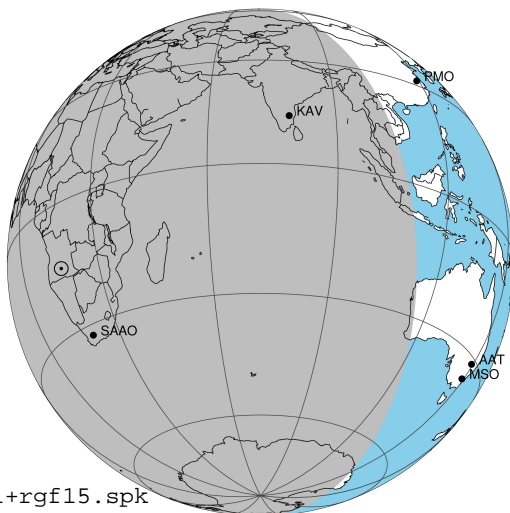


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-05-01T22:46:43.820
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066622202973260544
 2Mass ID (if available) : 18120127-2259134

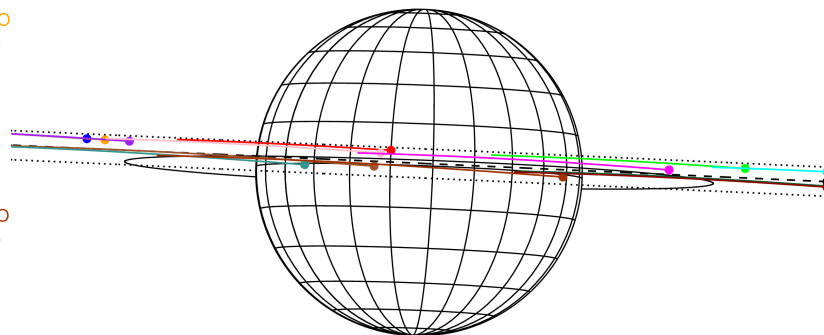
Jupiter 2043-05-01T22:46:43 K9.38 G14.80 Pgt

ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
 RUWE (>1.4 is poor) : 0.85
 K magnitude : 9.378
 G magnitude : 14.799
 RP magnitude : 13.485
 BP magnitude : 16.789
 DUPflag : 0
 Distance (au) : 4.602
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -5.09
 Sun-Target sep (deg) : 128.09
 Sun-Moon sep (deg) : 33.38
 B (ring opening deg) : -2.43
 PA of pole (deg) : -2.13
 Pole direction: RA (deg): 268.05666
 Dec (deg): 64.49732
 C/A sky separation (") : 1.211
 C/A sky separation (km) : 4041.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



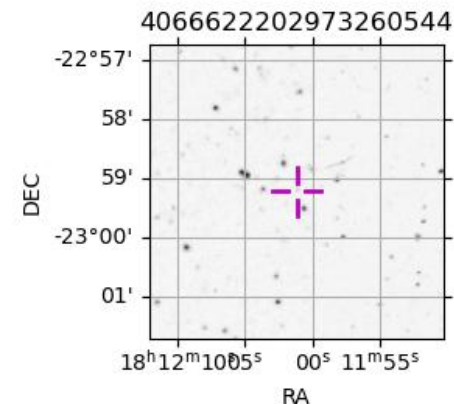
2043-05-01T22:46:43.8200 α: 18 12 01.27002 δ: -22 59 13.382 C/A 1.200° PA 177.44 deg v_sky - 5.09 km/s D 04.60 AU
 Credit: Styled after SORA/Lucky Star

