

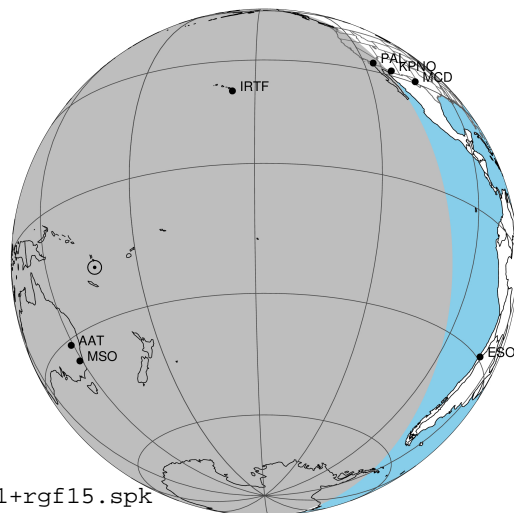
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-05-11T12:46:27.350  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4066633095009263104  
 2Mass ID (if available) : 18095413-2300242

Jupiter 2043-05-11T12:46:27 K8.01 G13.68 Pgt

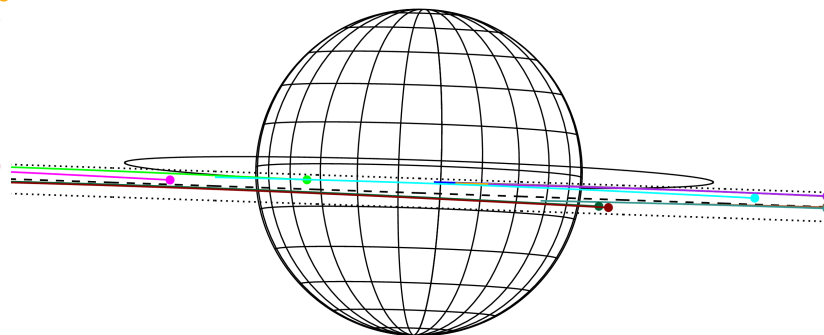
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s

RUWE (>1.4 is poor) : 1.01  
 K magnitude : 8.012  
 G magnitude : 13.681  
 RP magnitude : 12.309  
 BP magnitude : 15.989  
 DUPflag : 0  
 Distance (au) : 4.488  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -8.79  
 Sun-Target sep (deg) : 137.86  
 Sun-Moon sep (deg) : 170.14  
 B (ring opening deg) : -2.43  
 PA of pole (deg) : -1.90  
 Pole direction: RA (deg): 268.05666  
 Dec (deg): 64.49732  
 C/A sky separation (") : 2.754  
 C/A sky separation (km) : 8964.6  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-05-11T12:46:27 K8.01 G13.68  
 Pgt



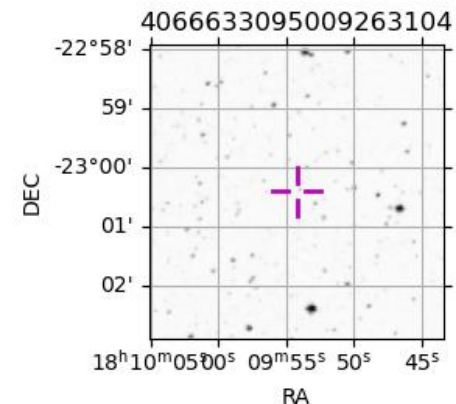
Earth  
 PAL  
 PMO  
 KPNO  
 MCD  
 IRTF  
 KAV  
 RIO  
 ESO  
 AAT  
 MSO



2043-05-11T12:46:27.3500 a: 18 09 54.1327 s: -23 00 24.624 C/A 2.766" PA 358.04 deg v\_sky - 8.79 km/s D 04.49 AU  
 Credit: Styled after SORA/Lucky Star

