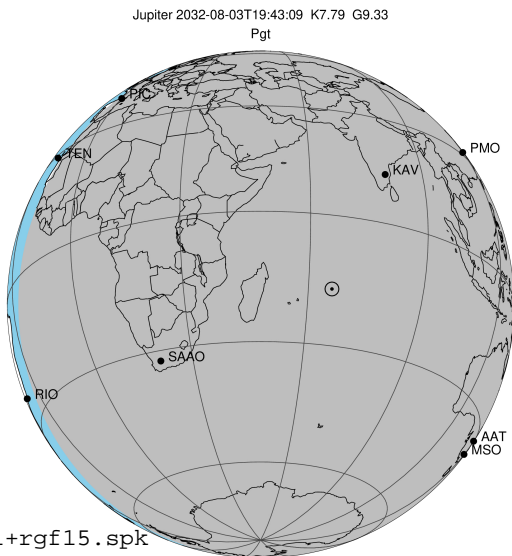


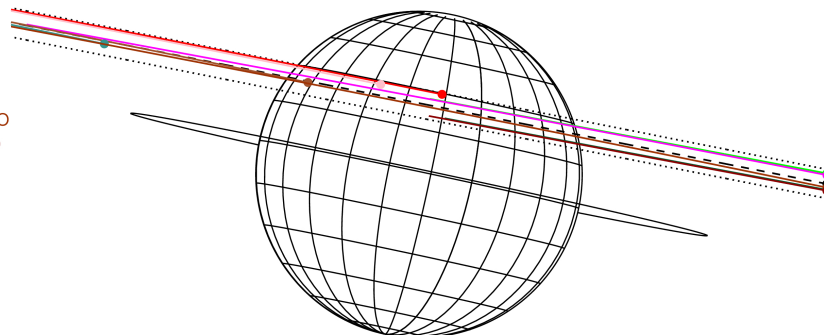
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2032-08-03T19:43:09.790  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 6865050475818105856  
 2Mass ID (if available) : 19472526-2138180

Jupiter 2032-08-03T19:43:09 K7.79 G9.33 Pgt

ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s  
 RUWE (>1.4 is poor) : 0.94  
 K magnitude : 7.790  
 G magnitude : 9.331  
 RP magnitude : 8.798  
 BP magnitude : 9.694  
 DUPflag : 0  
 Distance (au) : 4.152  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -14.88  
 Sun-Target sep (deg) : 163.26  
 Sun-Moon sep (deg) : 168.95  
 B (ring opening deg) : -1.03  
 PA of pole (deg) : -11.97  
 Pole direction: RA (deg): 268.05661  
 Dec (deg): 64.49656  
 C/A sky separation (") : 10.182  
 C/A sky separation (km) : 30660.3  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



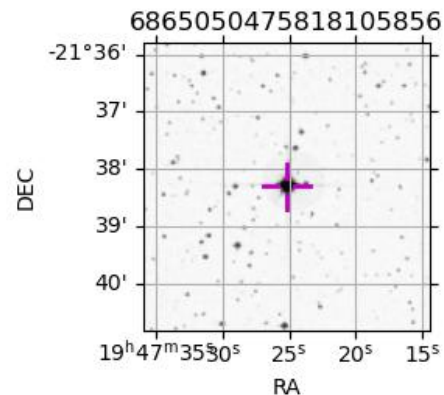
Earth  
 PIC  
 PMO  
 TEN  
 KAV  
 RIO  
 ESO  
 AAT  
 SAAO  
 MSO



2032-08-03T19:43:09.7900 a: 19 47 25.3107 d: -21 38 18.473 C/A \*\*\*\*\* PA 168.80 deg v\_sky -14.88 km/s D 04.15 AU  
 Credit: Styled after SORA/Lucky Star

