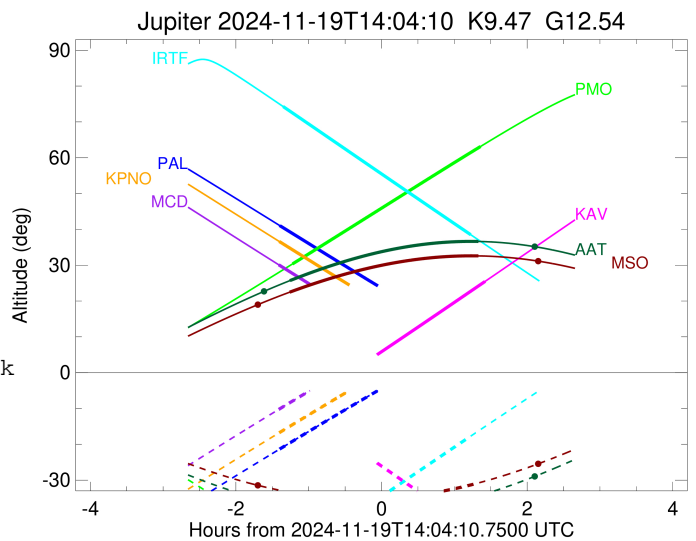
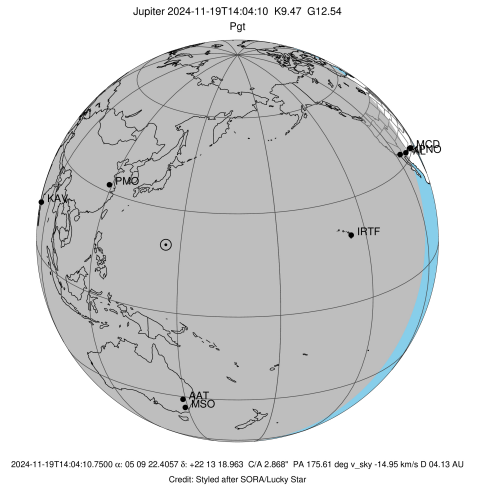




```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2024-11-19T13:58:08.950
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        : 3415283330068719104
2Mass ID (if available) : 05092238+2213193
ICRS Star Coord at Epoch: 05h 09m 22.40573s +22:13:18.96275s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.468
G magnitude           : 12.543
RP magnitude          : 11.643
BP magnitude          : 13.372
DUPflag              : 0
Distance (au)         : 4.134
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.95
Sun-Target sep (deg)  : 159.09
Sun-Moon sep (deg)    : 28.14
B (ring opening deg) : 2.88
PA of pole (deg)     : -4.60
Pole direction: RA (deg): 268.05785
Dec (deg): 64.49673
C/A sky separation (") : 3.618
C/A sky separation (km) : 10845.7
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
    
```

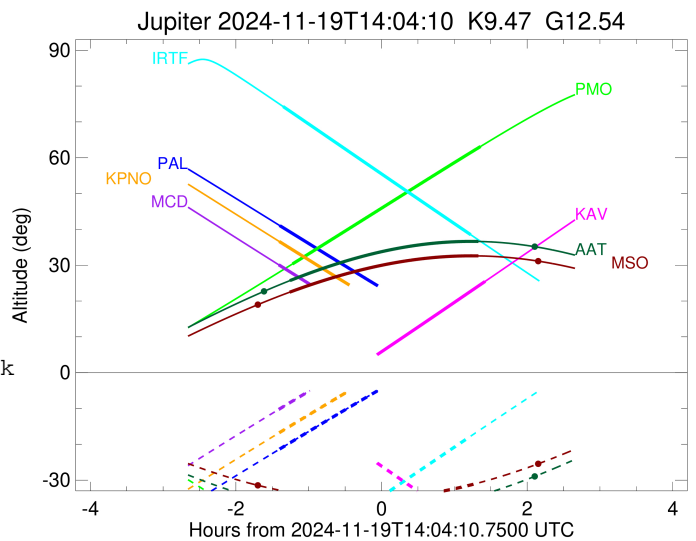
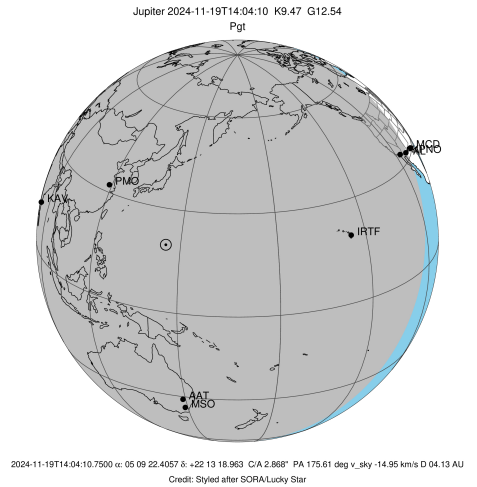


