

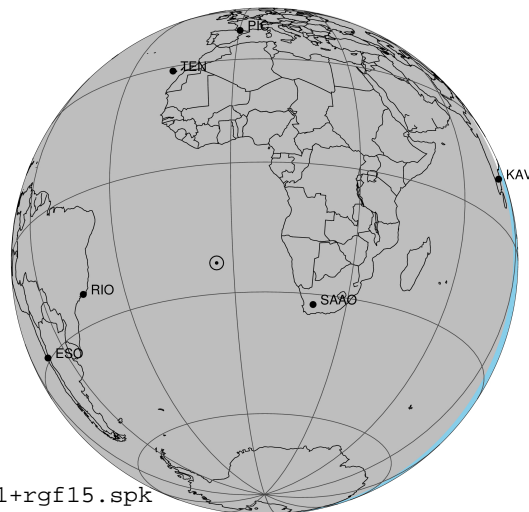
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-10T00:15:51.210
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069396820546312320
 2Mass ID (if available) : 17571695-2303555

Jupiter 2043-06-10T00:15:51 K9.94 G14.20 Pgt

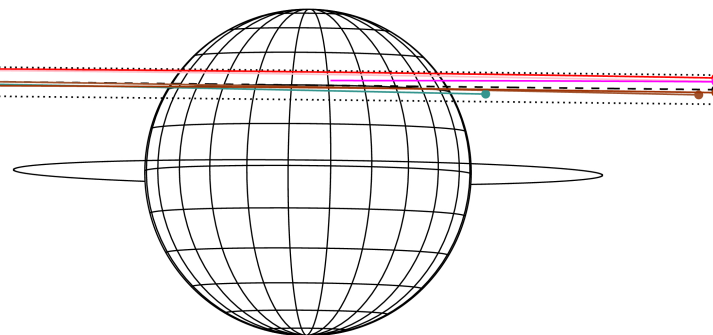
ICRS Star Coord at Epoch: 17h 57m 16.94780s -23°03:55.51311s

RUWE (>1.4 is poor) : 1.05
 K magnitude : 9.936
 G magnitude : 14.201
 RP magnitude : 13.063
 BP magnitude : 15.573
 DUPflag : 0
 Distance (au) : 4.270
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.89
 Sun-Target sep (deg) : 169.09
 Sun-Moon sep (deg) : 154.86
 B (ring opening deg) : -2.43
 PA of pole (deg) : -0.54
 Pole direction: RA (deg): 268.05668
 Dec (deg): 64.49732
 C/A sky separation (") : 12.356
 C/A sky separation (km) : 38262.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-10T00:15:51 K9.94 G14.20
 Pgt



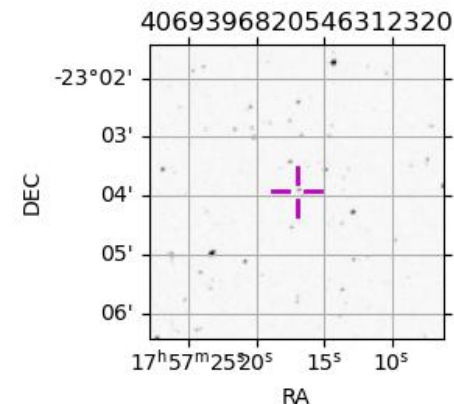
Earth
 PIC
 MCD
 TEN
 KAV
 RIO
 ESO
 SAAO



2043-06-10T00:15:51.2100 a: 17 57 16.9478 d: -23 03 55.513 C/A ***** PA 179.37 deg v_sky -15.89 km/s D 04.27 AU
 Credit: Styled after SORA/Lucky Star

