

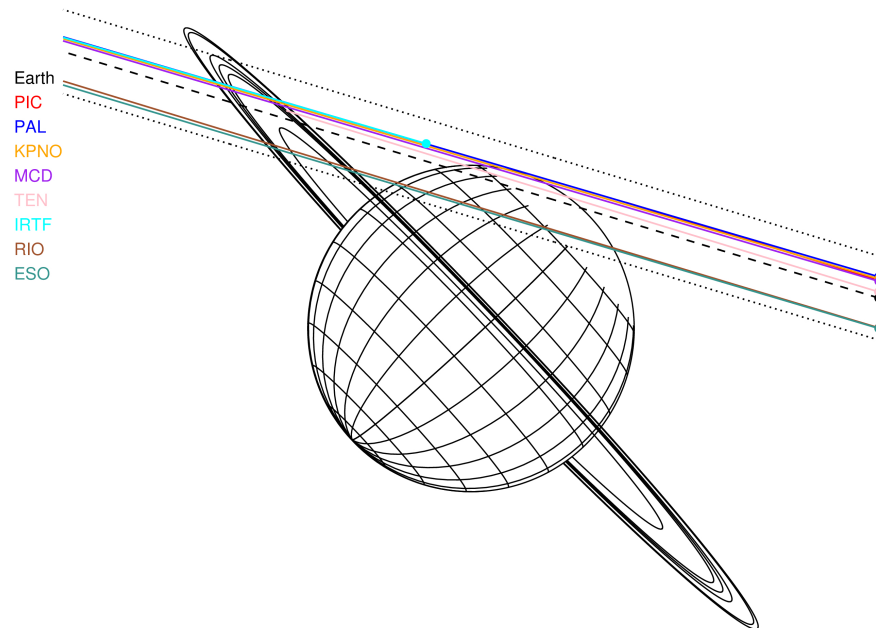
target : Neptune
 target radius (km) : 24764.00
 C/A epoch : 2042-12-11T03:44:57.880
 Event type : PgtRgt
 : Neptune occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 72865357127312768
 2Mass ID (if available) : 02222032+1214393

ICRS Star Coord at Epoch: 02h 22m 20.32079s +12:14:38.22405s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 14.588
 G magnitude : 18.309
 RP magnitude : 17.270
 BP magnitude : 19.596
 DUPflag : 0
 Distance (au) : 29.060
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.14
 Sun-Target sep (deg) : 138.67
 Sun-Moon sep (deg) : 154.43
 B (ring opening deg) : -4.02
 PA of pole (deg) : -46.83



2042-12-11T03:44:57.8800 α: 02 22 20.3208 δ: +12 14 38.224 C/A 1.059° PA 163.20 deg v_sky -17.14 km/s D 29.06 AU
 Credit: Styled after SORA/Lucky Star

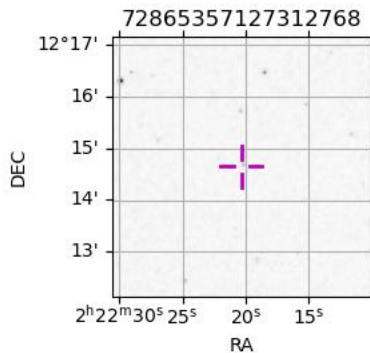
Neptune 2042-12-11T03:44:57 K14.59 G18.31 PgtRgt



