

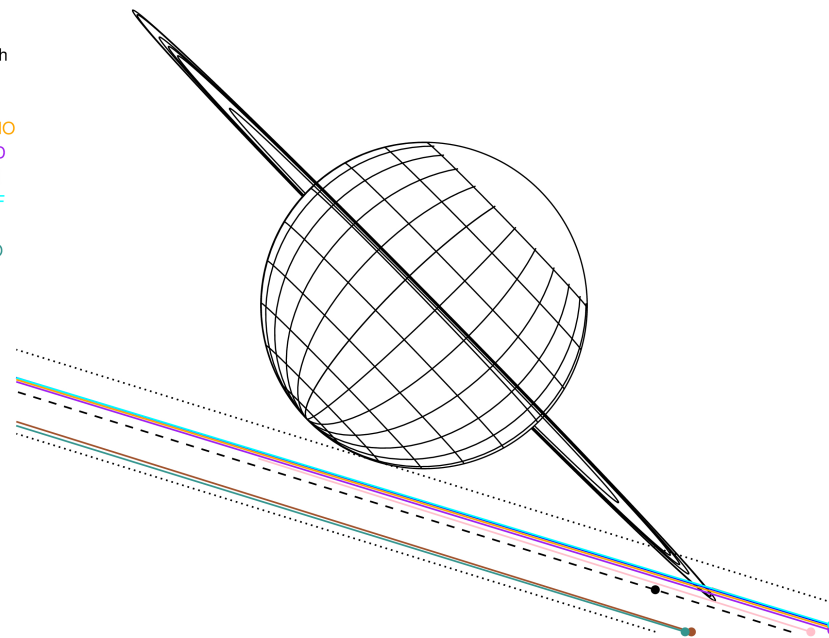
target : Neptune
 target radius (km) : 24764.00
 C/A epoch : 2044-11-12T06:22:58.440
 Event type : XRT
 : No Neptune occs
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 32733427527188864
 2Mass ID (if available) : 02425596+1352365

Neptune 2044-11-12T06:22:58 K10.99 G14.09 XRT

ICRS Star Coord at Epoch: 02h 42m 56.18287s +13:52:37.63906s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 10.989
 G magnitude : 14.086
 RP magnitude : 13.085
 BP magnitude : 15.106
 DUPflag : 0
 Distance (au) : 28.828
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -24.31
 Sun-Target sep (deg) : 172.50
 Sun-Moon sep (deg) : 97.97
 B (ring opening deg) : -1.52
 PA of pole (deg) : -45.89



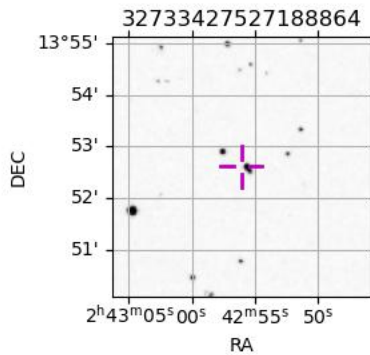
2044-11-12T06:22:58.4400 ra: 02 42 56.18287 s: +13 52 37.639 C/A 1.473° PA 342.77 deg v_sky -24.31 km/s D 28.83 AU
 Credit: Styled after SORA/Lucky Star



