

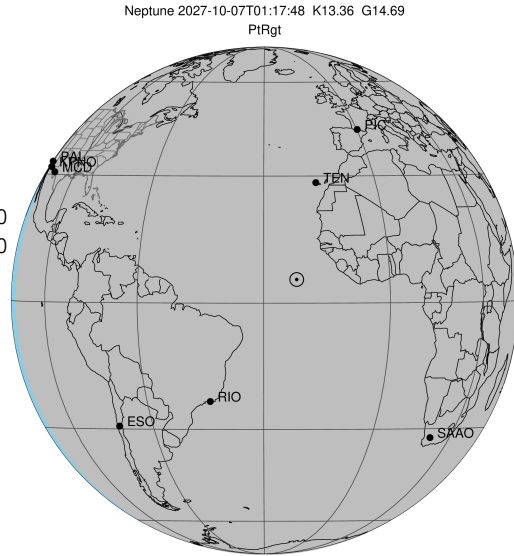
target : Neptune  
 target radius (km) : 24764.00  
 C/A epoch : 2027-10-07T01:17:48.570  
 Event type : PtRgt  
 : Neptune occs: topocentric, not geocentric  
 : Ring occs: geocentric, topocentric  
 Gaia source ID : 2545375847869312256  
 2Mass ID (if available) : 00191436+0029141

ICRS Star Coord at Epoch: 00h 19m 14.37219s +00:29:14.05170s  
 RUWE (>1.4 is poor) : 1.01  
 K magnitude : 13.361  
 G magnitude : 14.688  
 RP magnitude : 14.226  
 BP magnitude : 14.982  
 DUPflag : 0  
 Distance (au) : 28.881  
 f0 (km) : 0.000  
 g0 (km) : 0.000  
 skyplane vel. (km/s) : -23.92  
 Sun-Target sep (deg) : 171.31  
 Sun-Moon sep (deg) : 86.19  
 B (ring opening deg) : -18.15  
 PA of pole (deg) : -44.40  
 # 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

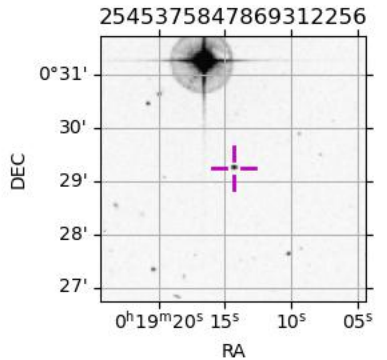
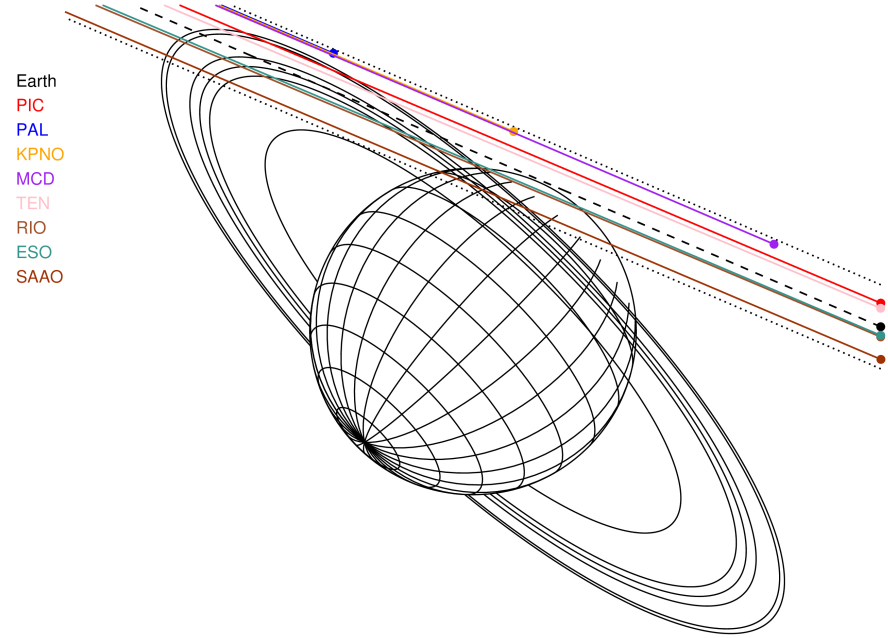
Observable events with sun below -5 deg and altitude above 5 deg unblocked by planet