#	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

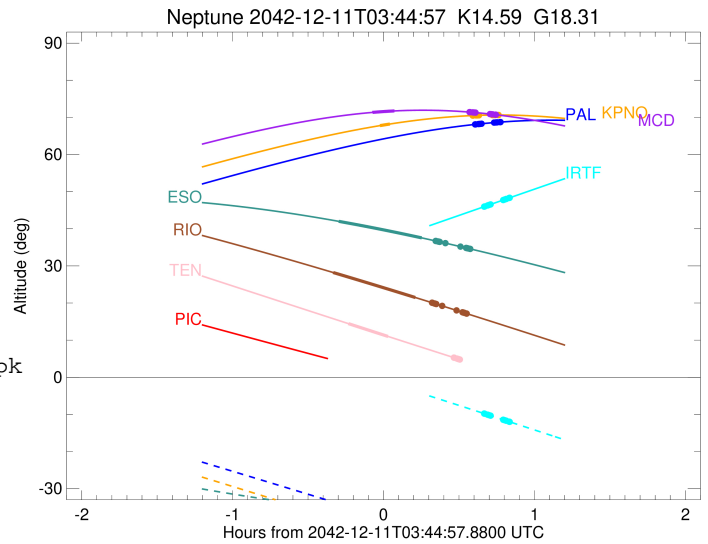
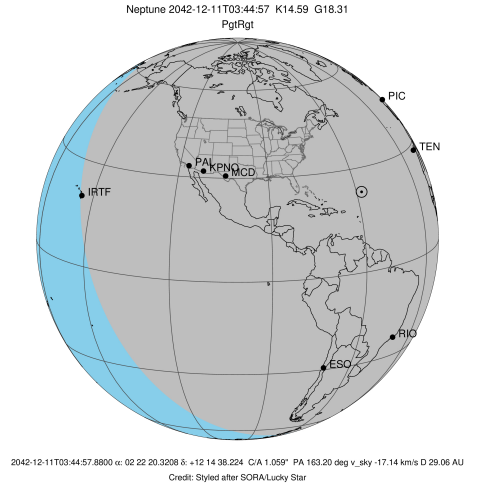
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+ + + + +		+ + + + +	DEC 11 04:20 - DEC 11 04:30	PnnRie
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ + + + +	+ +	+ + + + +	DEC 11 03:43 - DEC 11 04:30	PieRie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ + + + +	+ +	+ + + + +	DEC 11 03:40 - DEC 11 04:28	PieRie
TEN	Teide Obs./Tenerife	28.3	343.5	+ + + +	+ +		DEC 11 03:31 - DEC 11 04:13	PieRin
IRTF	Mauna Kea/IRTF	19.8	204.5	+ + + + +		+ + + + +	DEC 11 04:24 - DEC 11 04:34	PnnRie
KAV	Kavalur Observatory	12.6	78.8					PnnRnn
RIO	Rio de Janeiro	-22.9	316.8	+ + + + + +	+ +	+ + + + + +	DEC 11 03:24 - DEC 11 04:17	PieRie
ESO	European Southern Obs	-29.3	289.3	+ + + + + +	+ +	+ + + + + +	DEC 11 03:27 - DEC 11 04:18	PieRie
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            : 2042-12-11T03:45:54.950
Event type          : PgtRgt
: Neptune occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code       : PAL
Location            : Palomar Mt (200")
Latitude (deg)      : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)       : 1.706
Gaia source ID      : 72865357127312768
2Mass ID (if available) : 02222032+1214393
ICRS Star Coord at Epoch: 02h 22m 20.32079s +12:14:38.22405s
RUWE (>1.4 is poor) : 1.03
K magnitude          : 14.588
G magnitude          : 18.309
RP magnitude         : 17.270
BP magnitude         : 19.596
DUPflag             : 0
Distance (au)       : 29.060
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -17.14
Sun-Target sep (deg) : 138.67
Sun-Moon sep (deg)  : 154.79
B (ring opening deg) : -4.02
PA of pole (deg)    : -46.83
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.185
C/A sky separation (km) : 24965.7
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

