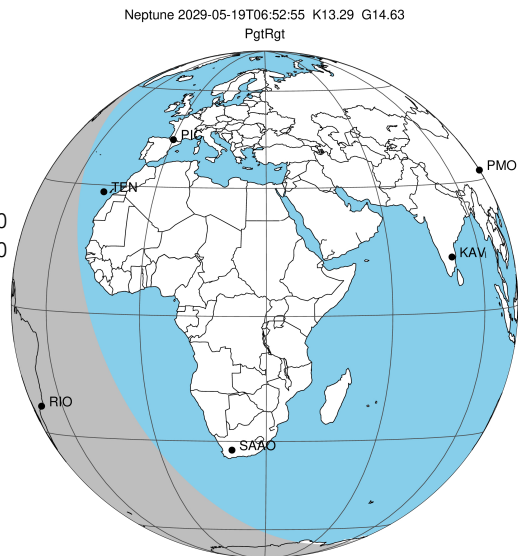


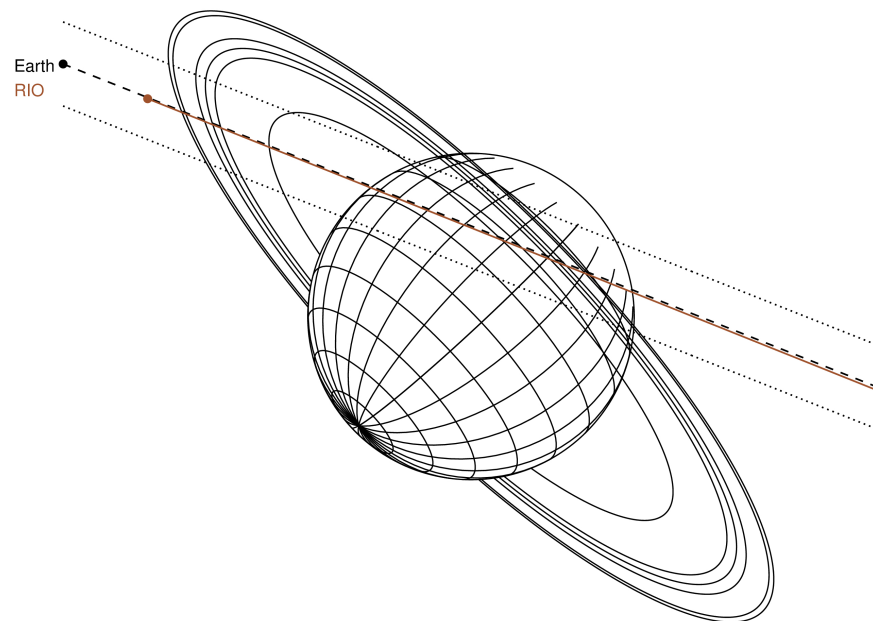
target : Neptune
 target radius (km) : 24764.00
 C/A epoch : 2029-05-19T06:52:55.150
 Event type : PgtRgt
 : Neptune occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 2550603540326304000
 2Mass ID (if available) : 00384362+0235489

Neptune 2029-05-19T06:52:55 K13.29 G14.63 PgtRgt

ICRS Star Coord at Epoch: 00h 38m 43.65120s +02:35:48.97429s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 13.292
 G magnitude : 14.632
 RP magnitude : 14.147
 BP magnitude : 14.949
 DUPflag : 0
 Distance (au) : 30.523
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 25.32
 Sun-Target sep (deg) : 48.28
 Sun-Moon sep (deg) : 114.44
 B (ring opening deg) : -16.20
 PA of pole (deg) : -45.79
 # a(km) ring



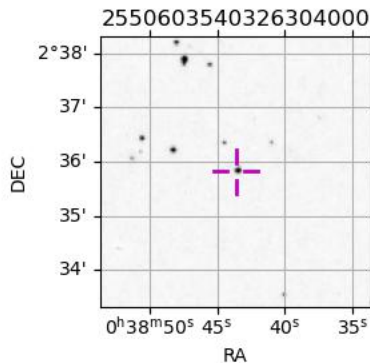
2029-05-19T06:52:55.1500 ex: 00 38 43.6512 s: +02 35 48.974 C/A 0.577° PA 158.36 deg v_sky +25.32 km/s D 30.52 AU
 Credit: Styled after SORA/Lucky Star



- 1 42000.0 Galle
- 2 53200.0 LeVerrier
- 3 55200.0 Lassell
- 4 57200.0 Arago
- 5 61953.0 Galatea
- 6 62933.0 Adams