Obs	Location	lat	Elon	Rings I	Planet	Rings E	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +		+ +	OCT 07 01:34 - OCT 07 01:50	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	+ +		+ +	OCT 07 01:32 - OCT 07 01:53	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	+ + + +	+ +	+ + + + +	OCT 07 01:13 - OCT 07 01:59	PieRie
ESO	European Southern Obs	-29.3	289.3	+ + + + +	+ +	+ + + + +	OCT 07 01:16 - OCT 07 02:01	PieRie
AAT	Siding Spring (AAT)	-31.3	149.1					PnnRnn
SAAO	So. Afr. Astro. Obs.	-32.4	20.8		+ +	+ + + + +	OCT 07 01:06 - OCT 07 01:56	PieRne
MSO	Mt. Stromlo Observato	-35.3	149.0					PnnRnn



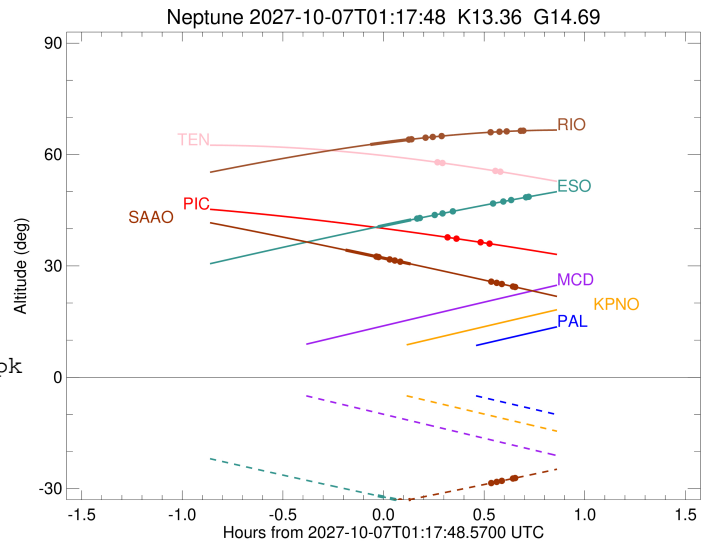
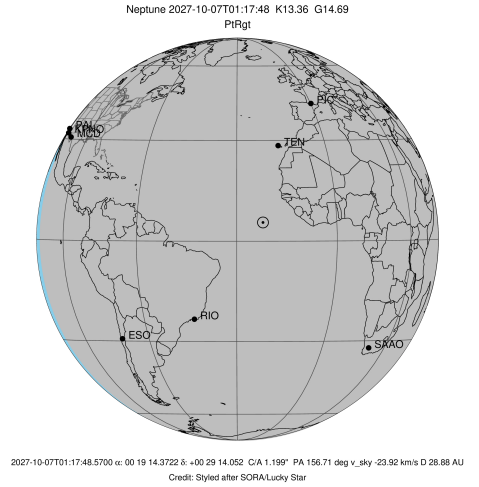
2027-10-07T01:17:48.5700 cc: 00 19 14.3722 s: +00 29 14.052 C/A 1.199° PA 156.71 deg v\_sky -23.92 km/s D 28.88 AU  
 Credit: Styled after SORA/Lucky Star

Neptune 2027-10-07T01:17:48 K13.36 G14.69 PtRgt



```

target                : Neptune
target radius (km)    : 24764.00
C/A epoch              : 2027-10-07T01:15:15.690
Event type             : PtRgt
: Neptune occs: topocentric, not geocentric
: Ring occs: geocentric, topocentric
Observer code         : PIC
Location               : Pic du Midi
Latitude (deg)        : 42.93656
E. Longitude (deg)    : 0.14231
Altitude (km)         : 2.890
Gaia source ID        : 2545375847869312256
2Mass ID (if available) : 00191436+0029141
ICRS Star Coord at Epoch: 00h 19m 14.37219s +00:29:14.05170s
RUWE (>1.4 is poor)  : 1.01
K magnitude           : 13.361
G magnitude           : 14.688
RP magnitude          : 14.226
BP magnitude          : 14.982
DUPflag               : 0
Distance (au)         : 28.881
f0 (km)                : 0.000
g0 (km)                : 0.000
skyplane vel. (km/s)  : -23.92
Sun-Target sep (deg)  : 171.31
Sun-Moon sep (deg)    : 86.81
B (ring opening deg)  : -18.15
PA of pole (deg)      : -44.40
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.344
C/A sky separation (km) : 28151.0
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.urall1.tpc.Neptune
naif0012.tls
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
earth_flat_IAU.spk
    
```



