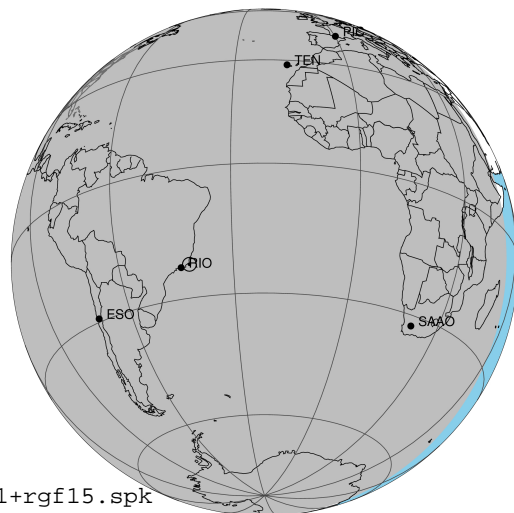


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-04T02:42:14.870
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069437669936653440
 2Mass ID (if available) : 18002143-2303301

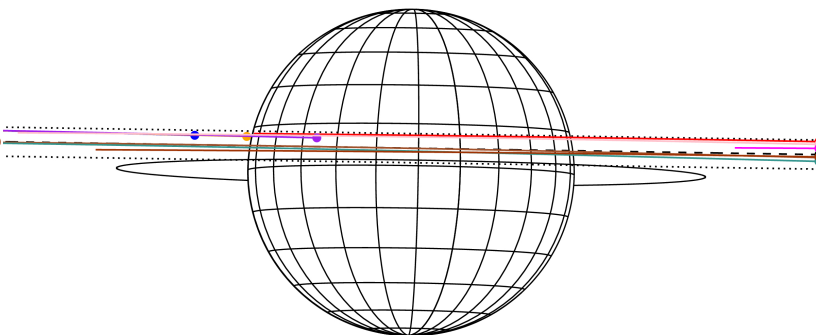
Jupiter 2043-06-04T02:42:14 K9.27 G13.07 Pgt

ICRS Star Coord at Epoch: 18h 00m 21.46062s -23°03'30.27681s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 9.265
 G magnitude : 13.068
 RP magnitude : 12.416
 BP magnitude : 13.525
 DUPflag : 0
 Distance (au) : 4.295
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.08
 Sun-Target sep (deg) : 162.73
 Sun-Moon sep (deg) : 115.88
 B (ring opening deg) : -2.43
 PA of pole (deg) : -0.88
 Pole direction: RA (deg): 268.05668
 Dec (deg): 64.49732
 C/A sky separation (") : 3.425
 C/A sky separation (km) : 10668.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



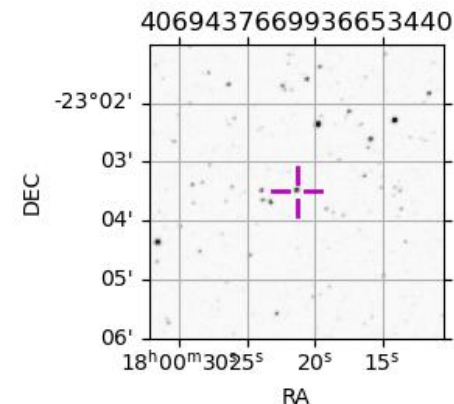
2043-06-04T02:42:14.8700 at: 18 00 21.4606 s: -23 03 30.277 C/A 3.413" PA 179.09 deg v_sky -15.08 km/s D 04.29 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 KAV
 RIO
 ESO
 SAAO