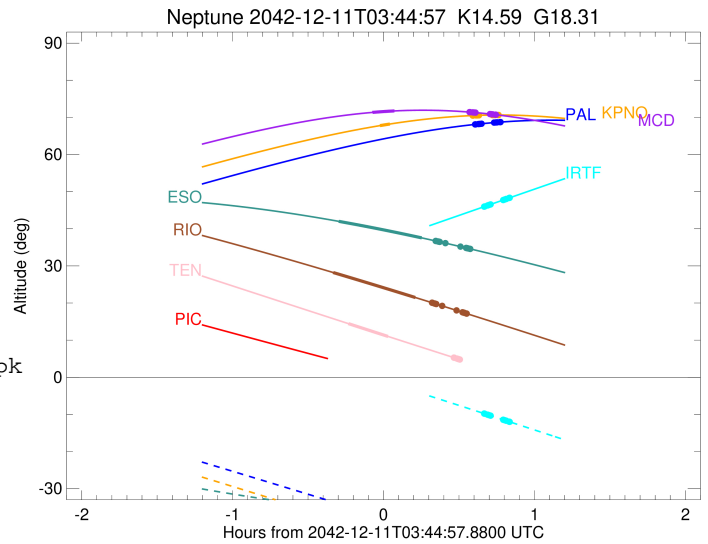
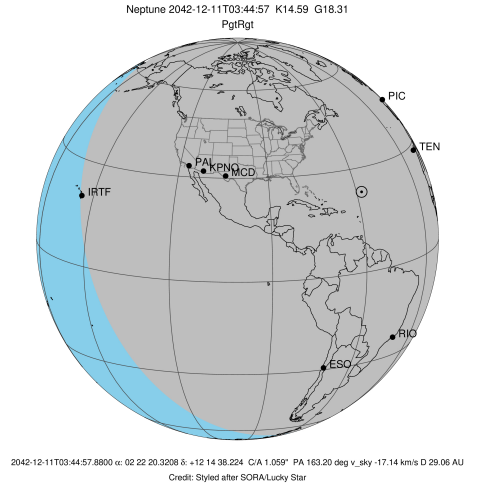
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2042-12-11T04:20:26.741		68.05	-45.15	62934.24	-80.10		
Galatea	I	2042-12-11T04:20:39.127		68.06	-45.19	61954.56	-78.12		
Arago	I	2042-12-11T04:21:44.898		68.14	-45.42	57206.01	-65.93		
Lassell	I	2042-12-11T04:22:16.915		68.18	-45.53	55212.88	-58.93		
LeVerrier	I	2042-12-11T04:22:53.633		68.22	-45.66	53236.26	-50.06		

No planet occultations

LeVerrier	E	2042-12-11T04:28:20.415		68.57	-46.80	53200.85	49.88		
Lassell	E	2042-12-11T04:28:57.149		68.61	-46.93	55200.61	58.87		
Arago	E	2042-12-11T04:29:29.181		68.64	-47.04	57200.43	65.90		
Galatea	E	2042-12-11T04:30:34.990		68.69	-47.27	61953.20	78.08		
Adams	E	2042-12-11T04:30:47.385		68.71	-47.31	62933.17	80.06		

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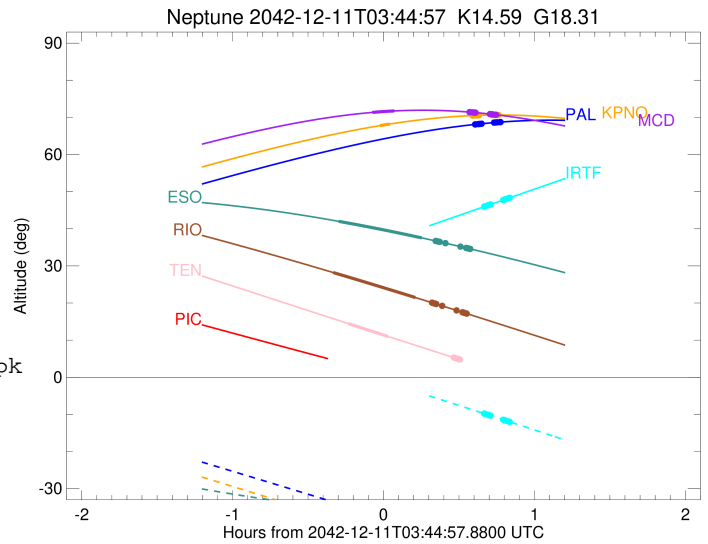
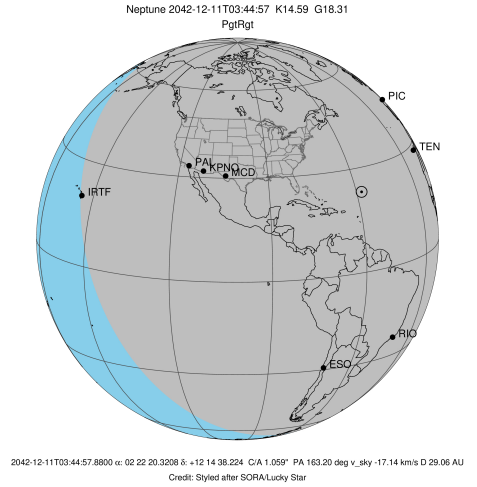
target                : Neptune
target radius (km)    : 24764.00
C/A epoch              : 2042-12-11T03:45:32.250
Event type             : PgtRgt
: Neptune occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code         : KPNO
Location               : Kitt Peak Natl Obs
Latitude (deg)        : 31.96333
E. Longitude (deg)    : 248.40000
Altitude (km)         : 2.120
Gaia source ID        : 72865357127312768
2Mass ID (if available) : 02222032+1214393
ICRS Star Coord at Epoch: 02h 22m 20.32079s +12:14:38.22405s
RUWE (>1.4 is poor) : 1.03
K magnitude            : 14.588
G magnitude            : 18.309
RP magnitude          : 17.270
BP magnitude          : 19.596
DUPflag               : 0
Distance (au)         : 29.060
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -17.14
Sun-Target sep (deg)  : 138.67
Sun-Moon sep (deg)    : 154.77
B (ring opening deg) : -4.02
PA of pole (deg)      : -46.83
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.171
C/A sky separation (km) : 24674.2
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
    