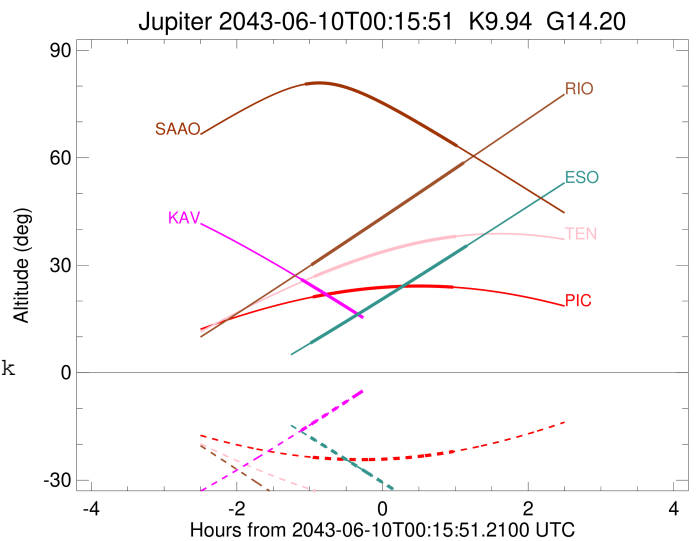
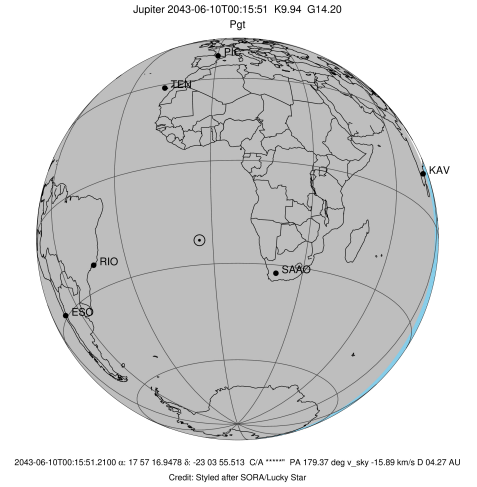
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	JUN 09 23:18 - JUN 10 01:14	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 09 23:19 - JUN 10 01:16	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	JUN 09 23:08 - JUN 09 23:08	Pin
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 09 23:17 - JUN 10 01:22	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 09 23:16 - JUN 10 01:25	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 09 23:12 - JUN 10 01:17	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-10T00:16:21.690
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       : 4069396820546312320
2Mass ID (if available) : 17571695-2303555
ICRS Star Coord at Epoch: 17h 57m 16.94780s -23:03:55.51311s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 9.936
G magnitude           : 14.201
RP magnitude         : 13.063
BP magnitude         : 15.573
DUPflag              : 0
Distance (au)        : 4.270
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.09
Sun-Moon sep (deg)   : 155.27
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 14.230
C/A sky separation (km) : 44067.2
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
    
```

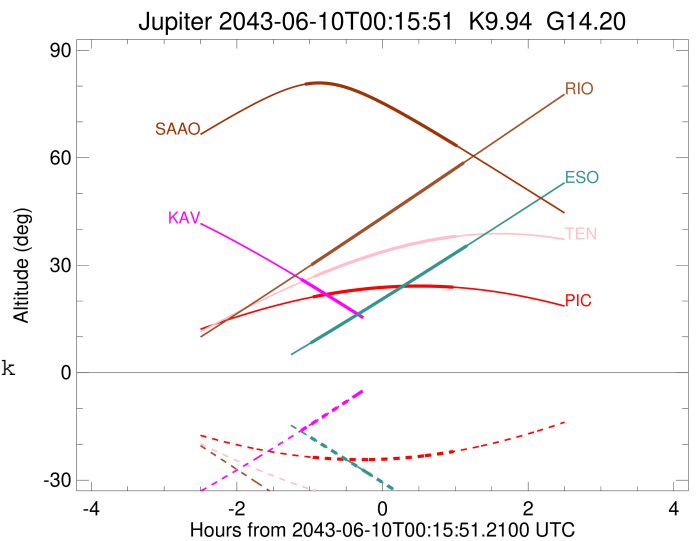
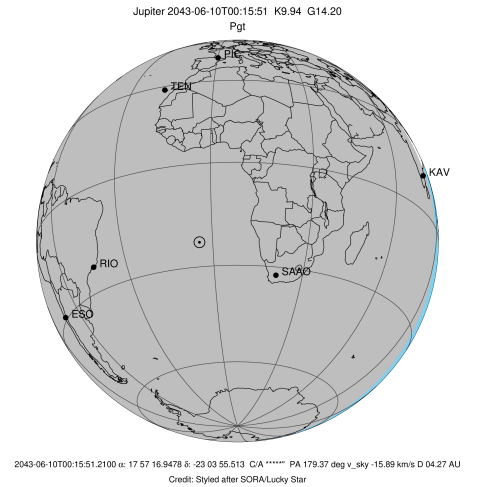


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T23:18:27.296	21.13	-23.62	71489.0	37.82	41.50
Jupiter	E	2043-06-10T01:14:13.085	23.86	-22.01	71488.9	38.09	41.77

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-10T00:17:58.930
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      : 4069396820546312320
2Mass ID (if available) : 17571695-2303555
ICRS Star Coord at Epoch: 17h 57m 16.94780s -23:03:55.51311s
RUWE (>1.4 is poor) : 1.05
K magnitude         : 9.936
G magnitude         : 14.201
RP magnitude        : 13.063
BP magnitude        : 15.573
DUPflag            : 0
Distance (au)       : 4.270
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.09
Sun-Moon sep (deg)  : 155.54
B (ring opening deg) : -2.43
PA of pole (deg)    : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (" ) : 13.912
C/A sky separation (km) : 43080.3
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
    
```

