

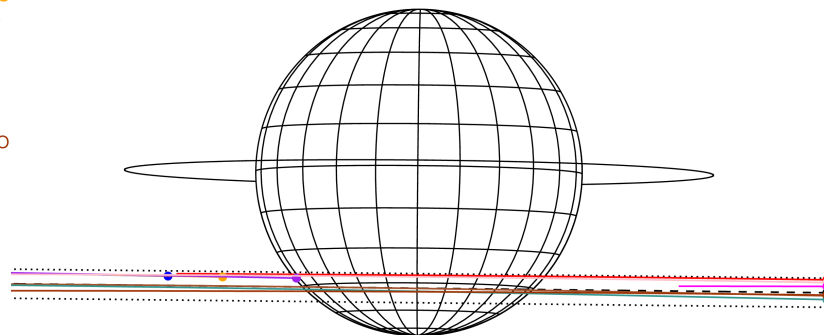
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-10T02:05:57.940
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069396786186575488
 2Mass ID (if available) : 17571450-2304246

Jupiter 2043-06-10T02:05:57 K7.95 G14.85 Pgt

ICRS Star Coord at Epoch: 17h 57m 14.51425s -23:04:24.61091s
 RUWE (>1.4 is poor) : 0.93
 K magnitude : 7.945
 G magnitude : 14.848
 RP magnitude : 13.341
 BP magnitude : 18.086
 DUPflag : 0
 Distance (au) : 4.269
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.89
 Sun-Target sep (deg) : 169.17
 Sun-Moon sep (deg) : 153.78
 B (ring opening deg) : -2.42
 PA of pole (deg) : -0.54
 Pole direction: RA (deg): 268.05668
 Dec (deg): 64.49732
 C/A sky separation (") : 16.369
 C/A sky separation (km) : 50686.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp



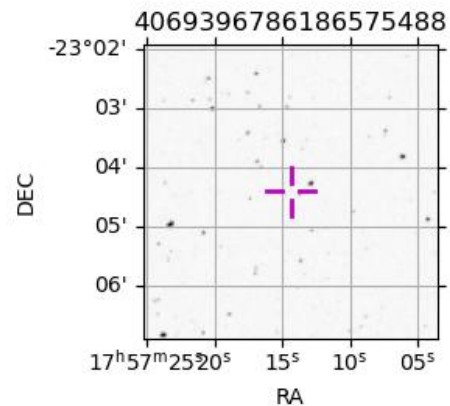
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 KAV
 RIO
 ESO
 SAAO



2043-06-10T02:05:57.9400 a: 17 57 14.5142 & -23 04 24.611 C/A ***** PA 359.37 deg v_sky -15.90 km/s D 04.27 AU
 Credit: Styled after SORA/Lucky Star