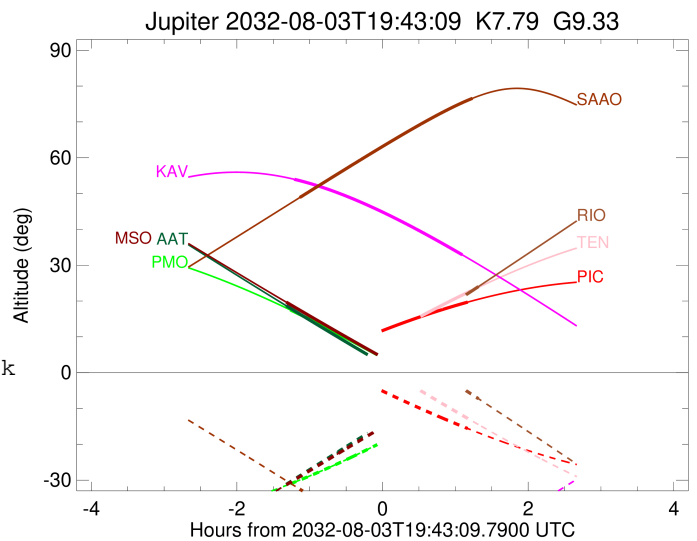
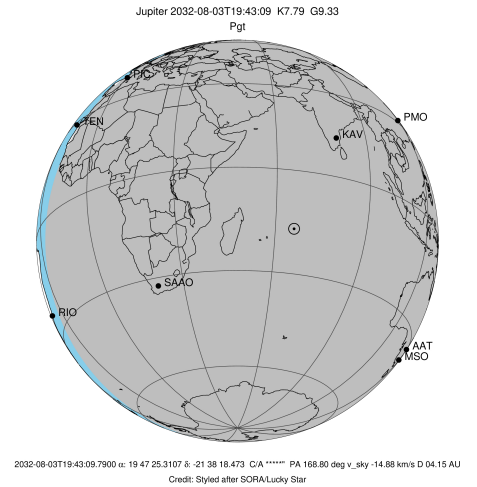
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+	AUG 03 20:53 - AUG 03 20:53	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	AUG 03 18:27 - AUG 03 18:27	Pin
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	+	AUG 03 20:56 - AUG 03 20:56	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	AUG 03 18:30 - AUG 03 20:48	Pie
RIO	Rio de Janeiro	-22.9	316.8	+	AUG 03 21:02 - AUG 03 21:02	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+	AUG 03 18:23 - AUG 03 18:23	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	AUG 03 18:34 - AUG 03 20:57	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	AUG 03 18:23 - AUG 03 18:23	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-03T19:45:42.200
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      : 6865050475818105856
2Mass ID (if available) : 19472526-2138180
ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 7.790
G magnitude          : 9.331
RP magnitude         : 8.798
BP magnitude         : 9.694
DUPflag             : 0
Distance (au)       : 4.152
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.88
Sun-Target sep (deg) : 163.26
Sun-Moon sep (deg)  : 168.28
B (ring opening deg) : -1.03
PA of pole (deg)    : -11.97
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (" ) : 12.094
C/A sky separation (km) : 36418.6
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
    
