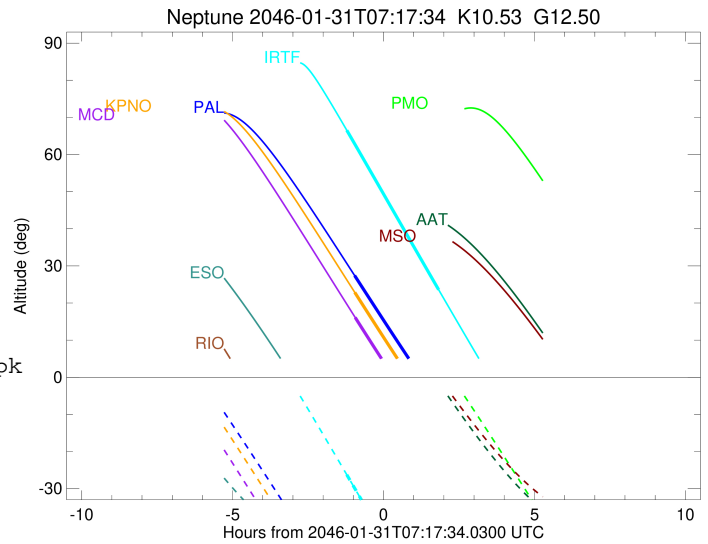
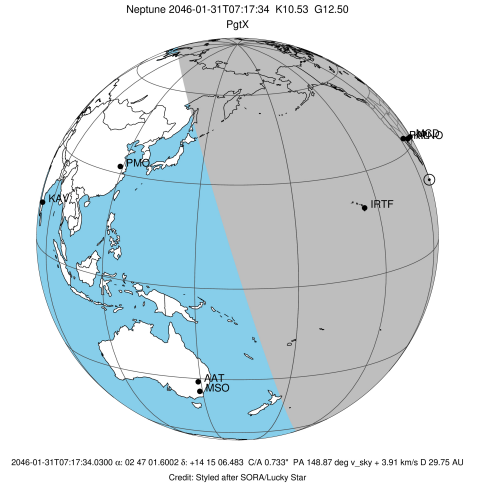



```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2046-01-31T07:42:56.810
Event type            : PgtX
: Neptune occs: geocentric, topocentric
: No ring occs
Observer code         : PAL
Location               : Palomar Mt (200")
Latitude (deg)        : 33.35622
E. Longitude (deg)    : 243.13601
Altitude (km)         : 1.706
Gaia source ID        : 32828466563598336
2Mass ID (if available) : 02470162+1415073
ICRS Star Coord at Epoch: 02h 47m 01.60016s +14:15:06.48283s
RUWE (>1.4 is poor) : 1.36
K magnitude            : 10.532
G magnitude           : 12.497
RP magnitude          : 11.862
BP magnitude          : 12.969
DUPflag               : 0
Distance (au)         : 29.749
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 3.91
Sun-Target sep (deg)  : 92.74
Sun-Moon sep (deg)    : 155.08
B (ring opening deg) : -1.08
PA of pole (deg)      : -45.67
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.738
C/A sky separation (km) : 15921.2
NAIF SPICE kernels    : RAJobs_U111+rgf16.spk
URKALLv1.spk
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
earthstns_itr93_040916.bsp
earth_200101_990628_predict.bpc
pck00010.tpc
pck.urall11.tpc.Neptune
naif0012.tls
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
earth_flat_IAU.spk
    
```

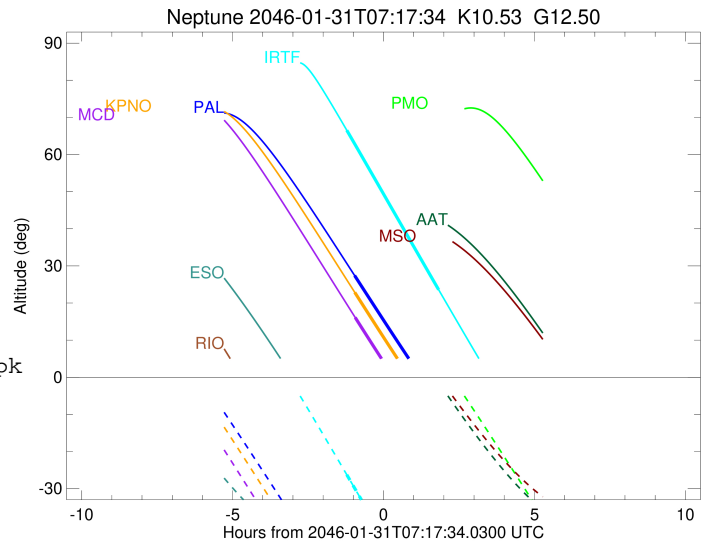
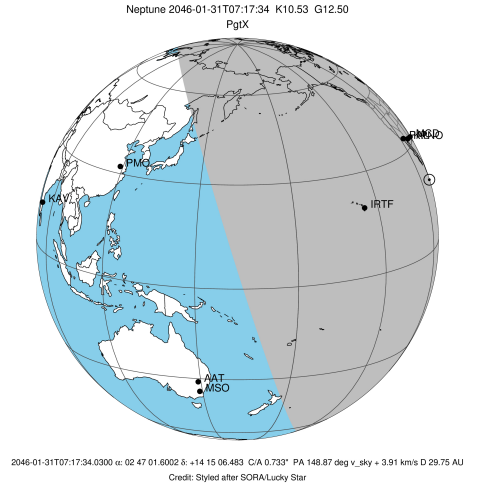