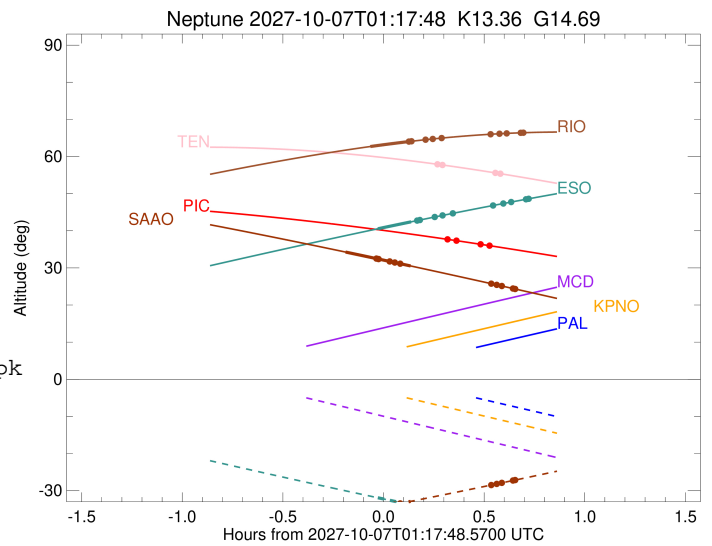
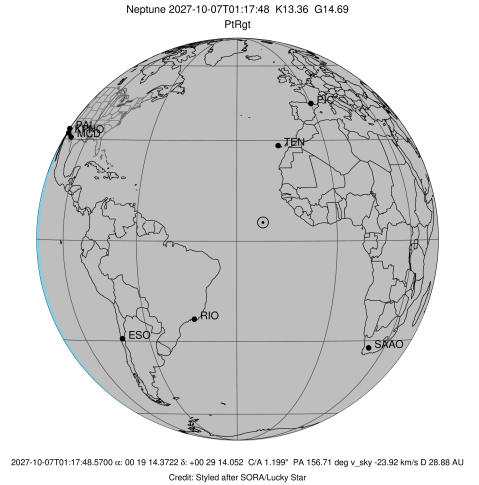
Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2027-10-07T01:34:38.275		37.99	-45.73	62938.82	-10.05		
Galatea	I	2027-10-07T01:36:27.444		37.75	-45.52	62019.92	-8.05		

No planet occultations

Galatea	E	2027-10-07T01:48:52.821		36.06	-43.98	61962.37	7.89		
Adams	E	2027-10-07T01:50:42.284		35.81	-43.74	62933.45	10.02		

```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2027-10-07T01:16:19.150
Event type            : PtRgt
: Neptune occs: topocentric, not geocentric
: 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        : 2545375847869312256
2Mass ID (if available) : 00191436+0029141
ICRS Star Coord at Epoch: 00h 19m 14.37219s +00:29:14.05170s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 13.361
G magnitude           : 14.688
RP magnitude          : 14.226
BP magnitude          : 14.982
DUPflag              : 0
Distance (au)         : 28.881
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -23.92
Sun-Target sep (deg) : 171.31
Sun-Moon sep (deg)   : 87.00
B (ring opening deg) : -18.15
PA of pole (deg)     : -44.40
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.305
C/A sky separation (km) : 27334.4
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.urall1.tpc.Neptune
naif0012.tls
IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
earth_flat_IAU.spk
    
```

