

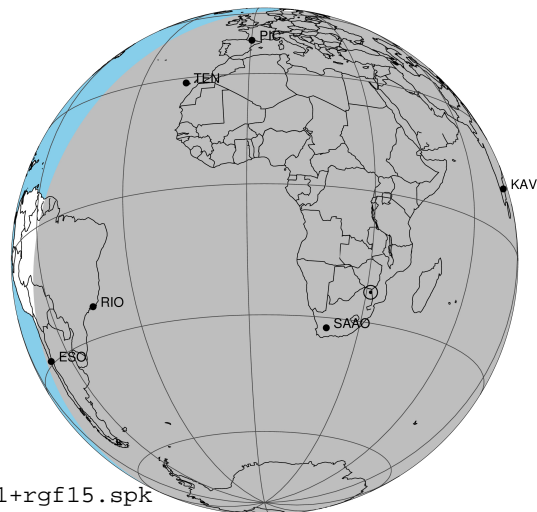
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2042-06-10T21:55:06.670  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 6258391945898645504  
 2Mass ID (if available) : 15263510-1741316

Jupiter 2042-06-10T21:55:06 K9.09 G12.26 Pgt

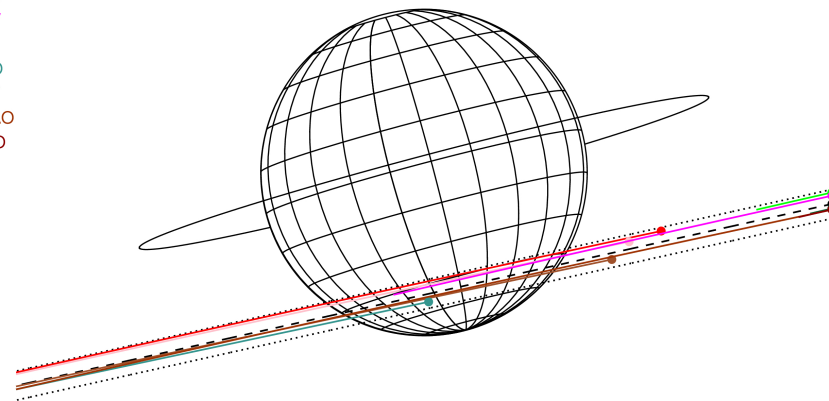
ICRS Star Coord at Epoch: 15h 26m 35.08506s -17:41:31.65756s

RUWE (>1.4 is poor) : 1.12  
 K magnitude : 9.087  
 G magnitude : 12.256  
 RP magnitude : 11.347  
 BP magnitude : 13.117  
 DUPflag : 0  
 Distance (au) : 4.448  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -13.96  
 Sun-Target sep (deg) : 154.17  
 Sun-Moon sep (deg) : 114.14  
 B (ring opening deg) : -3.20  
 PA of pole (deg) : 14.83  
 Pole direction: RA (deg): 268.05647  
 Dec (deg): 64.49730  
 C/A sky separation (") : 16.216  
 C/A sky separation (km) : 52308.6  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2042-06-10T21:55:06 K9.09 G12.26  
 Pgt



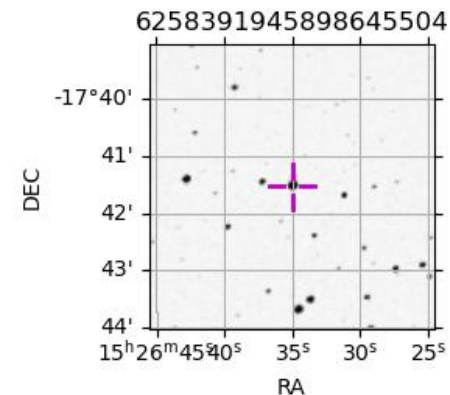
Earth  
 PIC  
 PMO  
 TEN  
 KAV  
 RIO  
 ESO  
 AAT  
 SAAO  
 MSO



2042-06-10T21:55:06.6700 α: 15 26 35.0851 δ: -17 41 31.658 C/A \*\*\*\*\* PA 12.56 deg v\_sky -13.96 km/s D 04.45 AU  
 Credit: Styled after SORA/Lucky Star

