

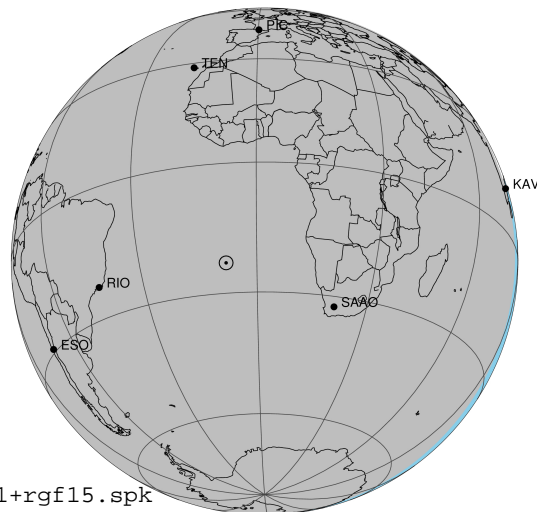
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-06-12T00:30:09.820  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4069408331058914560  
 2Mass ID (if available) : 17561195-2304287

Jupiter 2043-06-12T00:30:09 K5.22 G14.82 Pgt

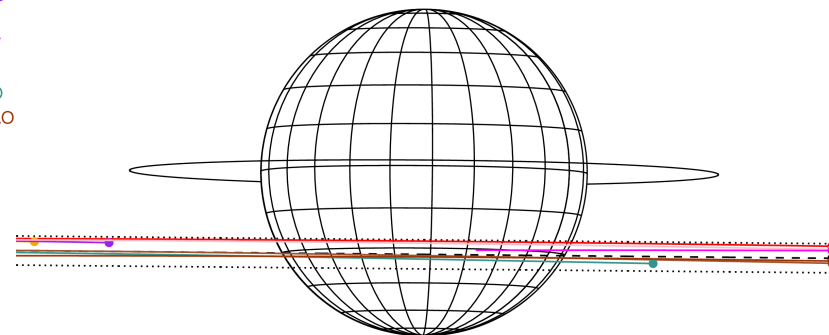
ICRS Star Coord at Epoch: 17h 56m 11.96283s -23:04:28.69795s

RUWE (>1.4 is poor) : 1.53  
 K magnitude : 5.221  
 G magnitude : 14.816  
 RP magnitude : 13.003  
 BP magnitude : 20.919  
 DUPflag : 0  
 Distance (au) : 4.263  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -16.08  
 Sun-Target sep (deg) : 171.26  
 Sun-Moon sep (deg) : 127.21  
 B (ring opening deg) : -2.42  
 PA of pole (deg) : -0.43  
 Pole direction: RA (deg): 268.05668  
 Dec (deg): 64.49732  
 C/A sky separation (") : 11.600  
 C/A sky separation (km) : 35870.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-06-12T00:30:09 K5.22 G14.82  
 Pgt



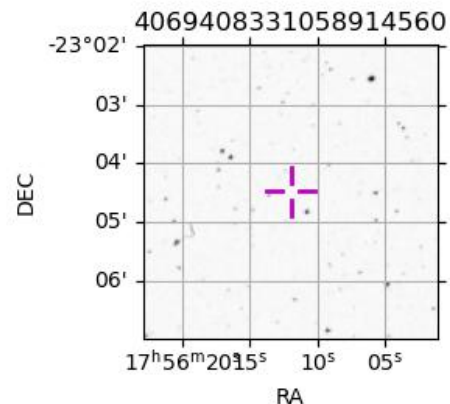
Earth  
 PIC  
 KPNO  
 MCD  
 TEN  
 KAV  
 RIO  
 ESO  
 SAAO



2043-06-12T00:30:09.8200 a: 17 56 11.96283 s -23 04 28.69795 C/A \*\*\*\*\* PA 359.46 deg v\_sky -16.08 km/s D 04.26 AU  
 Credit: Styled after SORA/Lucky Star