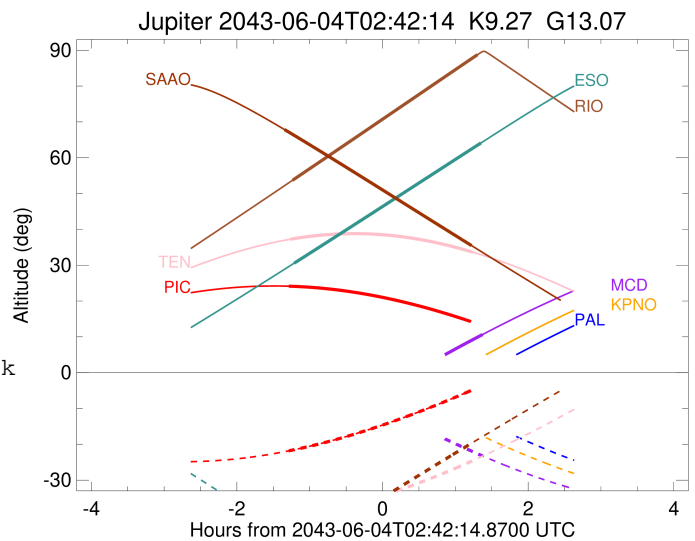
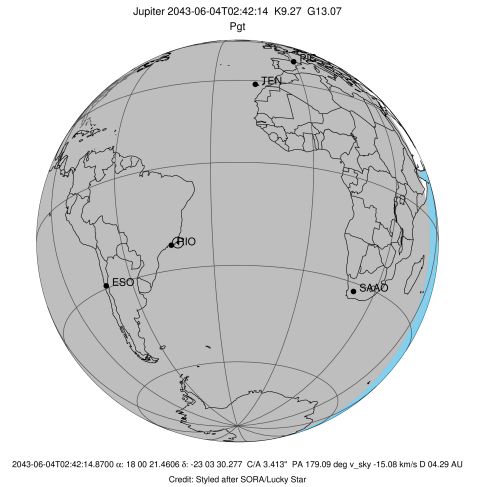
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	JUN 04 01:24 - JUN 04 01:24	Pin
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	+	JUN 04 04:04 - JUN 04 04:04	Pne
TENO	Teide Obs./Tenerife	28.3	343.5	+ +	JUN 04 01:26 - JUN 04 03:56	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 04 01:28 - JUN 04 04:00	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 04 01:29 - JUN 04 04:03	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 04 01:21 - JUN 04 03:55	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-04T02:40:15.350
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        : 4069437669936653440
2Mass ID (if available) : 18002143-2303301
ICRS Star Coord at Epoch: 18h 00m 21.46062s -23:03:30.27681s
RUWE (>1.4 is poor)  : 0.96
K magnitude           : 9.265
G magnitude           : 13.068
RP magnitude          : 12.416
BP magnitude          : 13.525
DUPflag              : 0
Distance (au)         : 4.295
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -15.08
Sun-Target sep (deg)  : 162.73
Sun-Moon sep (deg)    : 116.34
B (ring opening deg)  : -2.43
PA of pole (deg)      : -0.88
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 5.236
C/A sky separation (km) : 16310.4
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
    
```

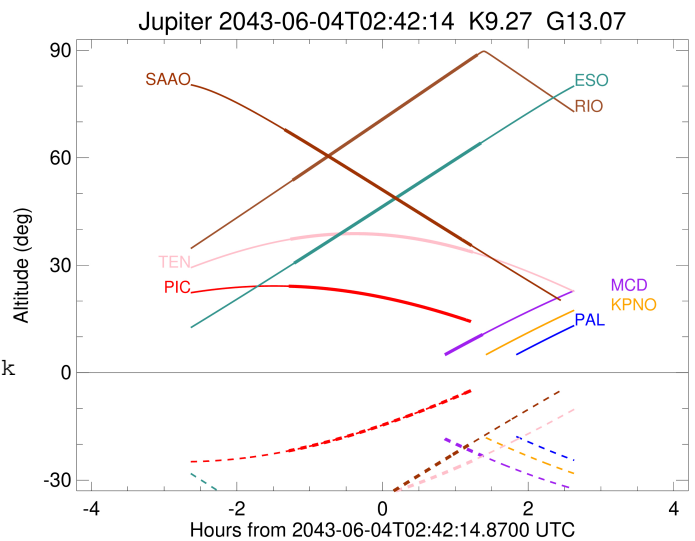
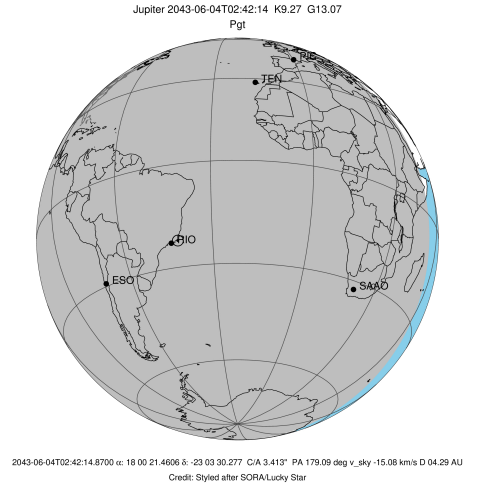


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-04T01:24:56.636	24.14	-21.82	71491.6	13.28	15.09
Jupiter	E	2043-06-04T03:55:44.026	14.19	-4.91x	71491.6	12.92	14.70

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-04T02:47:59.770
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MCD
Location              : McDonald Obs. 2.7m
Latitude (deg)        : 30.67158
E. Longitude (deg)    : 255.97844
Altitude (km)         : 2.075
Gaia source ID        : 4069437669936653440
2Mass ID (if available) : 18002143-2303301
ICRS Star Coord at Epoch: 18h 00m 21.46062s -23:03:30.27681s
RUWE (>1.4 is poor)  : 0.96
K magnitude           : 9.265
G magnitude           : 13.068
RP magnitude          : 12.416
BP magnitude          : 13.525
DUPflag              : 0
Distance (au)         : 4.295
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.08
Sun-Target sep (deg)  : 162.73
Sun-Moon sep (deg)    : 115.45
B (ring opening deg)  : -2.43
PA of pole (deg)      : -0.88
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 4.533
C/A sky separation (km) : 14118.2
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
    
```