- Earth
- PIC
- PAL
- PMO
- KPNO
- MCD
- TEN
- IRTF
- KAV
- RIO
- ESO
- AAT
- SAAO
- MSO



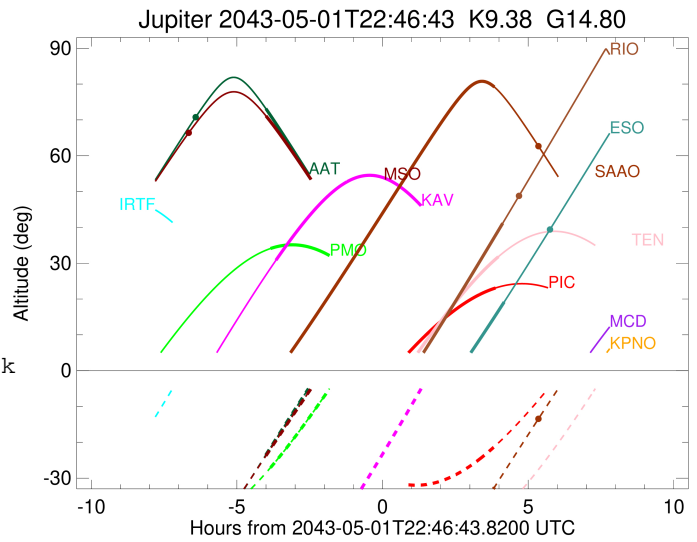
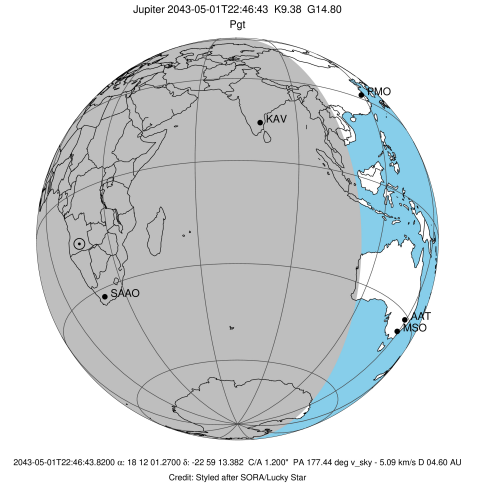
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events	Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+	MAY 02 02:39	- MAY 02 02:39	Pne
PAL	Palomar Mt (200")	33.4	243.1				Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	MAY 01 18:55	- MAY 01 18:55	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	+	MAY 02 02:45	- MAY 02 02:45	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5				Pnn
KAV	Kavalur Observatory	12.6	78.8	+	MAY 01 19:07	- MAY 01 19:07	Pin
RIO	Rio de Janeiro	-22.9	316.8	+	MAY 02 02:54	- MAY 02 02:54	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAY 02 02:57	- MAY 02 02:57	Pne
AAT	Siding Spring (AAT)	-31.3	149.1	+	MAY 01 18:46	- MAY 01 18:46	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	MAY 02 02:37	- MAY 02 02:37	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAY 01 18:46	- MAY 01 18:46	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-01T22:59:35.040
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        : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor)  : 0.85
K magnitude           : 9.378
G magnitude           : 14.799
RP magnitude          : 13.485
BP magnitude          : 16.789
DUPflag               : 0
Distance (au)         : 4.602
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg)  : 128.09
Sun-Moon sep (deg)    : 33.96
B (ring opening deg) : -2.43
PA of pole (deg)      : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 2.665
C/A sky separation (km) : 8893.6
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
    