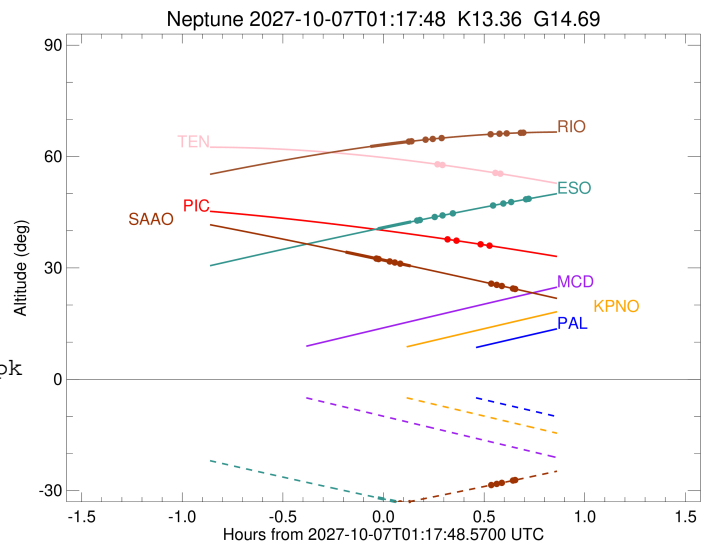
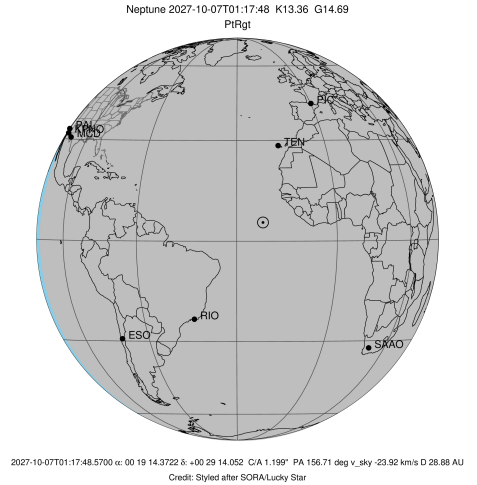


b: ring blocked by planet x: target alt < 5.0 deg or sun > -5.0 deg

Ring	I/E	UTC	b?	alt	alt-sun	radius	r-dot	lat-geo	lat-geodetic
Adams	I	2027-10-07T01:32:16.642		58.11	-65.48	62933.54	-13.34		
Galatea	I	2027-10-07T01:33:34.312		57.95	-65.37	61954.40	-11.88		
No planet occultations									
Galatea	E	2027-10-07T01:52:02.177		55.47	-63.39	61953.06	11.86		
Adams	E	2027-10-07T01:53:20.038		55.28	-63.23	62933.01	13.31		

```

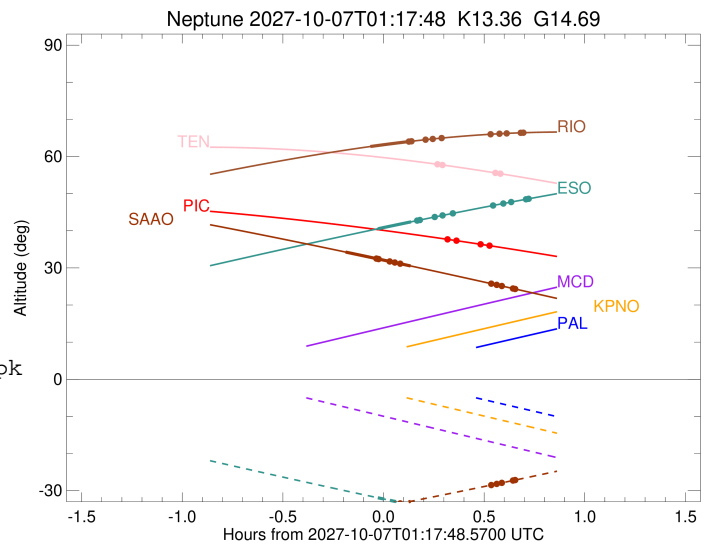
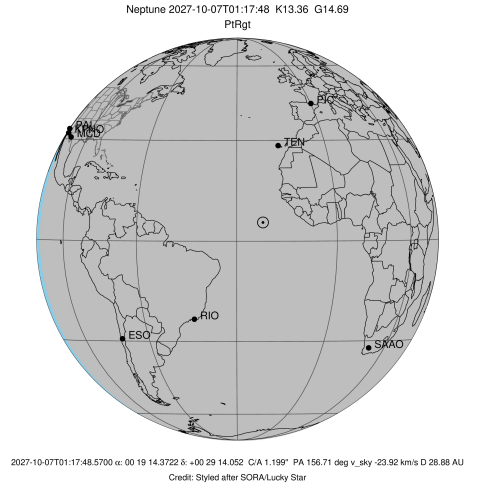
target                : Neptune
target radius (km)   : 24764.00
C/A epoch            : 2027-10-07T01:19:28.020
Event type          : PtRgt
: Neptune occs: topocentric, not geocentric
: Ring occs: geocentric, topocentric
Observer code       : RIO
Location            : Rio de Janeiro
Latitude (deg)      : -22.89506
E. Longitude (deg)  : 316.77708
Altitude (km)       : 0.033
Gaia source ID      : 2545375847869312256
2Mass ID (if available) : 00191436+0029141
ICRS Star Coord at Epoch: 00h 19m 14.37219s +00:29:14.05170s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 13.361
G magnitude          : 14.688
RP magnitude         : 14.226
BP magnitude         : 14.982