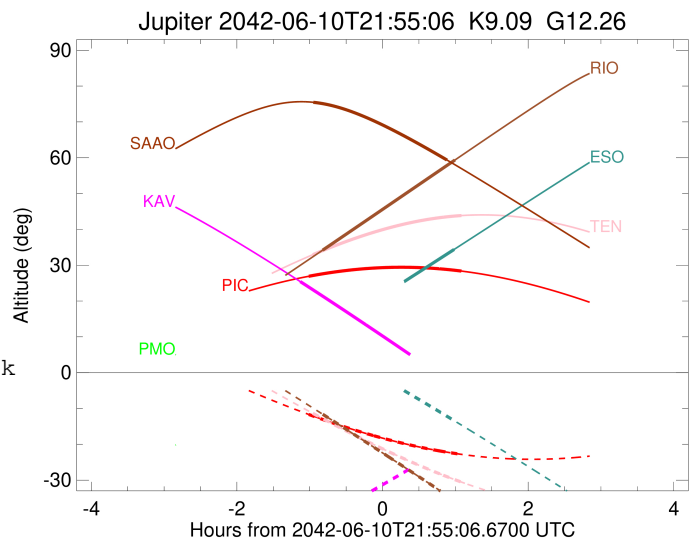
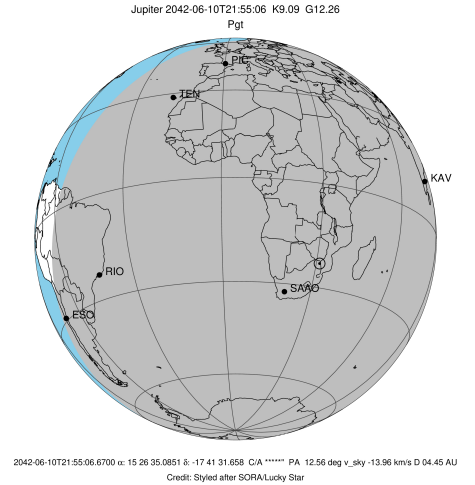
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	JUN 10 20:54 - JUN 10 22:59	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 10 20:57 - JUN 10 23:00	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	JUN 10 20:47 - JUN 10 20:47	Pin
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 10 21:05 - JUN 10 22:54	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	JUN 10 22:54 - JUN 10 22:54	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 10 20:58 - JUN 10 22:48	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2042-06-10T21:57:09.790
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       : 6258391945898645504
2Mass ID (if available) : 15263510-1741316
ICRS Star Coord at Epoch: 15h 26m 35.08506s -17:41:31.65756s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 9.087
G magnitude           : 12.256
RP magnitude          : 11.347
BP magnitude          : 13.117
DUPflag              : 0
Distance (au)        : 4.448
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.96
Sun-Target sep (deg) : 154.17
Sun-Moon sep (deg)   : 114.45
B (ring opening deg) : -3.20
PA of pole (deg)     : 14.83
Pole direction: RA (deg): 268.05647
Dec (deg): 64.49730
C/A sky separation (") : 14.555
C/A sky separation (km) : 46950.2
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
    
```

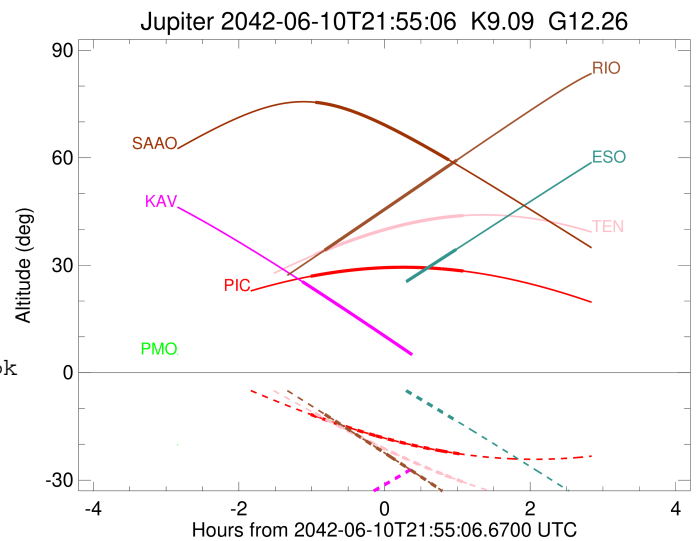
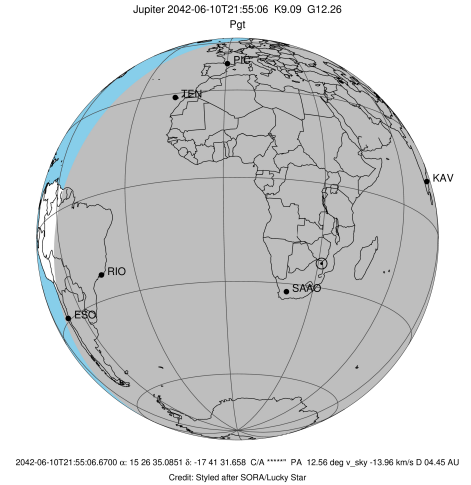


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-06-10T20:54:19.434	26.90	-11.66	71485.3	-43.61	-47.32
Jupiter	E	2042-06-10T22:59:59.224	28.36	-22.79	71486.6	-38.45	-42.13

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2042-06-10T21:58:57.320
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       : 6258391945898645504
2Mass ID (if available) : 15263510-1741316
ICRS Star Coord at Epoch: 15h 26m 35.08506s -17:41:31.65756s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 9.087
G magnitude           : 12.256
RP magnitude          : 11.347
BP magnitude          : 13.117
DUPflag              : 0
Distance (au)        : 4.448
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.96
Sun-Target sep (deg) : 154.17
Sun-Moon sep (deg)   : 114.51
B (ring opening deg) : -3.20
PA of pole (deg)     : 14.83
Pole direction: RA (deg): 268.05647
Dec (deg): 64.49730
C/A sky separation (") : 14.984
C/A sky separation (km) : 48333.8
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
    
```

