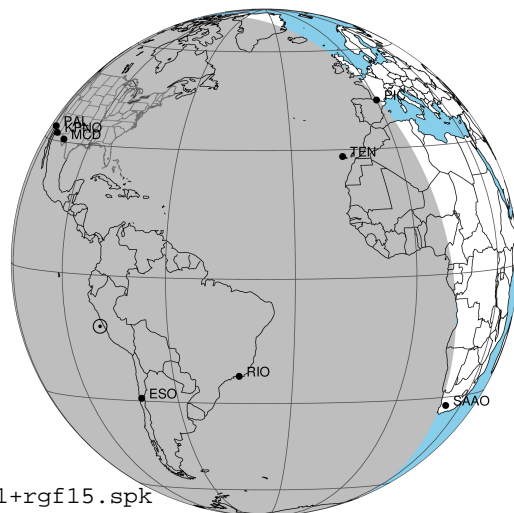


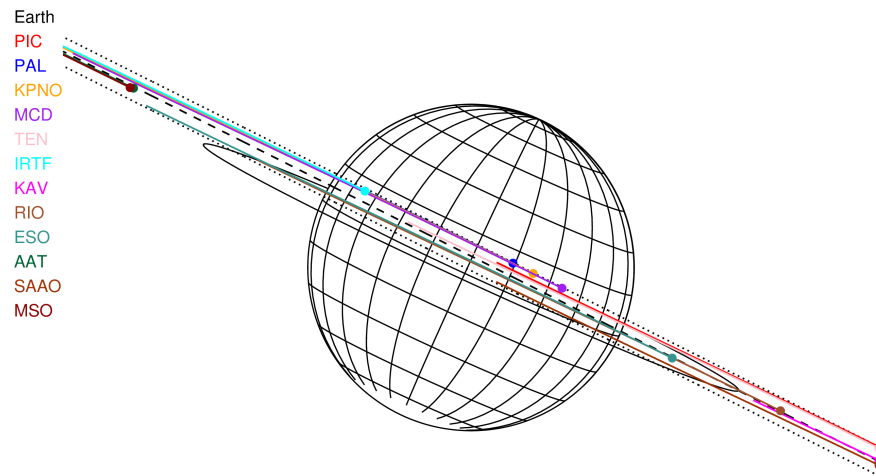
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2034-08-22T05:16:56.460
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 2550919070099417984
 2Mass ID (if available) : 00494458+0339548

Jupiter 2034-08-22T05:16:56 K9.76 G11.70 Pgt

ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
 RUWE (>1.4 is poor) : 1.40
 K magnitude : 9.762
 G magnitude : 11.700
 RP magnitude : 11.070
 BP magnitude : 12.165
 DUPflag : 0
 Distance (au) : 4.180
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -7.83
 Sun-Target sep (deg) : 135.85
 Sun-Moon sep (deg) : 132.03
 B (ring opening deg) : 2.81
 PA of pole (deg) : -24.68
 Pole direction: RA (deg): 268.05641
 Dec (deg): 64.49673
 C/A sky separation (") : 1.474
 C/A sky separation (km) : 4469.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

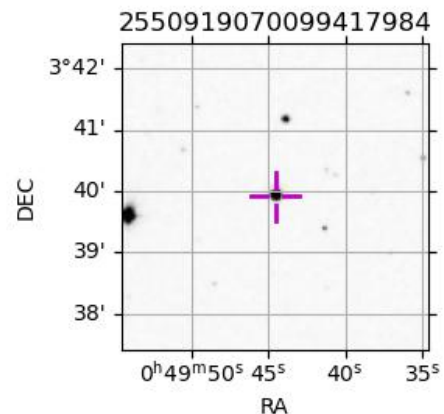


2034-08-22T05:16:56.4600 or: 00 49 44.5773 s: +03 39 54.471 C/A 1.482" PA 153.32 deg v_sky - 7.83 km/s D 04.18 AU
 Credit: Styled after SORA/Lucky Star



