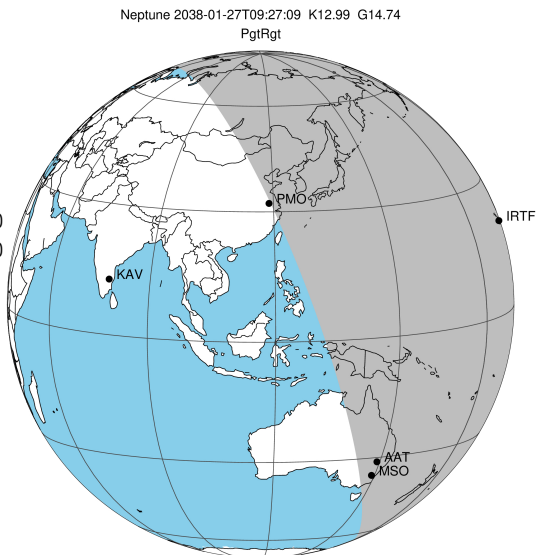


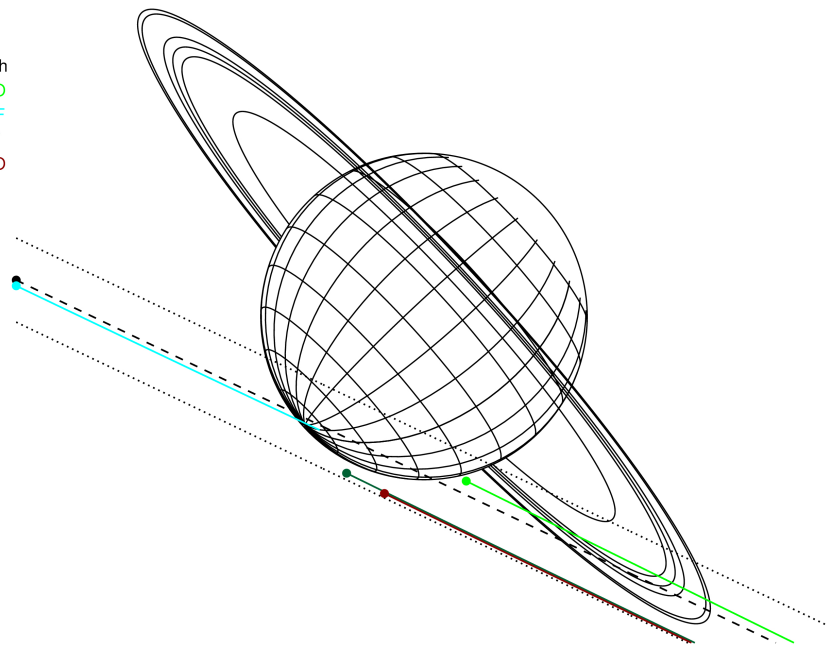
target : Neptune
 target radius (km) : 24764.00
 C/A epoch : 2038-01-27T09:27:09.210
 Event type : PgtRgt
 : Neptune occs: geocentric, topocentric
 : Ring occs: geocentric, topocentric
 Gaia source ID : 2571895656013097984
 2Mass ID (if available) : 01383709+0825126

Neptune 2038-01-27T09:27:09 K12.99 G14.74 PgtRgt

ICRS Star Coord at Epoch: 01h 38m 37.16971s +08:25:12.23641s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 12.995
 G magnitude : 14.737
 RP magnitude : 14.162
 BP magnitude : 15.142
 DUPflag : 0
 Distance (au) : 29.995
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : 11.11
 Sun-Target sep (deg) : 78.92
 Sun-Moon sep (deg) : 174.55
 B (ring opening deg) : -9.32
 PA of pole (deg) : -47.62



Earth
 PMO
 IRTF
 AAT
 MSO

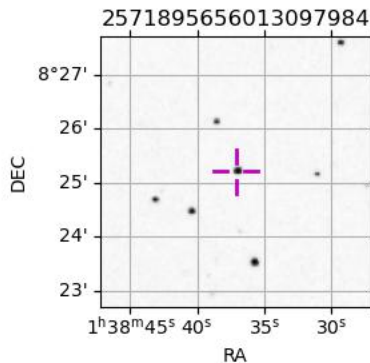


2038-01-27T09:27:09.2100 cc: 01 38 37.1697 s: +08 25 12.236 C/A 0.9977 PA 334.47 deg v_sky +11.11 km/s D 30.00 AU
 Credit: Styled after SORA/Lucky Star