```

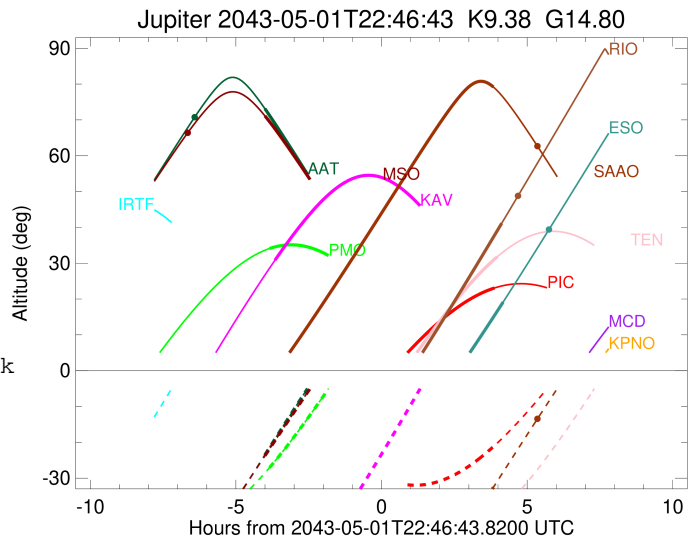
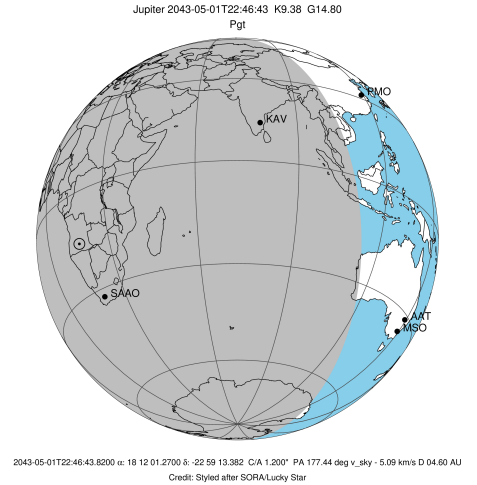


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T19:04:09.632	-42.83x	-1.61x	71491.9	5.24	5.98
Jupiter	E	2043-05-02T02:39:43.654	23.09	-20.90	71491.8	8.33	9.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T22:34:24.990
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      : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor) : 0.85
K magnitude          : 9.378
G magnitude          : 14.799
RP magnitude         : 13.485
BP magnitude         : 16.789
DUPflag             : 0
Distance (au)       : 4.602
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg) : 128.09
Sun-Moon sep (deg)  : 33.15
B (ring opening deg) : -2.43
PA of pole (deg)    : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 2.542
C/A sky separation (km): 8484.7
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
    
```

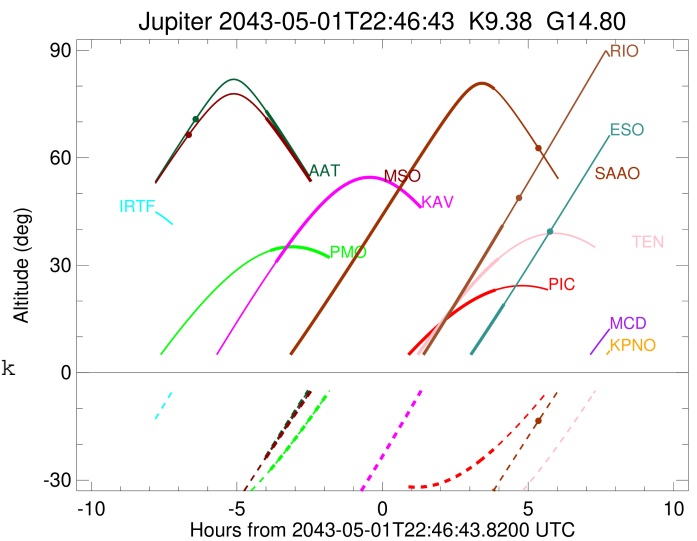
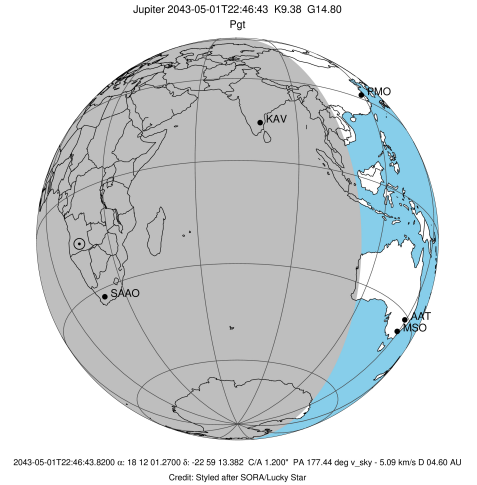


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T18:55:52.723	34.08	-27.08	71491.9	6.99	7.98
Jupiter	E	2043-05-02T02:20:41.396	-20.22x	61.66x	71491.9	5.64	6.44

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T23:03:48.360
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       : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor) : 0.85
K magnitude          : 9.378
G magnitude          : 14.799
RP magnitude         : 13.485
BP magnitude         : 16.789
DUPflag             : 0
Distance (au)        : 4.602
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg) : 128.09
Sun-Moon sep (deg)   : 34.02
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 2.187
C/A sky separation (km): 7298.1
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
    