b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Neptune	I	2046-01-31T06:20:04.127		27.42	-62.39	24763.98		24.95	25.71
Neptune	E	2046-01-31T09:02:49.729	x	-5.95	-68.85	24763.91		56.18	57.08

```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2046-01-31T07:42:55.190
Event type           : PgtX
: Neptune occs: geocentric, topocentric
: No ring occs
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)   : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 32828466563598336
2Mass ID (if available) : 02470162+1415073
ICRS Star Coord at Epoch: 02h 47m 01.60016s +14:15:06.48283s
RUWE (>1.4 is poor) : 1.36
K magnitude           : 10.532
G magnitude           : 12.497
RP magnitude         : 11.862
BP magnitude         : 12.969
DUPflag              : 0
Distance (au)        : 29.749
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : 3.91
Sun-Target sep (deg) : 92.74
Sun-Moon sep (deg)   : 155.03
B (ring opening deg) : -1.08
PA of pole (deg)     : -45.67
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.736
C/A sky separation (km) : 15876.8
NAIF SPICE kernels   : RAJobs_U111+rgf16.spk
URKALLv1.spk
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
earthstns_itr93_040916.bsp
earth_200101_990628_predict.bpc
pck00010.tpc
pck.urall11.tpc.Neptune
naif0012.tls
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
earth_flat_IAU.spk
    
```

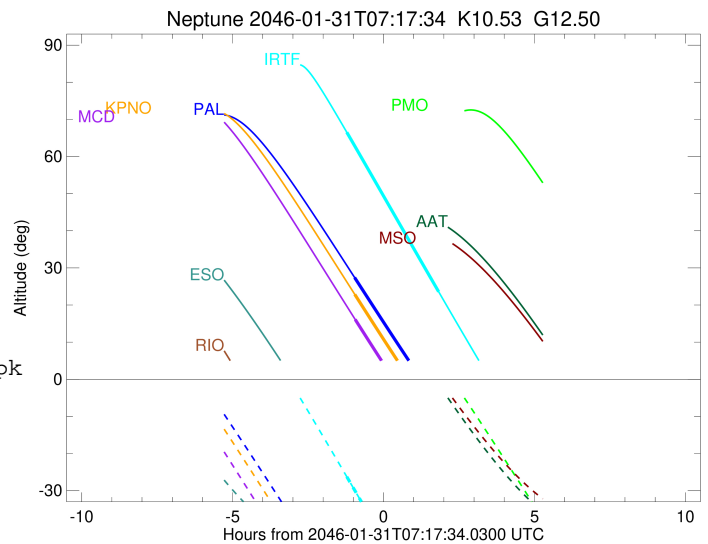
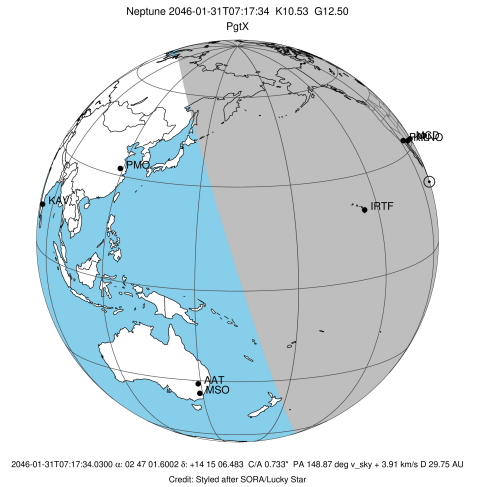


