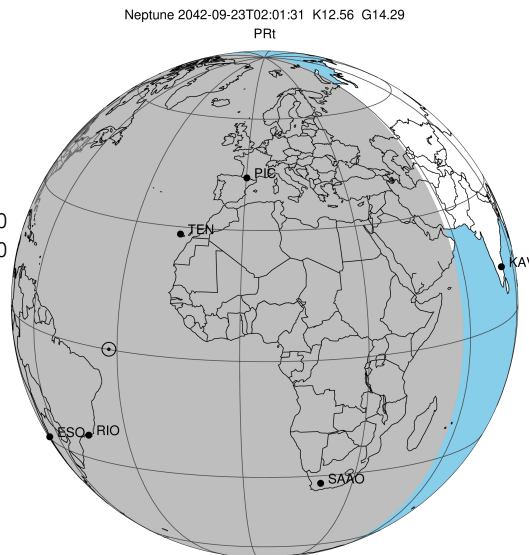


target : Neptune
 target radius (km) : 24764.00
 C/A epoch : 2042-09-23T02:01:31.690
 Event type : PRT
 : Neptune occs: not geocentric or topocentric
 : Ring occs: topocentric, not geocentric
 Gaia source ID : 74461130751927808
 2Mass ID (if available) : 02300691+1252561

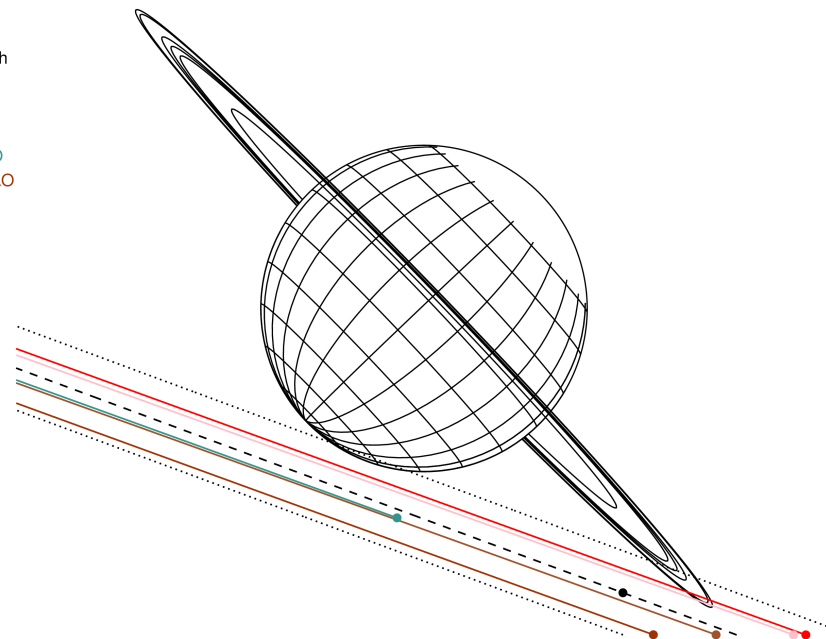
Neptune 2042-09-23T02:01:31 K12.56 G14.29 PRT

ICRS Star Coord at Epoch: 02h 30m 06.95877s +12:52:55.78791s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 12.560
 G magnitude : 14.295
 RP magnitude : 13.711
 BP magnitude : 14.713
 DUPflag : 0
 Distance (au) : 29.028
 f0 (km) : 0.000
 g0 (km) : 0.000
 skyplane vel. (km/s) : -17.68
 Sun-Target sep (deg) : 140.24
 Sun-Moon sep (deg) : 123.16
 B (ring opening deg) : -3.07
 PA of pole (deg) : -46.52



2042-09-23T02:01:31.6900 α: 02 30 06.9588 δ: +12 52 55.788 C/A 1.424° PA 339.68 deg v_sky -17.68 km/s D 29.03 AU
 Credit: Styled after SORA/Lucky Star