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2024-11-19T12:40:16.508	41.06	-21.32	71491.8	8.47	9.66
Jupiter	E	2024-11-19T15:16:37.408	9.03	9.22x	71491.7	9.05	10.33

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2024-11-19T14:08:34.950
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      : 3415283330068719104
2Mass ID (if available) : 05092238+2213193
ICRS Star Coord at Epoch: 05h 09m 22.40573s +22:13:18.96275s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.468
G magnitude          : 12.543
RP magnitude         : 11.643
BP magnitude         : 13.372
DUPflag             : 0
Distance (au)       : 4.134
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.95
Sun-Target sep (deg) : 159.09
Sun-Moon sep (deg)  : 29.51
B (ring opening deg) : 2.88
PA of pole (deg)    : -4.60
Pole direction: RA (deg): 268.05785
Dec (deg): 64.49673
C/A sky separation (") : 3.532
C/A sky separation (km) : 10587.2
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
    
```

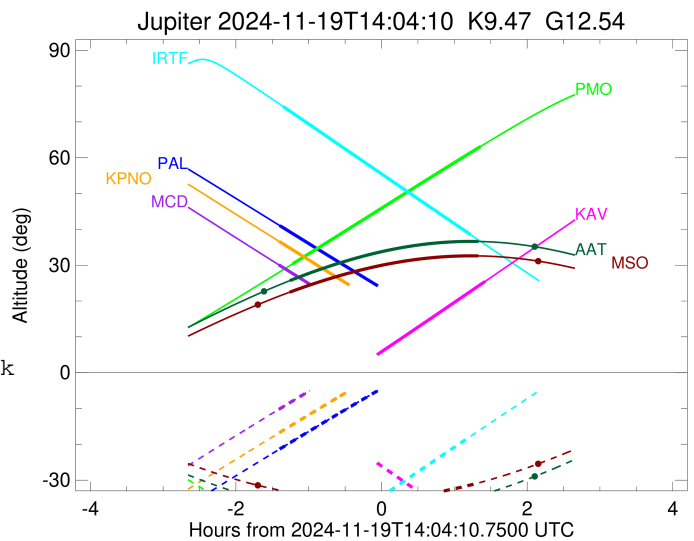
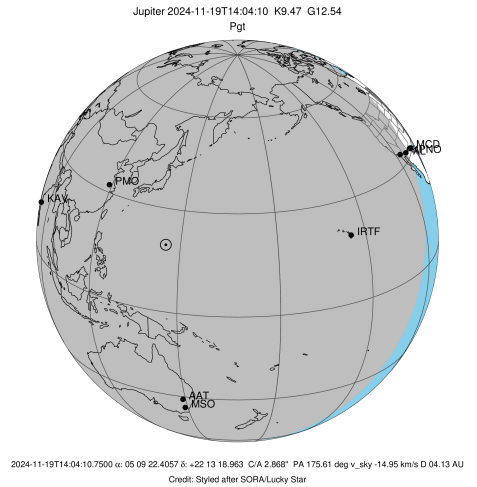


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2024-11-19T12:50:47.752	30.34	-48.11	71491.7	9.24	10.54
Jupiter	E	2024-11-19T15:25:48.255	63.13	-76.60	71491.8	7.87	8.99

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2024-11-19T13:57:55.320
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      : 3415283330068719104
2Mass ID (if available) : 05092238+2213193
ICRS Star Coord at Epoch: 05h 09m 22.40573s +22:13:18.96275s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.468
G magnitude          : 12.543
RP magnitude         : 11.643
BP magnitude         : 13.372
DUPflag             : 0
Distance (au)       : 4.134
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.95
Sun-Target sep (deg) : 159.09
Sun-Moon sep (deg)  : 28.08
B (ring opening deg) : 2.88
PA of pole (deg)    : -4.60
Pole direction: RA (deg): 268.05785
Dec (deg): 64.49673
C/A sky separation ("): 3.630
C/A sky separation (km): 10883.6
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
    
```

