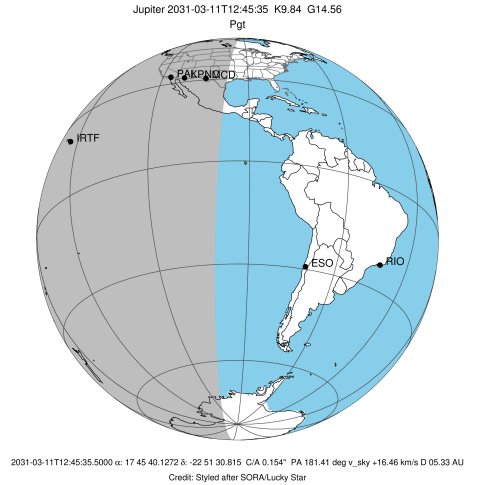
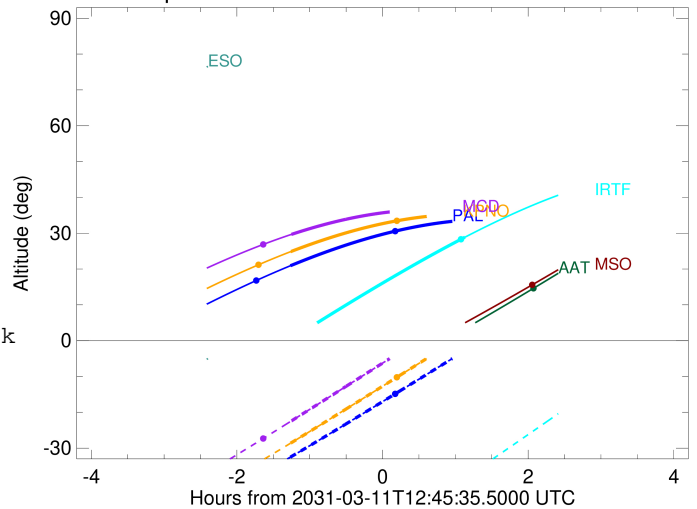



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-11T12:43:15.610
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       : 4068857372721761152
2Mass ID (if available) : 17454013-2251307
ICRS Star Coord at Epoch: 17h 45m 40.12715s -22:51:30.81510s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 9.838
G magnitude          : 14.562
RP magnitude         : 13.337
BP magnitude         : 16.210
DUPflag             : 0
Distance (au)        : 5.330
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 16.45
Sun-Target sep (deg) : 83.61
Sun-Moon sep (deg)   : 67.86
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.71
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 1.473
C/A sky separation (km) : 5694.1
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
    
```



Jupiter 2031-03-11T12:45:35 K9.84 G14.56

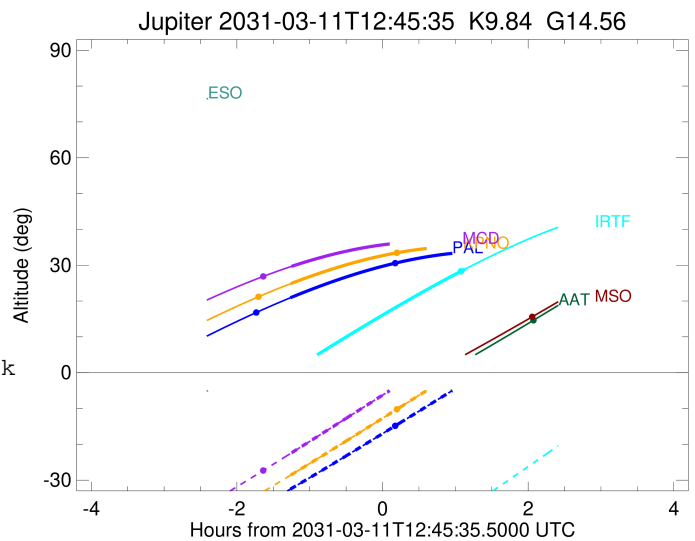
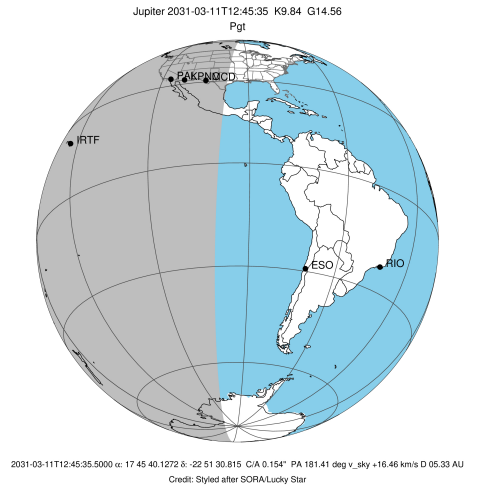


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-11T11:29:41.613	20.91	-32.50	71492.0	3.50	4.00
Jupiter	E	2031-03-11T13:57:11.030	33.71	-2.06x	71491.9	5.47	6.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-11T12:43:42.600
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        : 4068857372721761152
2Mass ID (if available) : 17454013-2251307
ICRS Star Coord at Epoch: 17h 45m 40.12715s -22:51:30.81510s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 9.838
G magnitude           : 14.562
RP magnitude          : 13.337
BP magnitude          : 16.210
DUPflag              : 0
Distance (au)         : 5.330
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.45
Sun-Target sep (deg)  : 83.61
Sun-Moon sep (deg)    : 67.92
B (ring opening deg) : -2.64
PA of pole (deg)      : 0.71
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 1.471
C/A sky separation (km) : 5685.5
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
    
```