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Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2042-12-11T04:19:30.252		70.47	-49.40	62934.04	-81.49		
Galatea	I	2042-12-11T04:19:42.418		70.48	-49.44	61954.29	-79.59		
Arago	I	2042-12-11T04:20:46.650		70.51	-49.67	57204.79	-67.94		
Lassell	I	2042-12-11T04:21:17.574		70.52	-49.78	55209.80	-61.32		
LeVerrier	I	2042-12-11T04:21:52.553		70.54	-49.90	53224.99	-53.01		
Neptune	I	2042-12-11T03:43:33.042		67.79	-41.77	24762.33		64.10	64.85
Neptune	E	2042-12-11T03:47:31.678		68.22	-42.61	24762.66		54.51	55.43
LeVerrier	E	2042-12-11T04:27:39.003		70.63	-51.13	53200.77	52.90		
Lassell	E	2042-12-11T04:28:14.000		70.64	-51.25	55200.54	61.27		
Arago	E	2042-12-11T04:28:44.943		70.64	-51.36	57200.38	67.91		
Galatea	E	2042-12-11T04:29:49.222		70.65	-51.59	61953.18	79.53		
Adams	E	2042-12-11T04:30:01.398		70.65	-51.63	62933.14	81.43		

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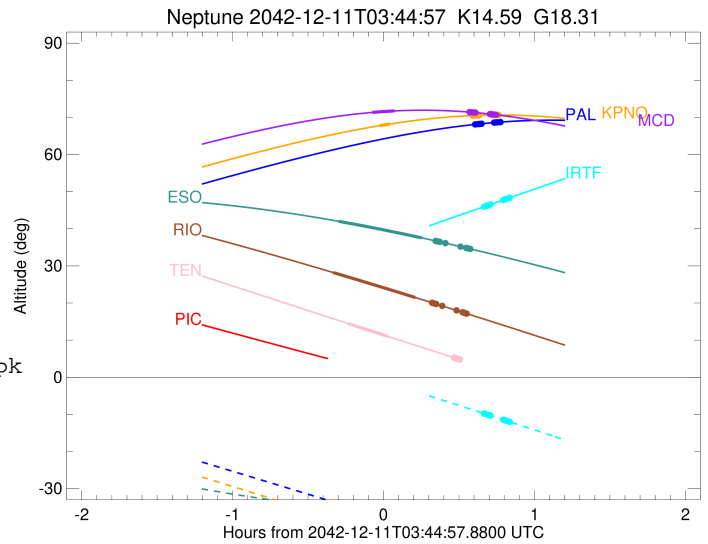
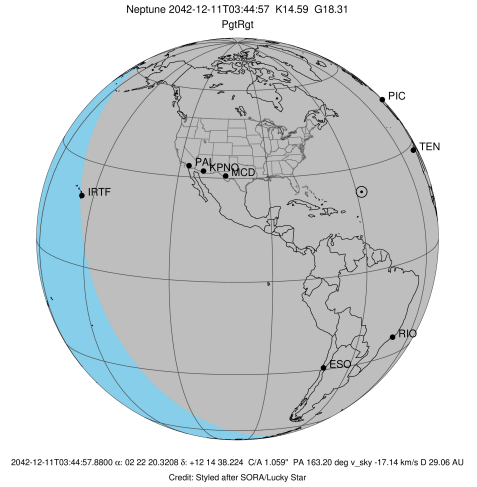
target                : Neptune
target radius (km)   : 24764.00
C/A epoch            : 2042-12-11T03:44:55.560
Event type          : PgtRgt
: Neptune occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code       : MCD
Location            : McDonald Obs. 2.7m
Latitude (deg)      : 30.67158
E. Longitude (deg)  : 255.97844
Altitude (km)       : 2.075
Gaia source ID      : 72865357127312768
2Mass ID (if available) : 02222032+1214393
ICRS Star Coord at Epoch: 02h 22m 20.32079s +12:14:38.22405s
RUWE (>1.4 is poor) : 1.03
K magnitude          : 14.588
G magnitude          : 18.309
RP magnitude         : 17.270
BP magnitude         : 19.596
DUPflag             : 0
Distance (au)       : 29.060
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -17.14
Sun-Target sep (deg) : 138.67
Sun-Moon sep (deg)  : 154.71
B (ring opening deg) : -4.02
PA of pole (deg)    : -46.83
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.154
C/A sky separation (km) : 24327.1
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2042-12-11T04:18:15.240		71.48	-55.66	62933.85	-83.00		
Galatea	I	2042-12-11T04:18:27.176		71.47	-55.70	61954.06	-81.18		
Arago	I	2042-12-11T04:19:29.814		71.41	-55.93	57203.71	-70.13		
Lassell	I	2042-12-11T04:19:59.633		71.38	-56.04	55207.27	-63.91		
LeVerrier	I	2042-12-11T04:20:32.918		71.35	-56.16	53217.00	-56.20		
Neptune	I	2042-12-11T03:40:31.851		71.34	-47.54	24762.20		69.94	70.56
Neptune	E	2042-12-11T03:49:19.474		71.75	-49.44	24762.86		48.65	49.62
LeVerrier	E	2042-12-11T04:26:40.853		70.95	-57.47	53200.67	56.12		
Lassell	E	2042-12-11T04:27:14.160		70.91	-57.59	55200.47	63.86		
Arago	E	2042-12-11T04:27:44.002		70.87	-57.70	57200.33	70.09		
Galatea	E	2042-12-11T04:28:46.700		70.79	-57.92	61953.15	81.11		
Adams	E	2042-12-11T04:28:58.649		70.77	-57.97	62933.13	82.92		