#	a(km)	ring
1	42000.0	Galle
2	53200.0	LeVerrier
3	55200.0	Lassell
4	57200.0	Arago
5	61953.0	Galatea
6	62933.0	Adams

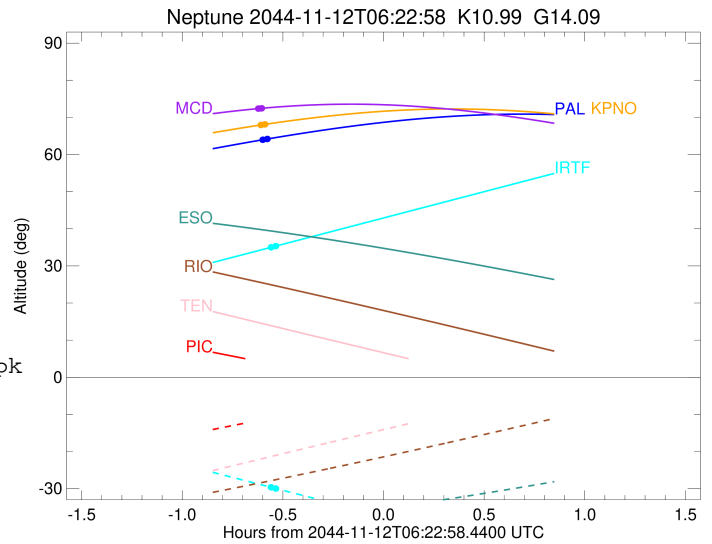
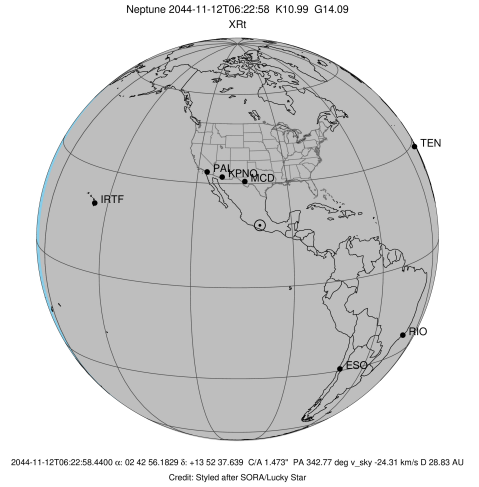
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1					PnnRnn
PAL	Palomar Mt (200")	33.4	243.1	+		+	NOV 12 05:47 - NOV 12 05:47	PnnRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+		+	NOV 12 05:46 - NOV 12 05:47	PnnRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+		+	NOV 12 05:46 - NOV 12 05:46	PnnRie
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+		+	NOV 12 05:50 - NOV 12 05:52	PnnRie
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8					PnnRnn
ESO	European Southern Obs	-29.3	289.3					PnnRnn
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2044-11-12T06:23:04.710
Event type           : XRT
: No Neptune occs
: Ring occs: topocentric, not geocentric
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 32733427527188864
2Mass ID (if available) : 02425596+1352365
ICRS Star Coord at Epoch: 02h 42m 56.18287s +13:52:37.63906s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 10.989
G magnitude           : 14.086
RP magnitude          : 13.085
BP magnitude          : 15.106
DUPflag              : 0
Distance (au)        : 28.828
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -24.31
Sun-Target sep (deg) : 172.50
Sun-Moon sep (deg)   : 98.87
B (ring opening deg) : -1.52
PA of pole (deg)     : -45.89
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.363
C/A sky separation (km) : 28504.9
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
    
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b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

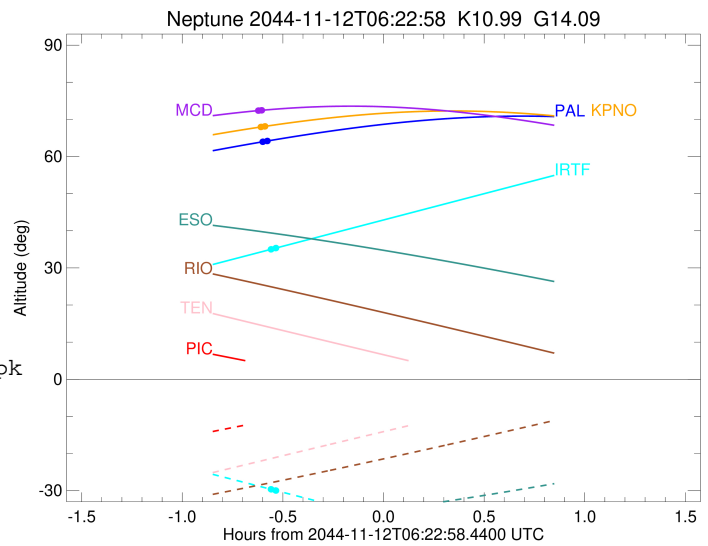
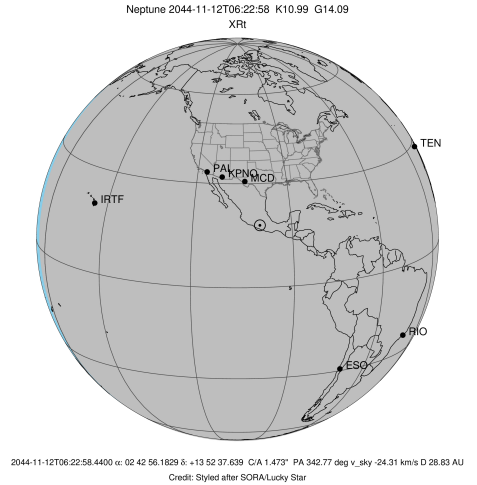
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2044-11-12T05:47:34.267		64.07	-62.13	62984.69	-161.49		
Galatea	I	2044-11-12T05:47:40.736		64.09	-62.15	62014.87	-143.19		