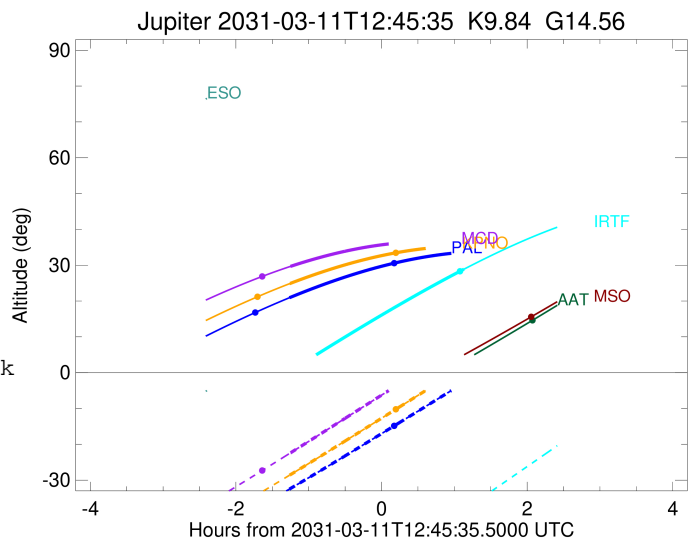
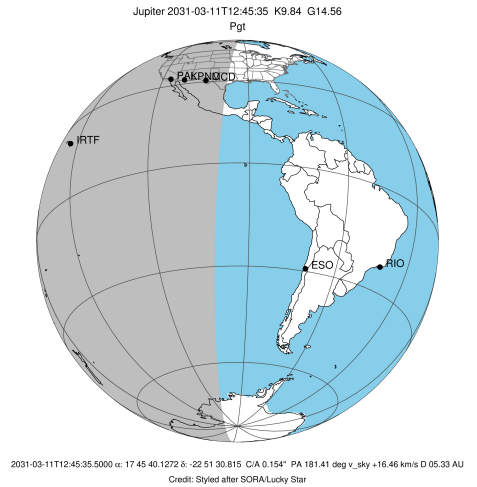


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-11T11:30:01.908	24.86	-28.58	71492.0	3.53	4.03
Jupiter	E	2031-03-11T13:57:41.976	35.34	2.59x	71491.9	5.42	6.19

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-11T12:44:25.250
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       : 4068857372721761152
2Mass ID (if available) : 17454013-2251307
ICRS Star Coord at Epoch: 17h 45m 40.12715s -22:51:30.81510s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 9.838
G magnitude          : 14.562
RP magnitude         : 13.337
BP magnitude         : 16.210
DUPflag             : 0
Distance (au)        : 5.330
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 16.45
Sun-Target sep (deg) : 83.61
Sun-Moon sep (deg)   : 68.00
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.71
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 1.472
C/A sky separation (km) : 5688.7
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
    
```

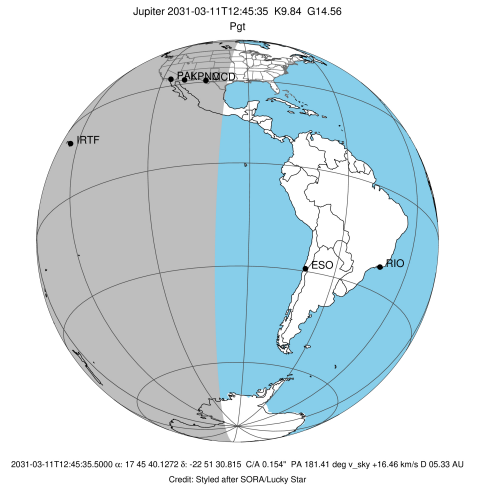


x: target alt < 5.0 deg or sun > -5.0 deg

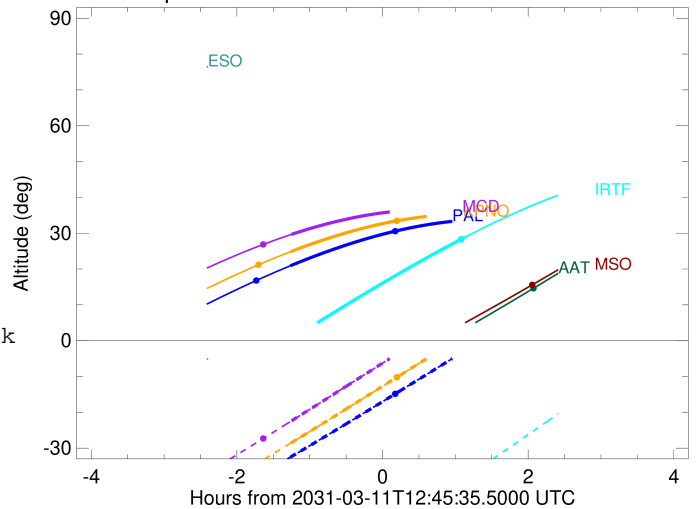
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-11T11:30:37.032	29.67	-22.38	71492.0	3.59	4.11
Jupiter	E	2031-03-11T13:58:27.728	36.11	9.35x	71491.9	5.35	6.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-11T12:40:03.200
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        : 4068857372721761152
2Mass ID (if available) : 17454013-2251307
ICRS Star Coord at Epoch: 17h 45m 40.12715s -22:51:30.81510s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 9.838
G magnitude           : 14.562
RP magnitude          : 13.337
BP magnitude          : 16.210
DUPflag              : 0
Distance (au)         : 5.330
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.45
Sun-Target sep (deg) : 83.61
Sun-Moon sep (deg)   : 67.47
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.71
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 0.917
C/A sky separation (km) : 3544.4
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
    
```



Jupiter 2031-03-11T12:45:35 K9.84 G14.56



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	2031-03-11T11:27:14.029	-0.26x	-69.06	71492.0	1.52	1.73
Jupiter	E	2031-03-11T13:53:33.157	28.88	-38.33	71491.9	4.09	4.67