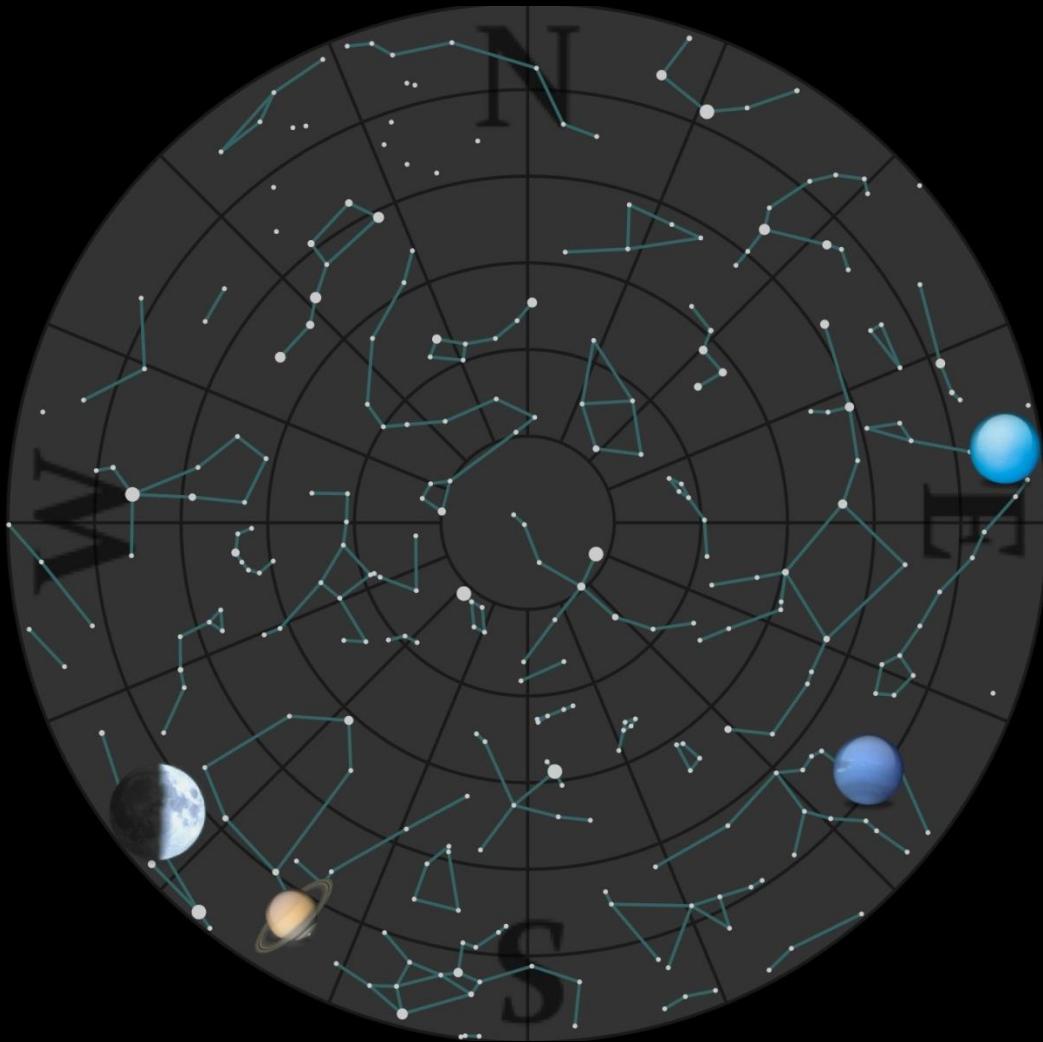


What's Up?