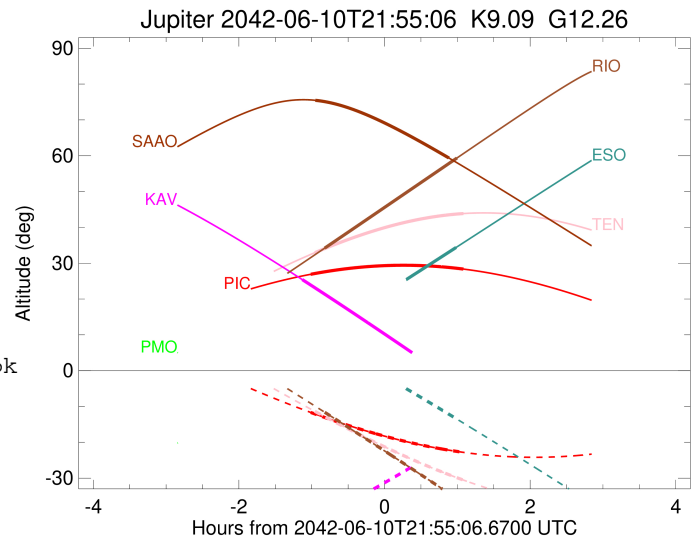
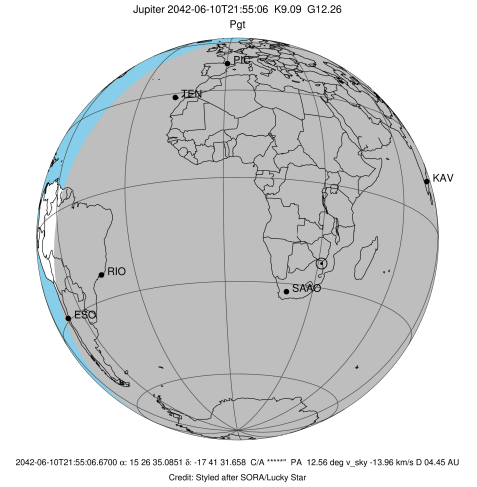


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-06-10T20:57:38.595	32.92	-11.34	71484.9	-45.26	-48.96
Jupiter	E	2042-06-10T23:00:06.941	43.85	-30.54	71486.3	-39.75	-43.45

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2042-06-10T21:48:13.240
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       : 6258391945898645504
2Mass ID (if available) : 15263510-1741316
ICRS Star Coord at Epoch: 15h 26m 35.08506s -17:41:31.65756s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 9.087
G magnitude           : 12.256
RP magnitude         : 11.347
BP magnitude         : 13.117
DUPflag              : 0
Distance (au)        : 4.448
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.96
Sun-Target sep (deg) : 154.17
Sun-Moon sep (deg)   : 114.64
B (ring opening deg) : -3.20
PA of pole (deg)     : 14.83
Pole direction: RA (deg): 268.05647
Dec (deg): 64.49730
C/A sky separation (") : 15.255
C/A sky separation (km) : 49208.3
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
    
