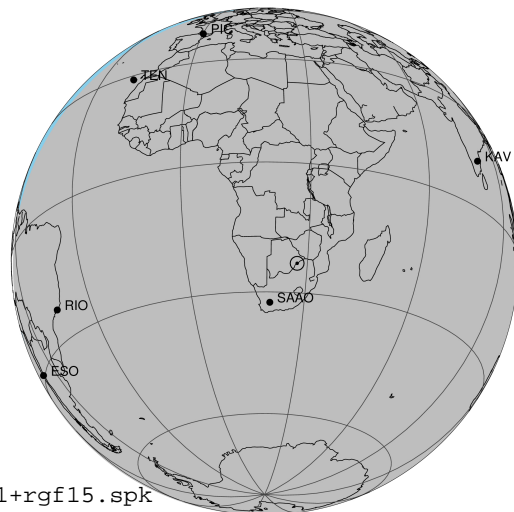


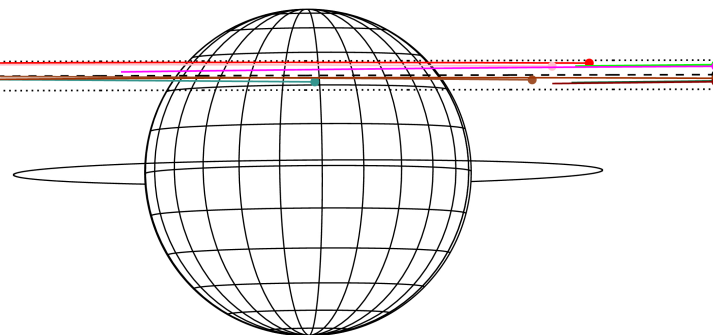
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-26T22:13:06.200
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068880393694091264
 2Mass ID (if available) : 17475838-2304276

Jupiter 2043-06-26T22:13:06 K9.28 G14.38 Pgt

ICRS Star Coord at Epoch: 17h 47m 58.38936s -23:04:27.83592s
 RUWE (>1.4 is poor) : 0.92
 K magnitude : 9.282
 G magnitude : 14.384
 RP magnitude : 13.105
 BP magnitude : 16.256
 DUPflag : 0
 Distance (au) : 4.255
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.19
 Sun-Target sep (deg) : 172.61
 Sun-Moon sep (deg) : 57.79
 B (ring opening deg) : -2.42
 PA of pole (deg) : 0.46
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 13.776
 C/A sky separation (km) : 42508.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



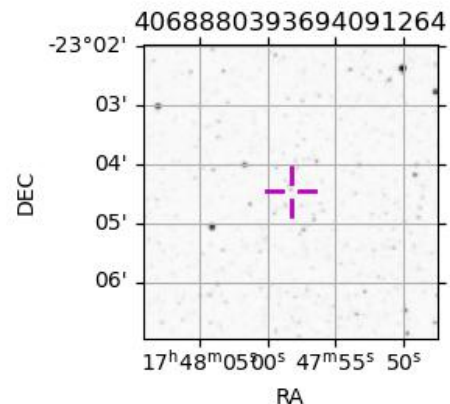
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-06-26T22:13:06.2000 a: 17 47 58.3894 s -23 04 27.836 C/A ***** PA 180.12 deg v_sky -16.19 km/s D 04.25 AU
 Credit: Styled after SORA/Lucky Star