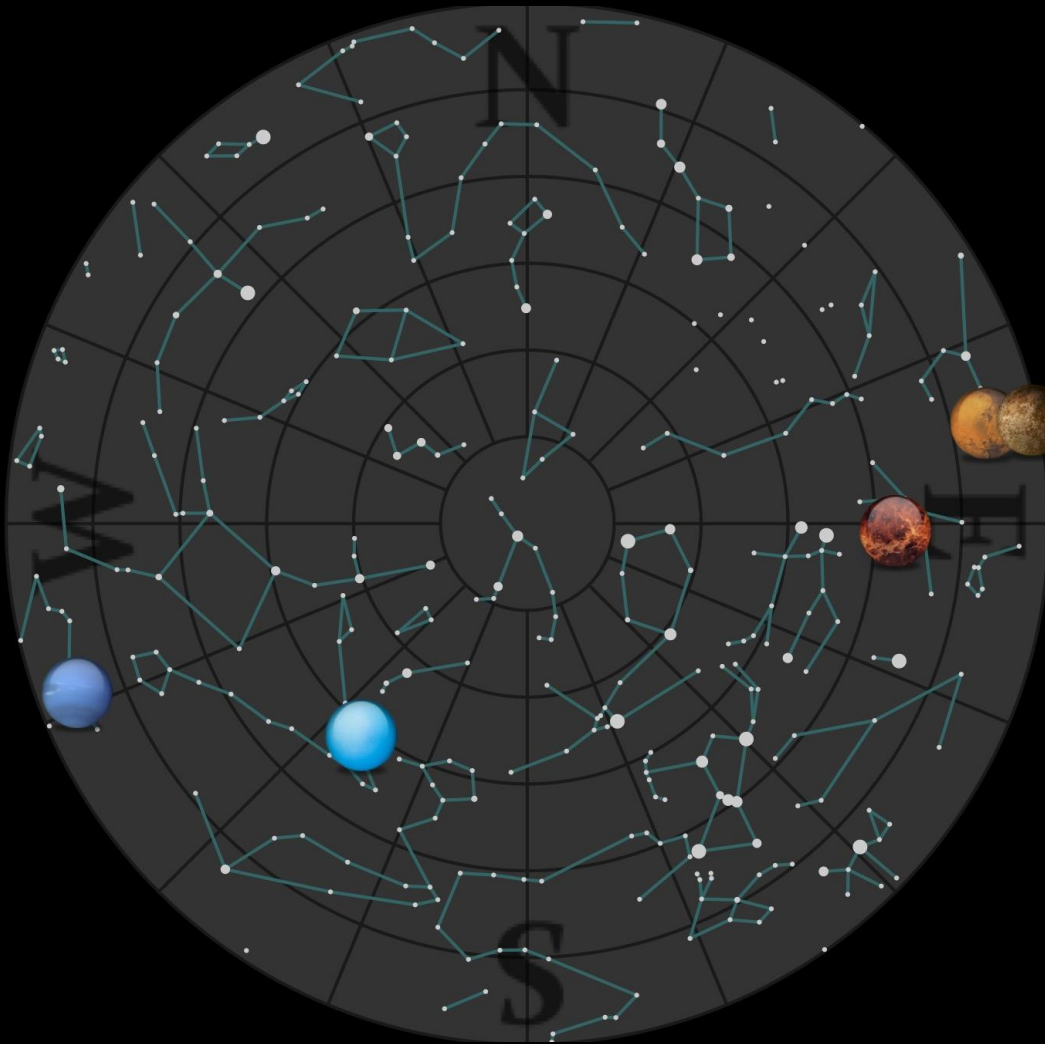
2017 August 28 to September 25

Bill Barton, FRAS

- The Sky 22:00
Tonight



- The Sky 06:00
Tomorrow Morning



Inner Solar System

- Sun
 - Declination decreasing (Equinox on September 22), in Leo moving to Virgo
- Mercury
 - In the morning sky throughout this period, in Sextans then Leo
 - Maximum elongation on September 12 (18°)
 - Brightness increasing, favourable observing conditions
- Venus
 - In morning sky, in Cancer then Leo
 - Elongation decreasing, phase increasing
 - Superior Conjunction (far side of Sun) on 9 January 2018

Earth

- Equinox
 - 20:03UT, 22 September
- Moon
 - First Quarter, 29 August
 - Full, 6 September ('Full Corn' Moon, not 'Harvest' Moon)
 - Last Quarter, 13 September
 - New, 20 September
- Eclipses
 - None this period
- Meteors
 - Only weak and sporadic activity this period

Lunar Occultations

- Four events this period
 - ξ^2 Ceti, mag +4.3, September 10, 06:56, dark limb reappearance
 - γ Tauri, mag +3.7, September 12, 06:49, dark limb reappearance
 - π Cancri, mag +5.4, September 17, 18:55, dark limb reappearance
 - γ Librae, mag +3.9, September 24, 19:02, dark limb disappearance