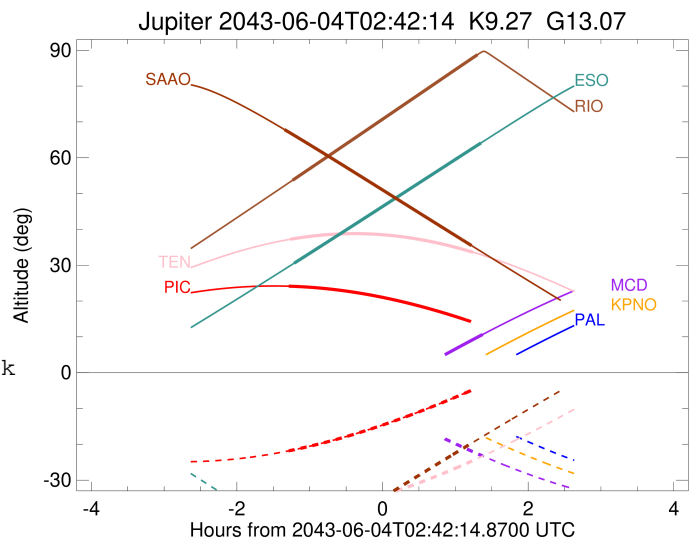
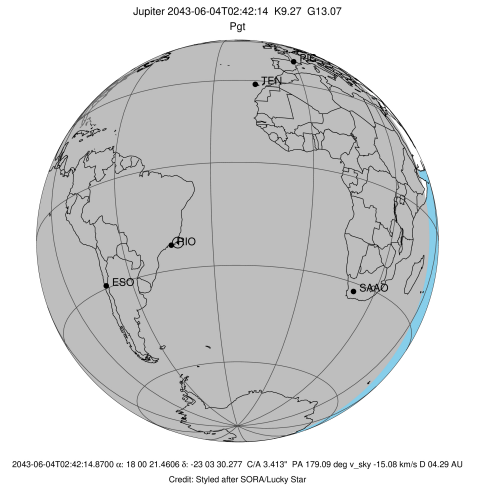


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-04T01:30:32.859	-19.43x	3.90x	71491.7	10.76	12.25
Jupiter	E	2043-06-04T04:04:44.360	10.65	-23.25	71491.7	11.95	13.60

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-04T02:41:33.340
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        : 4069437669936653440
2Mass ID (if available) : 18002143-2303301
ICRS Star Coord at Epoch: 18h 00m 21.46062s -23:03:30.27681s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 9.265
G magnitude           : 13.068
RP magnitude          : 12.416
BP magnitude          : 13.525
DUPflag              : 0
Distance (au)         : 4.295
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.08
Sun-Target sep (deg)  : 162.73
Sun-Moon sep (deg)    : 116.50
B (ring opening deg) : -2.43
PA of pole (deg)      : -0.88
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 5.013
C/A sky separation (km) : 15613.7
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
    