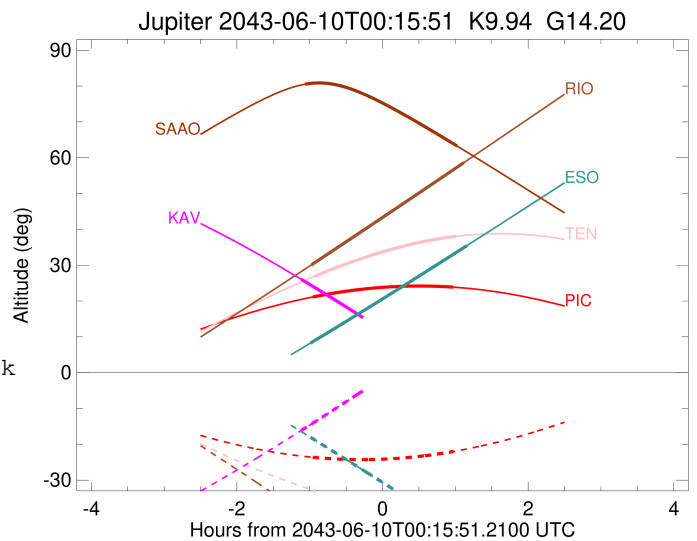
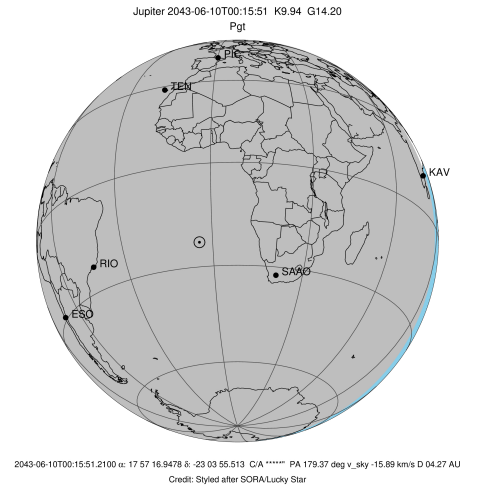