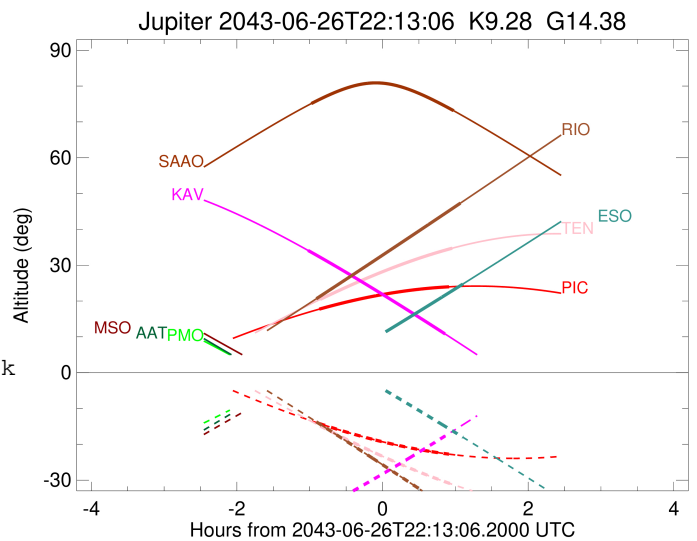
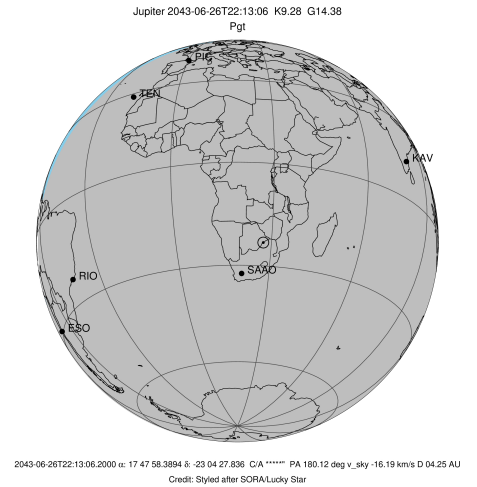
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	JUN 26 21:21 - JUN 26 23:07	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 26 21:21 - JUN 26 23:10	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 26 21:11 - JUN 26 23:04	Pie
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 26 21:18 - JUN 26 23:17	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3		JUN 26 23:19 - JUN 26 23:19	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 26 21:14 - JUN 26 23:11	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-26T22:14:31.380
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       : 4068880393694091264
2Mass ID (if available) : 17475838-2304276
ICRS Star Coord at Epoch: 17h 47m 58.38936s -23:04:27.83592s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.282
G magnitude           : 14.384
RP magnitude         : 13.105
BP magnitude         : 16.256
DUPflag              : 0
Distance (au)        : 4.255
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.19
Sun-Target sep (deg) : 172.61
Sun-Moon sep (deg)   : 58.24
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.46
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 15.629
C/A sky separation (km): 48226.3
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
    
```

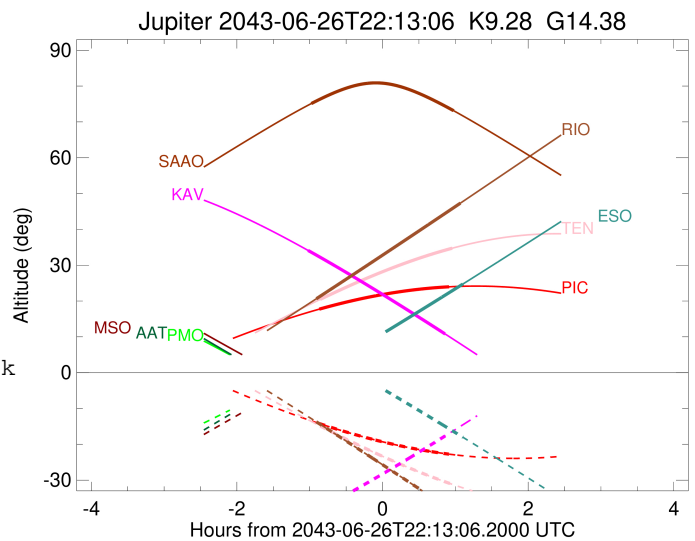
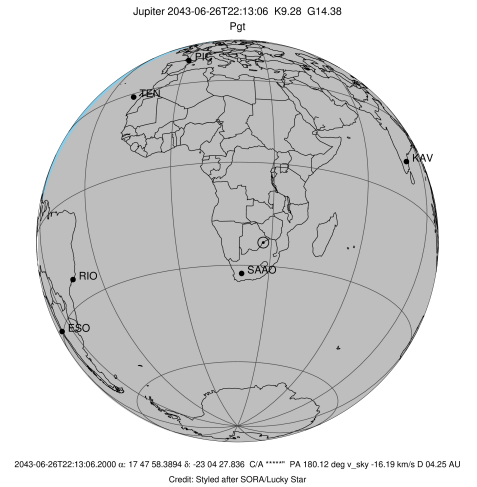


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T21:21:09.271	17.74	-14.21	71488.4	41.84	45.56
Jupiter	E	2043-06-26T23:07:49.063	23.96	-22.74	71488.3	42.81	46.53

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-26T22:16:09.360
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      : 4068880393694091264
2Mass ID (if available) : 17475838-2304276
ICRS Star Coord at Epoch: 17h 47m 58.38936s -23:04:27.83592s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 9.282
G magnitude          : 14.384
RP magnitude         : 13.105
BP magnitude         : 16.256
DUPflag             : 0
Distance (au)       : 4.255
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.19
Sun-Target sep (deg) : 172.61
Sun-Moon sep (deg)  : 58.45
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.46
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 15.259
C/A sky separation (km) : 47085.8
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
    
```