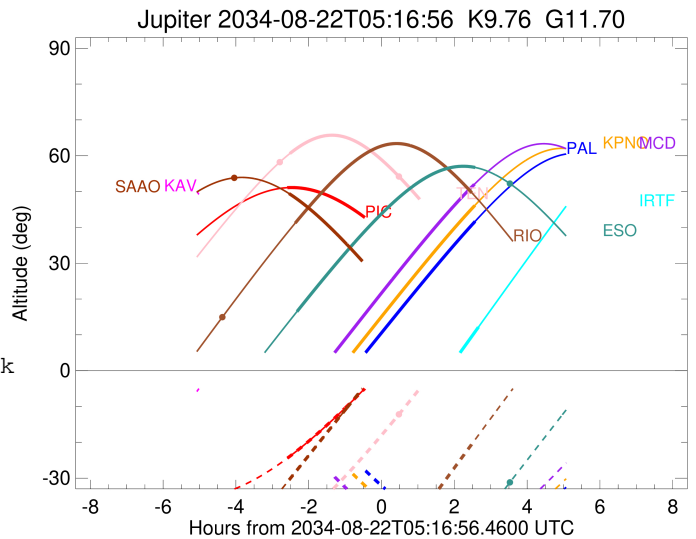
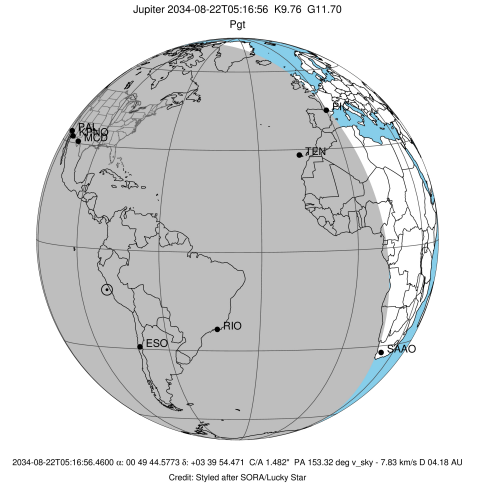
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	AUG 22 02:41 - AUG 22 02:41	Pin
PAL	Palomar Mt (200")	33.4	243.1	+	AUG 22 07:51 - AUG 22 07:51	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	AUG 22 07:50 - AUG 22 07:50	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	AUG 22 07:50 - AUG 22 07:50	Pne
TEN	Teide Obs./Tenerife	28.3	343.5	+	AUG 22 02:45 - AUG 22 02:45	Pin
IRTF	Mauna Kea/IRTF	19.8	204.5	+	AUG 22 07:56 - AUG 22 07:56	Pne
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	AUG 22 02:54 - AUG 22 07:45	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	AUG 22 02:57 - AUG 22 07:51	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	AUG 22 02:44 - AUG 22 02:44	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-08-22T05:08:10.840
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        : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude           : 9.762
G magnitude           : 11.700
RP magnitude          : 11.070
BP magnitude          : 12.165
DUPflag              : 0
Distance (au)         : 4.180
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg)  : 135.85
Sun-Moon sep (deg)   : 132.08
B (ring opening deg) : 2.81
PA of pole (deg)     : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation (") : 2.275
C/A sky separation (km) : 6896.3
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
    