Other Occultations I

- First of two events this period
 - Occulting body: 6925 Susumu (mag. +17.8)
 - Star occulted: UCAC4 529-009019 (mag. +5.1) σ Tauri
RA 04^h 39^m 09^s, Dec +15° 47' 58"
 - Time: 2017 September 09 23:51UT
 - Sun distance: 97°
 - Moon distance: 35°
 - Moon phase: 84%
 - Expected magnitude drop: 12.7

Other Occultations II

- Second event this period
 - Occulting body: 2060 Chiron (mag. +18.66)
 - Star occulted: UCAC4-461-131615 (mag. +14.01)
RA 23^h 39^m 10^s, Dec +02° 05' 57"
 - Time: 2017 September 24 21:02.8UT
 - Sun distance: 173°
 - Moon distance: 119°
 - Moon phase: 21%
 - Expected magnitude drop: 4.7

Outer Solar System

- Mars
 - In the morning sky, in Leo
 - Conjunction with the Sun (far side) was on July 27
- Jupiter
 - In the evening sky, setting around midnight, in Virgo
 - Conjunction with the Sun (far side) on October 26
- Saturn
 - Rising at Sunset, in Ophiuchus
 - Opposition was on June 15
 - Conjunction with the Sun (far side) on December 21
- Neptune
 - Opposition on September 5 in Aquarius, mag. +7.8

Society Events

- Wednesday September 6
 - OASI 50 Anniversary Dinner, Felixstowe Ferry Golf Club, 19:00 onwards (Observatory Closed?)
- Saturday September 9
 - Solar Observing, Reg Driver Centre, Christchurch Park, 11:00 to 16:00 (Subject to Confirmation)
- Sunday September 10
 - Solar Observing, Bentley Village Family Day, 11:00 to 15:00
- Mondays September 11 & 25
 - NOGS, Newbourne Village Hall, 19:00 onwards
- Tuesday September 19
 - Committee Meeting, Methodist Church Hall, Blackhorse Lane, Ipswich, 20:15 onwards

Other Events I

- DASH
 - Discussion Meeting, Saturday September 02, 19:30 onwards, Westleton Village Hall, David Murton 'Beginners Observing' & 'Ask the Panel'
 - Practical Meeting, Saturday September 23, 19:30 onwards, Westleton Heath
- LYRA
 - No meetings this period
- Athenæum Astronomical Association
 - Observing Meeting, Nowton Park, Thursday August 31 and 14 & 28 September, 19:30 onwards

Other Events II

- Kelling Heath, Weybourne, Norfolk, NR25 7HW
 - Autumn Star Party, Saturday & Sunday 22 & 23 September.
- Burlington House, Piccadilly, London
 - RAS Apartments Open House, Saturday September 16.
 - British Astronomical Association Lunar & Solar Observers Workshop, Saturday 30 September (booking closes 22 September)
- Haw Wood Farm, Saxmundham, IP17 3QT
 - Astronomers Week, Friday 13 October to Friday October 20.
 - Family Star Gazing Weekend, Friday 20 October to Monday October 23.