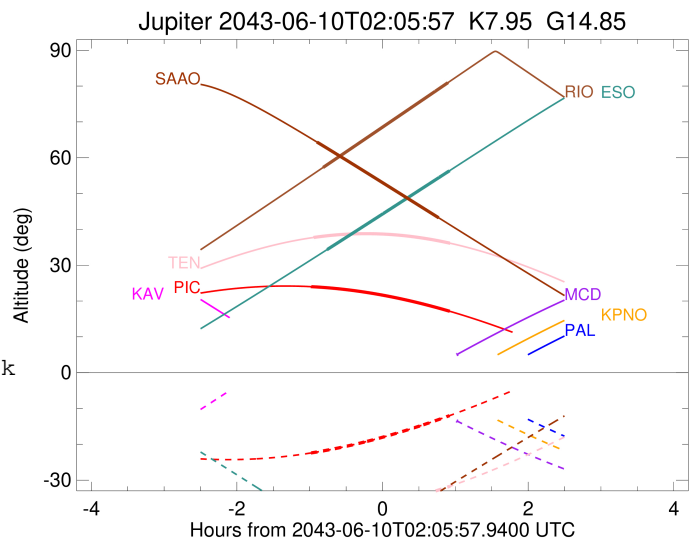
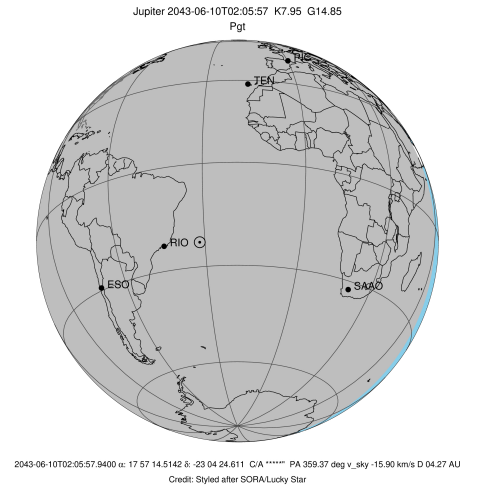
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	JUN 10 01:07 - JUN 10 03:01	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	+ +	JUN 10 03:07 - JUN 10 03:07	Pne
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	JUN 10 01:09 - JUN 10 03:01	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 10 01:17 - JUN 10 02:59	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 10 01:20 - JUN 10 03:01	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 10 01:11 - JUN 10 02:52	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-10T02:04:05.140
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       : 4069396786186575488
2Mass ID (if available) : 17571450-2304246
ICRS Star Coord at Epoch: 17h 57m 14.51425s -23:04:24.61091s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 7.945
G magnitude           : 14.848
RP magnitude          : 13.341
BP magnitude          : 18.086
DUPflag              : 0
Distance (au)        : 4.269
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.17
Sun-Moon sep (deg)  : 153.87
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 14.534
C/A sky separation (km): 45004.9
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
    
```

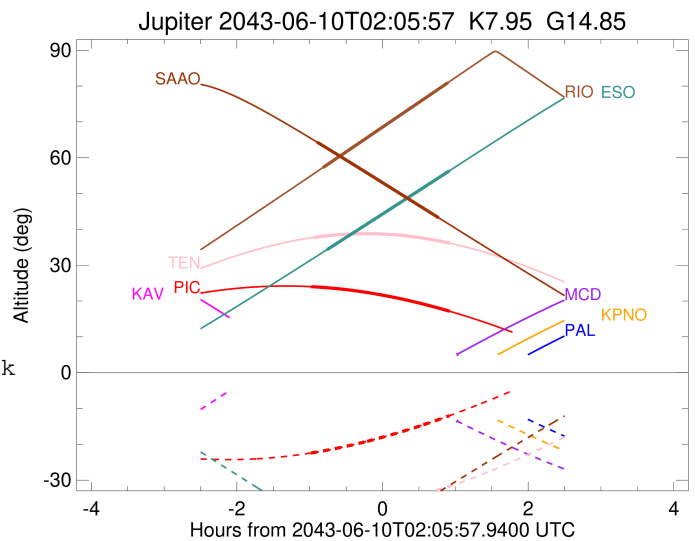
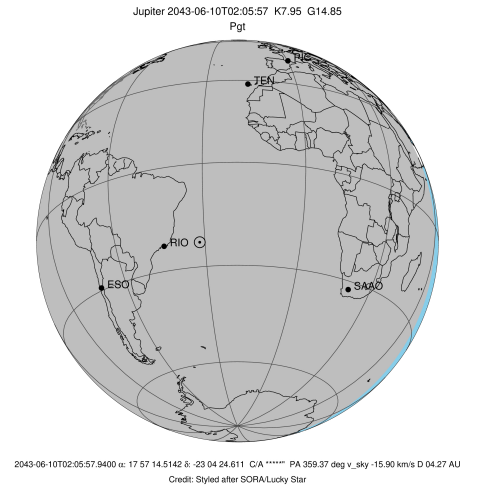


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-10T01:07:04.521	24.00	-22.41	71488.8	-38.95	-42.64
Jupiter	E	2043-06-10T03:01:11.264	17.16	-12.00	71488.8	-39.11	-42.81

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-10T02:12:06.290
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       : 4069396786186575488
2Mass ID (if available) : 17571450-2304246
ICRS Star Coord at Epoch: 17h 57m 14.51425s -23:04:24.61091s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 7.945
G magnitude           : 14.848
RP magnitude          : 13.341
BP magnitude          : 18.086
DUPflag              : 0
Distance (au)        : 4.269
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.17
Sun-Moon sep (deg)   : 154.57
B (ring opening deg) : -2.42
PA of pole (deg)     : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 15.291
C/A sky separation (km): 47349.5
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
    
```