DUPflag             : 0
Distance (au)       : 28.881
f0 (km)              : 0.000
g0 (km)              : 0.000
skyplane vel. (km/s) : -23.92
Sun-Target sep (deg) : 171.31
Sun-Moon sep (deg)  : 86.99
B (ring opening deg) : -18.15
PA of pole (deg)    : -44.40
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.114
C/A sky separation (km) : 23326.0
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.urall1.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	2027-10-07T01:24:36.100	b	63.95	-56.26	62933.00	-22.25		
Galatea	I	2027-10-07T01:25:20.756		64.03	-56.36	61953.00	-21.64		
Arago	I	2027-10-07T01:29:20.668		64.44	-56.89	57200.03	-17.83		
Lassell	I	2027-10-07T01:31:20.311		64.63	-57.14	55200.12	-15.57		
LeVerrier	I	2027-10-07T01:33:42.166		64.85	-57.44	53200.71	-12.58		
Neptune	I	2027-10-07T01:13:50.850		62.69	-54.74	24723.31		71.72	72.29
Neptune	E	2027-10-07T01:25:07.310		64.00	-56.33	24740.77		45.85	46.82
LeVerrier	E	2027-10-07T01:50:23.792		66.04	-59.29	53200.02	12.55		
Lassell	E	2027-10-07T01:52:45.986		66.16	-59.52	55200.00	15.53		
Arago	E	2027-10-07T01:54:45.965		66.25	-59.70	57200.00	17.77		
Galatea	E	2027-10-07T01:58:46.594		66.39	-60.05	61953.00	21.58		
Adams	E	2027-10-07T01:59:31.371		66.42	-60.11	62933.00	22.19		