```

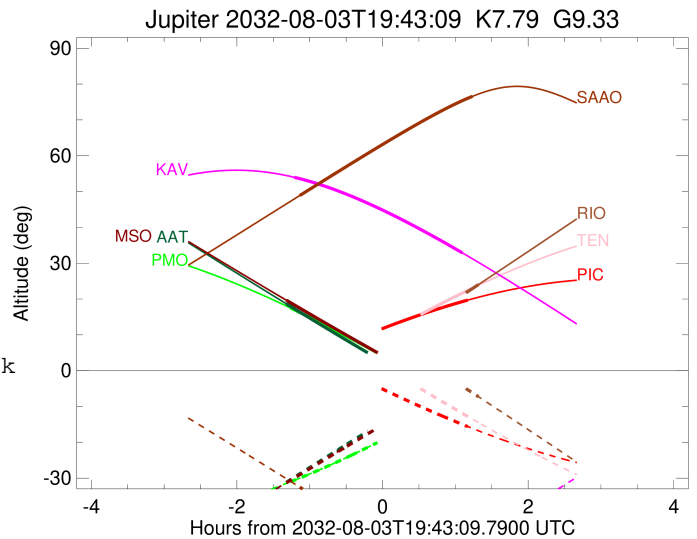
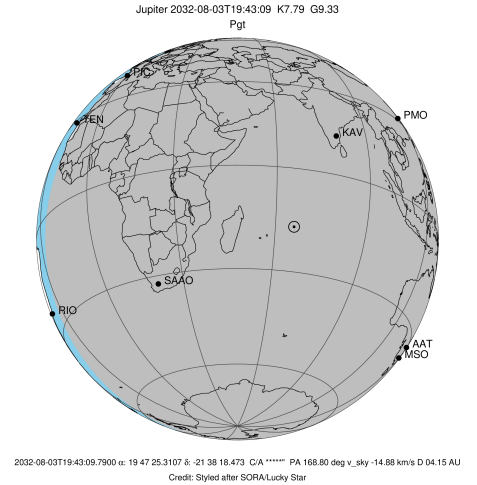


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-03T18:37:42.367	2.33x	5.89x	71491.6	31.15	34.58
Jupiter	E	2032-08-03T20:53:25.700	19.70	-15.60	71491.6	29.94	33.31

```

target           : Jupiter
target radius (km) : 71492.00
C/A epoch       : 2032-08-03T19:37:10.700
Event type      : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code   : PMO
Location        : Purple Mtn Obs. Nanking
Latitude (deg)  : 32.06667
E. Longitude (deg) : 118.82089
Altitude (km)  : 0.364
Gaia source ID  : 6865050475818105856
2Mass ID (if available) : 19472526-2138180
ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s
RUWE (>1.4 is poor) : 0.94
K magnitude     : 7.790
G magnitude     : 9.331
RP magnitude    : 8.798
BP magnitude    : 9.694
DUPflag        : 0
Distance (au)  : 4.152
f0 (km)        : 0.00
g0 (km)        : 0.00
skyplane vel. (km/s) : -14.88
Sun-Target sep (deg) : 163.26
Sun-Moon sep (deg) : 169.45
B (ring opening deg) : -1.03
PA of pole (deg) : -11.97
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 11.106
C/A sky separation (km) : 33445.3
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
    
```

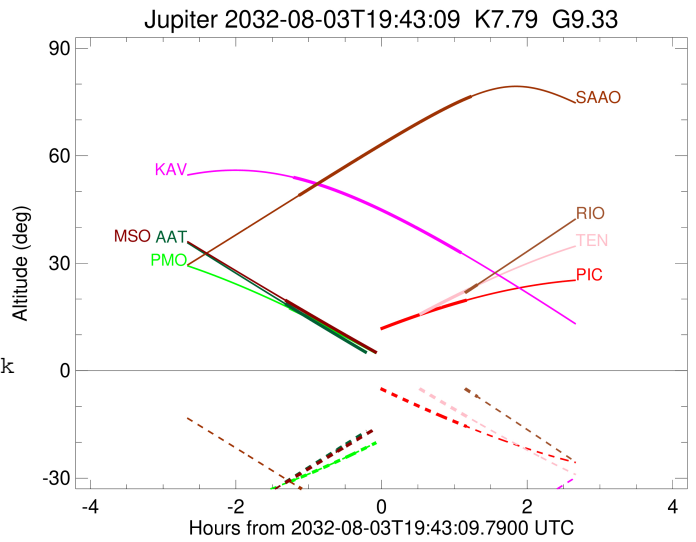
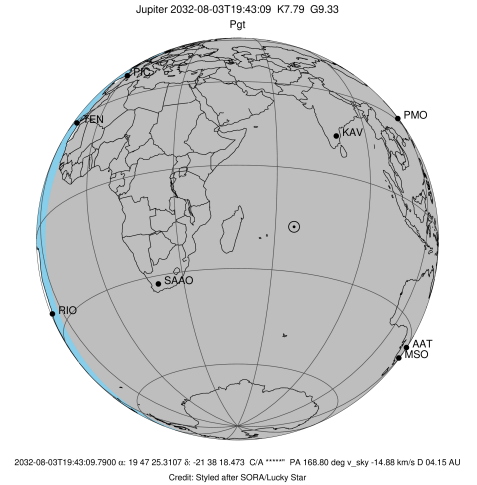


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-03T18:27:13.736	17.51	-31.03	71491.7	29.28	32.60
Jupiter	E	2032-08-03T20:47:40.667	-8.31x	-7.58	71491.7	26.52	29.66

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-03T19:47:38.300
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      : 6865050475818105856
2Mass ID (if available) : 19472526-2138180
ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 7.790
G magnitude          : 9.331
RP magnitude         : 8.798
BP magnitude         : 9.694
DUPflag             : 0
Distance (au)       : 4.152
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.88
Sun-Target sep (deg) : 163.26
Sun-Moon sep (deg)  : 168.14
B (ring opening deg) : -1.03
PA of pole (deg)    : -11.97
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (" ) : 11.718
C/A sky separation (km) : 35286.8
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
    
```