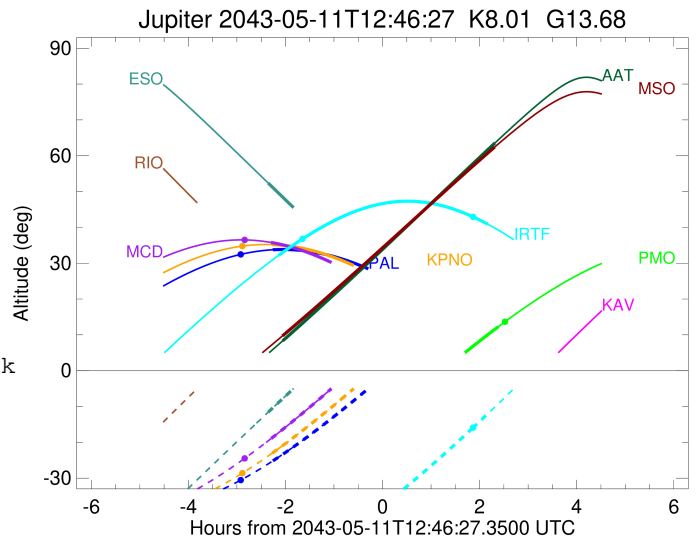
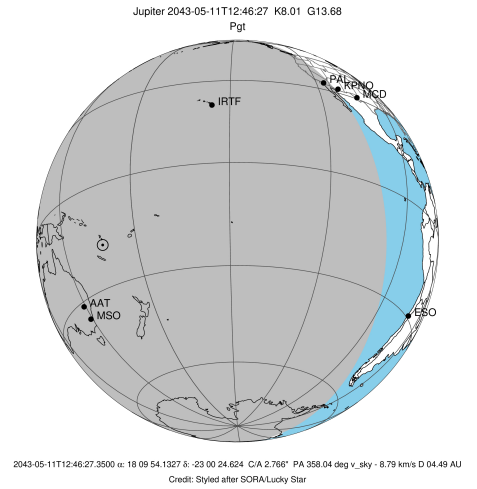
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+	MAY 11 10:31 - MAY 11 10:31	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	MAY 11 15:09 - MAY 11 15:09	Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAY 11 10:30 - MAY 11 10:30	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAY 11 10:28 - MAY 11 10:28	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	MAY 11 10:38 - MAY 11 14:56	Pie
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAY 11 10:25 - MAY 11 10:25	Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	MAY 11 10:43 - MAY 11 15:05	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	MAY 11 10:42 - MAY 11 15:05	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-11T12:41:02.260
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        : 4066633095009263104
2Mass ID (if available) : 18095413-2300242
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.012
G magnitude           : 13.681
RP magnitude          : 12.309
BP magnitude          : 15.989
DUPflag              : 0
Distance (au)         : 4.488
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.79
Sun-Target sep (deg) : 137.86
Sun-Moon sep (deg)   : 170.99
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.90
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 1.243
C/A sky separation (km): 4045.5
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
    
```

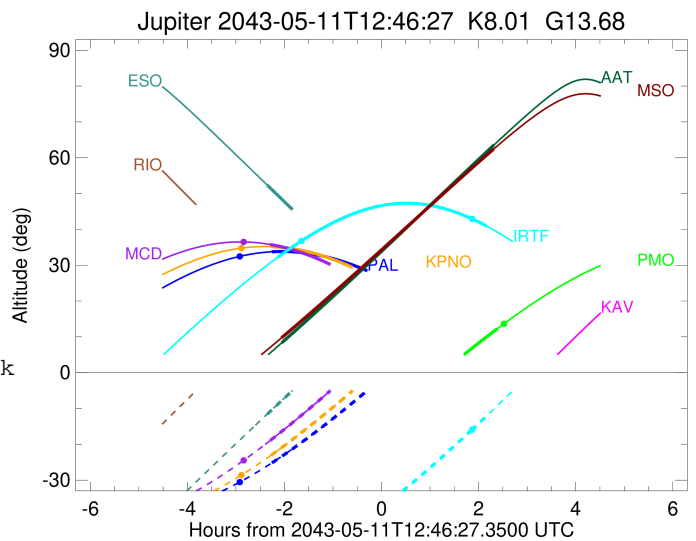
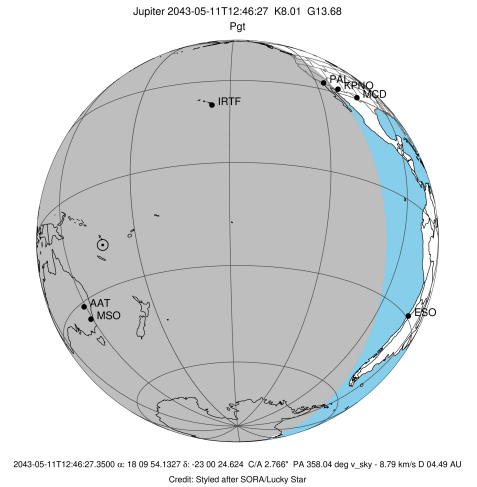


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-11T10:30:59.546	33.74	-25.18	71492.0	-3.00	-3.43
Jupiter	E	2043-05-11T14:52:12.994	8.24	23.76x	71492.0	-3.93	-4.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-11T12:56:40.100
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        : 4066633095009263104
2Mass ID (if available) : 18095413-2300242
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.012
G magnitude           : 13.681
RP magnitude          : 12.309
BP magnitude          : 15.989
DUPflag              : 0
Distance (au)         : 4.487
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.79
Sun-Target sep (deg)  : 137.86
Sun-Moon sep (deg)    : 169.63
B (ring opening deg) : -2.43
PA of pole (deg)      : -1.90
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 1.749
C/A sky separation (km) : 5692.4
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
    
```