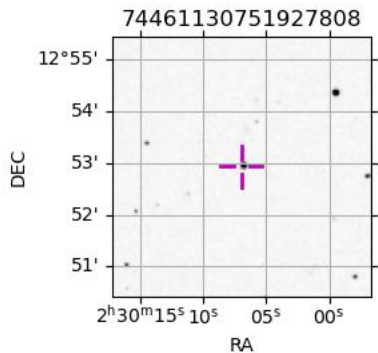
Earth
 PIC
 TEN
 RIO
 ESO
 SAAO



- | # | 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 |

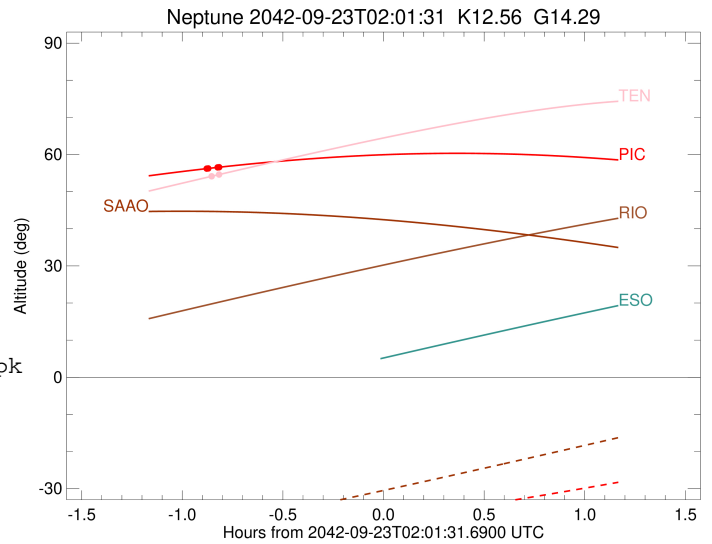
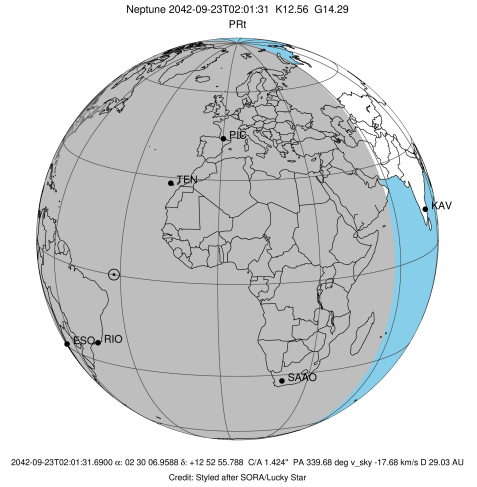
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +		+ +	SEP 23 01:09 - SEP 23 01:14	PnnRie
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	+		+	SEP 23 01:09 - SEP 23 01:10	PnnRie
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					PnnRnn
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2042-09-23T02:00:44.240
Event type           : PRt
: Neptune occs: not geocentric or topocentric
: Ring occs: topocentric, not geocentric
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 74461130751927808
2Mass ID (if available) : 02300691+1252561
ICRS Star Coord at Epoch: 02h 30m 06.95877s +12:52:55.78791s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 12.560
G magnitude           : 14.295
RP magnitude          : 13.711
BP magnitude          : 14.713
DUPflag              : 0
Distance (au)        : 29.028
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -17.68
Sun-Target sep (deg) : 140.24
Sun-Moon sep (deg)   : 123.75
B (ring opening deg) : -3.07
PA of pole (deg)     : -46.52
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.275
C/A sky separation (km) : 26845.3
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
    
```



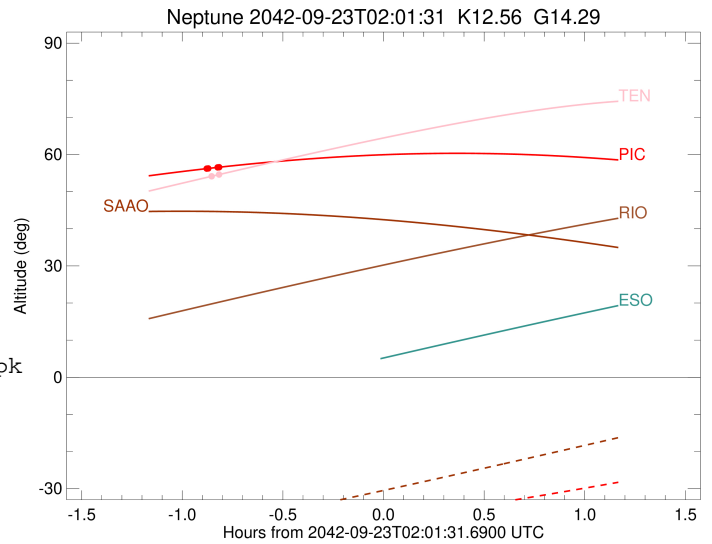
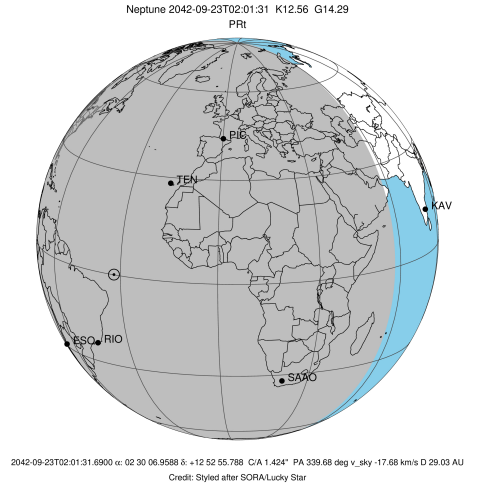
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2042-09-23T01:09:32.646		56.28	-43.90	62936.33	-48.47		
Galatea	I	2042-09-23T01:09:54.496		56.32	-43.87	61956.00	-41.19		

No planet occultations

Galatea	E	2042-09-23T01:13:48.111		56.71	-43.53	65159.02	61.04		
Adams	E	2042-09-23T01:14:00.566		56.73	-43.51	63587.76	52.64		

```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2042-09-23T02:02:34.650
Event type            : PRt
: Neptune occs: not geocentric or topocentric
: Ring occs: topocentric, not geocentric
Observer code         : TEN
Location              : Teide Obs./Tenerife
Latitude (deg)        : 28.30050
E. Longitude (deg)    : 343.48909
Altitude (km)         : 2.395
Gaia source ID        : 74461130751927808
2Mass ID (if available) : 02300691+1252561
ICRS Star Coord at Epoch: 02h 30m 06.95877s +12:52:55.78791s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 12.560
G magnitude           : 14.295
RP magnitude          : 13.711
BP magnitude          : 14.713
DUPflag              : 0
Distance (au)         : 29.028
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -17.68
Sun-Target sep (deg) : 140.24
Sun-Moon sep (deg)   : 123.95
B (ring opening deg) : -3.07
PA of pole (deg)     : -46.52
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.311
C/A sky separation (km) : 27608.2
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 2042-09-23T01:10:50.477  54.26 -61.78 62935.32 -36.73
    
```

No planet occultations

```

Adams     E 2042-09-23T01:09:37.491  54.00 -61.81 82338.48 -101.63
    
```