#	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

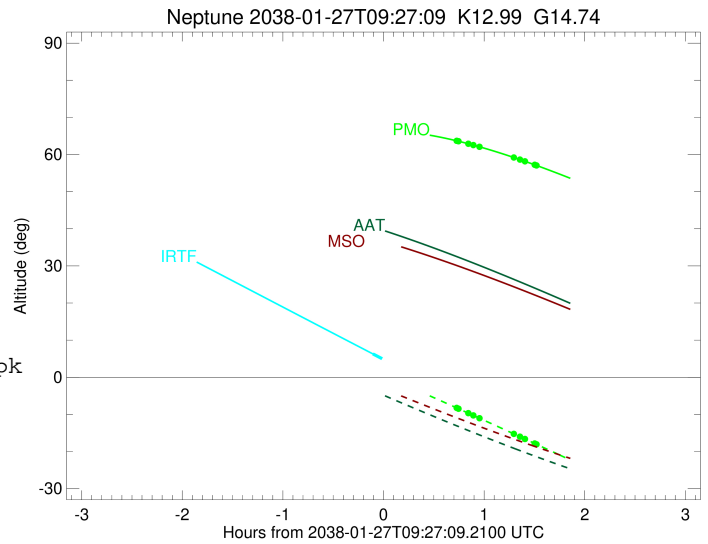
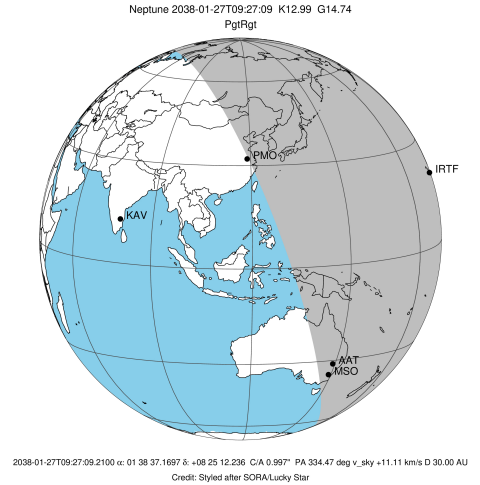
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

