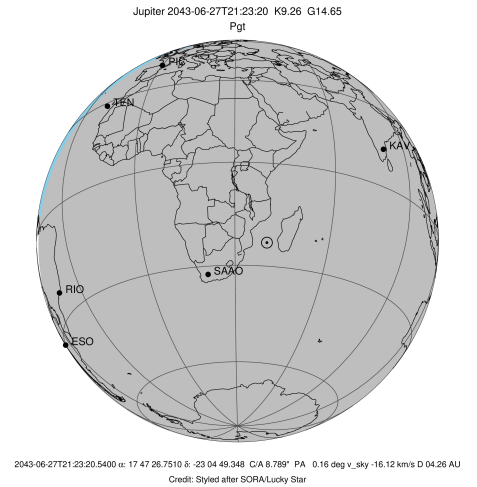
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	JUN 27 20:16 - JUN 27 22:34	Pie
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
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 27 22:36 - JUN 27 22:36	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 27 20:10 - JUN 27 22:26	Pie
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 27 22:36 - JUN 27 22:36	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 27 22:36 - JUN 27 22:36	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 27 20:17 - JUN 27 22:30	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 27 20:11 - JUN 27 20:11	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-27T21:25:50.520
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       : 4068789782776086912
2Mass ID (if available) : 17472676-2304489
ICRS Star Coord at Epoch: 17h 47m 26.75103s -23:04:49.34771s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.260
G magnitude           : 14.650
RP magnitude         : 13.250
BP magnitude         : 16.998
DUPflag              : 0
Distance (au)        : 4.256
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.57
Sun-Moon sep (deg)   : 70.92
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.52
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 6.973
C/A sky separation (km): 21525.3
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
    
```

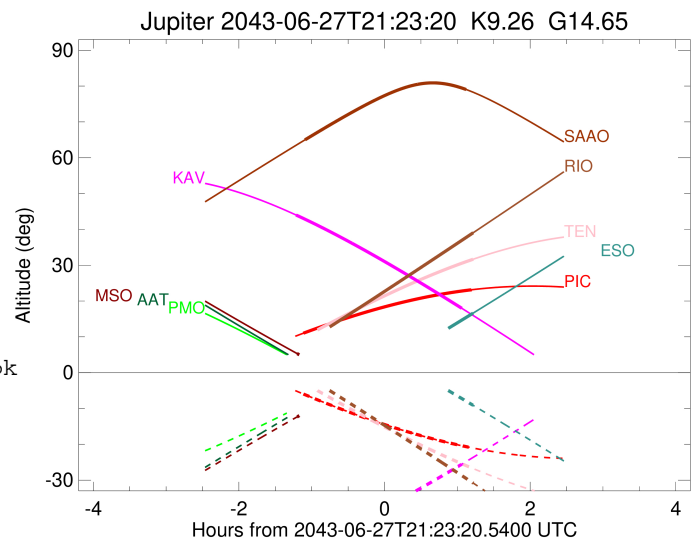
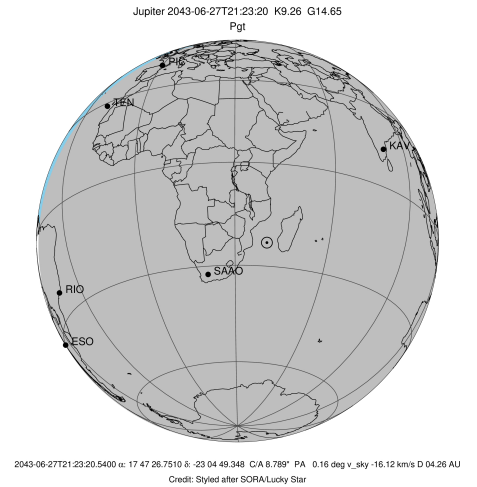


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T20:16:30.616	11.02	-5.96	71491.2	-18.16	-20.54
Jupiter	E	2043-06-27T22:34:58.208	23.13	-20.95	71491.3	-16.98	-19.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-27T21:27:41.770
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        : 4068789782776086912
2Mass ID (if available) : 17472676-2304489
ICRS Star Coord at Epoch: 17h 47m 26.75103s -23:04:49.34771s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.260
G magnitude           : 14.650
RP magnitude          : 13.250
BP magnitude          : 16.998
DUPflag              : 0
Distance (au)         : 4.256
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.57
Sun-Moon sep (deg)    : 71.04
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.52
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 7.385
C/A sky separation (km) : 22797.4
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
    
```