```

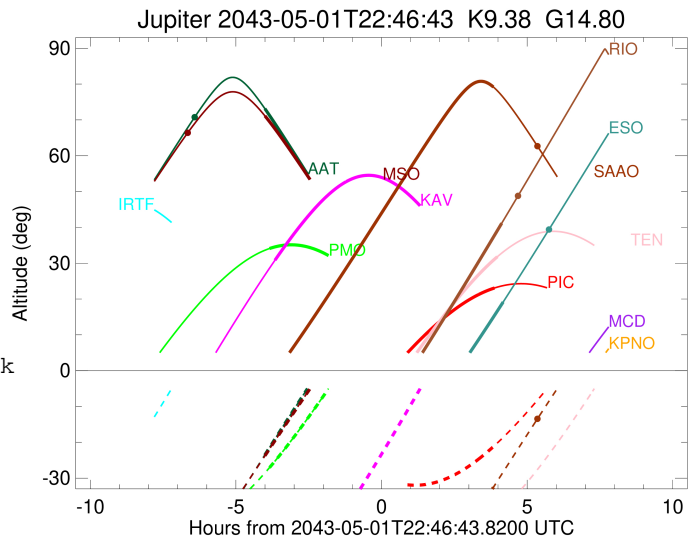
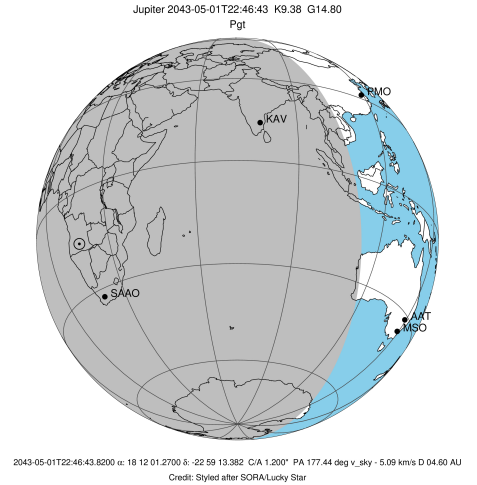


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T19:02:23.373	-58.06x	7.24x	71492.0	3.70	4.23
Jupiter	E	2043-05-02T02:45:30.502	31.82	-39.96	71491.9	7.54	8.60

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T22:44:11.630
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      : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor) : 0.85
K magnitude          : 9.378
G magnitude          : 14.799
RP magnitude         : 13.485
BP magnitude         : 16.789
DUPflag             : 0
Distance (au)       : 4.602
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg) : 128.09
Sun-Moon sep (deg)  : 33.78
B (ring opening deg) : -2.43
PA of pole (deg)    : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 2.305
C/A sky separation (km) : 7692.4
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
    
```

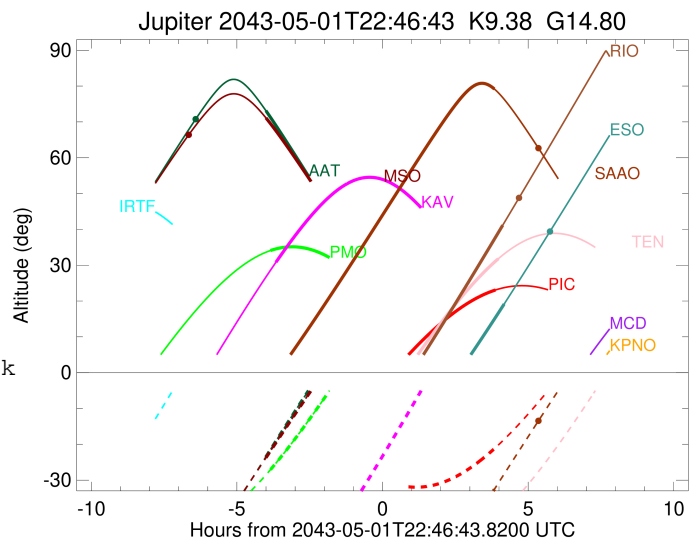
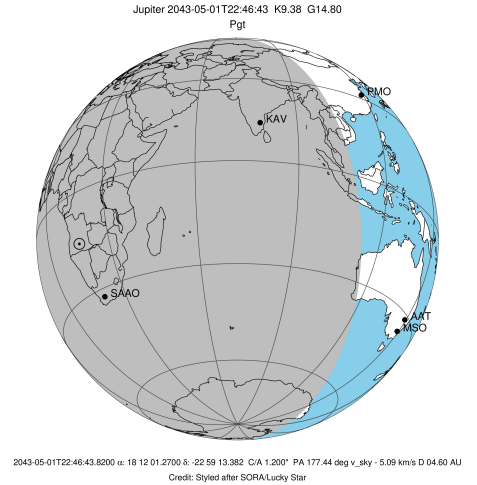