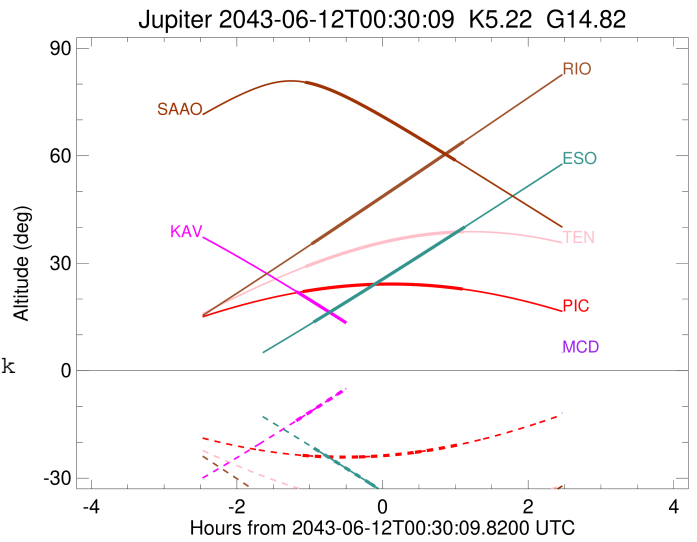
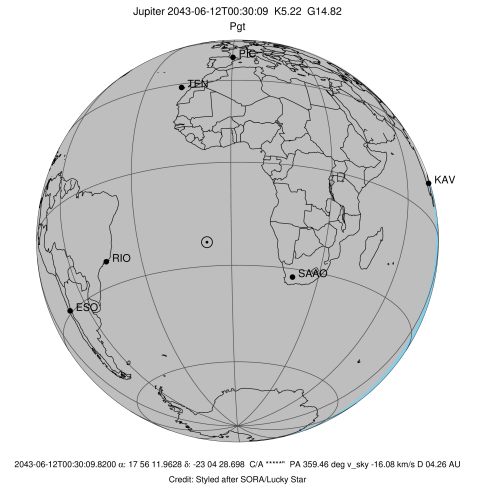
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	JUN 11 23:24 - JUN 12 01:36	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 11 23:26 - JUN 12 01:37	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	JUN 11 23:19 - JUN 11 23:19	Pin
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 11 23:31 - JUN 12 01:37	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 11 23:33 - JUN 12 01:38	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 11 23:26 - JUN 12 01:30	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-12T00:30:13.510
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      : 4069408331058914560
2Mass ID (if available) : 17561195-2304287
ICRS Star Coord at Epoch: 17h 56m 11.96283s -23:04:28.69795s
RUWE (>1.4 is poor) : 1.53
K magnitude          : 5.221
G magnitude          : 14.816
RP magnitude         : 13.003
BP magnitude         : 20.919
DUPflag             : 0
Distance (au)       : 4.263
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.08
Sun-Target sep (deg) : 171.26
Sun-Moon sep (deg)  : 127.57
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.43
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 9.720
C/A sky separation (km): 30057.1
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
    
```

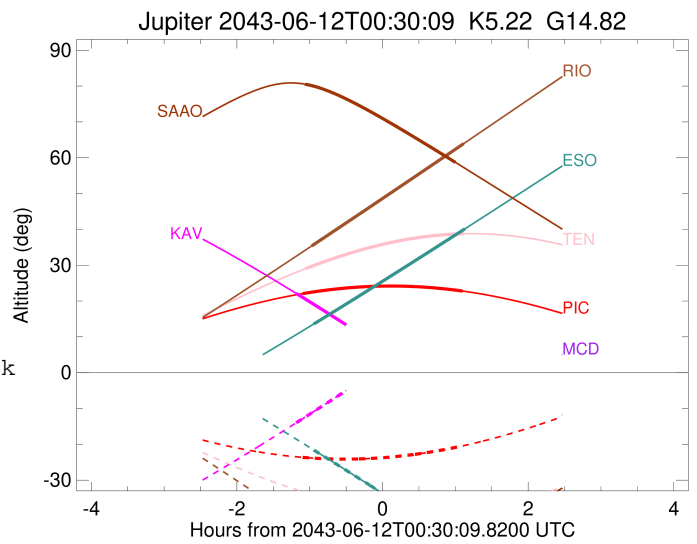
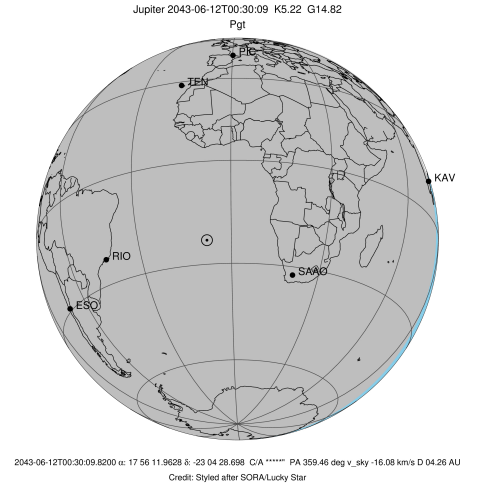


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-11T23:24:22.854	22.06	-23.64	71490.6	-25.02	-28.05
Jupiter	E	2043-06-12T01:36:02.817	22.79	-20.44	71490.6	-24.79	-27.80

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-12T00:31:58.470
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        : 4069408331058914560
2Mass ID (if available) : 17561195-2304287
ICRS Star Coord at Epoch: 17h 56m 11.96283s -23:04:28.69795s
RUWE (>1.4 is poor)  : 1.53
K magnitude           : 5.221
G magnitude           : 14.816
RP magnitude          : 13.003
BP magnitude          : 20.919
DUPflag              : 0
Distance (au)         : 4.263
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -16.08
Sun-Target sep (deg)  : 171.26
Sun-Moon sep (deg)    : 127.85
B (ring opening deg)  : -2.42
PA of pole (deg)      : -0.43
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 10.020
C/A sky separation (km) : 30983.8
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
    
```