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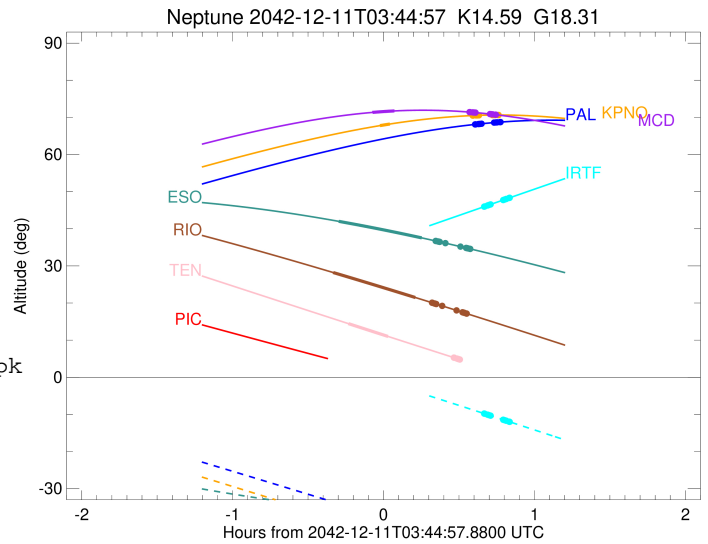
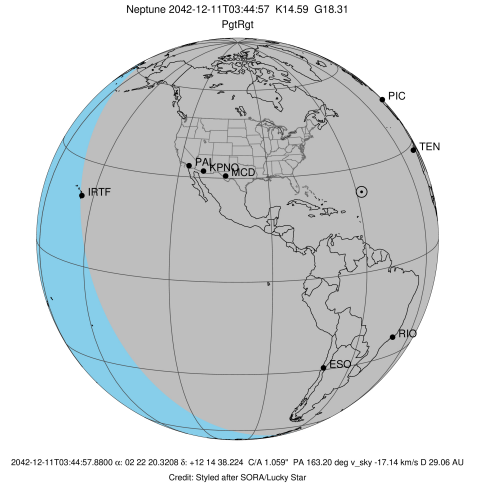
target                : Neptune
target radius (km)   : 24764.00
C/A epoch            : 2042-12-11T03:38:54.950
Event type           : PgtRgt
: Neptune occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code        : TEN
Location             : Teide Obs./Tenerife
Latitude (deg)       : 28.30050
E. Longitude (deg)   : 343.48909
Altitude (km)        : 2.395
Gaia source ID       : 72865357127312768
2Mass ID (if available) : 02222032+1214393
ICRS Star Coord at Epoch: 02h 22m 20.32079s +12:14:38.22405s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 14.588
G magnitude           : 18.309
RP magnitude         : 17.270
BP magnitude         : 19.596
DUPflag              : 0
Distance (au)        : 29.060
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -17.14
Sun-Target sep (deg) : 138.67
Sun-Moon sep (deg)   : 153.71
B (ring opening deg) : -4.02
PA of pole (deg)     : -46.83
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.109
C/A sky separation (km) : 23378.0
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2042-12-11T04:12:01.955		5.49	-46.45	62933.62	-81.98		
Galatea	I	2042-12-11T04:12:14.027		5.45	-46.40	61953.77	-80.35		
Arago	I	2042-12-11T04:13:16.865		5.22	-46.17	57202.54	-70.53		
Lassell	I	2042-12-11T04:13:46.342		5.11	-46.07	55204.74	-65.07		
LeVerrier	I	2042-12-11T04:14:18.711		5.00x	-45.95	53210.08	-58.41		
Neptune	I	2042-12-11T03:31:01.350		14.45	-55.48	24762.00		78.70	79.07
Neptune	E	2042-12-11T03:46:49.172		10.99	-52.00	24763.13		40.83	41.80
LeVerrier	E	2042-12-11T04:21:13.316		3.50x	-44.43	53200.53	58.31		
Lassell	E	2042-12-11T04:21:45.736		3.39x	-44.31	55200.37	64.97		
Arago	E	2042-12-11T04:22:15.267		3.28x	-44.21	57200.26	70.41		
Galatea	E	2042-12-11T04:23:18.239		3.05x	-43.97	61953.12	80.17		
Adams	E	2042-12-11T04:23:30.341		3.01x	-43.93	62933.11	81.79		

```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2042-12-11T03:49:20.260
Event type            : PgtRgt
: Neptune occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code         : IRTF
Location               : Mauna Kea/IRTF
Latitude (deg)        : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 72865357127312768
2Mass ID (if available) : 02222032+1214393
ICRS Star Coord at Epoch: 02h 22m 20.32079s +12:14:38.22405s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 14.588
G magnitude           : 18.309
RP magnitude          : 17.270
BP magnitude          : 19.596
DUPflag               : 0
Distance (au)         : 29.060
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -17.14
Sun-Target sep (deg)  : 138.67
Sun-Moon sep (deg)    : 155.11
B (ring opening deg)  : -4.02
PA of pole (deg)      : -46.83
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.187
C/A sky separation (km) : 25009.9
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
    
```