Neptune and Triton

Neptune

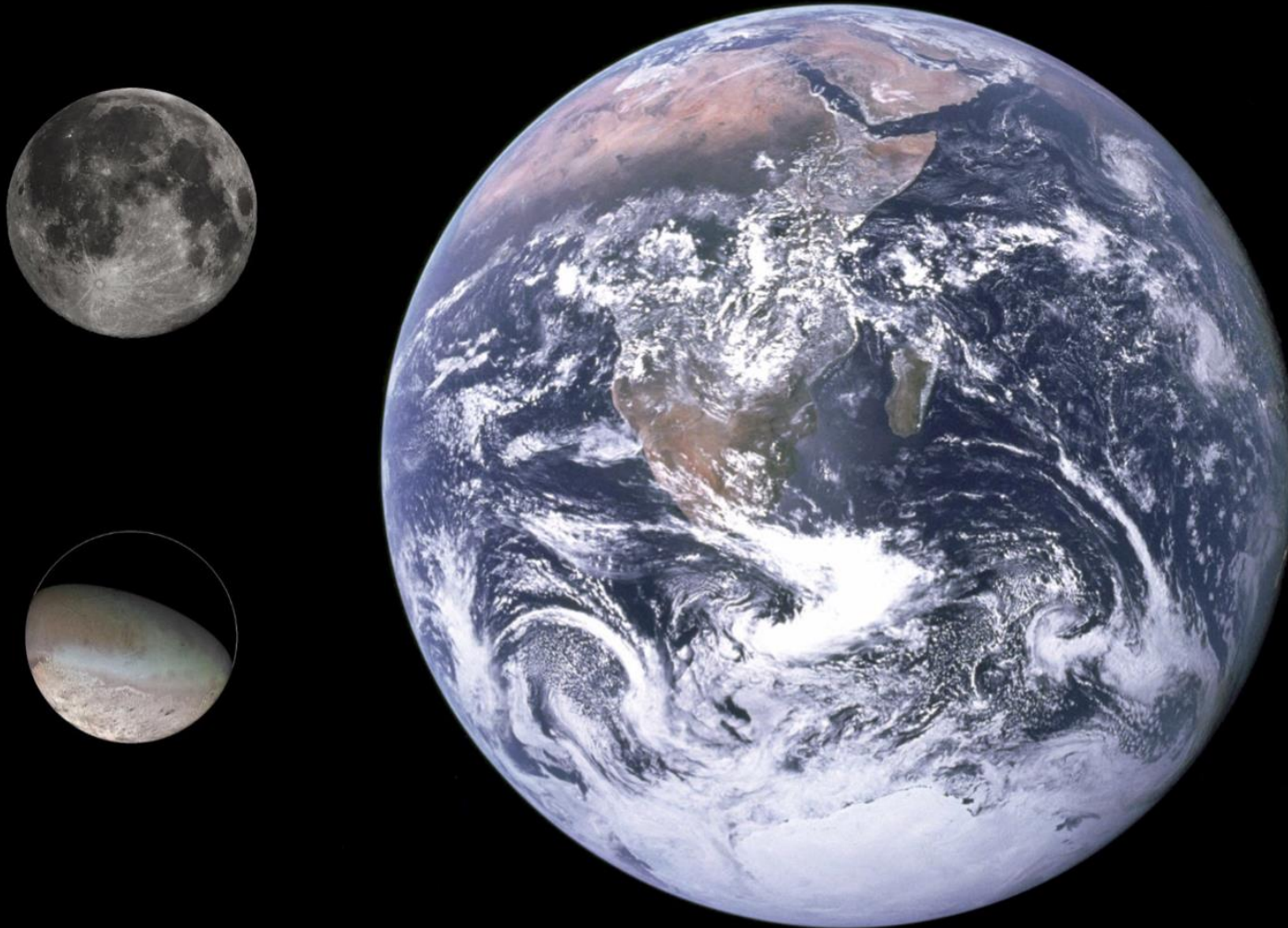
- Neptune
 - Discovered on: 23 September 1846
By Johann Gottfried Galle, Berlin
 - Diameter: 49,250 km (30,600 miles)
 - Mean Orbital Radius: 30.1 AU
 - Orbital Period: 164.8 Earth Years
 - Orbital Inclination: 1.8°
 - Magnitude: 7.8 - 8.0 ($>1.5''$, 40mm aperture)
 - Angular Diameter: 2.2 - 2.4" ($>2''$, 52mm aperture)
 - 2011 July 11: First complete orbit since discovery