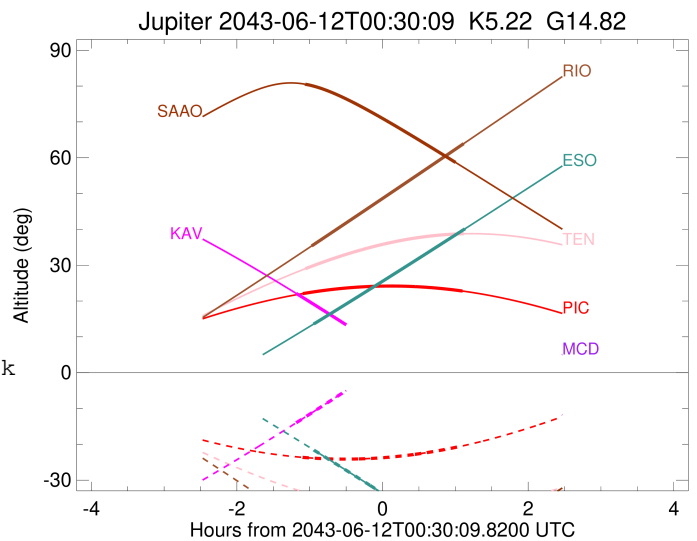
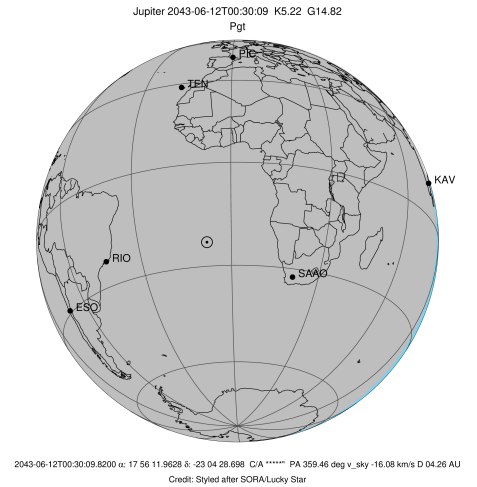


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-11T23:26:42.654	29.03	-33.46	71490.5	-26.00	-29.11
Jupiter	E	2043-06-12T01:37:05.084	38.77	-38.18	71490.5	-25.47	-28.53

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-12T00:23:30.870
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      : 4069408331058914560
2Mass ID (if available) : 17561195-2304287
ICRS Star Coord at Epoch: 17h 56m 11.96283s -23:04:28.69795s
RUWE (>1.4 is poor) : 1.53
K magnitude          : 5.221
G magnitude          : 14.816
RP magnitude         : 13.003
BP magnitude         : 20.919
DUPflag             : 0
Distance (au)       : 4.264
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.08
Sun-Target sep (deg) : 171.26
Sun-Moon sep (deg)  : 126.77
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.43
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.017
C/A sky separation (km) : 34066.7
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
    