```

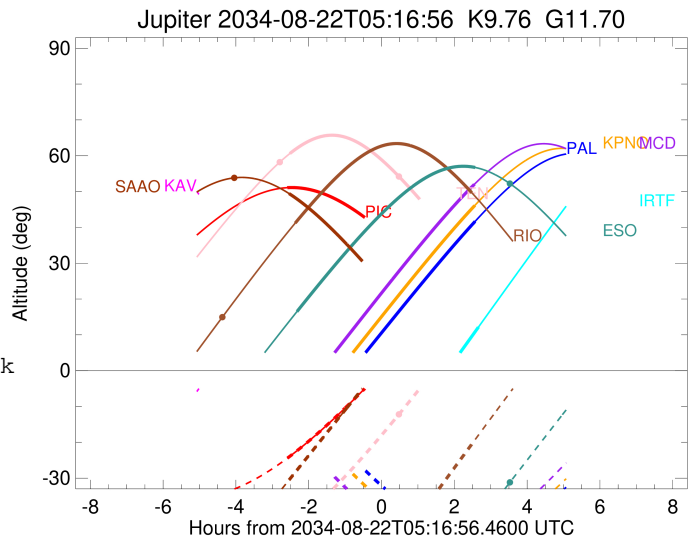
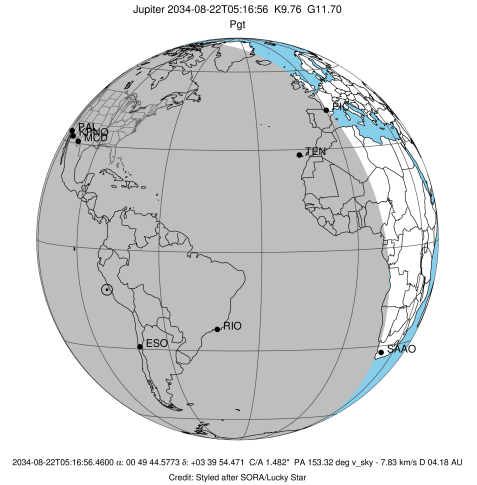


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-08-22T02:41:49.644	51.08	-24.42	71491.9	4.50	5.14
Jupiter	E	2034-08-22T07:35:46.440	15.85	25.01x	71491.8	6.99	7.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-08-22T05:23:46.890
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PAL
Location              : Palomar Mt (200")
Latitude (deg)        : 33.35622
E. Longitude (deg)    : 243.13601
Altitude (km)         : 1.706
Gaia source ID        : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude           : 9.762
G magnitude           : 11.700
RP magnitude          : 11.070
BP magnitude          : 12.165
DUPflag               : 0
Distance (au)         : 4.180
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg)  : 135.85
Sun-Moon sep (deg)    : 132.53
B (ring opening deg) : 2.81
PA of pole (deg)      : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation (" ) : 3.251
C/A sky separation (km) : 9855.5
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
    
```

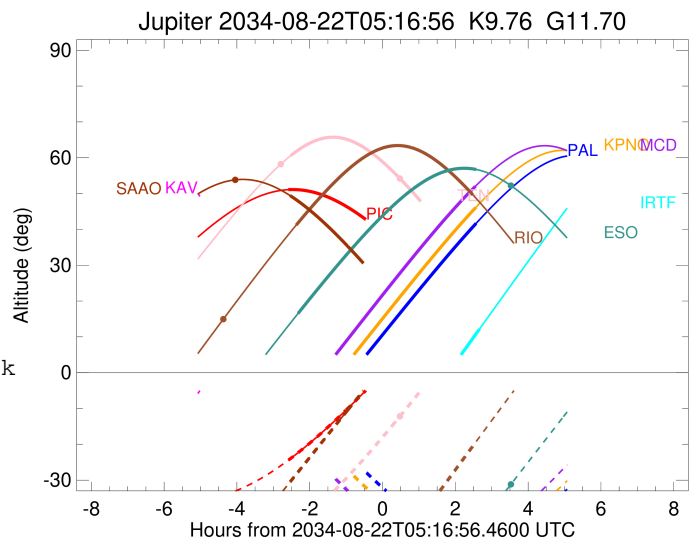
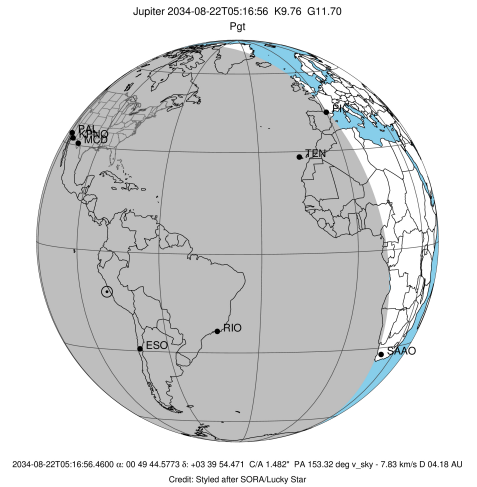


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-08-22T02:51:30.352	-19.52x	-5.98	71491.9	5.92	6.76
Jupiter	E	2034-08-22T07:51:12.919	41.67	-45.12	71491.7	9.13	10.42

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-08-22T05:23:53.680
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : KPNO
Location              : Kitt Peak Natl Obs
Latitude (deg)        : 31.96333
E. Longitude (deg)    : 248.40000
Altitude (km)         : 2.120
Gaia source ID        : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude           : 9.762
G magnitude           : 11.700
RP magnitude          : 11.070
BP magnitude          : 12.165
DUPflag              : 0
Distance (au)         : 4.180
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg) : 135.85
Sun-Moon sep (deg)   : 132.58
B (ring opening deg) : 2.81
PA of pole (deg)     : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation (") : 3.197
C/A sky separation (km) : 9690.5
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
    