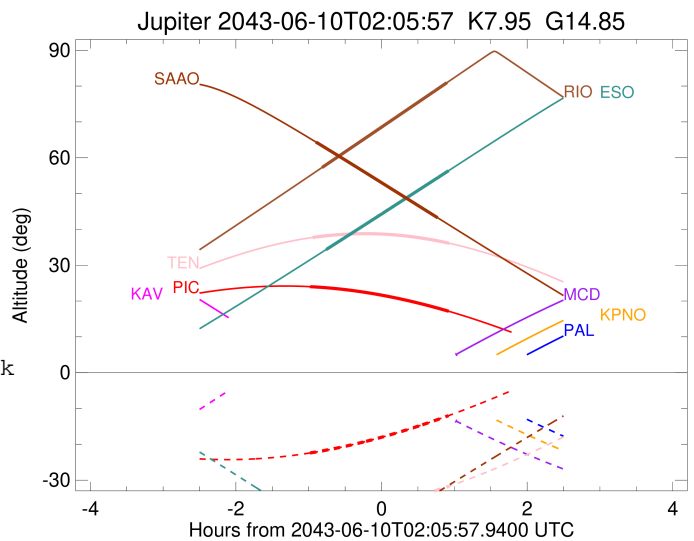
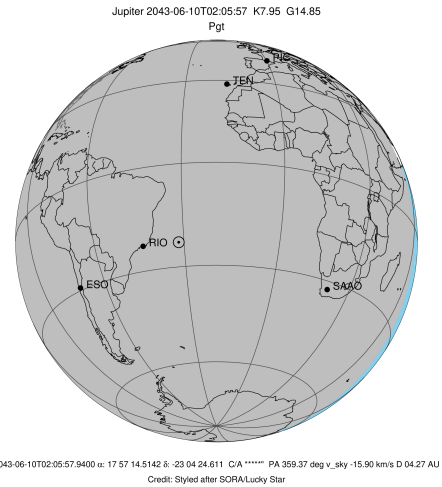


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-10T01:15:58.083	-16.93x	7.31x	71488.4	-42.09	-45.81
Jupiter	E	2043-06-10T03:07:52.884	5.17	-13.59	71488.6	-40.80	-44.52

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-10T02:05:30.160
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       : 4069396786186575488
2Mass ID (if available) : 17571450-2304246
ICRS Star Coord at Epoch: 17h 57m 14.51425s -23:04:24.61091s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 7.945
G magnitude           : 14.848
RP magnitude         : 13.341
BP magnitude         : 18.086
DUPflag              : 0
Distance (au)        : 4.269
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.17
Sun-Moon sep (deg)   : 154.14
B (ring opening deg) : -2.42
PA of pole (deg)     : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 14.767
C/A sky separation (km): 45725.8
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
    