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T19:07:21.266	30.85	-61.57	71491.9	5.30	6.05
Jupiter	E	2043-05-02T02:20:32.388	21.21	26.80x	71491.9	5.44	6.21

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-01T23:05:02.900
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       : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor) : 0.85
K magnitude           : 9.378
G magnitude           : 14.799
RP magnitude          : 13.485
BP magnitude          : 16.789
DUPflag              : 0
Distance (au)        : 4.602
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg) : 128.09
Sun-Moon sep (deg)   : 33.86
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 0.369
C/A sky separation (km) : 1230.1
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
    
```

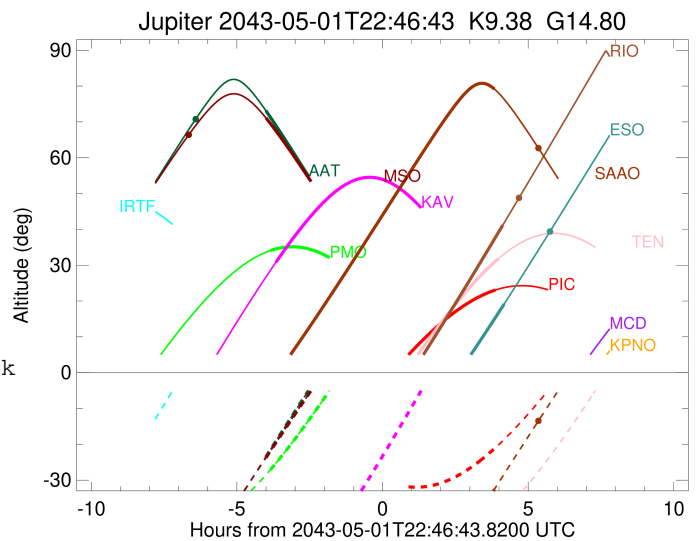
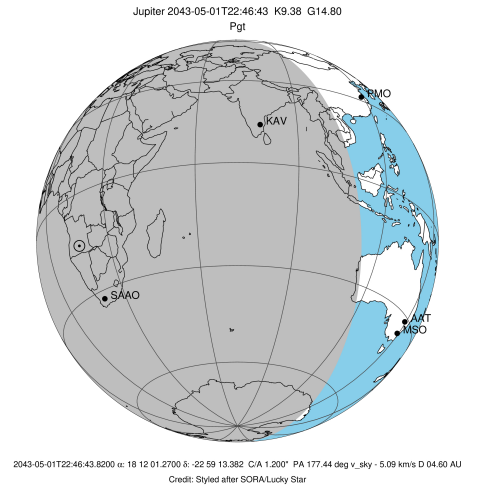


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T18:54:06.629	-43.86x	19.22x	71492.0	-0.82	-0.94
Jupiter	E	2043-05-02T02:54:23.173	41.15	-82.49	71492.0	3.13	3.58

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T22:59:14.030
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      : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor) : 0.85
K magnitude          : 9.378
G magnitude          : 14.799
RP magnitude         : 13.485
BP magnitude         : 16.789
DUPflag             : 0
Distance (au)       : 4.602
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg) : 128.09
Sun-Moon sep (deg)  : 33.48
B (ring opening deg) : -2.43
PA of pole (deg)    : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 0.087
C/A sky separation (km) : 291.4
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
    
```