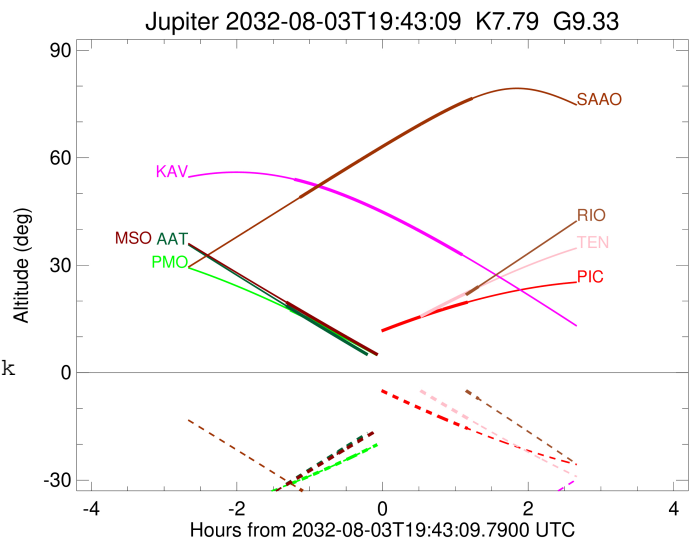
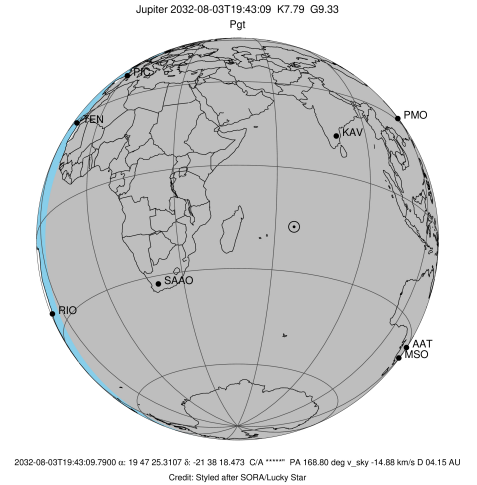


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-03T18:38:39.313	-2.80x	15.18x	71491.6	29.90	33.27
Jupiter	E	2032-08-03T20:56:11.176	22.85	-13.32	71491.7	29.08	32.40

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-08-03T19:39:28.760
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        : 6865050475818105856
2Mass ID (if available) : 19472526-2138180
ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s
RUWE (>1.4 is poor)  : 0.94
K magnitude           : 7.790
G magnitude           : 9.331
RP magnitude          : 8.798
BP magnitude          : 9.694
DUPflag              : 0
Distance (au)         : 4.152
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -14.88
Sun-Target sep (deg)  : 163.26
Sun-Moon sep (deg)    : 169.33
B (ring opening deg)  : -1.03
PA of pole (deg)      : -11.97
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 11.050
C/A sky separation (km) : 33274.8
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
    