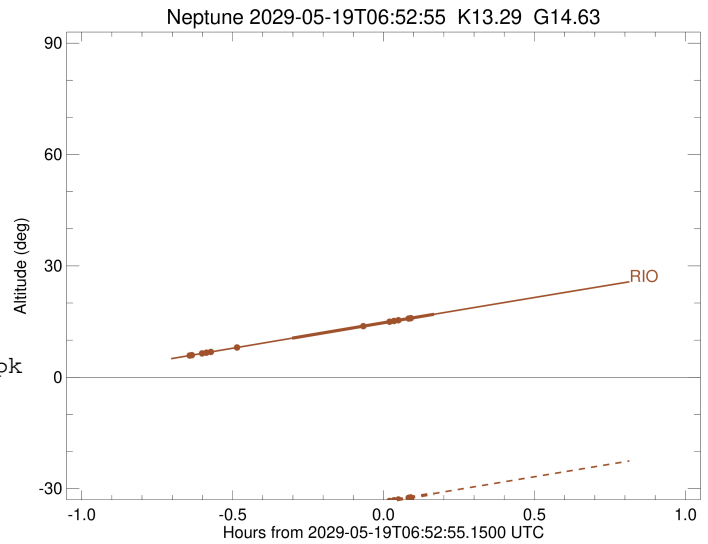
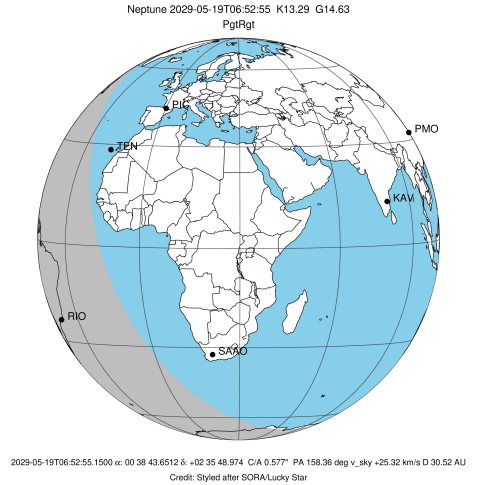
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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	+ + + + +	+ +		MAY 19 06:14 - MAY 19 07:02	PieRin
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             : 2029-05-19T06:48:52.090
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       : 2550603540326304000
2Mass ID (if available) : 00384362+0235489
ICRS Star Coord at Epoch: 00h 38m 43.65120s +02:35:48.97429s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 13.292
G magnitude           : 14.632
RP magnitude         : 14.147
BP magnitude         : 14.949
DUPflag              : 0
Distance (au)        : 30.523
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 25.32
Sun-Target sep (deg) : 48.28
Sun-Moon sep (deg)   : 114.28
B (ring opening deg) : -16.20
PA of pole (deg)     : -45.79
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.565
C/A sky separation (km) : 12499.9
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2029-05-19T06:14:39.111		5.91	-42.34	62933.00	-39.65		
Galatea	I	2029-05-19T06:15:03.869		6.01	-42.24	61953.00	-39.52		
Arago	I	2029-05-19T06:17:05.257		6.47	-41.78	57200.00	-38.76		
Lassell	I	2029-05-19T06:17:57.100		6.67	-41.58	55200.00	-38.38		
LeVerrier	I	2029-05-19T06:18:49.491		6.87	-41.38	53200.00	-37.96		
Galle	I	2029-05-19T06:23:58.366		8.06	-40.20	42000.00	-34.12		
Neptune	I	2029-05-19T06:34:44.761		10.53	-37.74	24763.61		6.05	6.26
Neptune	E	2029-05-19T07:02:59.363		16.98	-31.31	24742.43		51.28	52.23
Galle	E	2029-05-19T06:49:03.486	b	13.80	-34.48	42000.00	34.10		
LeVerrier	E	2029-05-19T06:54:15.416	b	14.99	-33.30	53200.00	37.39		
Lassell	E	2029-05-19T06:55:08.614	b	15.19	-33.10	55200.00	37.80		
Arago	E	2029-05-19T06:56:01.253	b	15.39	-32.90	57200.00	38.18		
Galatea	E	2029-05-19T06:58:04.420	b	15.86	-32.43	61953.00	38.97		
Adams	E	2029-05-19T06:58:29.521	b	15.95	-32.34	62933.00	39.11		