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

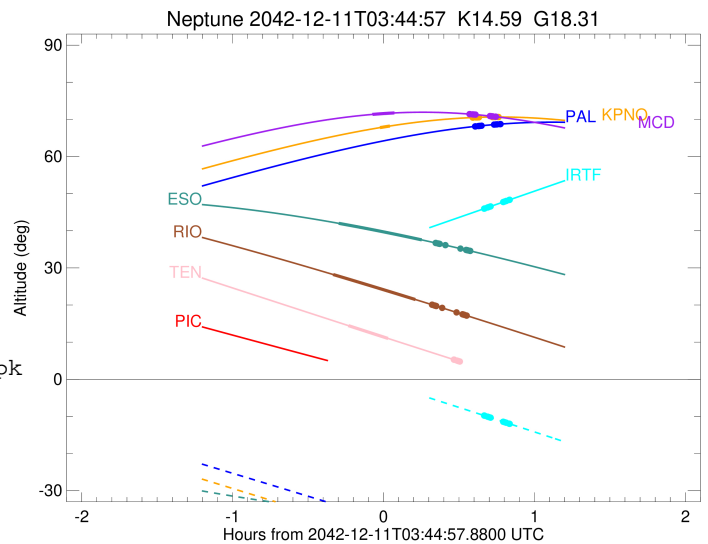
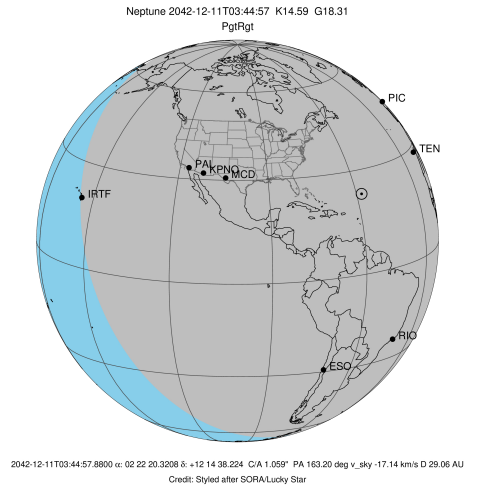
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2042-12-11T04:24:02.836		45.74	-9.57	62934.22	-80.01		
Galatea	I	2042-12-11T04:24:15.236		45.79	-9.62	61954.53	-78.04		
Arago	I	2042-12-11T04:25:21.051		46.04	-9.86	57205.90	-65.92		
Lassell	I	2042-12-11T04:25:53.063		46.17	-9.97	55212.61	-58.96		
LeVerrier	I	2042-12-11T04:26:29.739		46.31	-10.11	53235.20	-50.15		

No planet occultations

LeVerrier	E	2042-12-11T04:31:58.379		47.61	-11.31	53200.85	50.01		
Lassell	E	2042-12-11T04:32:35.048		47.75	-11.45	55200.61	58.94		
Arago	E	2042-12-11T04:33:07.053		47.88	-11.57	57200.43	65.94		
Galatea	E	2042-12-11T04:34:12.849		48.13	-11.81	61953.20	78.07		
Adams	E	2042-12-11T04:34:25.245		48.18	-11.85	62933.17	80.05		

```

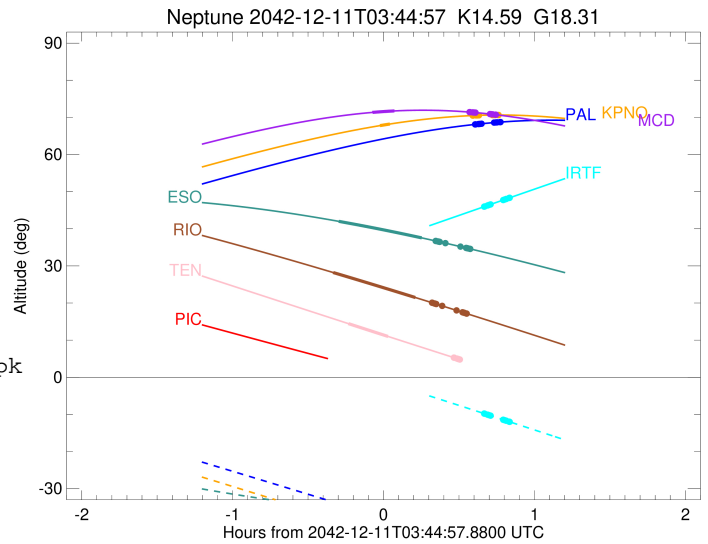
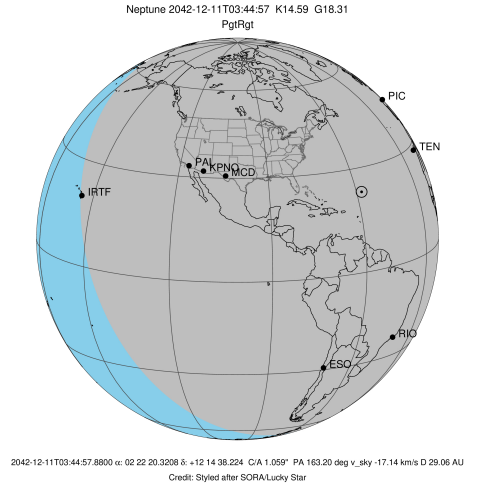
target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2042-12-11T03:41:17.510
Event type            : PgtRgt
: Neptune occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code        : RIO
Location              : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)   : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 72865357127312768
2Mass ID (if available) : 02222032+1214393
ICRS Star Coord at Epoch: 02h 22m 20.32079s +12:14:38.22405s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 14.588