```

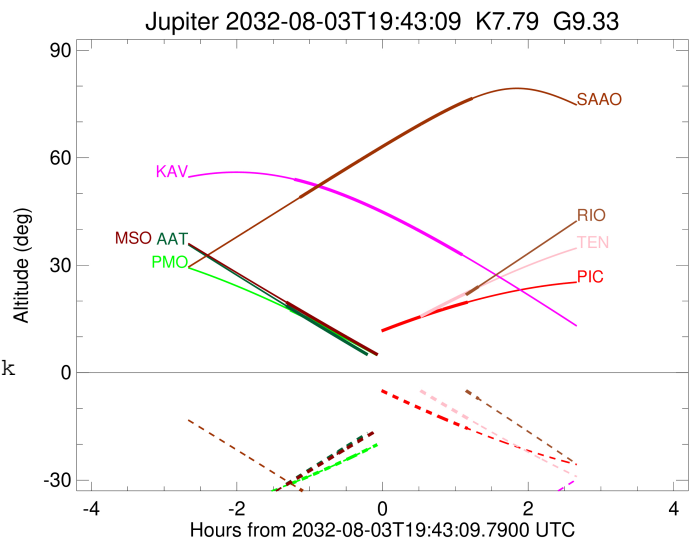
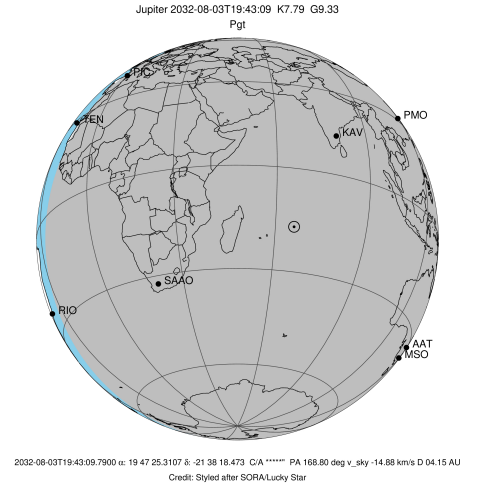


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-03T18:30:27.799	53.97	-59.89	71491.7	29.04	32.35
Jupiter	E	2032-08-03T20:48:51.036	32.90	-48.41	71491.7	26.31	29.44

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-03T19:49:46.930
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       : 6865050475818105856
2Mass ID (if available) : 19472526-2138180
ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 7.790
G magnitude           : 9.331
RP magnitude          : 8.798
BP magnitude          : 9.694
DUPflag              : 0
Distance (au)         : 4.152
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.88
Sun-Target sep (deg) : 163.26
Sun-Moon sep (deg)   : 168.27
B (ring opening deg) : -1.03
PA of pole (deg)     : -11.97
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 9.818
C/A sky separation (km) : 29566.3
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
    
```

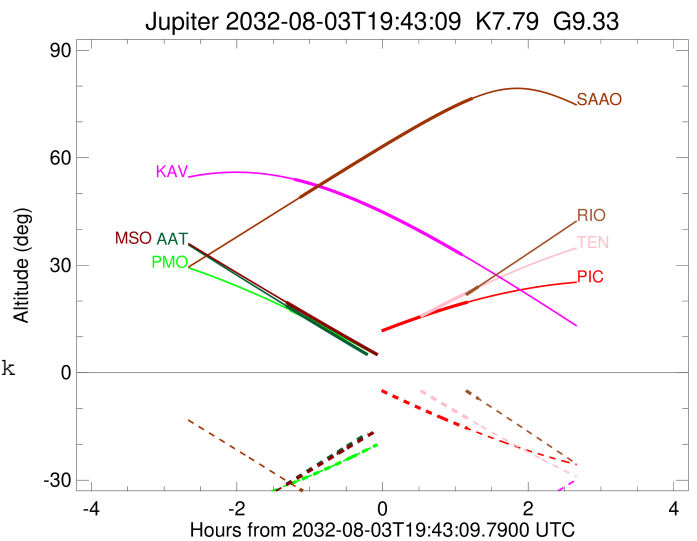
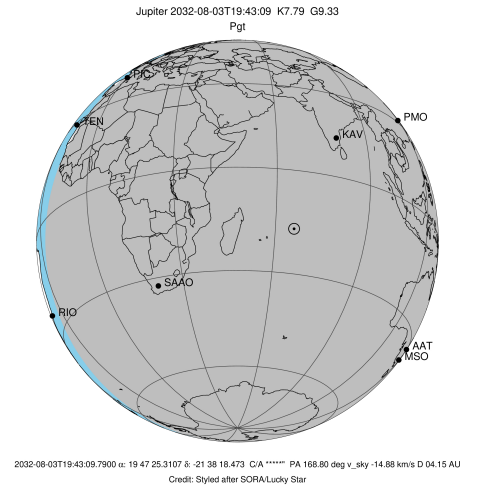