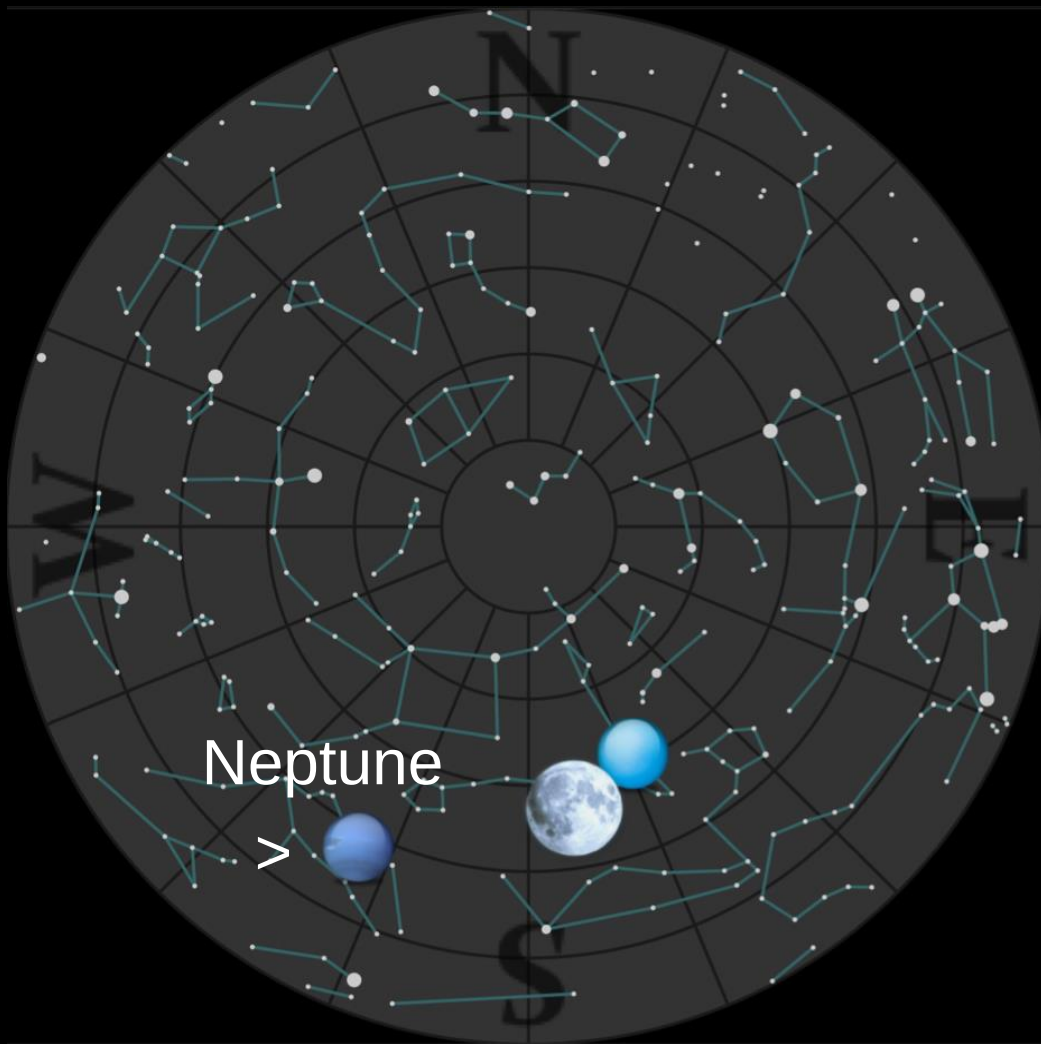
Triton

- Triton
 - Discovered on: 10 October 1846 (17 days after Neptune itself)
By William Lassell, Liverpool
 - Diameter: 2,700 km (1,677 miles)
 - Mean Orbital Radius: 354,760 km (220,440 miles)
 ≈ 6 Neptune $\varnothing$, 13" (as viewed from Earth), 1^s
 - Orbital Period: -5^d 21^h 03^m (retrograde), 141^h, 2.5°/hour
 - Orbital Inclination: 130° (-50°?)
 - Mean Magnitude: 13.5 (>10", 254mm aperture)
 - Angular Diameter $\approx$ 0.15" (> 30", 770mm aperture)
 - Atmosphere: Nitrogen, 14 μ bar



Earth, Moon & Triton





- Thursday 2017
October 05 23:30 UT
- 'BST' in operation

2017 October 05

- At $23^{\text{h}} 48^{\text{m}} \pm 10^{\text{m}}$ UT Neptune's moon Triton will occult the star 4UC 410-143659
 - Right Ascension: $23^{\text{h}} 54^{\text{m}} 18.4^{\text{s}}$
 - Declination: $-08^{\circ} 00' 08.3''$
 - Star Visual Magnitude: +12.7
 - Expected Magnitude Drop: 1.4
 - Maximum Duration: 161^{s} ($4^{\text{m}} 21^{\text{s}}$)
 - Altitude: $\approx 30^{\circ}$
 - Azimuth : $\approx 210^{\circ}$ (south south west)
- Earth's Moon Phase: Full ($18^{\text{h}} 40^{\text{m}}$, 2017 October 05)
- Moon Elongation: 34°