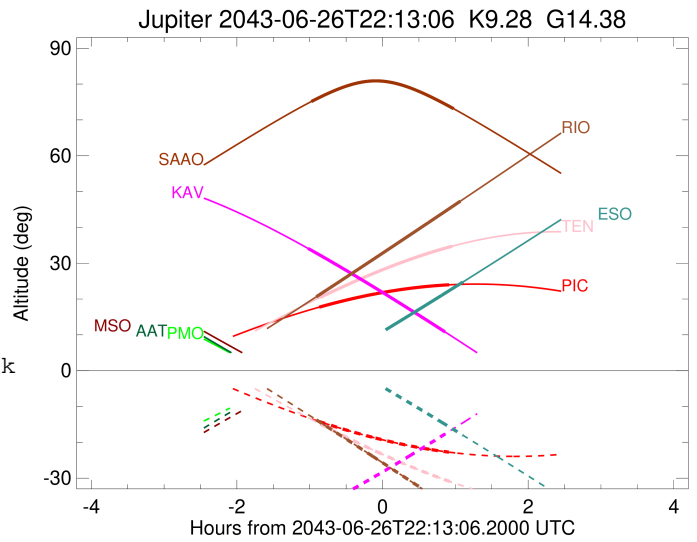
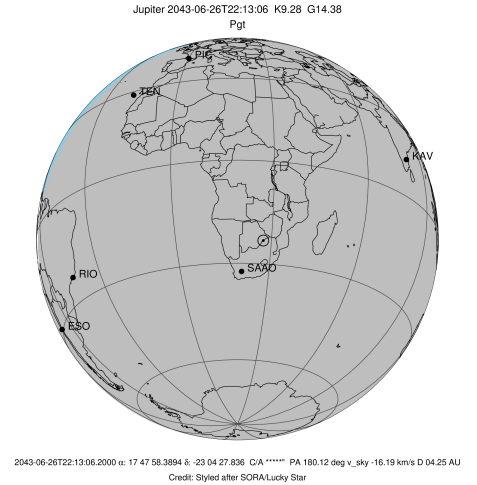


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T21:21:44.844	20.45	-14.88	71488.6	40.44	44.15
Jupiter	E	2043-06-26T23:10:23.584	34.72	-31.14	71488.4	41.75	45.47

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-26T22:08:04.750
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      : 4068880393694091264
2Mass ID (if available) : 17475838-2304276
ICRS Star Coord at Epoch: 17h 47m 58.38936s -23:04:27.83592s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 9.282
G magnitude          : 14.384
RP magnitude        : 13.105
BP magnitude        : 16.256
DUPflag             : 0
Distance (au)       : 4.255
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.19
Sun-Target sep (deg) : 172.61
Sun-Moon sep (deg)  : 57.68
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.46
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 14.601
C/A sky separation (km) : 45055.0
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
    