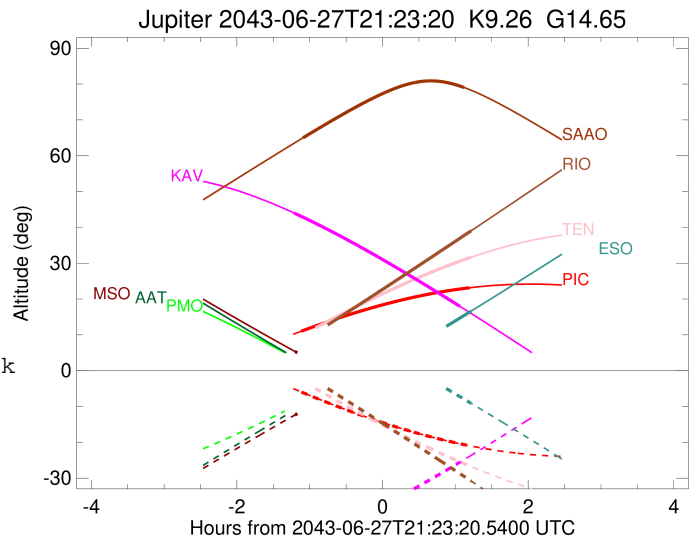
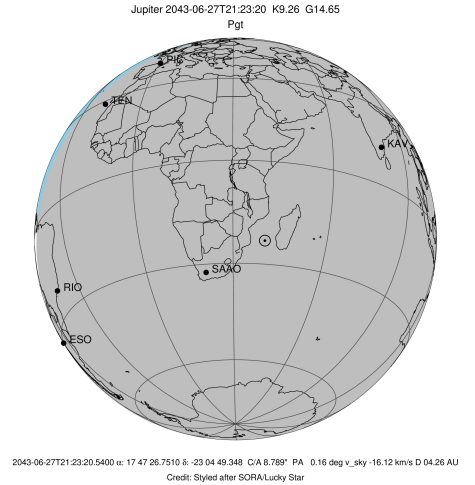


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T20:18:39.649	10.20	-3.19x	71491.1	-19.39	-21.91
Jupiter	E	2043-06-27T22:36:22.258	31.66	-26.76	71491.2	-17.88	-20.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-27T21:18:26.540
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       : 4068789782776086912
2Mass ID (if available) : 17472676-2304489
ICRS Star Coord at Epoch: 17h 47m 26.75103s -23:04:49.34771s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.260
G magnitude           : 14.650
RP magnitude         : 13.250
BP magnitude         : 16.998
DUPflag              : 0
Distance (au)        : 4.256
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.57
Sun-Moon sep (deg)   : 70.75
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.52
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 7.828
C/A sky separation (km): 24165.3
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
    
```

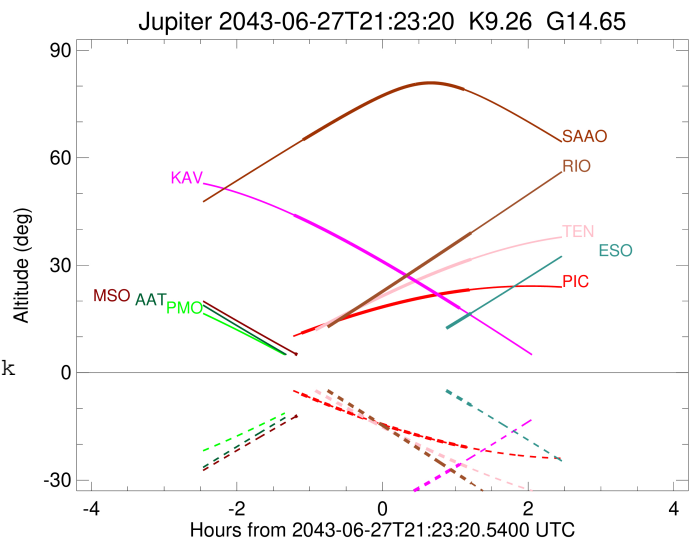
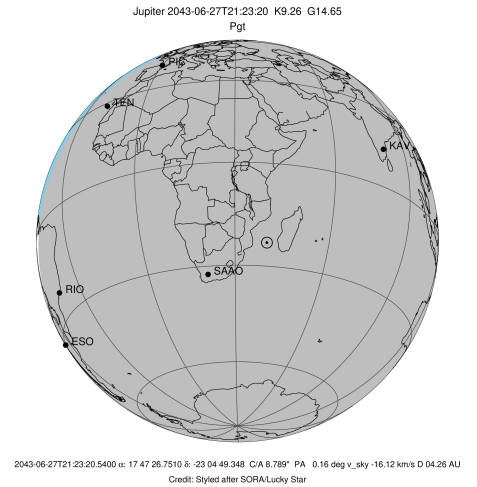


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T20:10:23.889	44.01	-48.90	71491.1	-19.71	-22.26
Jupiter	E	2043-06-27T22:26:54.782	17.99	-25.58	71491.1	-19.89	-22.46

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-27T21:29:26.110
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      : 4068789782776086912
2Mass ID (if available) : 17472676-2304489
ICRS Star Coord at Epoch: 17h 47m 26.75103s -23:04:49.34771s
RUWE (>1.4 is poor) : 0.90
K magnitude          : 9.260
G magnitude          : 14.650
RP magnitude         : 13.250
BP magnitude         : 16.998
DUPflag             : 0
Distance (au)       : 4.256
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.57
Sun-Moon sep (deg)  : 71.12
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.52
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 9.285
C/A sky separation (km) : 28661.5
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
    
```