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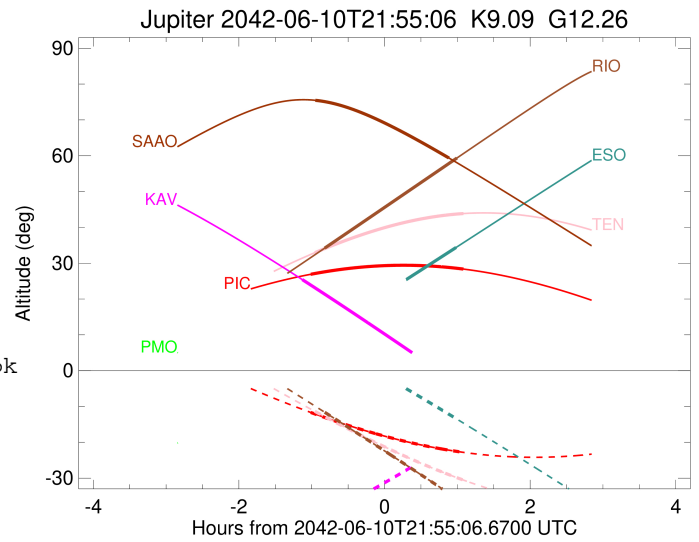
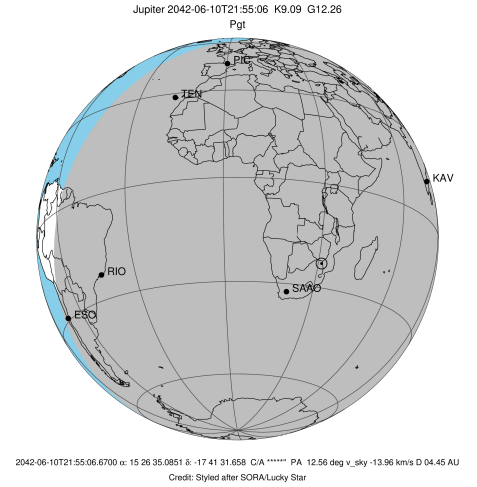


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-06-10T20:47:20.499	25.42	-43.39	71484.9	-45.35	-49.05
Jupiter	E	2042-06-10T22:49:37.558	-2.35x	-20.24	71485.8	-41.63	-45.35

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2042-06-10T22:00:28.130
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      : 6258391945898645504
2Mass ID (if available) : 15263510-1741316
ICRS Star Coord at Epoch: 15h 26m 35.08506s -17:41:31.65756s
RUWE (>1.4 is poor) : 1.12
K magnitude          : 9.087
G magnitude          : 12.256
RP magnitude        : 11.347
BP magnitude        : 13.117
DUPflag             : 0
Distance (au)       : 4.448
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -13.96
Sun-Target sep (deg) : 154.17
Sun-Moon sep (deg)  : 114.54
B (ring opening deg) : -3.20
PA of pole (deg)    : 14.83
Pole direction: RA (deg): 268.05647
Dec (deg): 64.49730
C/A sky separation (" ) : 16.829
C/A sky separation (km) : 54286.1
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
    
```

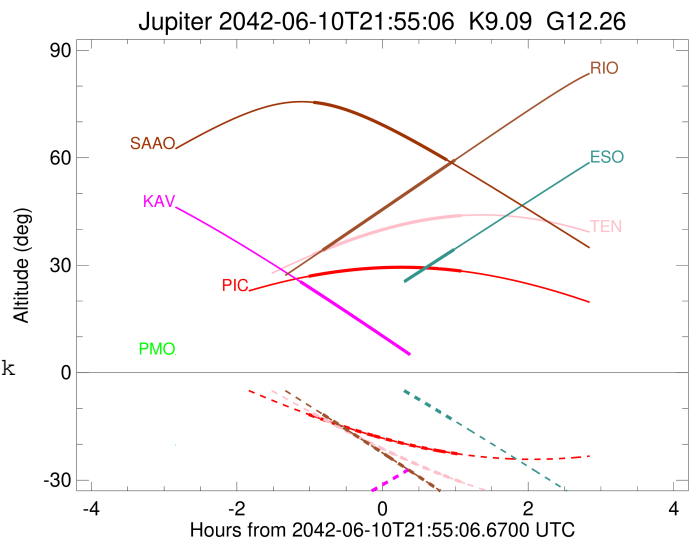
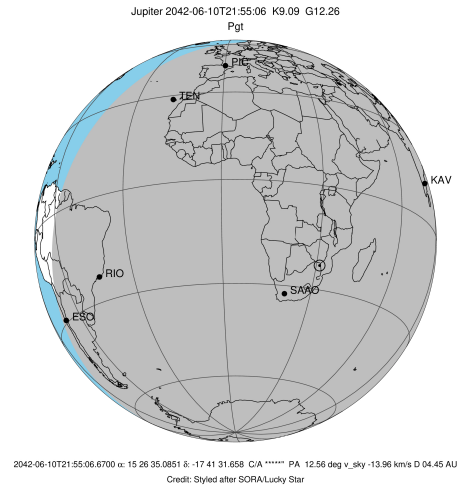


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-06-10T21:05:52.275	34.21	-11.62	71483.2	-52.21	-55.71
Jupiter	E	2042-06-10T22:54:47.751	59.35	-35.69	71484.6	-46.43	-50.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2042-06-10T22:01:22.500
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      : 6258391945898645504
2Mass ID (if available) : 15263510-1741316
ICRS Star Coord at Epoch: 15h 26m 35.08506s -17:41:31.65756s
RUWE (>1.4 is poor) : 1.12
K magnitude          : 9.087
G magnitude          : 12.256
RP magnitude         : 11.347
BP magnitude         : 13.117
DUPflag             : 0
Distance (au)       : 4.448
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.96
Sun-Target sep (deg) : 154.17
Sun-Moon sep (deg)  : 114.19
B (ring opening deg) : -3.20
PA of pole (deg)    : 14.83
Pole direction: RA (deg): 268.05647
Dec (deg): 64.49730
C/A sky separation (" ) : 17.315
C/A sky separation (km) : 55855.1
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
    
```