```

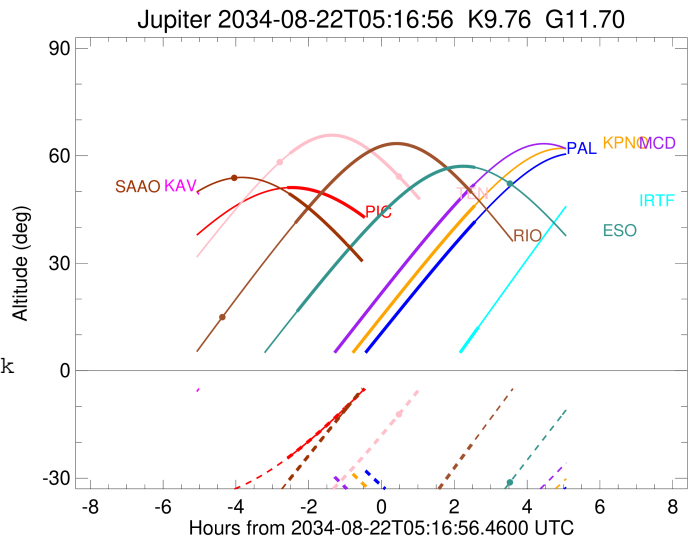
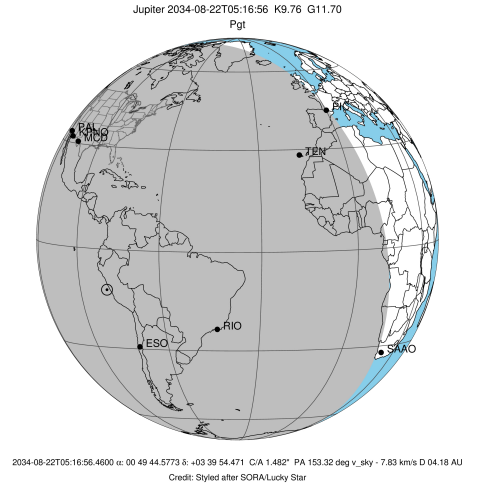


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-08-22T02:52:11.437	-15.52x	-10.76	71491.9	5.91	6.74
Jupiter	E	2034-08-22T07:50:49.112	46.13	-46.20	71491.7	8.91	10.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-08-22T05:23:45.070
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       : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude           : 9.762
G magnitude           : 11.700
RP magnitude          : 11.070
BP magnitude          : 12.165
DUPflag              : 0
Distance (au)         : 4.180
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg) : 135.85
Sun-Moon sep (deg)   : 132.65
B (ring opening deg) : 2.81
PA of pole (deg)     : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation (") : 3.119
C/A sky separation (km) : 9456.2
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
    
```

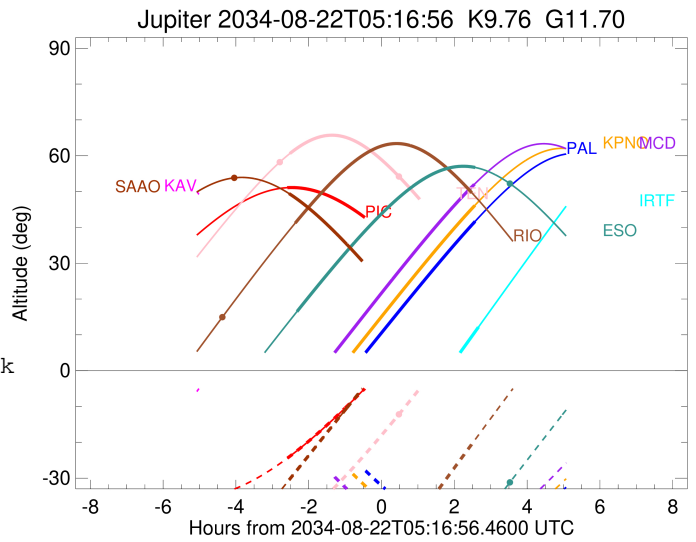
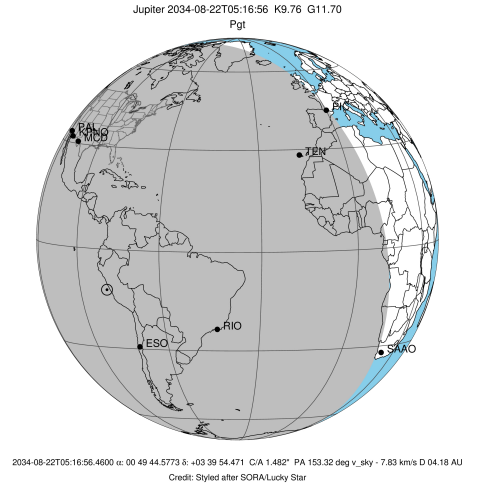