```

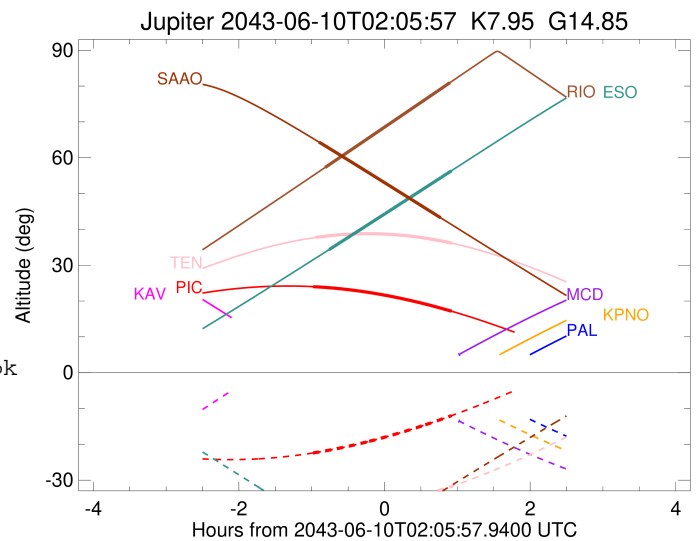
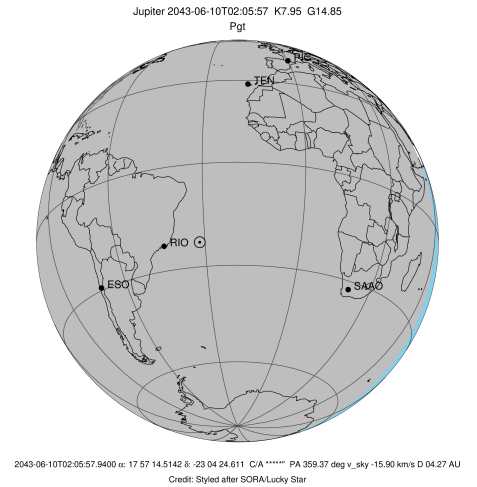


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-10T01:09:22.567	37.75	-38.87	71488.7	-39.83	-43.54
Jupiter	E	2043-06-10T03:01:38.395	36.13	-31.69	71488.7	-39.75	-43.46

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-10T02:08:32.300
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       : 4069396786186575488
2Mass ID (if available) : 17571450-2304246
ICRS Star Coord at Epoch: 17h 57m 14.51425s -23:04:24.61091s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 7.945
G magnitude           : 14.848
RP magnitude          : 13.341
BP magnitude          : 18.086
DUPflag              : 0
Distance (au)        : 4.269
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.17
Sun-Moon sep (deg)   : 154.49
B (ring opening deg) : -2.42
PA of pole (deg)     : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 16.403
C/A sky separation (km): 50793.7
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
    
```

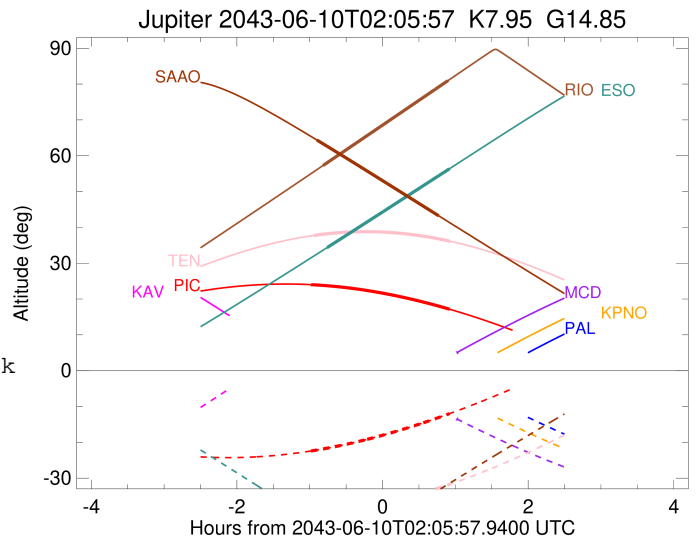
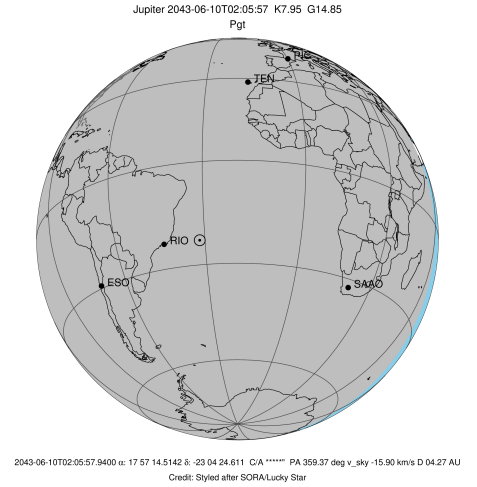