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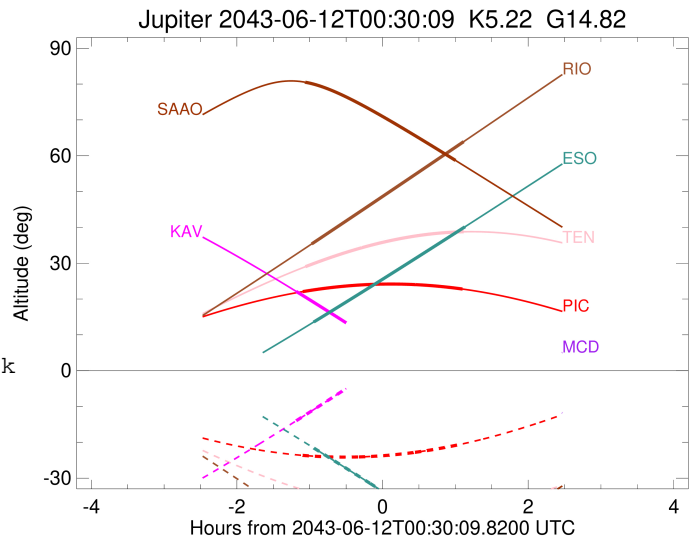
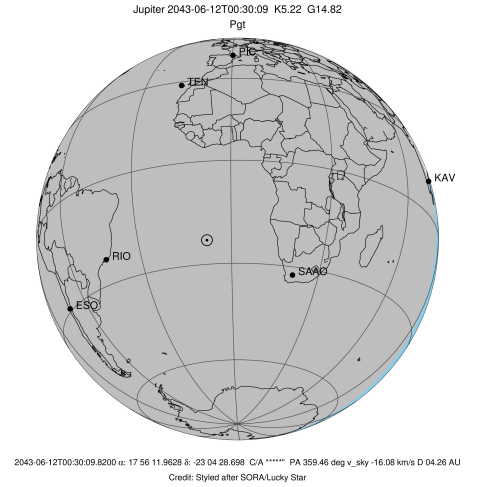


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-11T23:19:03.812	22.12	-13.99	71490.2	-27.96	-31.21
Jupiter	E	2043-06-12T01:28:27.361	-6.26x	14.86x	71490.1	-28.94	-32.25

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-06-12T00:34:39.890
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        : 4069408331058914560
2Mass ID (if available) : 17561195-2304287
ICRS Star Coord at Epoch: 17h 56m 11.96283s -23:04:28.69795s
RUWE (>1.4 is poor)  : 1.53
K magnitude            : 5.221
G magnitude            : 14.816
RP magnitude          : 13.003
BP magnitude          : 20.919
DUPflag               : 0
Distance (au)         : 4.263
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -16.08
Sun-Target sep (deg)  : 171.26
Sun-Moon sep (deg)    : 128.16
B (ring opening deg)  : -2.42
PA of pole (deg)      : -0.43
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.779
C/A sky separation (km) : 36424.2
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
    
```

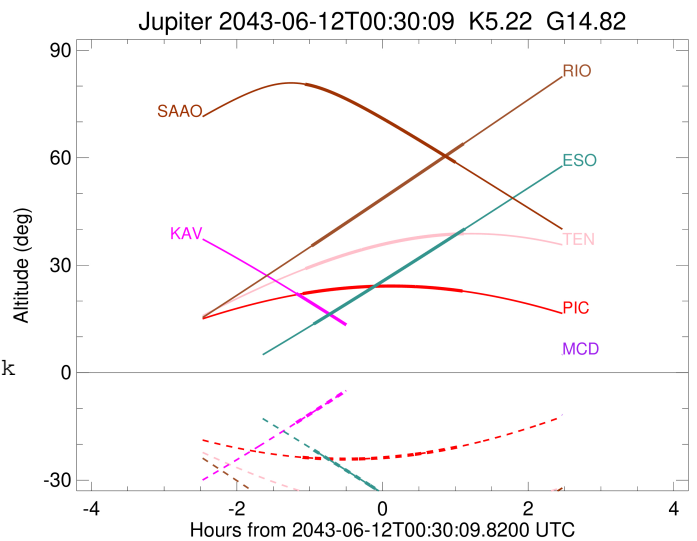
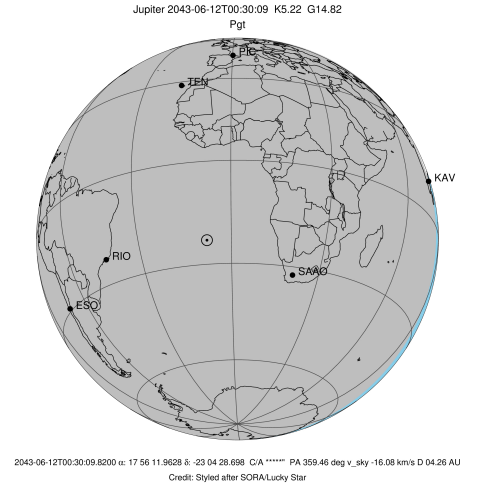


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-11T23:31:57.693	35.40	-44.04	71489.8	-31.17	-34.60
Jupiter	E	2043-06-12T01:37:02.651	63.92	-72.60	71490.0	-30.16	-33.54

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-12T00:36:01.320
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       : 4069408331058914560
2Mass ID (if available) : 17561195-2304287
ICRS Star Coord at Epoch: 17h 56m 11.96283s -23:04:28.69795s
RUWE (>1.4 is poor) : 1.53
K magnitude           : 5.221
G magnitude           : 14.816
RP magnitude          : 13.003
BP magnitude          : 20.919
DUPflag              : 0
Distance (au)        : 4.263
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.08
Sun-Target sep (deg) : 171.26
Sun-Moon sep (deg)  : 128.01
B (ring opening deg) : -2.42
PA of pole (deg)    : -0.43
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 12.271
C/A sky separation (km): 37944.4
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
    
```