No planet occultations

Galatea	E	2044-11-12T05:47:38.596		64.08	-62.14	64853.45	-190.08		
Adams	E	2044-11-12T05:47:16.916		64.02	-62.07	83335.70	-319.34		

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target           : Neptune
target radius (km) : 24764.00
C/A epoch       : 2044-11-12T06:22:48.290
Event type      : XRT
: No Neptune occs
: Ring occs: topocentric, not geocentric
Observer code   : KPNO
Location        : Kitt Peak Natl Obs
Latitude (deg)  : 31.96333
E. Longitude (deg) : 248.40000
Altitude (km)   : 2.120
Gaia source ID  : 32733427527188864
2Mass ID (if available) : 02425596+1352365
ICRS Star Coord at Epoch: 02h 42m 56.18287s +13:52:37.63906s
RUWE (>1.4 is poor) : 1.00
K magnitude     : 10.989
G magnitude     : 14.086
RP magnitude    : 13.085
BP magnitude    : 15.106
DUPflag        : 0
Distance (au)   : 28.828
f0 (km)         : 0.000
g0 (km)         : 0.000
skyplane vel. (km/s) : -24.31
Sun-Target sep (deg) : 172.50
Sun-Moon sep (deg) : 98.90
B (ring opening deg) : -1.52
PA of pole (deg) : -45.89
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.377
C/A sky separation (km) : 28798.2
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

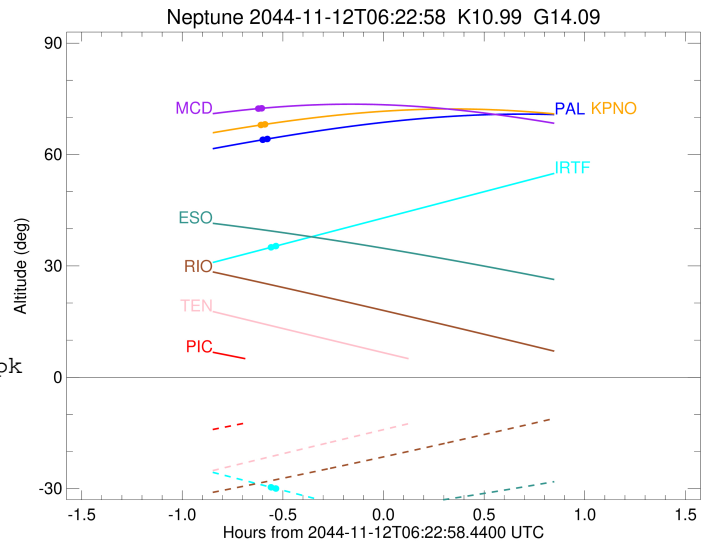
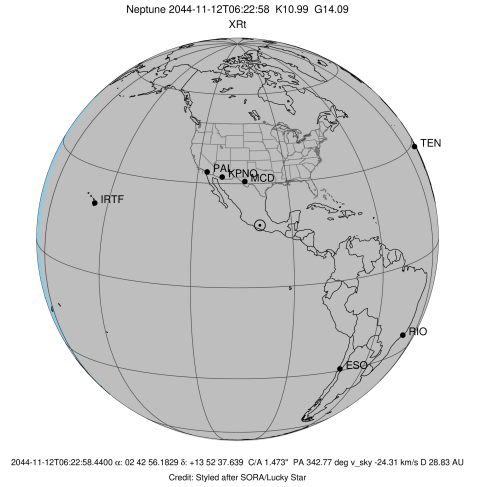
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2044-11-12T05:47:00.710		68.05	-66.58	62991.96	-149.62		
Galatea	I	2044-11-12T05:47:07.796		68.06	-66.60	62022.59	-129.19		

No planet occultations

Galatea	E	2044-11-12T05:47:07.686		68.06	-66.60	62389.38	-137.39		
Adams	E	2044-11-12T05:46:55.215		68.03	-66.56	69157.88	-230.65		

```

target           : Neptune
target radius (km) : 24764.00
C/A epoch       : 2044-11-12T06:22:22.550
Event type      : XRT
: No Neptune occs
: Ring occs: topocentric, not geocentric
Observer code   : MCD
Location        : McDonald Obs. 2.7m
Latitude (deg)  : 30.67158
E. Longitude (deg) : 255.97844
Altitude (km)   : 2.075
Gaia source ID  : 32733427527188864
2Mass ID (if available) : 02425596+1352365
ICRS Star Coord at Epoch: 02h 42m 56.18287s +13:52:37.63906s
RUWE (>1.4 is poor) : 1.00
K magnitude     : 10.989
G magnitude     : 14.086
RP magnitude    : 13.085
BP magnitude    : 15.106
DUPflag        : 0
Distance (au)   : 28.828
f0 (km)         : 0.000
g0 (km)         : 0.000
skyplane vel. (km/s) : -24.31
Sun-Target sep (deg) : 172.50
Sun-Moon sep (deg) : 98.92
B (ring opening deg) : -1.52
PA of pole (deg) : -45.89
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.394
C/A sky separation (km) : 29141.0
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
    
```