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-08-22T02:52:53.676	-9.32x	-17.36	71491.9	5.89	6.73
Jupiter	E	2034-08-22T07:50:00.699	52.02	-46.05	71491.8	8.60	9.81

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2034-08-22T05:11:11.520
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      : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude          : 9.762
G magnitude          : 11.700
RP magnitude         : 11.070
BP magnitude         : 12.165
DUPflag             : 0
Distance (au)       : 4.180
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg) : 135.85
Sun-Moon sep (deg)  : 132.35
B (ring opening deg) : 2.81
PA of pole (deg)    : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation ("): 1.983
C/A sky separation (km): 6011.2
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
    
```

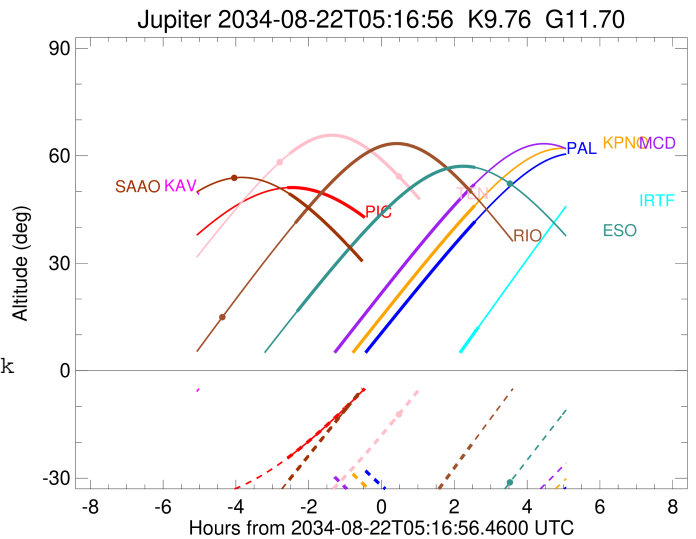
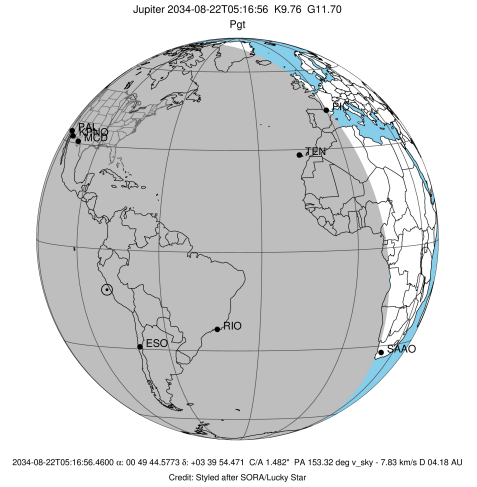


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-08-22T02:45:56.551	60.61	-43.71	71491.9	4.08	4.66
Jupiter	E	2034-08-22T07:36:59.937	31.94	11.61x	71491.9	5.89	6.73


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2034-08-22T05:24:47.060
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : IRTF
Location             : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude          : 9.762
G magnitude           : 11.700
RP magnitude         : 11.070
BP magnitude         : 12.165
DUPflag             : 0
Distance (au)        : 4.180
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg) : 135.85
Sun-Moon sep (deg)   : 132.15
B (ring opening deg) : 2.81
PA of pole (deg)     : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation ("): 2.955
C/A sky separation (km): 8957.9
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
    
```