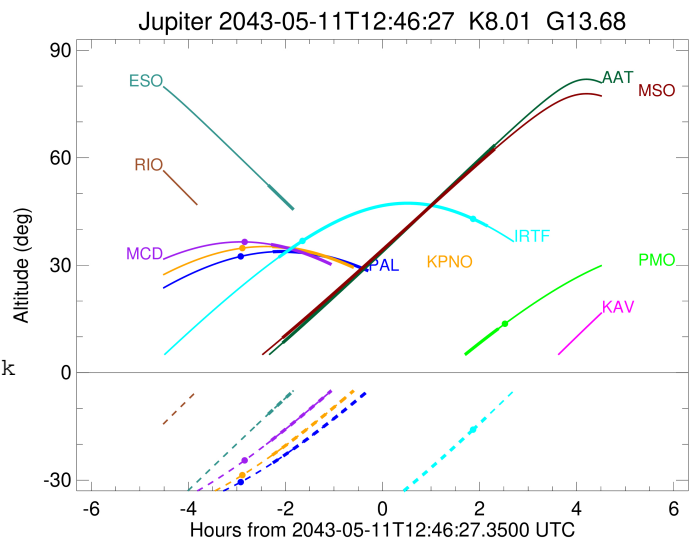
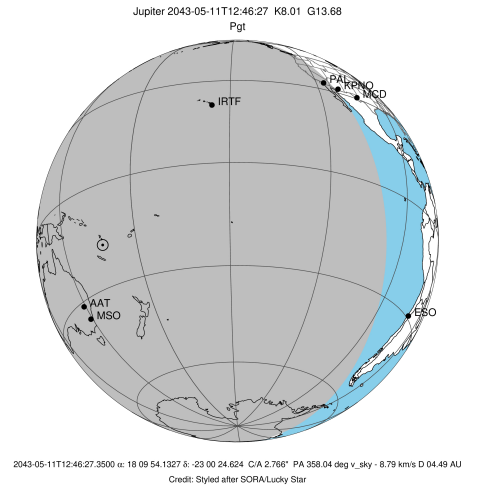


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-11T10:39:32.962	-41.14x	1.57x	71491.9	-5.61	-6.40
Jupiter	E	2043-05-11T15:09:48.386	12.31	-38.65	71492.0	-3.60	-4.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-11T12:40:11.490
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      : 4066633095009263104
2Mass ID (if available) : 18095413-2300242
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 8.012
G magnitude          : 13.681
RP magnitude         : 12.309
BP magnitude         : 15.989
DUPflag             : 0
Distance (au)       : 4.488
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.79
Sun-Target sep (deg) : 137.86
Sun-Moon sep (deg)  : 171.03
B (ring opening deg) : -2.43
PA of pole (deg)    : -1.90
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 1.307
C/A sky separation (km) : 4252.7
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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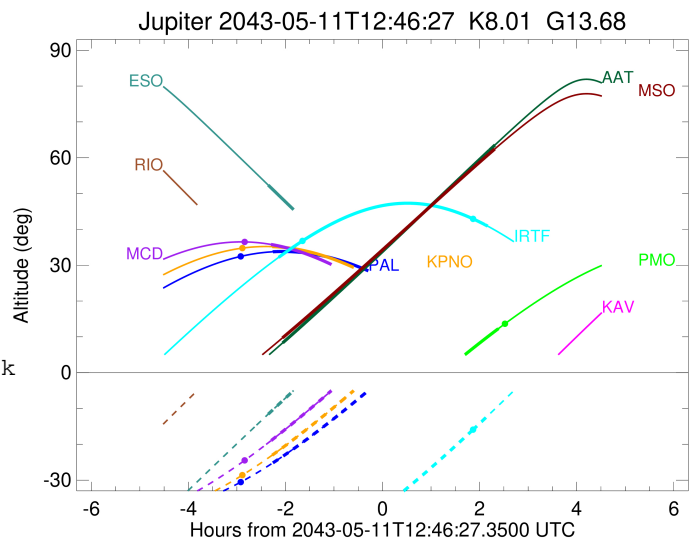
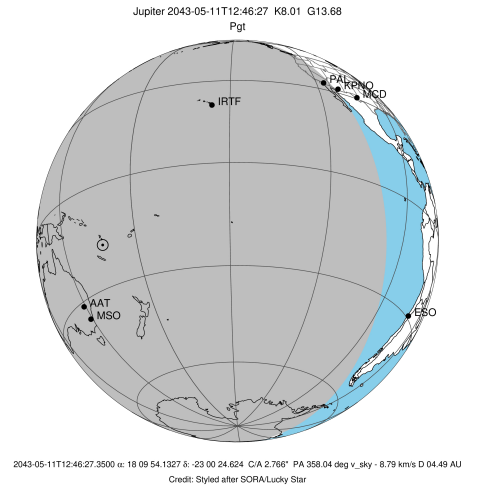