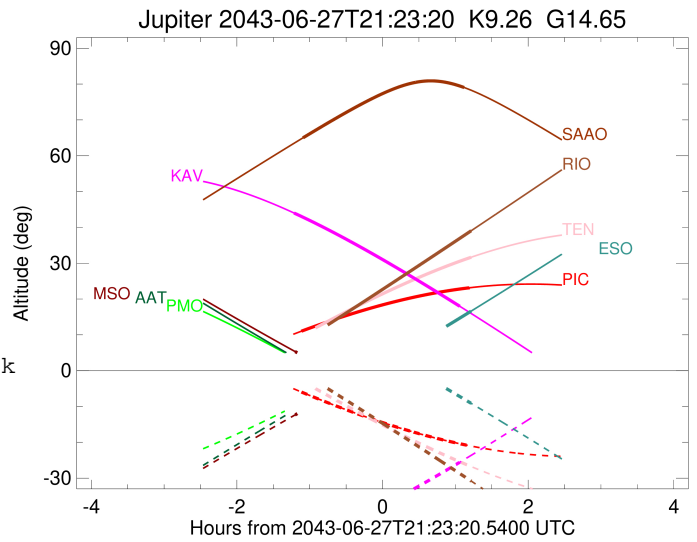
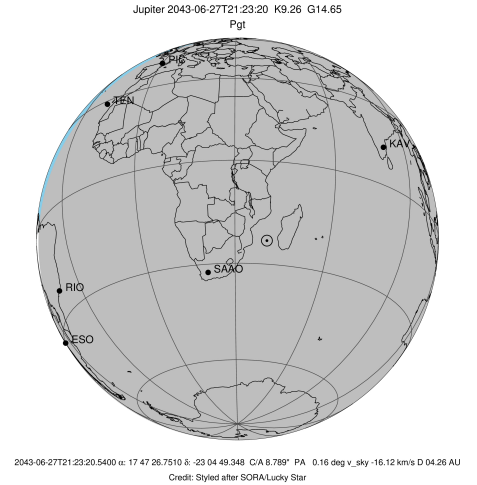


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T20:22:00.361	9.26	-1.59x	71490.6	-24.56	-27.55
Jupiter	E	2043-06-27T22:36:22.649	39.04	-30.80	71490.8	-22.73	-25.56

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-27T21:29:19.750
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : ESO
Location             : European Southern Obs. (3.6m)
Latitude (deg)       : -29.26097
E. Longitude (deg)   : 289.26831
Altitude (km)        : 2.400
Gaia source ID       : 4068789782776086912
2Mass ID (if available) : 17472676-2304489
ICRS Star Coord at Epoch: 17h 47m 26.75103s -23:04:49.34771s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.260
G magnitude           : 14.650
RP magnitude          : 13.250
BP magnitude          : 16.998
DUPflag              : 0
Distance (au)        : 4.256
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.57
Sun-Moon sep (deg)   : 70.79
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.52
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 9.822
C/A sky separation (km): 30319.4
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
    