b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Neptune	I	2046-01-31T06:20:28.063		22.86	-66.98	24763.96		24.51	25.26
Neptune	E	2046-01-31T09:02:21.813	-10.49x	-66.33	24763.90			56.30	57.19

```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2046-01-31T07:42:35.510
Event type            : PgtX
: Neptune occs: geocentric, topocentric
: No ring occs
Observer code         : MCD
Location              : McDonald Obs. 2.7m
Latitude (deg)        : 30.67158
E. Longitude (deg)    : 255.97844
Altitude (km)         : 2.075
Gaia source ID        : 32828466563598336
2Mass ID (if available) : 02470162+1415073
ICRS Star Coord at Epoch: 02h 47m 01.60016s +14:15:06.48283s
RUWE (>1.4 is poor) : 1.36
K magnitude           : 10.532
G magnitude           : 12.497
RP magnitude          : 11.862
BP magnitude          : 12.969
DUPflag              : 0
Distance (au)         : 29.749
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 3.91
Sun-Target sep (deg)  : 92.74
Sun-Moon sep (deg)    : 154.97
B (ring opening deg) : -1.08
PA of pole (deg)      : -45.67
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.738
C/A sky separation (km) : 15933.1
NAIF SPICE kernels    : RAJobs_U111+rgf16.spk
URKALLv1.spk
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
earthstns_itr93_040916.bsp
earth_200101_990628_predict.bpc
pck00010.tpc
pck.urall11.tpc.Neptune
naif0012.tls
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
earth_flat_IAU.spk
    
```

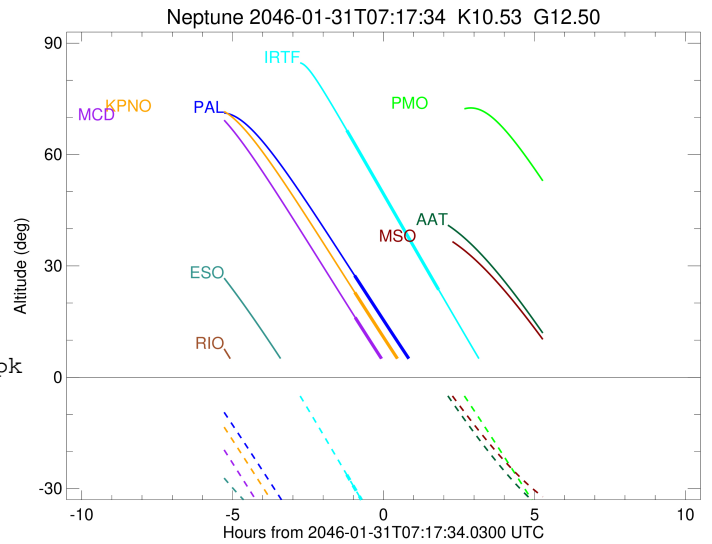
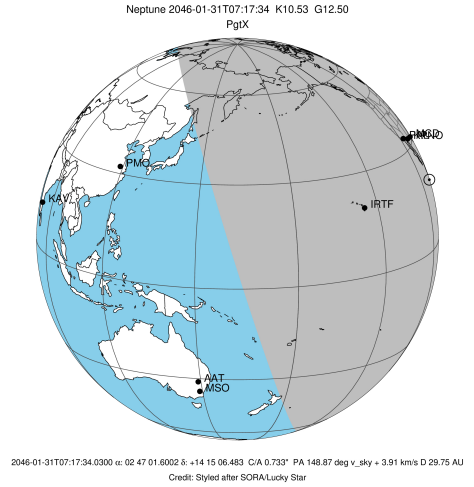


b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Neptune	I	2046-01-31T06:21:14.223		16.12	-72.86	24763.98		24.26	25.01
Neptune	E	2046-01-31T09:01:00.393	x	-16.61	-61.38	24763.91		56.79	57.68

```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2046-01-31T07:37:24.280
Event type            : PgtX
: Neptune occs: geocentric, topocentric
: No ring occs
Observer code         : IRTF
Location              : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 32828466563598336
2Mass ID (if available) : 02470162+1415073
ICRS Star Coord at Epoch: 02h 47m 01.60016s +14:15:06.48283s
RUWE (>1.4 is poor) : 1.36
K magnitude           : 10.532
G magnitude           : 12.497
RP magnitude          : 11.862
BP magnitude          : 12.969
DUPflag              : 0
Distance (au)        : 29.749
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : 3.91
Sun-Target sep (deg) : 92.74
Sun-Moon sep (deg)   : 155.56
B (ring opening deg) : -1.08
PA of pole (deg)     : -45.67
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.670
C/A sky separation (km) : 14466.7
NAIF SPICE kernels   : RAJobs_U111+rgf16.spk
URKALLv1.spk
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
earthstns_itrf93_040916.bsp
earth_200101_990628_predict.bpc
pck00010.tpc
pck.urall11.tpc.Neptune
naif0012.tls
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
earth_flat_IAU.spk
    
```



```

b: ring blocked by planet  x: target alt < 5.0 deg or sun > -5.0 deg
Ring      I/E          UTC          b?  alt  alt-sun  radius  r-dot  lat-geo  lat-geodetic
-----
Neptune   I  2046-01-31T06:04:24.617  66.58 -26.22  24763.98  23.29  24.01
Neptune   E  2046-01-31T09:07:15.545  23.57 -69.04  24763.92  49.77  50.73
    
```