```

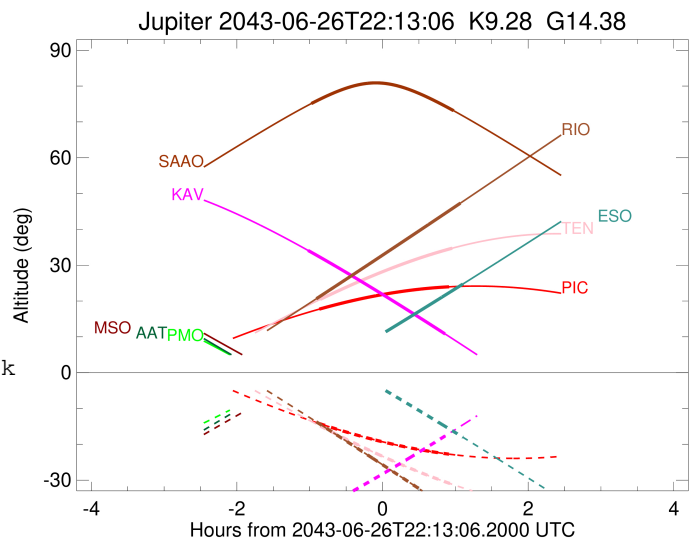
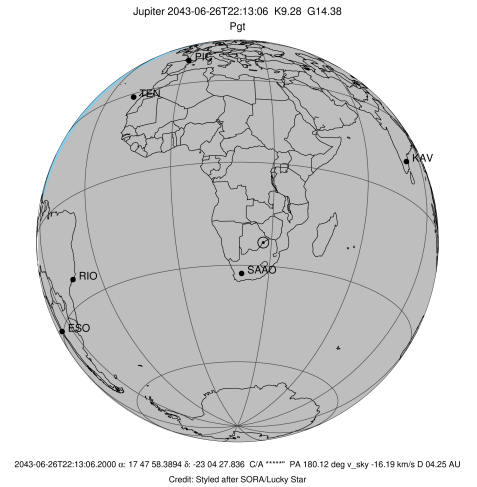


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T21:11:52.760	34.10	-39.71	71488.8	39.17	42.86
Jupiter	E	2043-06-26T23:04:36.198	10.83	-17.69	71488.8	38.80	42.49

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-06-26T22:18:02.380
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        : 4068880393694091264
2Mass ID (if available) : 17475838-2304276
ICRS Star Coord at Epoch: 17h 47m 58.38936s -23:04:27.83592s
RUWE (>1.4 is poor) : 0.92
K magnitude            : 9.282
G magnitude            : 14.384
RP magnitude          : 13.105
BP magnitude          : 16.256
DUPflag              : 0
Distance (au)         : 4.255
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.19
Sun-Target sep (deg)  : 172.61
Sun-Moon sep (deg)    : 58.62
B (ring opening deg)  : -2.42
PA of pole (deg)      : 0.46
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 13.403
C/A sky separation (km) : 41358.3
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
    
```

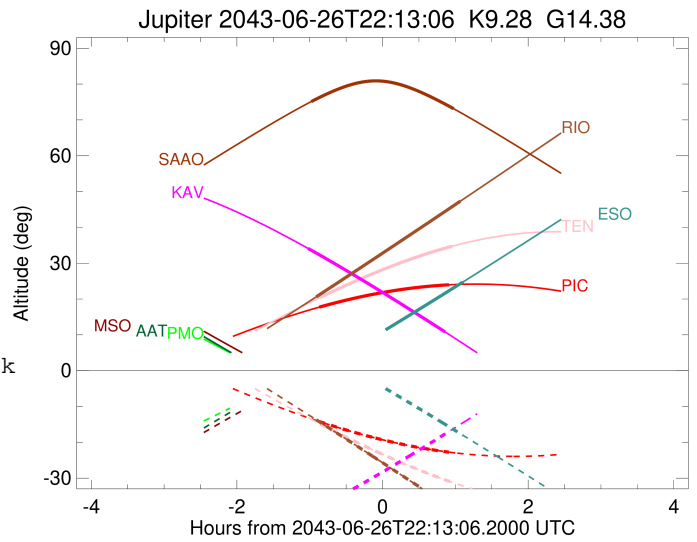
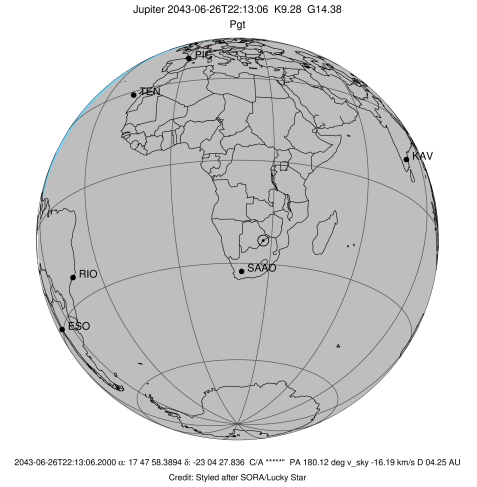