G magnitude           : 18.309
RP magnitude          : 17.270
BP magnitude          : 19.596
DUPflag              : 0
Distance (au)        : 29.060
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -17.14
Sun-Target sep (deg) : 138.67
Sun-Moon sep (deg)   : 154.25
B (ring opening deg) : -4.02
PA of pole (deg)     : -46.83
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.851
C/A sky separation (km) : 17939.2
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2042-12-11T04:03:36.841		20.22	-40.50	62933.02	-102.89		
Galatea	I	2042-12-11T04:03:46.401		20.19	-40.48	61953.03	-102.11		
Arago	I	2042-12-11T04:04:33.956		20.02	-40.41	57200.05	-97.60		
Lassell	I	2042-12-11T04:04:54.691		19.95	-40.38	55200.07	-95.27		
LeVerrier	I	2042-12-11T04:05:15.975		19.87	-40.34	53200.12	-92.60		
Galle	I	2042-12-11T04:07:34.608		19.38	-40.12	42003.66	-65.84		
Neptune	I	2042-12-11T03:24:57.224		28.22	-43.27	24762.05		75.88	76.34
Neptune	E	2042-12-11T03:57:39.474		21.48	-41.03	24763.85		16.38	16.92
Galle	E	2042-12-11T04:13:30.416		18.12	-39.53	42000.30	65.75		
LeVerrier	E	2042-12-11T04:15:49.369		17.62	-39.29	53200.03	92.34		
Lassell	E	2042-12-11T04:16:10.719		17.55	-39.25	55200.02	94.98		
Arago	E	2042-12-11T04:16:31.522		17.47	-39.22	57200.02	97.28		
Galatea	E	2042-12-11T04:17:19.250		17.30	-39.13	61953.01	101.72		
Adams	E	2042-12-11T04:17:28.847		17.27	-39.12	62933.00	102.50		