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-03T18:36:41.702	-7.47x	23.46x	71491.8	24.56	27.55
Jupiter	E	2032-08-03T21:02:16.133	24.04	-7.28	71491.8	24.18	27.14

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-03T19:38:15.190
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : AAT
Location            : Siding Spring (AAT)
Latitude (deg)      : -31.27703
E. Longitude (deg)  : 149.06608
Altitude (km)       : 1.164
Gaia source ID      : 6865050475818105856
2Mass ID (if available) : 19472526-2138180
ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 7.790
G magnitude          : 9.331
RP magnitude         : 8.798
BP magnitude         : 9.694
DUPflag             : 0
Distance (au)       : 4.152
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -14.88
Sun-Target sep (deg) : 163.26
Sun-Moon sep (deg)  : 169.82
B (ring opening deg) : -1.03
PA of pole (deg)    : -11.97
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 8.728
C/A sky separation (km) : 26281.4
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
    
```

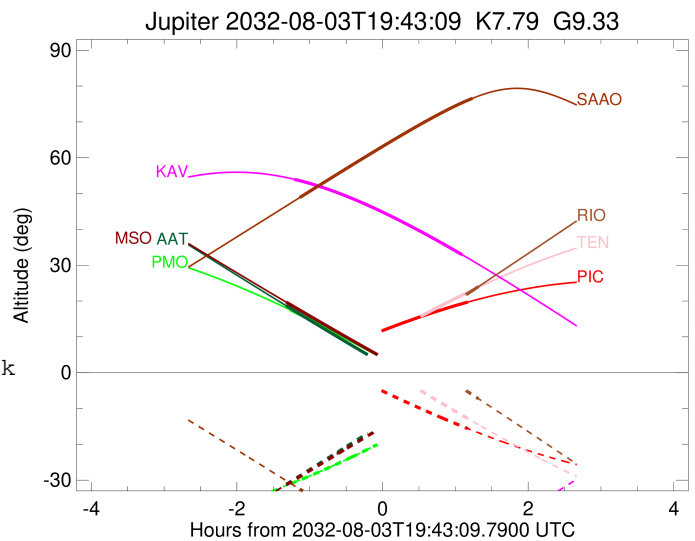
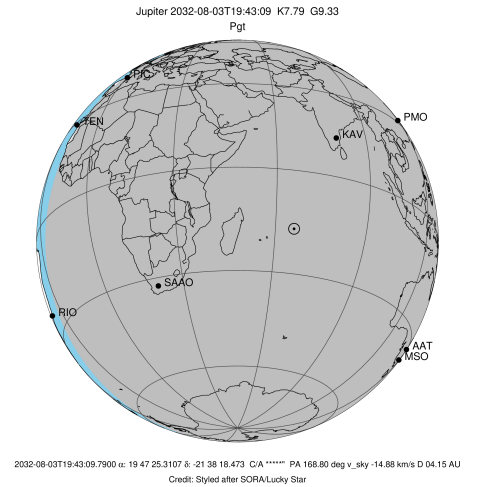


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-03T18:23:42.292	18.71	-31.22	71491.8	22.89	25.74
Jupiter	E	2032-08-03T20:53:27.336	-10.67x	0.12x	71491.8	20.36	22.97

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-03T19:46:10.390
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      : 6865050475818105856
2Mass ID (if available) : 19472526-2138180
ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s
RUWE (>1.4 is poor) : 0.94
K magnitude         : 7.790
G magnitude         : 9.331
RP magnitude        : 8.798
BP magnitude        : 9.694
DUPflag            : 0
Distance (au)       : 4.152
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -14.88
Sun-Target sep (deg) : 163.26
Sun-Moon sep (deg)  : 168.82
B (ring opening deg) : -1.03
PA of pole (deg)    : -11.97
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 9.888
C/A sky separation (km) : 29776.3
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
    
```