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T23:19:22.304	26.81	-32.86	71489.1	36.66	40.30
Jupiter	E	2043-06-10T01:16:26.054	38.06	-38.81	71489.0	37.24	40.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-10T00:10:08.420
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      : 4069396820546312320
2Mass ID (if available) : 17571695-2303555
ICRS Star Coord at Epoch: 17h 57m 16.94780s -23:03:55.51311s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 9.936
G magnitude          : 14.201
RP magnitude         : 13.063
BP magnitude         : 15.573
DUPflag             : 0
Distance (au)       : 4.270
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.09
Sun-Moon sep (deg)  : 154.20
B (ring opening deg) : -2.43
PA of pole (deg)    : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (" ) : 13.011
C/A sky separation (km) : 40289.9
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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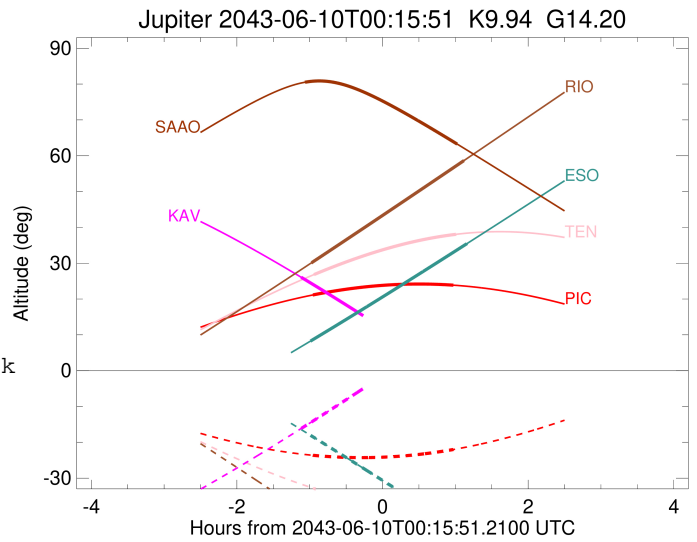
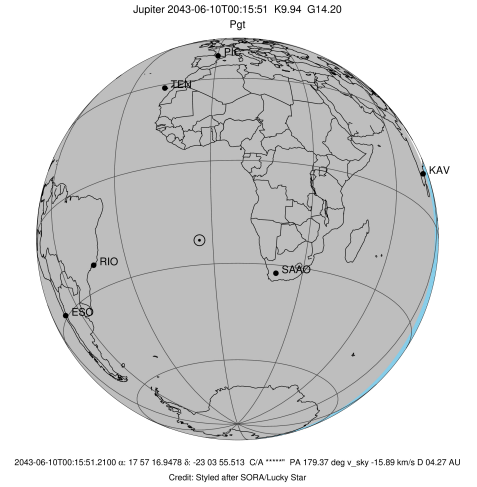


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T23:08:57.900	26.04	-16.12	71489.4	34.75	38.34
Jupiter	E	2043-06-10T01:11:43.581	-0.47x	11.12x	71489.5	33.73	37.28

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-06-10T00:20:16.640
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        : 4069396820546312320
2Mass ID (if available) : 17571695-2303555
ICRS Star Coord at Epoch: 17h 57m 16.94780s -23:03:55.51311s
RUWE (>1.4 is poor)  : 1.05
K magnitude            : 9.936
G magnitude            : 14.201
RP magnitude           : 13.063
BP magnitude           : 15.573
DUPflag                : 0
Distance (au)         : 4.270
f0 (km)                : 0.00
g0 (km)                : 0.00
skyplane vel. (km/s)  : -15.89
Sun-Target sep (deg)  : 169.09
Sun-Moon sep (deg)    : 155.74
B (ring opening deg)  : -2.43
PA of pole (deg)      : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 12.126
C/A sky separation (km) : 37550.1
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
    
```

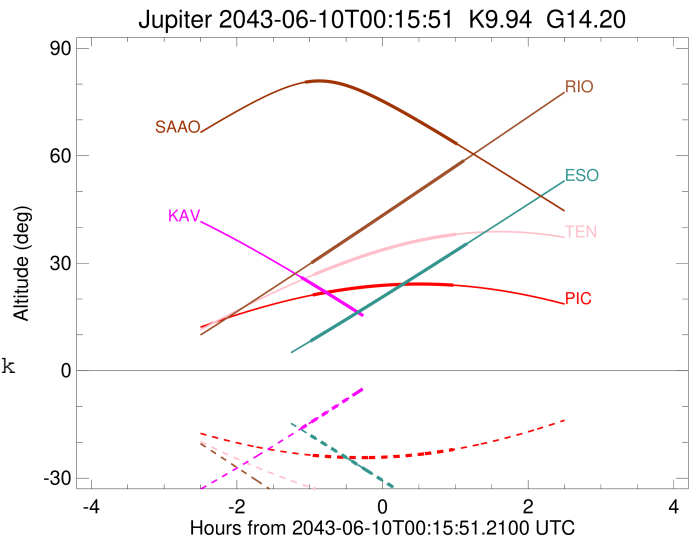
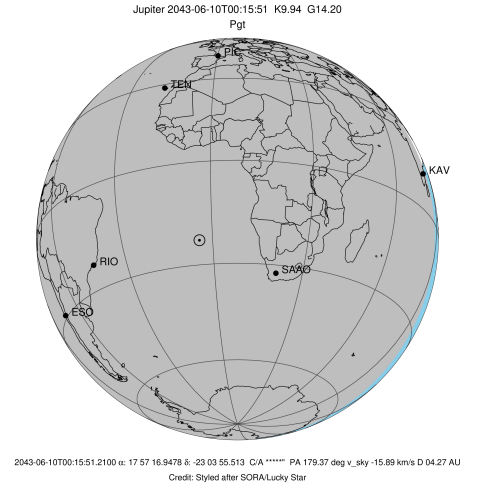


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T23:17:19.869	30.11	-40.80	71489.8	31.07	34.50
Jupiter	E	2043-06-10T01:22:52.237	58.62	-69.44	71489.7	32.12	35.60

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-06-10T00:21:13.540
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        : 4069396820546312320
2Mass ID (if available) : 17571695-2303555
ICRS Star Coord at Epoch: 17h 57m 16.94780s -23:03:55.51311s
RUWE (>1.4 is poor)  : 1.05
K magnitude            : 9.936
G magnitude            : 14.201
RP magnitude           : 13.063
BP magnitude           : 15.573
DUPflag                : 0
Distance (au)         : 4.270
f0 (km)                : 0.00
g0 (km)                : 0.00
skyplane vel. (km/s)  : -15.89
Sun-Target sep (deg)  : 169.09
Sun-Moon sep (deg)    : 155.68
B (ring opening deg)  : -2.43
PA of pole (deg)      : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.620
C/A sky separation (km) : 35983.3
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
    
```