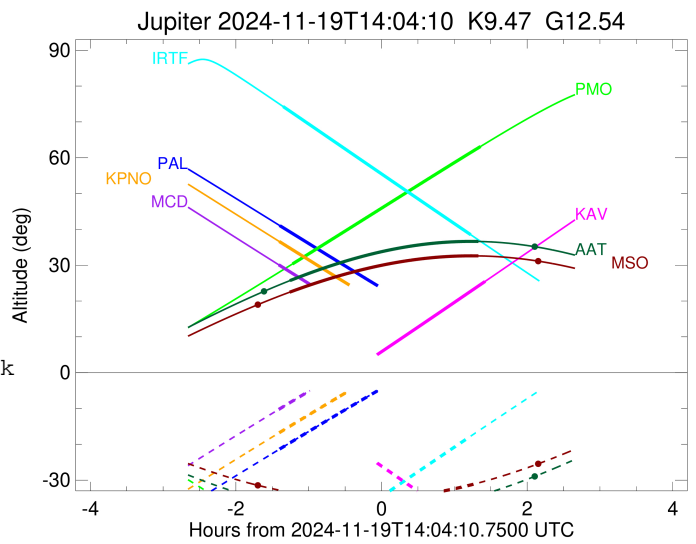
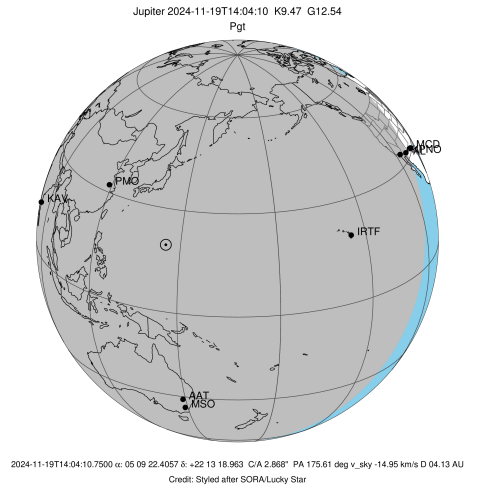


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2024-11-19T12:39:54.076	36.62	-16.77	71491.8	8.46	9.65
Jupiter	E	2024-11-19T15:16:34.426	4.40x	13.70x	71491.7	9.11	10.39

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2024-11-19T13:57:43.320
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        : 3415283330068719104
2Mass ID (if available) : 05092238+2213193
ICRS Star Coord at Epoch: 05h 09m 22.40573s +22:13:18.96275s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.468
G magnitude           : 12.543
RP magnitude          : 11.643
BP magnitude          : 13.372
DUPflag              : 0
Distance (au)         : 4.134
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.95
Sun-Target sep (deg)  : 159.09
Sun-Moon sep (deg)    : 28.01
B (ring opening deg) : 2.88
PA of pole (deg)      : -4.60
Pole direction: RA (deg): 268.05785
Dec (deg): 64.49673
C/A sky separation (") : 3.677
C/A sky separation (km) : 11023.9
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
    