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-11T10:30:06.668	35.18	-23.03	71492.0	-3.08	-3.52
Jupiter	E	2043-05-11T14:51:40.202	5.37	27.93x	71492.0	-4.16	-4.75

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-11T12:39:04.090
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        : 4066633095009263104
2Mass ID (if available) : 18095413-2300242
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.012
G magnitude           : 13.681
RP magnitude          : 12.309
BP magnitude          : 15.989
DUPflag              : 0
Distance (au)         : 4.488
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.79
Sun-Target sep (deg)  : 137.86
Sun-Moon sep (deg)   : 171.08
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.90
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 1.393
C/A sky separation (km) : 4533.2
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
    
```

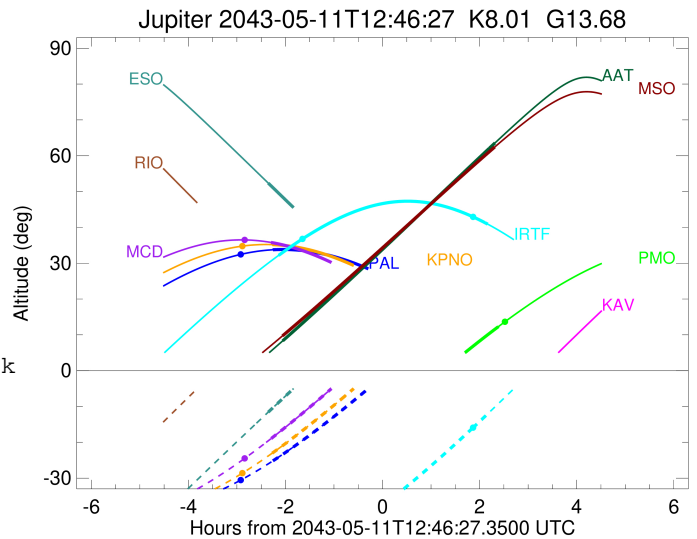
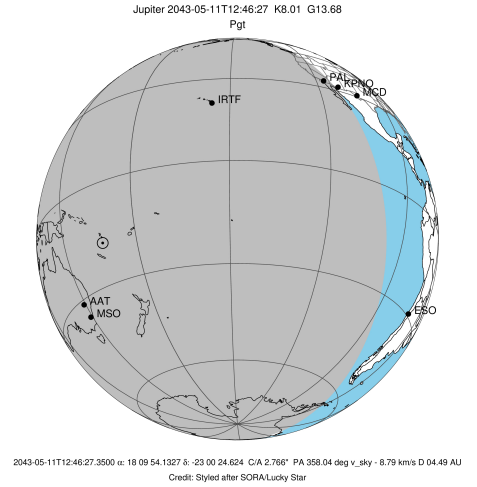


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-11T10:28:48.803	35.78	-18.95	71492.0	-3.19	-3.65
Jupiter	E	2043-05-11T14:51:04.775	0.45x	34.20x	71492.0	-4.46	-5.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-11T12:47:37.460
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        : 4066633095009263104
2Mass ID (if available) : 18095413-2300242
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.012
G magnitude           : 13.681
RP magnitude          : 12.309
BP magnitude          : 15.989
DUPflag              : 0
Distance (au)         : 4.488
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.79
Sun-Target sep (deg)  : 137.86
Sun-Moon sep (deg)    : 170.52
B (ring opening deg) : -2.43
PA of pole (deg)      : -1.90
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 1.423
C/A sky separation (km) : 4630.9
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
    
```