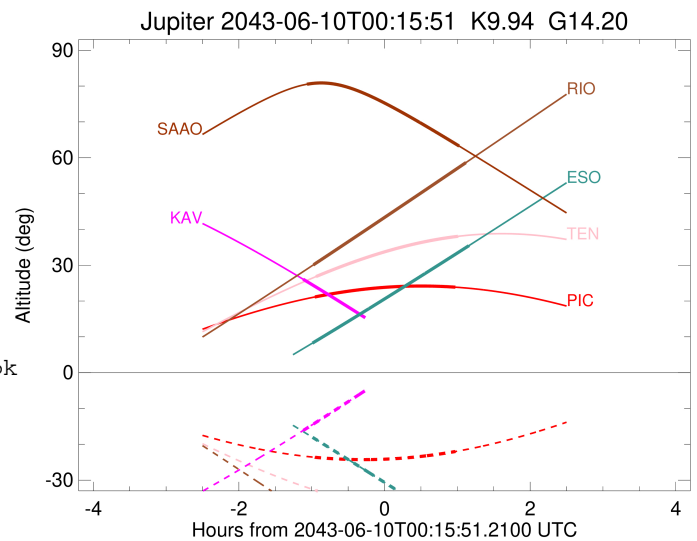
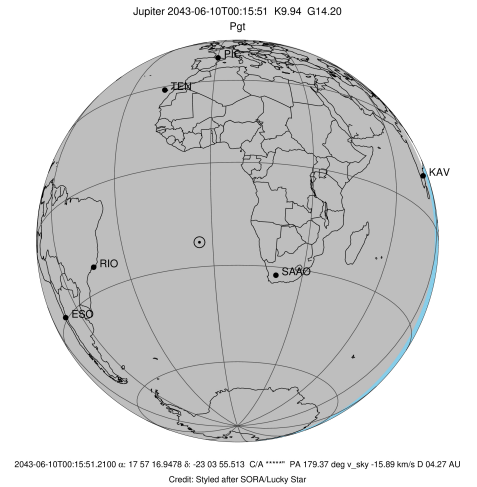


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T23:16:33.214	8.27	-18.05	71490.0	29.53	32.88
Jupiter	E	2043-06-10T01:25:26.672	35.46	-45.68	71489.9	30.80	34.21

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-10T00:14:42.900
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       : 4069396820546312320
2Mass ID (if available) : 17571695-2303555
ICRS Star Coord at Epoch: 17h 57m 16.94780s -23:03:55.51311s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 9.936
G magnitude           : 14.201
RP magnitude         : 13.063
BP magnitude         : 15.573
DUPflag              : 0
Distance (au)        : 4.270
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.09
Sun-Moon sep (deg)   : 155.06
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 12.006
C/A sky separation (km) : 37179.1
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	2043-06-09T23:12:08.212	80.51	-77.81	71489.8	31.28	34.72
Jupiter	E	2043-06-10T01:17:22.160	63.25	-53.33	71489.8	31.18	34.62