```

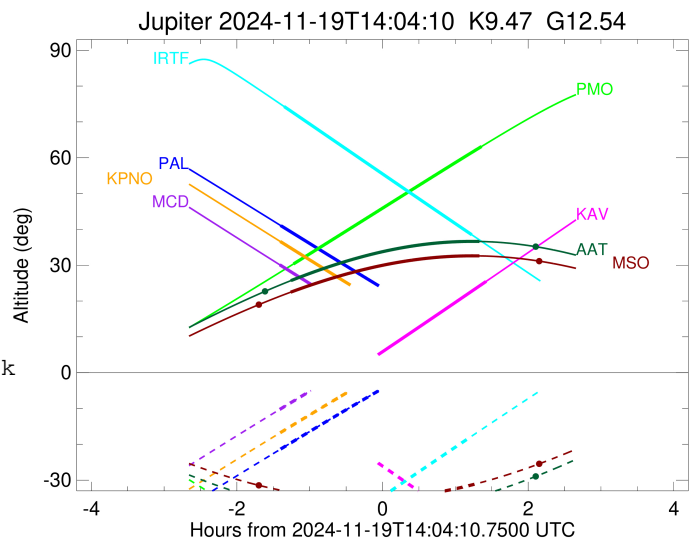
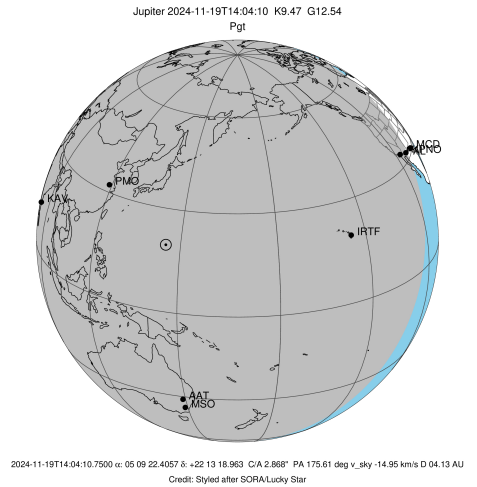


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2024-11-19T12:39:28.684	30.12	-10.26	71491.7	8.53	9.73
Jupiter	E	2024-11-19T15:16:37.613	-2.02x	19.69x	71491.7	9.24	10.54

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2024-11-19T14:00:12.160
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       : 3415283330068719104
2Mass ID (if available) : 05092238+2213193
ICRS Star Coord at Epoch: 05h 09m 22.40573s +22:13:18.96275s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.468
G magnitude           : 12.543
RP magnitude         : 11.643
BP magnitude         : 13.372
DUPflag             : 0
Distance (au)        : 4.134
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.95
Sun-Target sep (deg) : 159.09
Sun-Moon sep (deg)   : 28.64
B (ring opening deg) : 2.88
PA of pole (deg)     : -4.60
Pole direction: RA (deg): 268.05785
Dec (deg): 64.49673
C/A sky separation (") : 2.818
C/A sky separation (km) : 8447.5
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
    
```

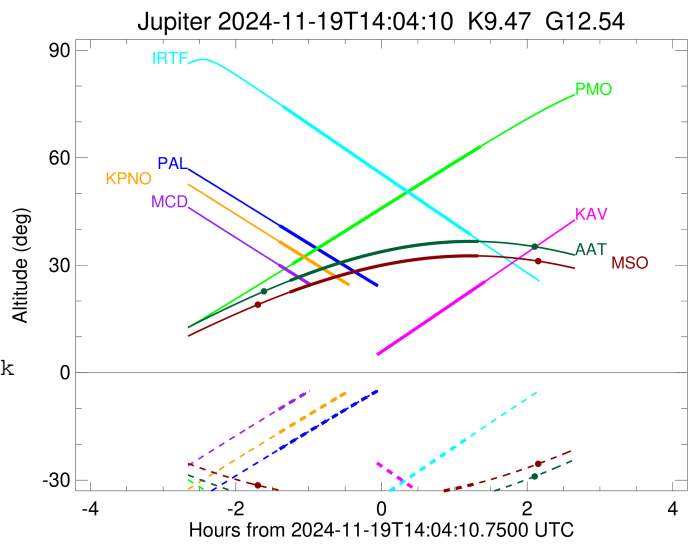
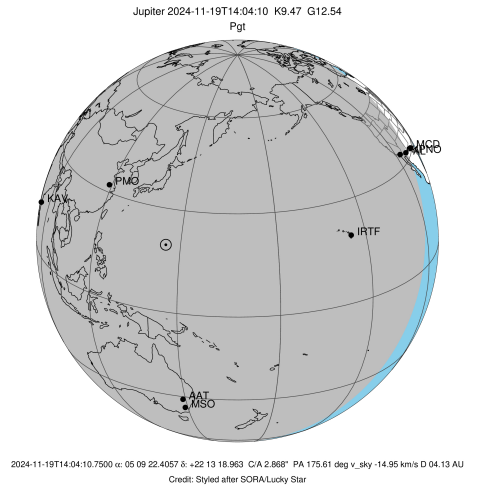