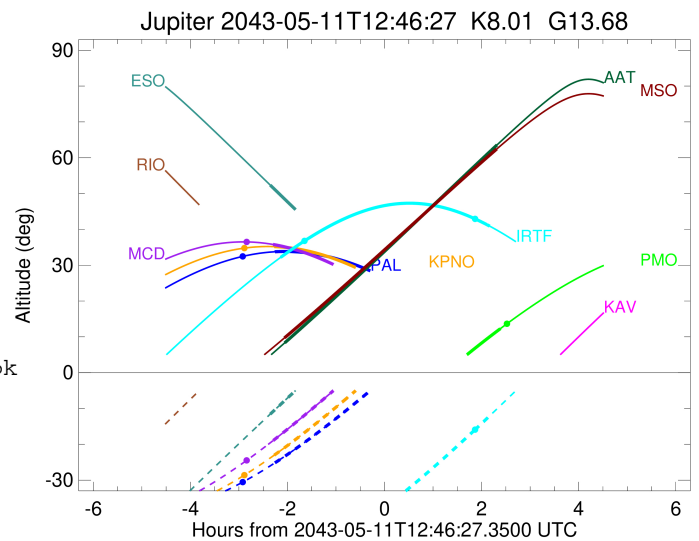
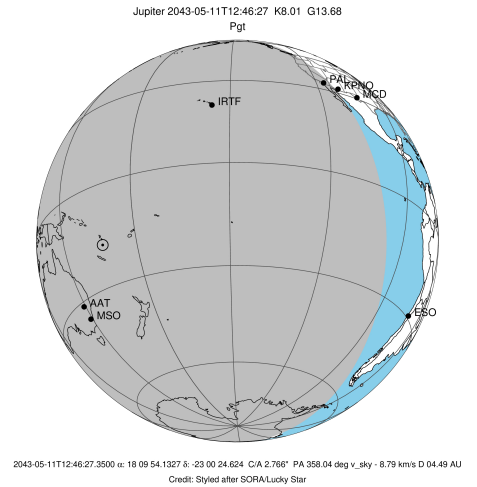


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-11T10:38:02.775	32.18	-52.07	71492.0	-4.10	-4.68
Jupiter	E	2043-05-11T14:56:23.370	40.91	-12.07	71492.0	-3.92	-4.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-11T12:36:04.400
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       : 4066633095009263104
2Mass ID (if available) : 18095413-2300242
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.012
G magnitude           : 13.681
RP magnitude          : 12.309
BP magnitude          : 15.989
DUPflag              : 0
Distance (au)        : 4.488
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.79
Sun-Target sep (deg) : 137.86
Sun-Moon sep (deg)   : 170.65
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.90
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 3.515
C/A sky separation (km) : 11440.4
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
    
```



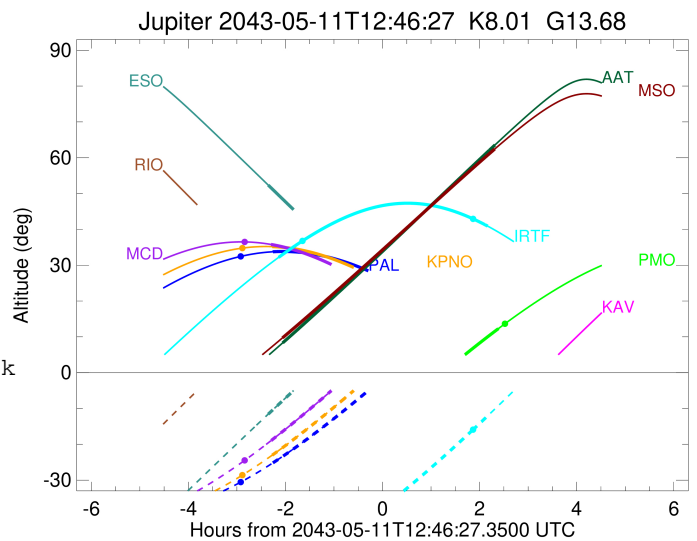
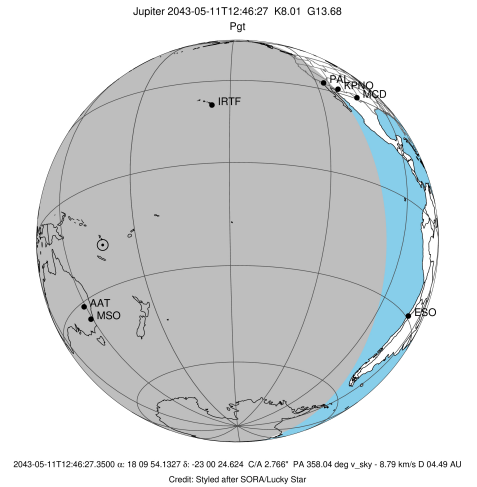
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-11T10:25:08.727	52.37	-11.59	71491.8	-8.36	-9.54
Jupiter	E	2043-05-11T14:49:52.553	-3.30x	36.04x	71491.8	-10.16	-11.58



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-11T12:55:55.380
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      : 4066633095009263104
2Mass ID (if available) : 18095413-2300242
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 8.012
G magnitude          : 13.681
RP magnitude         : 12.309
BP magnitude         : 15.989
DUPflag             : 0
Distance (au)       : 4.487
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.79
Sun-Target sep (deg) : 137.86
Sun-Moon sep (deg)  : 169.43
B (ring opening deg) : -2.43
PA of pole (deg)    : -1.90
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 3.310
C/A sky separation (km) : 10772.1
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
    
```