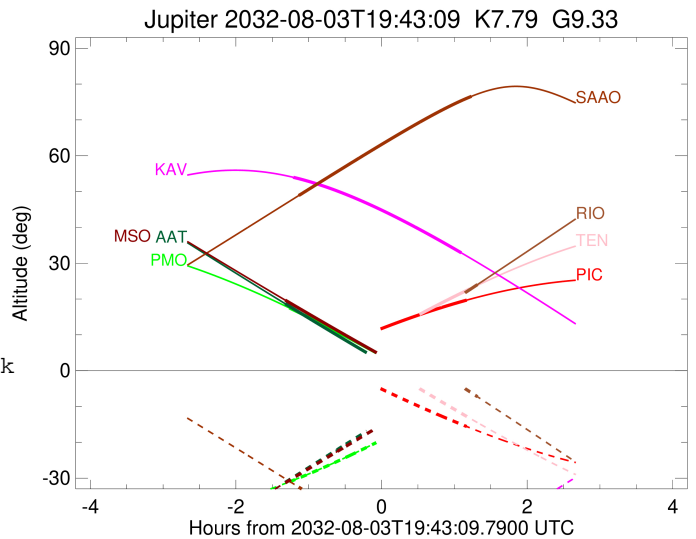
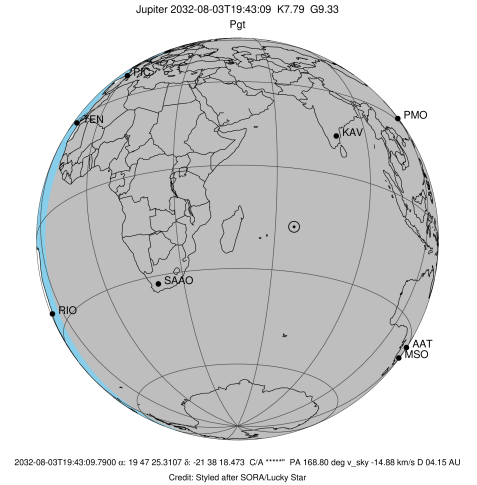
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-03T18:34:54.685	48.87	-32.49	71491.7	25.31	28.36
Jupiter	E	2032-08-03T20:57:15.050	76.56	-61.81	71491.8	23.72	26.64



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-03T19:38:34.810
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : MSO
Location            : Mt. Stromlo Observatory
Latitude (deg)      : -35.32000
E. Longitude (deg)  : 149.00833
Altitude (km)       : 0.770
Gaia source ID      : 6865050475818105856
2Mass ID (if available) : 19472526-2138180
ICRS Star Coord at Epoch: 19h 47m 25.31065s -21:38:18.47291s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 7.790
G magnitude          : 9.331
RP magnitude         : 8.798
BP magnitude         : 9.694
DUPflag             : 0
Distance (au)       : 4.152
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.88
Sun-Target sep (deg) : 163.26
Sun-Moon sep (deg)  : 169.80
B (ring opening deg) : -1.03
PA of pole (deg)    : -11.97
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (" ) : 8.634
C/A sky separation (km) : 26001.3
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	2032-08-03T18:23:54.764	19.67	-31.29	71491.8	22.62	25.45
Jupiter	E	2032-08-03T20:53:52.537	-8.47x	-1.24x	71491.8	20.14	22.73