```

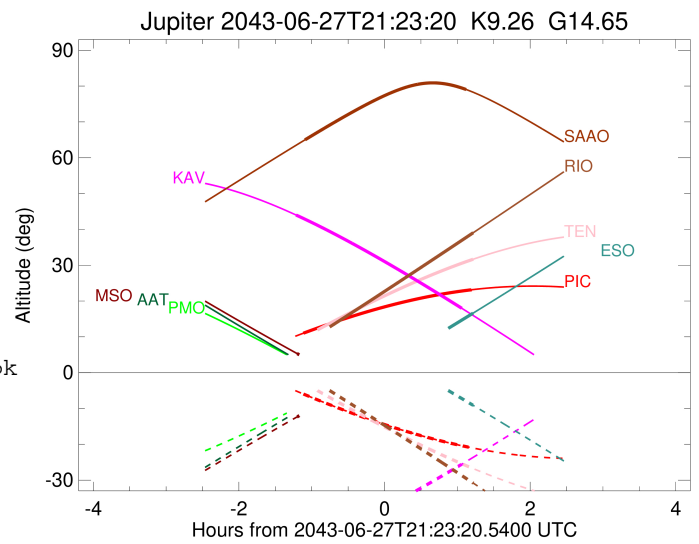
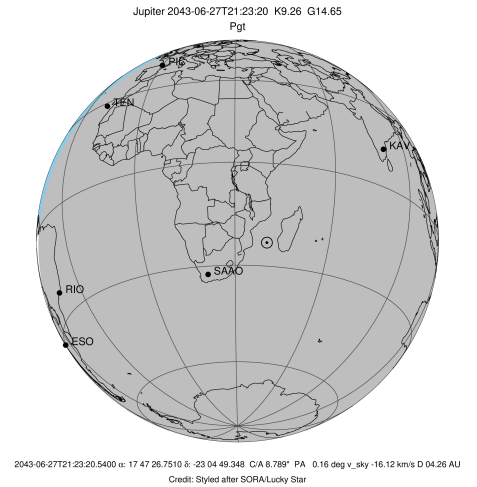


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T20:21:50.129	-9.98x	16.26x	71490.5	-25.97	-29.07
Jupiter	E	2043-06-27T22:36:20.284	16.61	-9.11	71490.7	-24.15	-27.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-27T21:24:19.860
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        : 4068789782776086912
2Mass ID (if available) : 17472676-2304489
ICRS Star Coord at Epoch: 17h 47m 26.75103s -23:04:49.34771s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.260
G magnitude           : 14.650
RP magnitude          : 13.250
BP magnitude          : 16.998
DUPflag              : 0
Distance (au)         : 4.256
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg)  : 171.57
Sun-Moon sep (deg)    : 71.42
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.52
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 9.114
C/A sky separation (km) : 28134.5
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
    
```

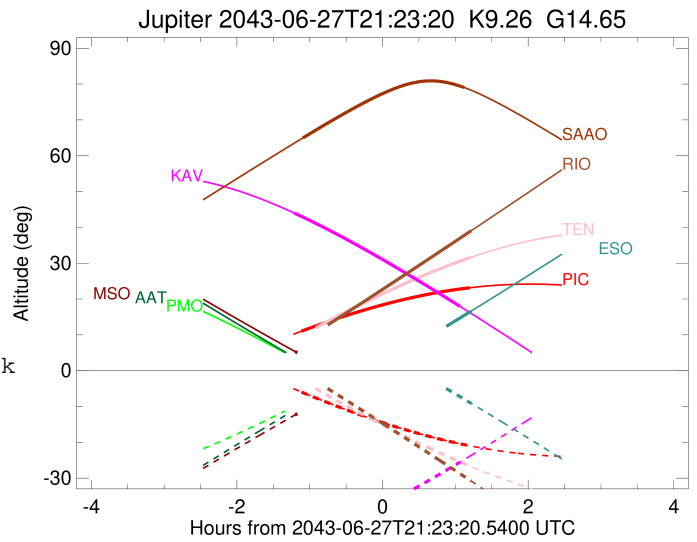
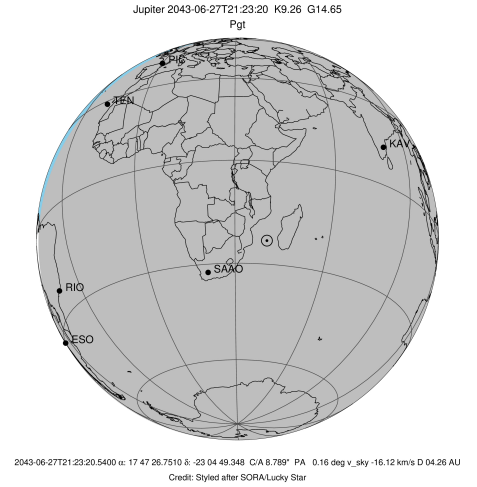


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-27T20:17:56.594	65.01	-57.52	71490.7	-23.68	-26.59
Jupiter	E	2043-06-27T22:30:39.277	79.03	-80.86	71490.8	-22.79	-25.62


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-27T21:18:16.660
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       : 4068789782776086912
2Mass ID (if available) : 17472676-2304489
ICRS Star Coord at Epoch: 17h 47m 26.75103s -23:04:49.34771s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.260
G magnitude           : 14.650
RP magnitude         : 13.250
BP magnitude         : 16.998
DUPflag              : 0
Distance (au)        : 4.256
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.12
Sun-Target sep (deg) : 171.57
Sun-Moon sep (deg)   : 70.14
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.52
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 10.174
C/A sky separation (km): 31406.2
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	2043-06-27T20:11:21.206	5.33	-12.34	71490.5	-25.89	-28.99
Jupiter	E	2043-06-27T22:25:38.409	-17.18x	11.49x	71490.4	-26.11	-29.22