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-10T01:17:03.538	57.28	-68.10	71487.9	-45.59	-49.28
Jupiter	E	2043-06-10T02:59:53.408	80.95	-88.22	71488.0	-44.99	-48.69

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-10T02:10:50.110
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      : 4069396786186575488
2Mass ID (if available) : 17571450-2304246
ICRS Star Coord at Epoch: 17h 57m 14.51425s -23:04:24.61091s
RUWE (>1.4 is poor) : 0.93
K magnitude         : 7.945
G magnitude         : 14.848
RP magnitude        : 13.341
BP magnitude        : 18.086
DUPflag            : 0
Distance (au)       : 4.269
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.17
Sun-Moon sep (deg)  : 154.63
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (" ) : 16.812
C/A sky separation (km) : 52058.7
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
    
```

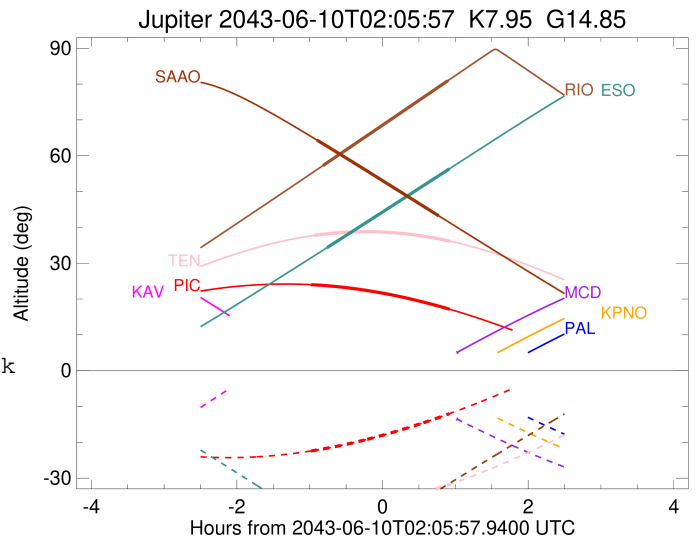
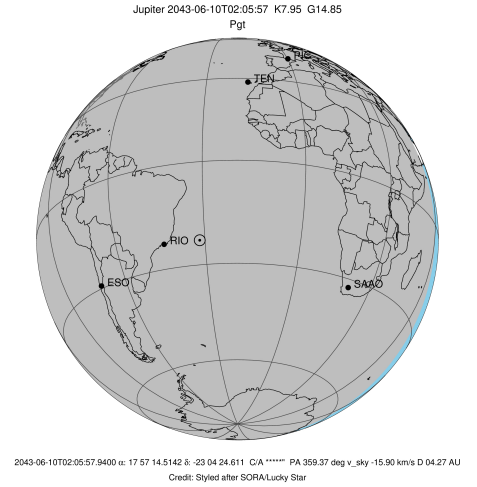


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-10T01:20:13.680	34.33	-44.55	71487.7	-47.23	-50.89
Jupiter	E	2043-06-10T03:01:12.954	56.37	-66.55	71487.8	-46.22	-49.90

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-10T02:02:01.770
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       : 4069396786186575488
2Mass ID (if available) : 17571450-2304246
ICRS Star Coord at Epoch: 17h 57m 14.51425s -23:04:24.61091s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 7.945
G magnitude           : 14.848
RP magnitude          : 13.341
BP magnitude          : 18.086
DUPflag              : 0
Distance (au)        : 4.269
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.89
Sun-Target sep (deg) : 169.17
Sun-Moon sep (deg)  : 153.61
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.54
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 16.870
C/A sky separation (km): 52239.6
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	2043-06-10T01:11:55.743	64.37	-54.48	71487.7	-46.67	-50.35
Jupiter	E	2043-06-10T02:52:17.778	43.22	-33.31	71487.7	-47.21	-50.87