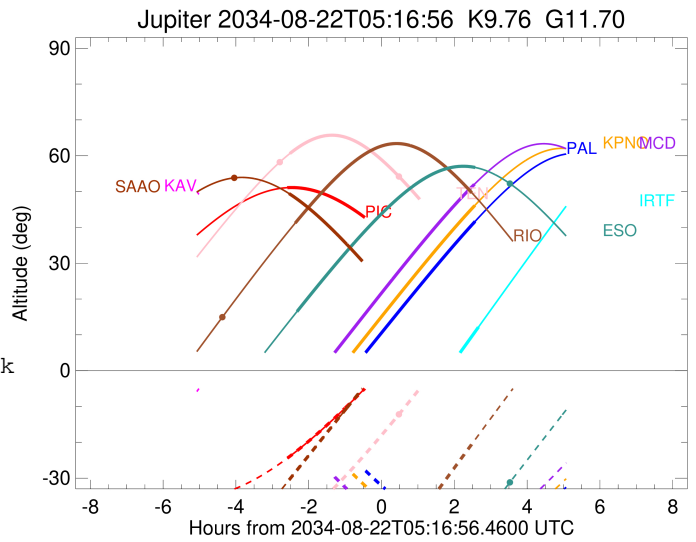
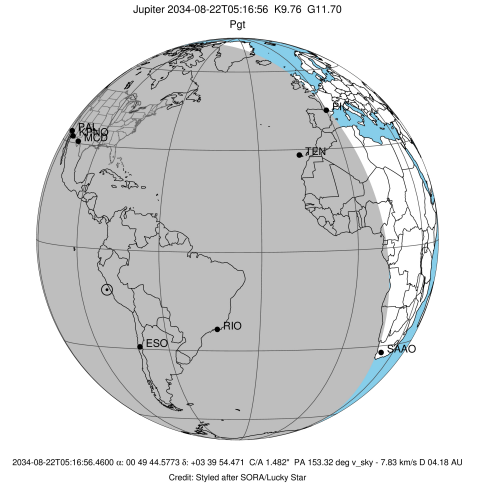


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-08-22T02:47:34.773	-56.64x	26.64x	71491.9	4.26	4.87
Jupiter	E	2034-08-22T07:56:46.746	12.17	-41.90	71491.7	9.16	10.45

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-08-22T05:20:48.340
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        : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude           : 9.762
G magnitude           : 11.700
RP magnitude          : 11.070
BP magnitude          : 12.165
DUPflag              : 0
Distance (au)         : 4.180
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg)  : 135.85
Sun-Moon sep (deg)   : 132.76
B (ring opening deg) : 2.81
PA of pole (deg)     : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation (") : 0.713
C/A sky separation (km) : 2162.5
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
    
```

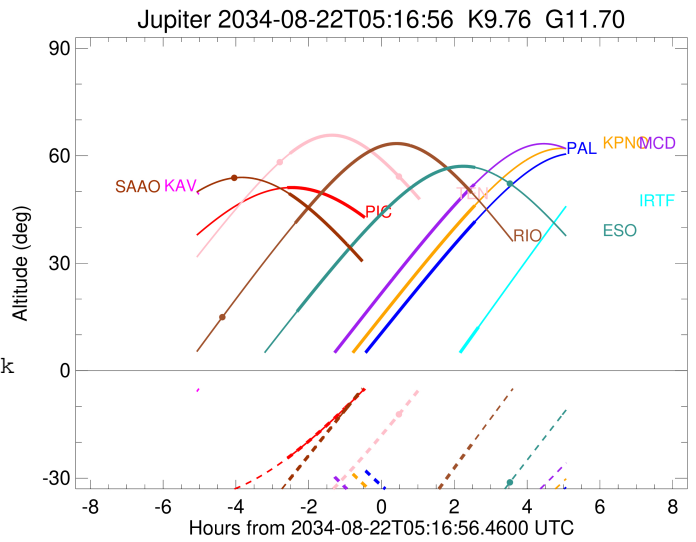
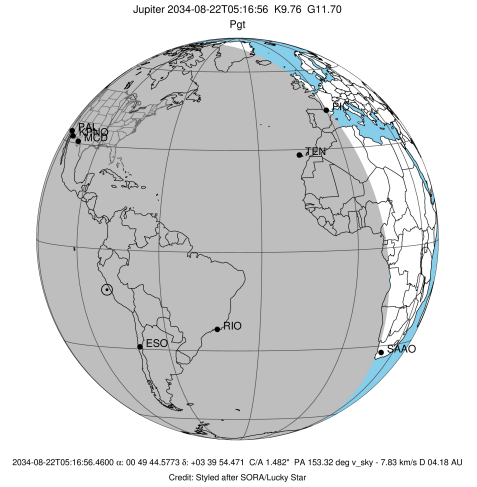


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-08-22T02:54:45.408	41.20	-79.01	71492.0	1.01	1.16
Jupiter	E	2034-08-22T07:45:41.865	49.68	-20.52	71492.0	2.47	2.82


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-08-22T05:25:51.680
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        : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude           : 9.762
G magnitude           : 11.700
RP magnitude          : 11.070
BP magnitude          : 12.165
DUPflag              : 0
Distance (au)         : 4.180
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg) : 135.85
Sun-Moon sep (deg)   : 132.87
B (ring opening deg) : 2.81
PA of pole (deg)     : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation ("): 0.899
C/A sky separation (km): 2725.9
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
    
```