```

target                : Neptune
target radius (km)    : 24764.00
C/A epoch             : 2042-12-11T03:43:38.560
Event type            : PgtRgt
: Neptune occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
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        : 72865357127312768
2Mass ID (if available) : 02222032+1214393
ICRS Star Coord at Epoch: 02h 22m 20.32079s +12:14:38.22405s
RUWE (>1.4 is poor)  : 1.03
K magnitude           : 14.588
G magnitude           : 18.309
RP magnitude          : 17.270
BP magnitude          : 19.596
DUPflag              : 0
Distance (au)         : 29.060
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s)  : -17.14
Sun-Target sep (deg)  : 138.67
Sun-Moon sep (deg)    : 154.64
B (ring opening deg)  : -4.02
PA of pole (deg)      : -46.83
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.837
C/A sky separation (km) : 17641.4
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2042-12-11T04:05:04.445		36.82	-37.38	62933.01	-105.40		
Galatea	I	2042-12-11T04:05:13.776		36.79	-37.38	61953.01	-104.64		
Arago	I	2042-12-11T04:06:00.111		36.68	-37.41	57200.04	-100.33		
Lassell	I	2042-12-11T04:06:20.262		36.62	-37.42	55200.05	-98.11		
LeVerrier	I	2042-12-11T04:06:40.908		36.57	-37.43	53200.09	-95.58		
Galle	I	2042-12-11T04:08:53.404		36.23	-37.50	42002.33	-70.54		
Neptune	I	2042-12-11T03:27:05.934		42.01	-35.34	24762.07		75.14	75.61
Neptune	E	2042-12-11T04:00:12.234		37.54	-37.20	24763.87		15.18	15.68
Galle	E	2042-12-11T04:15:04.421		35.27	-37.66	42000.24	70.46		
LeVerrier	E	2042-12-11T04:17:17.189		34.92	-37.71	53199.96	95.34		
Lassell	E	2042-12-11T04:17:37.891		34.87	-37.72	55200.02	97.85		
Arago	E	2042-12-11T04:17:58.100		34.82	-37.72	57200.02	100.05		
Galatea	E	2042-12-11T04:18:44.582		34.69	-37.74	61953.00	104.30		
Adams	E	2042-12-11T04:18:53.945		34.67	-37.74	62933.01	105.04		