```

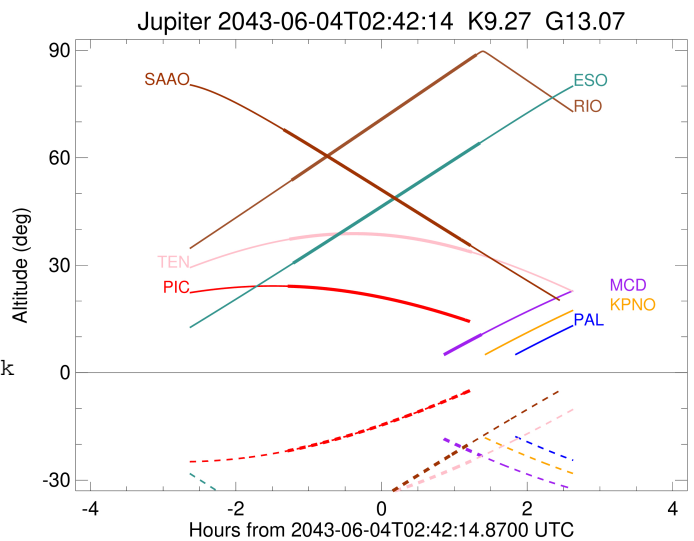
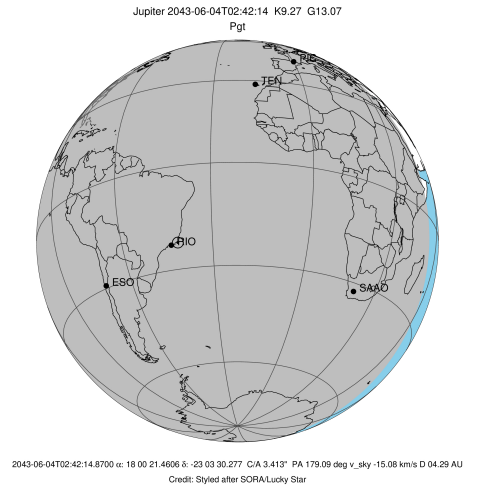


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-04T01:26:26.365	37.24	-39.18	71491.6	12.57	14.29
Jupiter	E	2043-06-04T03:56:42.028	33.64	-24.54	71491.6	12.45	14.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-04T02:44:28.470
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      : 4069437669936653440
2Mass ID (if available) : 18002143-2303301
ICRS Star Coord at Epoch: 18h 00m 21.46062s -23:03:30.27681s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 9.265
G magnitude          : 13.068
RP magnitude         : 12.416
BP magnitude         : 13.525
DUPflag             : 0
Distance (au)       : 4.295
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.08
Sun-Target sep (deg) : 162.73
Sun-Moon sep (deg)  : 116.58
B (ring opening deg) : -2.43
PA of pole (deg)    : -0.88
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 3.403
C/A sky separation (km): 10599.4
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
    
```

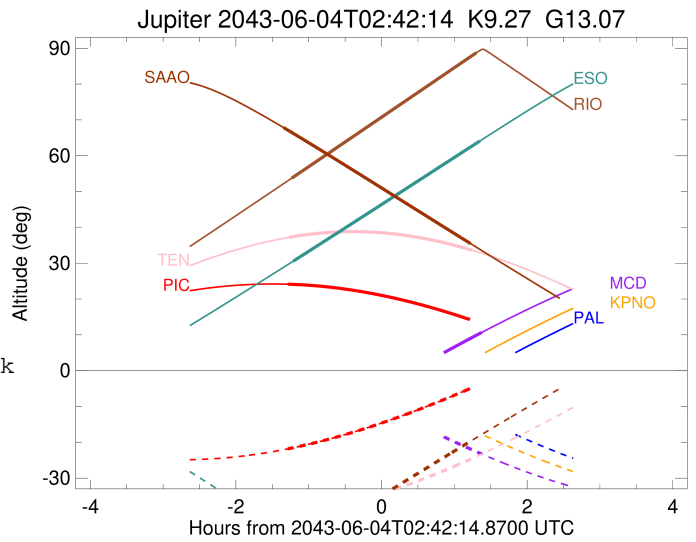
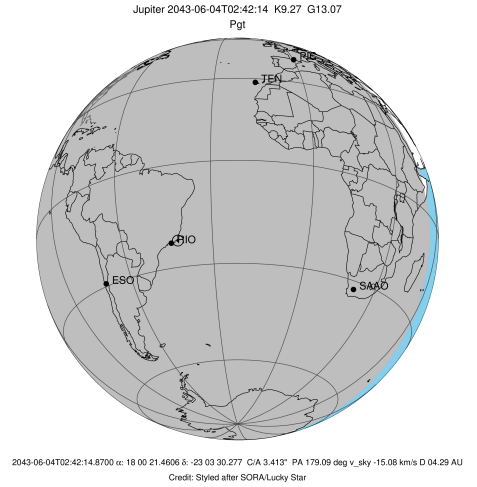