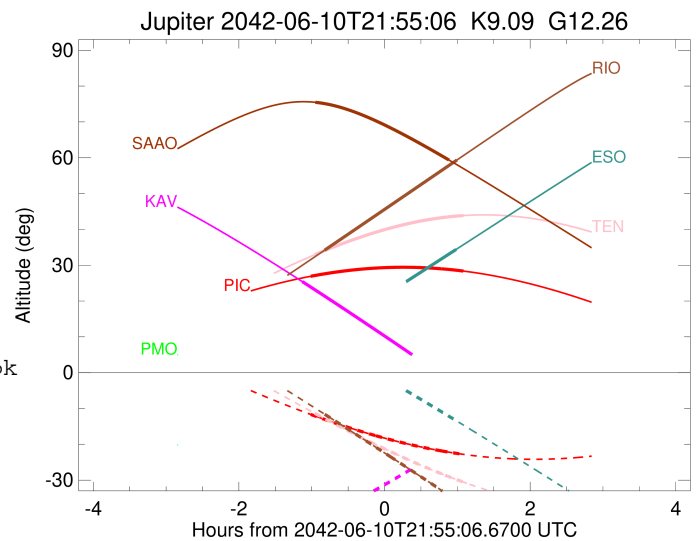
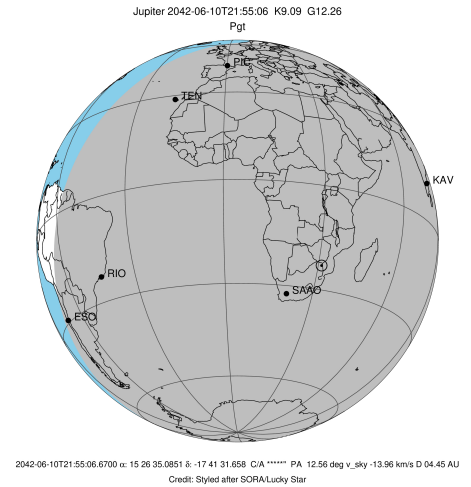


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-06-10T21:08:15.970	11.49	7.50x	71482.8	-54.09	-57.50
Jupiter	E	2042-06-10T22:54:09.951	34.40	-13.39	71484.1	-48.42	-52.05

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2042-06-10T21:53:08.610
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      : 6258391945898645504
2Mass ID (if available) : 15263510-1741316
ICRS Star Coord at Epoch: 15h 26m 35.08506s -17:41:31.65756s
RUWE (>1.4 is poor) : 1.12
K magnitude          : 9.087
G magnitude          : 12.256
RP magnitude         : 11.347
BP magnitude         : 13.117
DUPflag             : 0
Distance (au)       : 4.448
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.96
Sun-Target sep (deg) : 154.17
Sun-Moon sep (deg)  : 115.10
B (ring opening deg) : -3.20
PA of pole (deg)    : 14.83
Pole direction: RA (deg): 268.05647
Dec (deg): 64.49730
C/A sky separation (") : 16.615
C/A sky separation (km) : 53595.1
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	2042-06-10T20:58:15.791	75.45	-66.52	71483.5	-50.99	-54.54
Jupiter	E	2042-06-10T22:48:07.731	59.37	-80.50	71484.7	-46.08	-49.76