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T21:18:32.609	20.62	-13.72	71489.4	34.42	38.00
Jupiter	E	2043-06-26T23:17:12.079	47.30	-40.02	71489.2	36.12	39.75

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-26T22:18:26.630
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      : 4068880393694091264
2Mass ID (if available) : 17475838-2304276
ICRS Star Coord at Epoch: 17h 47m 58.38936s -23:04:27.83592s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 9.282
G magnitude          : 14.384
RP magnitude         : 13.105
BP magnitude         : 16.256
DUPflag             : 0
Distance (au)       : 4.255
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.19
Sun-Target sep (deg) : 172.61
Sun-Moon sep (deg)  : 58.35
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.46
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 12.872
C/A sky separation (km) : 39718.0
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
    
```

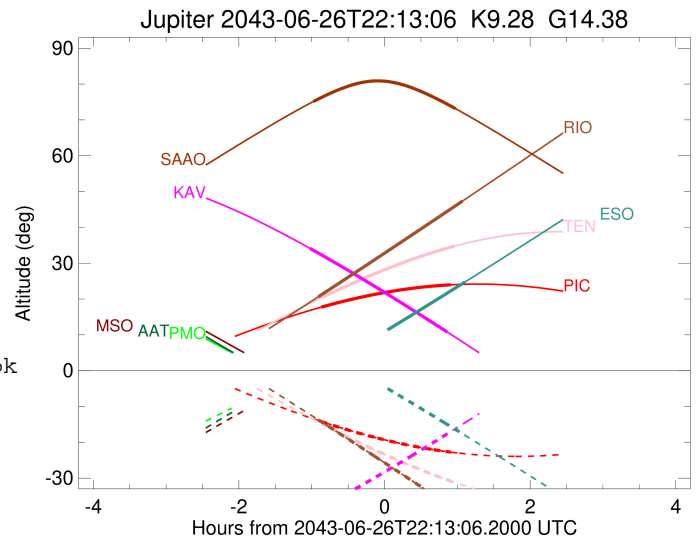
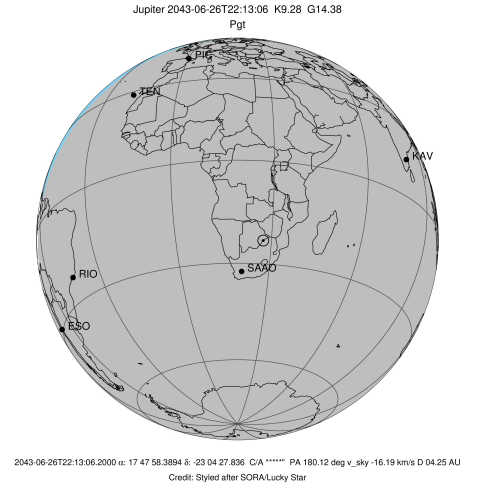


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T21:17:04.241	-0.37x	6.34x	71489.6	32.81	36.33
Jupiter	E	2043-06-26T23:19:25.650	24.75	-18.04	71489.4	34.61	38.19

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-26T22:12:59.190
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      : 4068880393694091264
2Mass ID (if available) : 17475838-2304276
ICRS Star Coord at Epoch: 17h 47m 58.38936s -23:04:27.83592s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 9.282
G magnitude          : 14.384
RP magnitude         : 13.105
BP magnitude         : 16.256
DUPflag             : 0
Distance (au)       : 4.255
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.19
Sun-Target sep (deg) : 172.61
Sun-Moon sep (deg)  : 58.56
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.46
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 13.449
C/A sky separation (km) : 41497.8
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	2043-06-26T21:14:24.477	75.11	-69.21	71489.4	35.05	38.65
Jupiter	E	2043-06-26T23:11:34.916	73.14	-78.67	71489.3	35.70	39.32