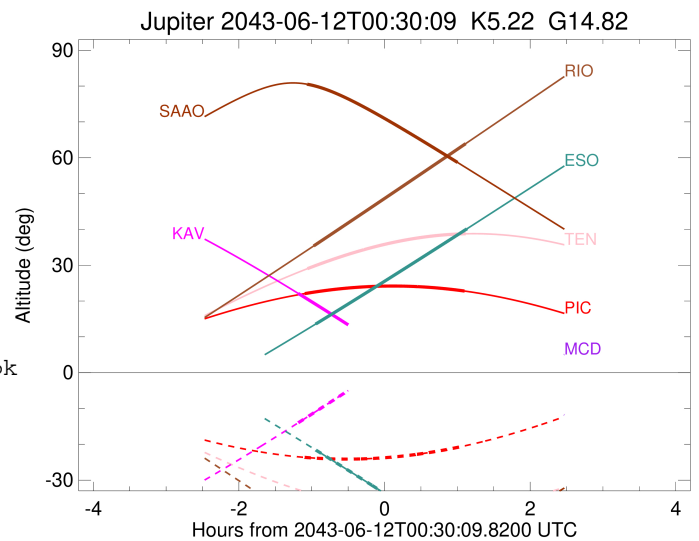
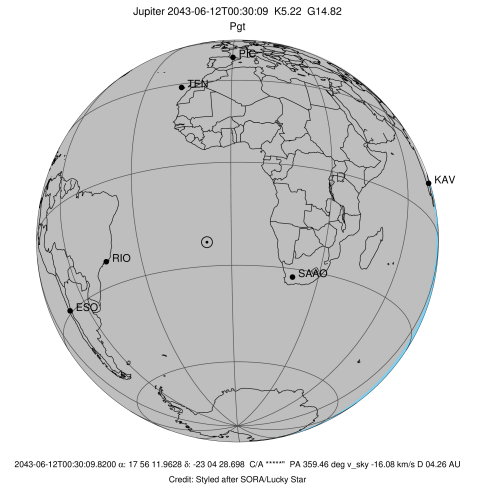


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-11T23:33:31.866	13.59	-21.59	71489.6	-32.69	-36.20
Jupiter	E	2043-06-12T01:38:05.649	40.15	-48.40	71489.8	-31.42	-34.87

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-12T00:28:17.170
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        : 4069408331058914560
2Mass ID (if available) : 17561195-2304287
ICRS Star Coord at Epoch: 17h 56m 11.96283s -23:04:28.69795s
RUWE (>1.4 is poor) : 1.53
K magnitude           : 5.221
G magnitude           : 14.816
RP magnitude          : 13.003
BP magnitude          : 20.919
DUPflag              : 0
Distance (au)         : 4.264
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.08
Sun-Target sep (deg)  : 171.26
Sun-Moon sep (deg)    : 127.76
B (ring opening deg) : -2.42
PA of pole (deg)      : -0.43
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.970
C/A sky separation (km) : 37013.6
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	2043-06-11T23:26:24.053	80.51	-75.72	71489.8	-31.15	-34.58
Jupiter	E	2043-06-12T01:30:17.444	58.69	-50.74	71489.8	-31.29	-34.73