

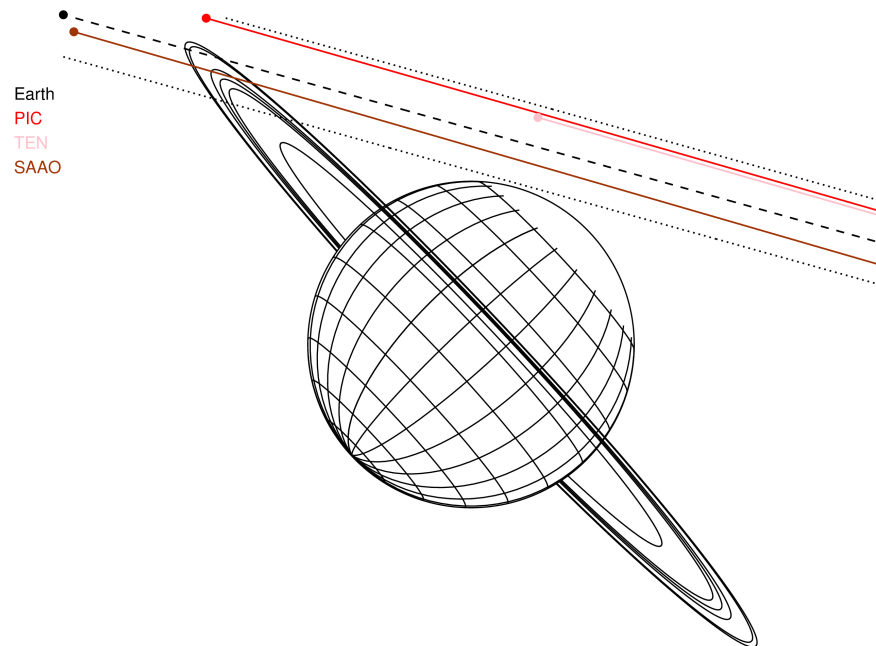
target : Neptune
 target radius (km) : 24764.00
 C/A epoch : 2040-07-12T02:02:14.640
 Event type : XRgt
 : No Neptune occs
 : Ring occs: geocentric, topocentric
 Gaia source ID : 72583199251377408
 2Mass ID (if available) : 02133957+1135188

ICRS Star Coord at Epoch: 02h 13m 39.64552s +11:35:18.69914s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 12.604
 G magnitude : 14.615
 RP magnitude : 13.957
 BP magnitude : 15.118
 DUPflag : 0
 Distance (au) : 30.062
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 13.17
 Sun-Target sep (deg) : 74.70
 Sun-Moon sep (deg) : 104.24
 B (ring opening deg) : -5.11
 PA of pole (deg) : -47.13



2040-07-12T02:02:14.6400 ex: 02 13 39.6455 s: +11 35 18.699 C/A 1.447° PA 164.41 deg v_sky +13.17 km/s D 30.06 AU
 Credit: Styled after SORA/Lucky Star

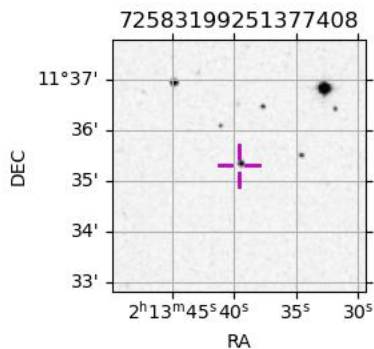
Neptune 2040-07-12T02:02:14 K12.60 G14.62 XRgt



#	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

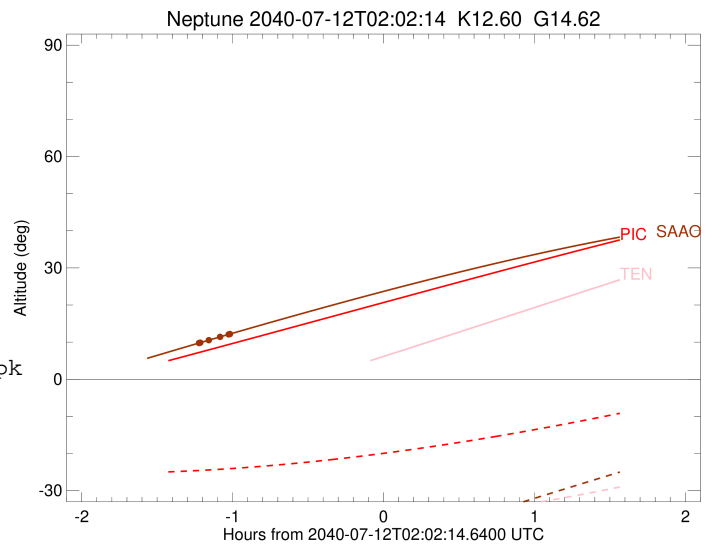
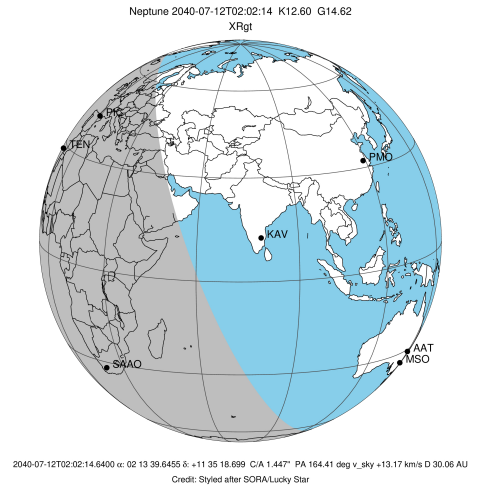
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8					PnnRnn
KPNO	Kitt Peak Natl Obs	32.0	248.4					PnnRnn
MCD	McDonald Obs. 2.7m	30.7	256.0					PnnRnn
TEN	Teide Obs./Tenerife	28.3	343.5					PnnRnn
IRTF	Mauna Kea/IRTF	19.8	204.5					PnnRnn
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	+	+	+	JUL 12 00:49 - JUL 12 01:02	PnnRie
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2040-07-12T01:55:57.750
Event type            : XRgt
: No Neptune occs
: Ring occs: geocentric, topocentric
Observer code         : SAAO
Location              : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)        : -32.37953
E. Longitude (deg)    : 20.81070
Altitude (km)         : 1.768
Gaia source ID        : 72583199251377408
2Mass ID (if available) : 02133957+1135188
ICRS Star Coord at Epoch: 02h 13m 39.64552s +11:35:18.69914s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 12.604
G magnitude           : 14.615
RP magnitude          : 13.957
BP magnitude          : 15.118
DUPflag              : 0
Distance (au)         : 30.062
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 13.17
Sun-Target sep (deg) : 74.70
Sun-Moon sep (deg)   : 104.39
B (ring opening deg) : -5.11
PA of pole (deg)     : -47.13
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.325
C/A sky separation (km) : 28884.0
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
    
```



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	2040-07-12T00:49:46.623		9.94	-59.97	62933.19	-36.19		
Galatea	I	2040-07-12T00:50:14.495		10.03	-59.87	61953.22	-34.11		
Arago	I	2040-07-12T00:53:12.477		10.62	-59.26	57200.08	-18.68		

No planet occultations

Arago	E	2040-07-12T00:59:17.936		11.82	-57.99	57578.14	20.51		
Galatea	E	2040-07-12T01:02:15.307		12.40	-57.37	61959.90	34.07		
Adams	E	2040-07-12T01:02:43.234		12.49	-57.28	62937.71	36.13		