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-04T01:28:11.115	53.72	-70.87	71491.8	8.21	9.36
Jupiter	E	2043-06-04T04:00:29.318	88.75	-74.00	71491.8	8.63	9.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-04T02:46:43.730
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        : 4069437669936653440
2Mass ID (if available) : 18002143-2303301
ICRS Star Coord at Epoch: 18h 00m 21.46062s -23:03:30.27681s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 9.265
G magnitude           : 13.068
RP magnitude          : 12.416
BP magnitude          : 13.525
DUPflag              : 0
Distance (au)         : 4.295
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.08
Sun-Target sep (deg) : 162.73
Sun-Moon sep (deg)   : 116.24
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.88
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 3.011
C/A sky separation (km) : 9378.5
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
    
```

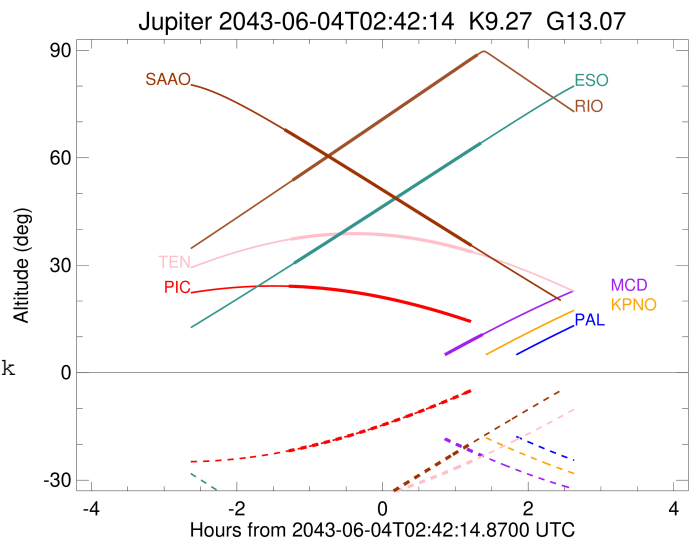
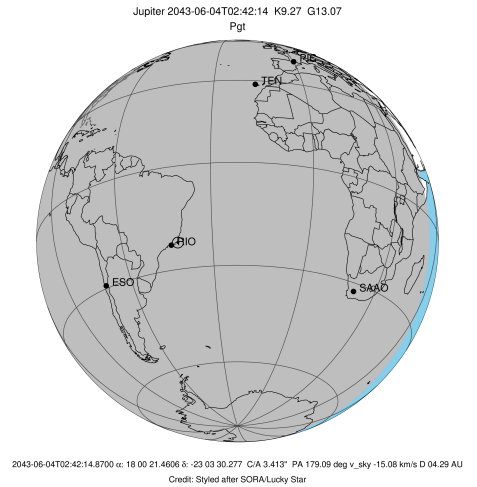


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-04T01:29:31.307	30.57	-46.63	71491.9	7.02	8.02
Jupiter	E	2043-06-04T04:03:24.203	64.12	-79.19	71491.8	7.89	9.01

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-04T02:38:21.470
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       : 4069437669936653440
2Mass ID (if available) : 18002143-2303301
ICRS Star Coord at Epoch: 18h 00m 21.46062s -23:03:30.27681s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 9.265
G magnitude           : 13.068
RP magnitude         : 12.416
BP magnitude         : 13.525
DUPflag              : 0
Distance (au)        : 4.295
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.08
Sun-Target sep (deg) : 162.73
Sun-Moon sep (deg)   : 116.84
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.88
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 2.901
C/A sky separation (km): 9036.4
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	2043-06-04T01:21:37.473	67.83	-51.96	71491.9	7.56	8.62
Jupiter	E	2043-06-04T03:55:29.460	35.50	-19.72	71491.9	6.81	7.78