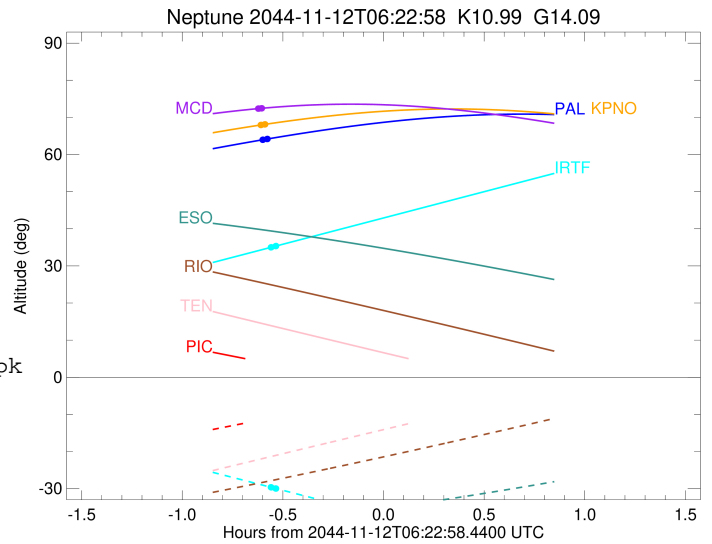
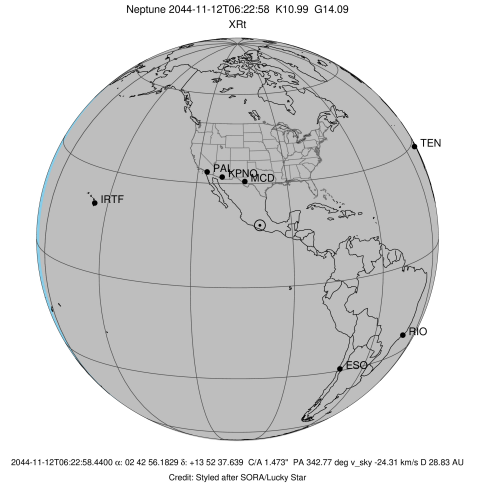
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2044-11-12T05:46:14.349		72.42	-72.40	63001.30	-133.74		
Galatea	I	2044-11-12T05:46:22.503		72.43	-72.42	62029.35	-109.70		

No planet occultations

Galatea	E	2044-11-12T05:46:22.509		72.43	-72.42	61958.48	-107.68		
Adams	E	2044-11-12T05:46:14.008		72.42	-72.40	63783.70	-149.68		

```

target           : Neptune
target radius (km) : 24764.00
C/A epoch       : 2044-11-12T06:25:33.800
Event type      : XRT
: No Neptune occs
: Ring occs: topocentric, not geocentric
Observer code   : IRTF
Location        : Mauna Kea/IRTF
Latitude (deg)  : 19.82622
E. Longitude (deg) : 204.52800
Altitude (km)   : 4.168
Gaia source ID  : 32733427527188864
2Mass ID (if available) : 02425596+1352365
ICRS Star Coord at Epoch: 02h 42m 56.18287s +13:52:37.63906s
RUWE (>1.4 is poor) : 1.00
K magnitude     : 10.989
G magnitude     : 14.086
RP magnitude    : 13.085
BP magnitude    : 15.106
DUPflag        : 0
Distance (au)   : 28.828
f0 (km)         : 0.000
g0 (km)         : 0.000
skyplane vel. (km/s) : -24.31
Sun-Target sep (deg) : 172.50
Sun-Moon sep (deg) : 98.55
B (ring opening deg) : -1.52
PA of pole (deg) : -45.89
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.359
C/A sky separation (km) : 28418.0
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2044-11-12T05:50:02.927		35.15	-29.78	62981.56	-166.03		
Galatea	I	2044-11-12T05:50:09.185		35.17	-29.80	62011.28	-148.63		

No planet occultations

Galatea	E	2044-11-12T05:50:03.906		35.15	-29.78	67925.03	-227.88		
Adams	E	2044-11-12T05:52:00.440		35.61	-30.23	79990.24	306.19		