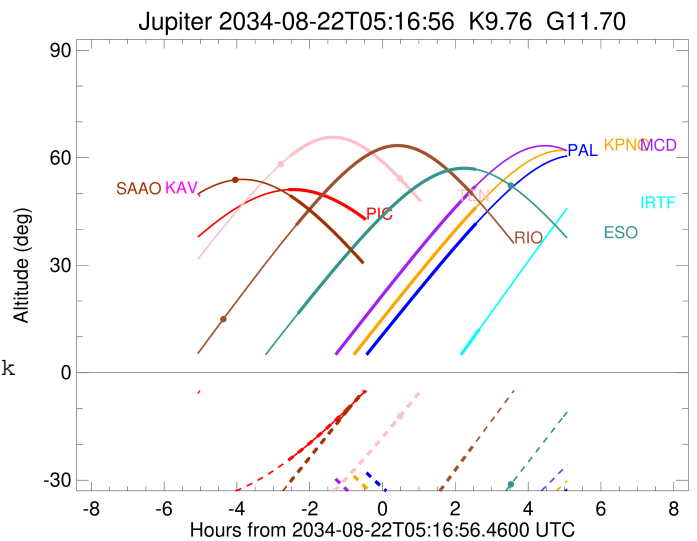
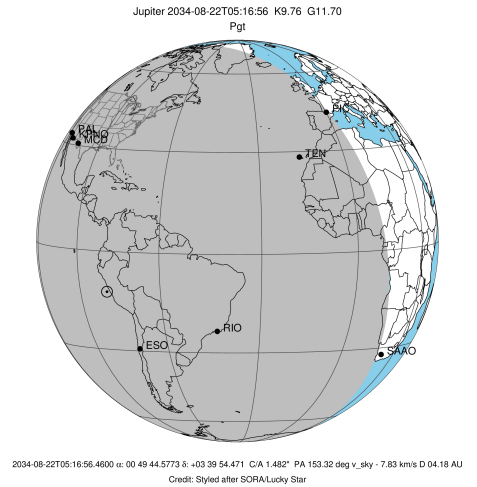


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-08-22T02:57:38.553	16.50	-59.42	71492.0	1.13	1.29
Jupiter	E	2034-08-22T07:51:09.507	56.72	-43.59	71492.0	2.91	3.32

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-08-22T05:11:47.690
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       : 2550919070099417984
2Mass ID (if available) : 00494458+0339548
ICRS Star Coord at Epoch: 00h 49m 44.57734s +03:39:54.47074s
RUWE (>1.4 is poor) : 1.40
K magnitude           : 9.762
G magnitude           : 11.700
RP magnitude          : 11.070
BP magnitude          : 12.165
DUPflag              : 0
Distance (au)        : 4.180
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.83
Sun-Target sep (deg) : 135.85
Sun-Moon sep (deg)   : 132.00
B (ring opening deg) : 2.81
PA of pole (deg)     : -24.68
Pole direction: RA (deg): 268.05641
Dec (deg): 64.49673
C/A sky separation (") : 0.249
C/A sky separation (km) : 754.9
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	2034-08-22T02:44:31.596	49.44	-30.52	71492.0	-1.74	-1.99
Jupiter	E	2034-08-22T07:41:46.440	-5.50x	28.88x	71492.0	1.22	1.40