```

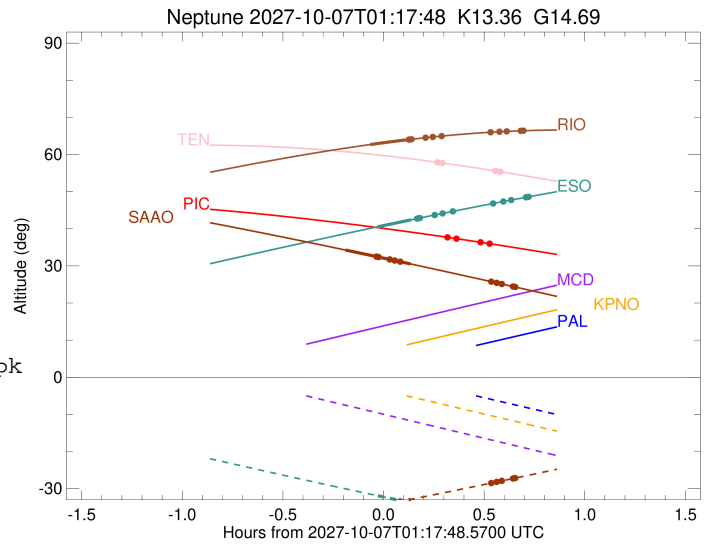
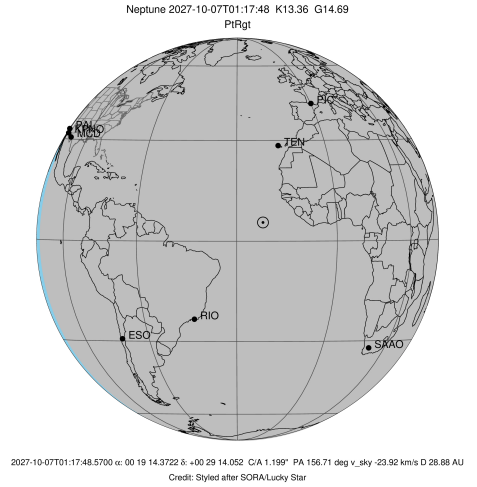
target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2027-10-07T01:21:03.680
Event type            : PtRgt
: Neptune occs: topocentric, not geocentric
: Ring occs: geocentric, topocentric
Observer code        : ESO
Location              : European Southern Obs. (3.6m)
Latitude (deg)       : -29.26097
E. Longitude (deg)   : 289.26831
Altitude (km)        : 2.400
Gaia source ID       : 2545375847869312256
2Mass ID (if available) : 00191436+0029141
ICRS Star Coord at Epoch: 00h 19m 14.37219s +00:29:14.05170s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 13.361
G magnitude           : 14.688
RP magnitude          : 14.226
BP magnitude          : 14.982
DUPflag              : 0
Distance (au)         : 28.881
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -23.92
Sun-Target sep (deg) : 171.31
Sun-Moon sep (deg)   : 86.75
B (ring opening deg) : -18.15
PA of pole (deg)     : -44.40
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 1.129
C/A sky separation (km) : 23653.8
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.urall1.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	2027-10-07T01:27:01.098		42.59	-34.00	62933.00	-21.48		
Galatea	I	2027-10-07T01:27:47.400		42.74	-34.14	61953.01	-20.84		
Arago	I	2027-10-07T01:31:59.097		43.51	-34.93	57200.06	-16.76		
Lassell	I	2027-10-07T01:34:07.782		43.90	-35.33	55200.25	-14.28		
LeVerrier	I	2027-10-07T01:36:46.419		44.38	-35.82	53202.32	-10.88		
Neptune	I	2027-10-07T01:16:06.398		40.54	-31.92	24723.51		71.32	71.90
Neptune	E	2027-10-07T01:26:03.082		42.41	-33.81	24739.00		48.10	49.07
LeVerrier	E	2027-10-07T01:51:22.605		46.97	-38.47	53200.14	10.86		
Lassell	E	2027-10-07T01:54:01.444		47.42	-38.94	55200.00	14.26		
Arago	E	2027-10-07T01:56:10.329		47.79	-39.31	57200.00	16.73		
Galatea	E	2027-10-07T02:00:22.425		48.50	-40.05	61953.00	20.81		
Adams	E	2027-10-07T02:01:08.783		48.63	-40.18	62933.00	21.46		

```

target                : Neptune
target radius (km)   : 24764.00
C/A epoch             : 2027-10-07T01:16:09.730
Event type           : PtRgt
: Neptune occs: topocentric, not geocentric
: 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       : 2545375847869312256
2Mass ID (if available) : 00191436+0029141
ICRS Star Coord at Epoch: 00h 19m 14.37219s +00:29:14.05170s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 13.361
G magnitude           : 14.688
RP magnitude          : 14.226
BP magnitude          : 14.982
DUPflag              : 0
Distance (au)        : 28.881
f0 (km)               : 0.000
g0 (km)               : 0.000
skyplane vel. (km/s) : -23.92
Sun-Target sep (deg) : 171.31
Sun-Moon sep (deg)   : 86.69
B (ring opening deg) : -18.15
PA of pole (deg)     : -44.40
Pole direction: RA (deg): 299.33374
Dec (deg): 42.95036
C/A sky separation (") : 0.971
C/A sky separation (km) : 20332.5
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.urall1.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	2027-10-07T01:15:11.030	b	32.61	-34.78	62933.00	-25.94		
Galatea	I	2027-10-07T01:15:49.079	b	32.48	-34.67	61953.00	-25.57		
Arago	I	2027-10-07T01:19:03.093	b	31.86	-34.11	57200.00	-23.33		
Lassell	I	2027-10-07T01:20:31.093	b	31.58	-33.85	55200.00	-22.10		
LeVerrier	I	2027-10-07T01:22:04.636	b	31.27	-33.57	53200.00	-20.63		
Neptune	I	2027-10-07T01:06:27.489		34.28	-36.28	24725.43		67.61	68.28
Neptune	E	2027-10-07T01:25:54.148		30.53	-32.89	24751.32		32.01	32.90
LeVerrier	E	2027-10-07T01:50:00.542		25.74	-28.48	53200.00	20.49		
Lassell	E	2027-10-07T01:51:34.723		25.43	-28.19	55200.00	21.96		
Arago	E	2027-10-07T01:53:03.288		25.13	-27.91	57200.00	23.19		
Galatea	E	2027-10-07T01:56:18.259		24.47	-27.30	61953.00	25.48		
Adams	E	2027-10-07T01:56:56.436		24.34	-27.18	62933.00	25.86		