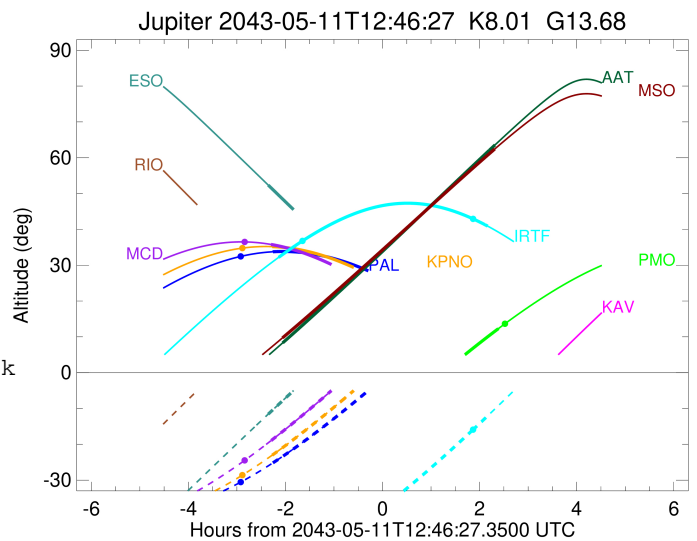
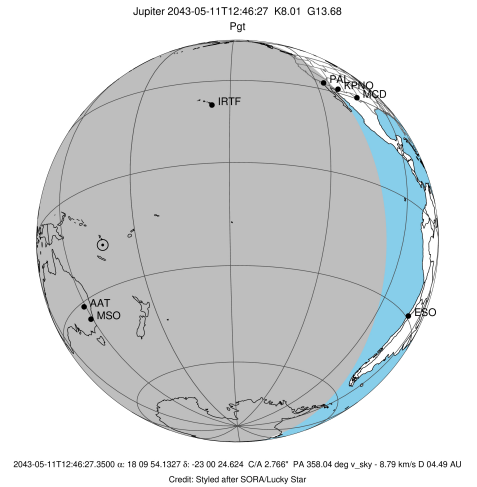
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-11T10:43:08.759	8.33	-43.70	71491.8	-9.66	-11.01
Jupiter	E	2043-05-11T15:05:25.405	63.54	-70.21	71491.8	-7.99	-9.12



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-11T12:55:33.300
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      : 4066633095009263104
2Mass ID (if available) : 18095413-2300242
ICRS Star Coord at Epoch: 18h 09m 54.13270s -23:00:24.62386s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 8.012
G magnitude          : 13.681
RP magnitude         : 12.309
BP magnitude         : 15.989
DUPflag             : 0
Distance (au)       : 4.487
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.79
Sun-Target sep (deg) : 137.86
Sun-Moon sep (deg)  : 169.43
B (ring opening deg) : -2.43
PA of pole (deg)    : -1.90
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 3.434
C/A sky separation (km) : 11176.2
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	2043-05-11T10:42:49.040	9.71	-43.13	71491.8	-9.95	-11.34
Jupiter	E	2043-05-11T15:05:08.061	62.42	-67.59	71491.8	-8.35	-9.52