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2024-11-19T12:43:05.053	74.29	-53.43	71491.8	6.82	7.78
Jupiter	E	2024-11-19T15:17:41.269	38.51	-17.72	71491.8	6.93	7.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2024-11-19T14:11:07.700
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      : 3415283330068719104
2Mass ID (if available) : 05092238+2213193
ICRS Star Coord at Epoch: 05h 09m 22.40573s +22:13:18.96275s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.468
G magnitude          : 12.543
RP magnitude         : 11.643
BP magnitude         : 13.372
DUPflag             : 0
Distance (au)       : 4.134
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.95
Sun-Target sep (deg) : 159.09
Sun-Moon sep (deg)  : 29.51
B (ring opening deg) : 2.88
PA of pole (deg)    : -4.60
Pole direction: RA (deg): 268.05785
Dec (deg): 64.49673
C/A sky separation (") : 3.393
C/A sky separation (km) : 10171.4
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
    
```



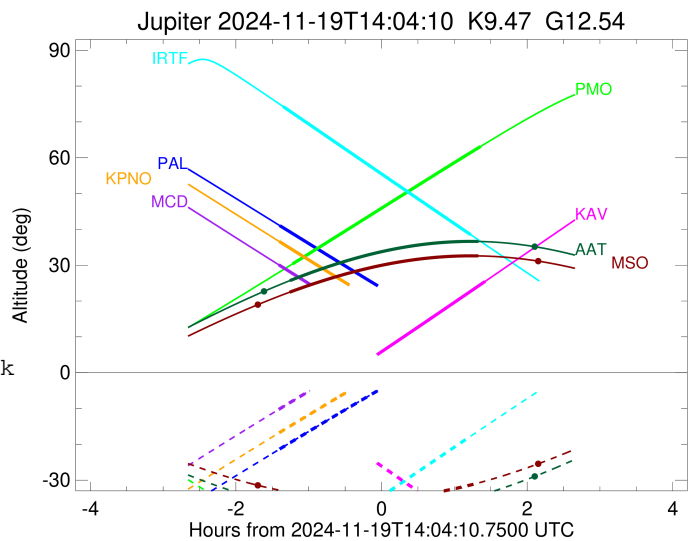
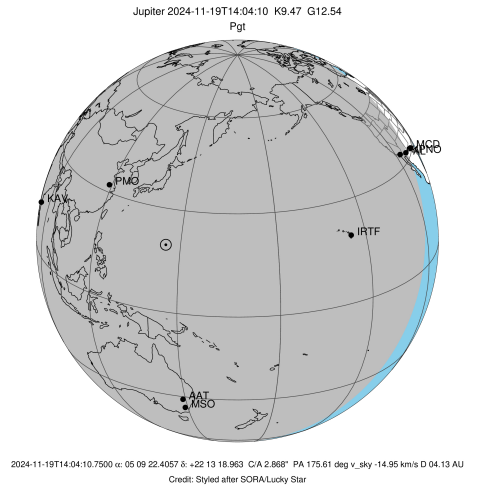
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2024-11-19T12:51:51.437	-10.40x	-9.18	71491.7	9.01	10.27
Jupiter	E	2024-11-19T15:29:31.487	25.47	-46.14	71491.8	7.31	8.34



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2024-11-19T14:06:28.890
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       : 3415283330068719104
2Mass ID (if available) : 05092238+2213193
ICRS Star Coord at Epoch: 05h 09m 22.40573s +22:13:18.96275s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.468
G magnitude           : 12.543
RP magnitude          : 11.643
BP magnitude          : 13.372
DUPflag              : 0
Distance (au)        : 4.134
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.95
Sun-Target sep (deg) : 159.09
Sun-Moon sep (deg)   : 29.40
B (ring opening deg) : 2.88
PA of pole (deg)     : -4.60
Pole direction: RA (deg): 268.05785
Dec (deg): 64.49673
C/A sky separation (") : 1.229
C/A sky separation (km) : 3684.2
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
    
```