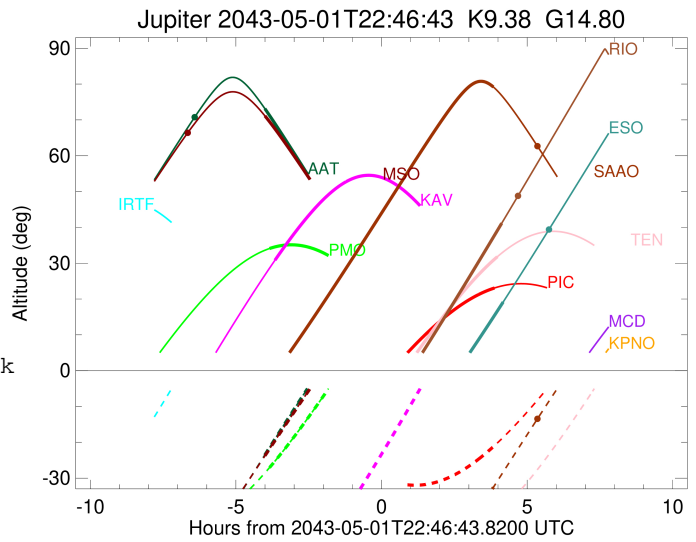
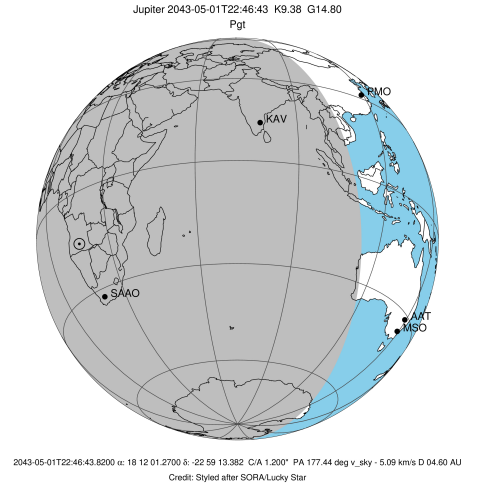


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T18:44:39.565	-33.18x	36.42x	71492.0	-1.17	-1.34
Jupiter	E	2043-05-02T02:57:18.619	19.15	-62.65	71492.0	1.89	2.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-01T22:30:12.580
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        : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor) : 0.85
K magnitude           : 9.378
G magnitude           : 14.799
RP magnitude          : 13.485
BP magnitude          : 16.789
DUPflag              : 0
Distance (au)         : 4.602
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg)  : 128.09
Sun-Moon sep (deg)    : 32.88
B (ring opening deg) : -2.43
PA of pole (deg)      : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 0.416
C/A sky separation (km) : 1388.7
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
    
```

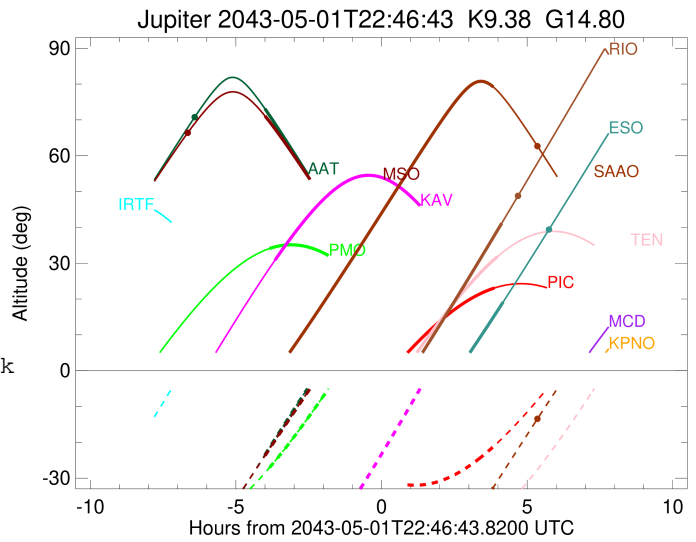
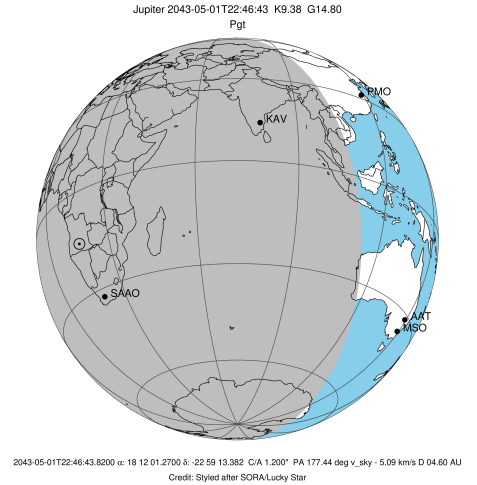


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T18:46:25.967	73.14	-23.51	71492.0	1.94	2.22
Jupiter	E	2043-05-02T02:26:53.634	-19.06x	43.15x	71492.0	-0.06	-0.07


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T22:59:57.900
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      : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor) : 0.85
K magnitude          : 9.378
G magnitude          : 14.799
RP magnitude         : 13.485
BP magnitude         : 16.789
DUPflag             : 0
Distance (au)       : 4.602
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg) : 128.09
Sun-Moon sep (deg)  : 34.22
B (ring opening deg) : -2.43
PA of pole (deg)    : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 0.755
C/A sky separation (km): 2520.7
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
    
```