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					PnnRnn
PMO	Purple Mtn Obs. Nanki	32.1	118.8	+		+	JAN 27 10:08 - JAN 27 10:57	PnnRie
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		+		JAN 27 09:20 - JAN 27 09:20	PinRnn
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



```

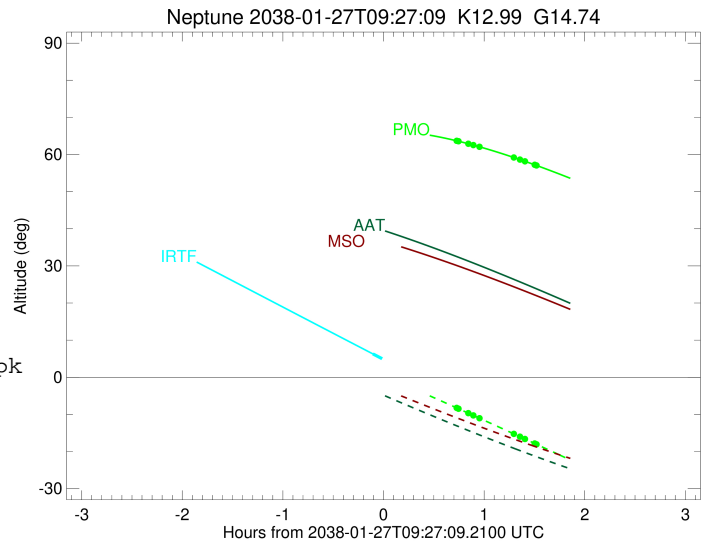
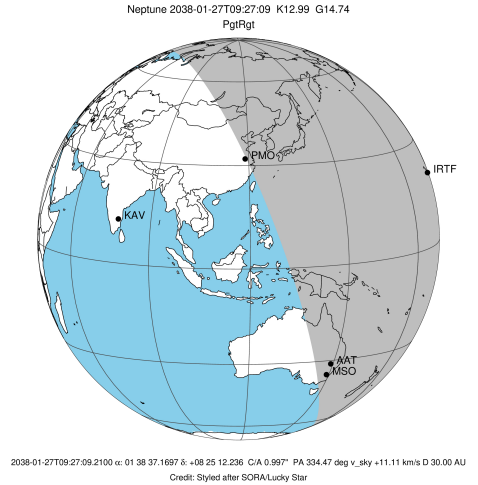
target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2038-01-27T09:28:39.380
Event type            : PgtRgt
: Neptune occs: geocentric, topocentric
: Ring occs: geocentric, topocentric
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)        : 32.06667
E. Longitude (deg)    : 118.82089
Altitude (km)         : 0.364
Gaia source ID        : 2571895656013097984
2Mass ID (if available) : 01383709+0825126
ICRS Star Coord at Epoch: 01h 38m 37.16971s +08:25:12.23641s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 12.995
G magnitude           : 14.737
RP magnitude          : 14.162
BP magnitude          : 15.142
DUPflag               : 0
Distance (au)         : 29.995
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 11.11
Sun-Target sep (deg) : 78.92
Sun-Moon sep (deg)   : 174.71
B (ring opening deg) : -9.32
PA of pole (deg)     : -47.62
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.897
C/A sky separation (km) : 19520.9
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	2038-01-27T10:08:39.139		63.93	-7.82	62933.05	-16.08		
Galatea	I	2038-01-27T10:09:40.901		63.82	-8.03	61953.07	-15.65		
Arago	I	2038-01-27T10:15:11.798		63.21	-9.15	57200.43	-12.97		
Lassell	I	2038-01-27T10:17:55.746		62.89	-9.71	55201.23	-11.40		
LeVerrier	I	2038-01-27T10:21:08.295		62.50	-10.36	53205.79	-9.34		
Neptune	I	2038-01-27T09:05:03.706		66.52	4.77x	24753.93		-70.89	-71.49
Neptune	E	2038-01-27T09:52:15.256		65.41	-4.51x	24761.12		-30.36	-31.22
LeVerrier	E	2038-01-27T10:45:08.890		59.16	-15.31	53200.00	9.36		
Lassell	E	2038-01-27T10:48:20.811		58.67	-15.97	55200.00	11.44		
Arago	E	2038-01-27T10:51:04.118		58.24	-16.53	57200.00	13.03		
Galatea	E	2038-01-27T10:56:33.445		57.36	-17.68	61953.00	15.73		
Adams	E	2038-01-27T10:57:34.875		57.19	-17.89	62933.00	16.17		

```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2038-01-27T09:36:50.520
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        : 2571895656013097984
2Mass ID (if available) : 01383709+0825126
ICRS Star Coord at Epoch: 01h 38m 37.16971s +08:25:12.23641s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 12.995
G magnitude           : 14.737
RP magnitude          : 14.162
BP magnitude          : 15.142
DUPflag               : 0
Distance (au)         : 29.995
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : 11.11
Sun-Target sep (deg) : 78.92
Sun-Moon sep (deg)   : 173.76
B (ring opening deg) : -9.32
PA of pole (deg)     : -47.62
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation ("): 1.027
C/A sky separation (km): 22342.1
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
    
```



Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2038-01-27T10:26:23.886	-8.96x	-87.66	62933.38	-14.42			
Galatea	I	2038-01-27T10:27:33.459	-9.22x	-87.88	61953.58	-13.74			
Arago	I	2038-01-27T10:34:28.297	-10.81x	-88.67	57215.43	-9.00			
Neptune	I	2038-01-27T09:20:47.236	6.30	-72.53	24753.06			-80.18	-80.50
Neptune	E	2038-01-27T09:52:52.146	-1.19x	-80.07	24759.08			-41.35	-42.33
Arago	E	2038-01-27T10:55:19.219	-15.58x	-84.91	57200.00	9.03			
Galatea	E	2038-01-27T11:02:10.840	-17.14x	-83.33	61953.00	13.88			
Adams	E	2038-01-27T11:03:19.720	-17.40x	-83.07	62933.00	14.57			