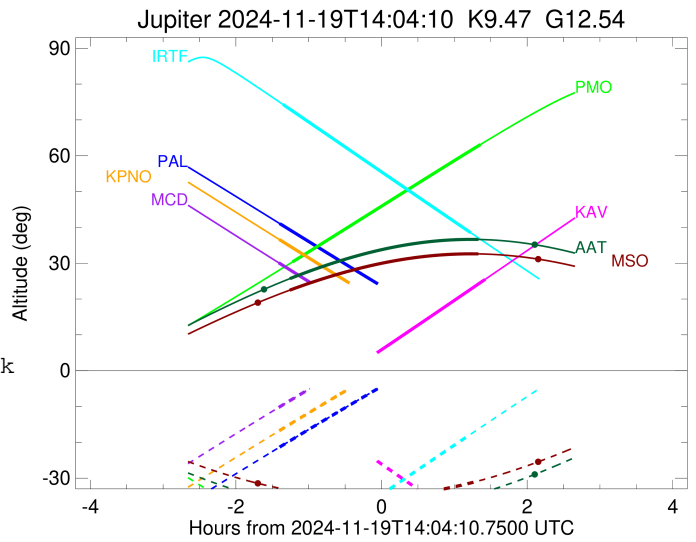
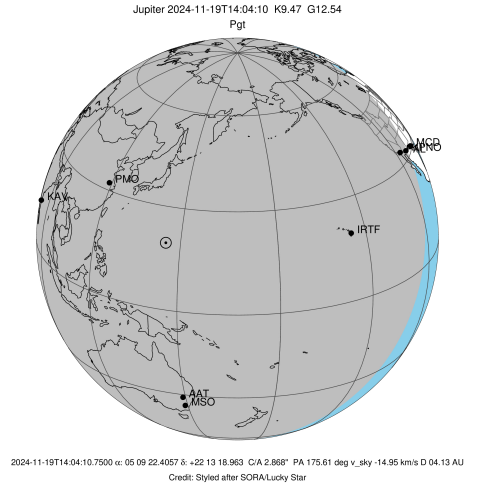
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2024-11-19T12:48:39.568	25.69	-37.21	71492.0	3.51	4.01
Jupiter	E	2024-11-19T15:24:01.535	36.62	-34.36	71492.0	2.56	2.93



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2024-11-19T14:06:25.390
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       : 3415283330068719104
2Mass ID (if available) : 05092238+2213193
ICRS Star Coord at Epoch: 05h 09m 22.40573s +22:13:18.96275s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.468
G magnitude           : 12.543
RP magnitude          : 11.643
BP magnitude          : 13.372
DUPflag              : 0
Distance (au)        : 4.134
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.95
Sun-Target sep (deg) : 159.09
Sun-Moon sep (deg)   : 29.37
B (ring opening deg) : 2.88
PA of pole (deg)     : -4.60
Pole direction: RA (deg): 268.05785
Dec (deg): 64.49673
C/A sky separation (") : 1.142
C/A sky separation (km) : 3422.6
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	2024-11-19T12:48:30.319	22.46	-33.34	71492.0	3.29	3.76
Jupiter	E	2024-11-19T15:24:04.284	32.59	-30.78	71492.0	2.36	2.70