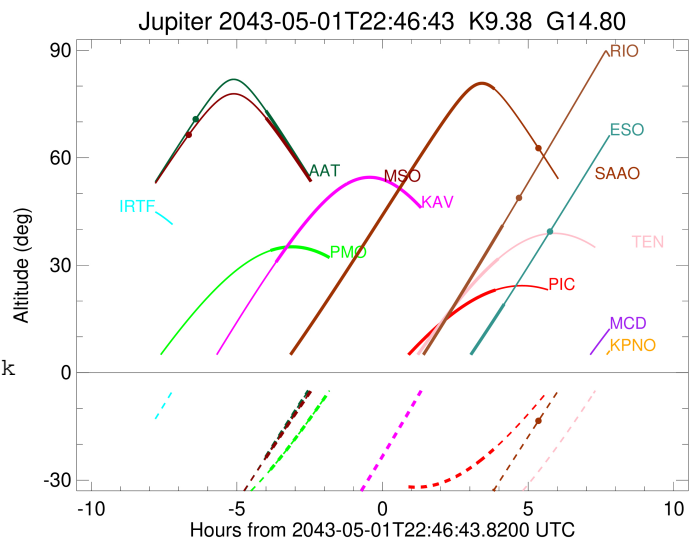
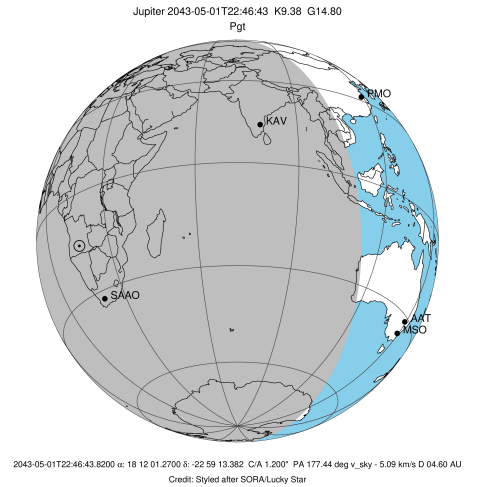


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T19:09:00.691	-0.36x	-40.67	71492.0	0.04	0.04
Jupiter	E	2043-05-02T02:37:17.988	79.16	-32.54	71492.0	2.81	3.21

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2043-05-01T22:30:59.340
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       : 4066622202973260544
2Mass ID (if available) : 18120127-2259134
ICRS Star Coord at Epoch: 18h 12m 01.27002s -22:59:13.38215s
RUWE (>1.4 is poor) : 0.85
K magnitude           : 9.378
G magnitude           : 14.799
RP magnitude          : 13.485
BP magnitude          : 16.789
DUPflag              : 0
Distance (au)        : 4.602
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -5.09
Sun-Target sep (deg) : 128.09
Sun-Moon sep (deg)   : 32.91
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 0.306
C/A sky separation (km) : 1022.4
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	2043-05-01T18:46:40.880	71.10	-23.74	71492.0	1.59	1.82
Jupiter	E	2043-05-02T02:27:32.496	-16.31x	39.15x	71492.0	-0.28	-0.32