2017 Oct 5, P8M01 Triton (I), Plot 2.0x2.0 deg, to Mag 14.0

22 52

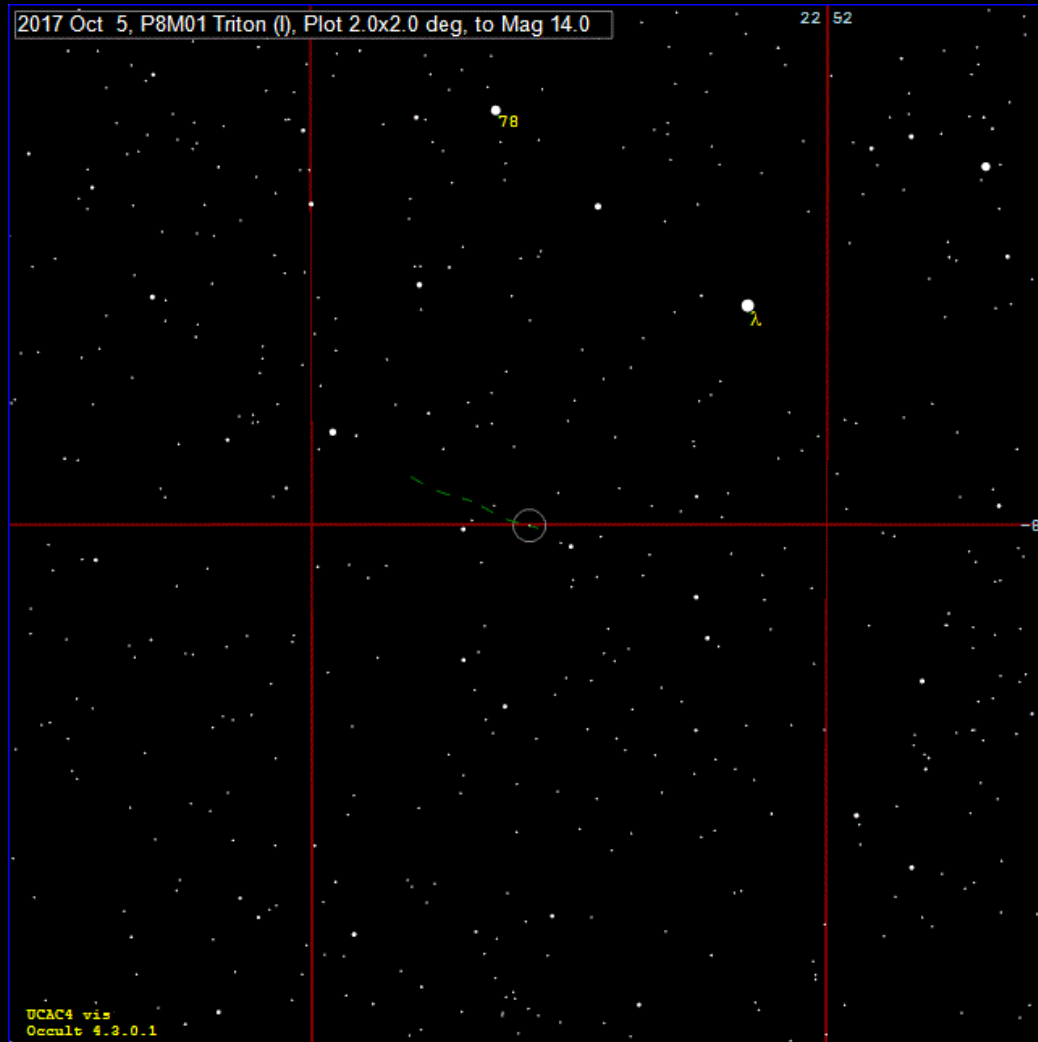
78

λ

8

UCAC4 vis
Occult 4.3.0.1

- Constellation:
Aquarius

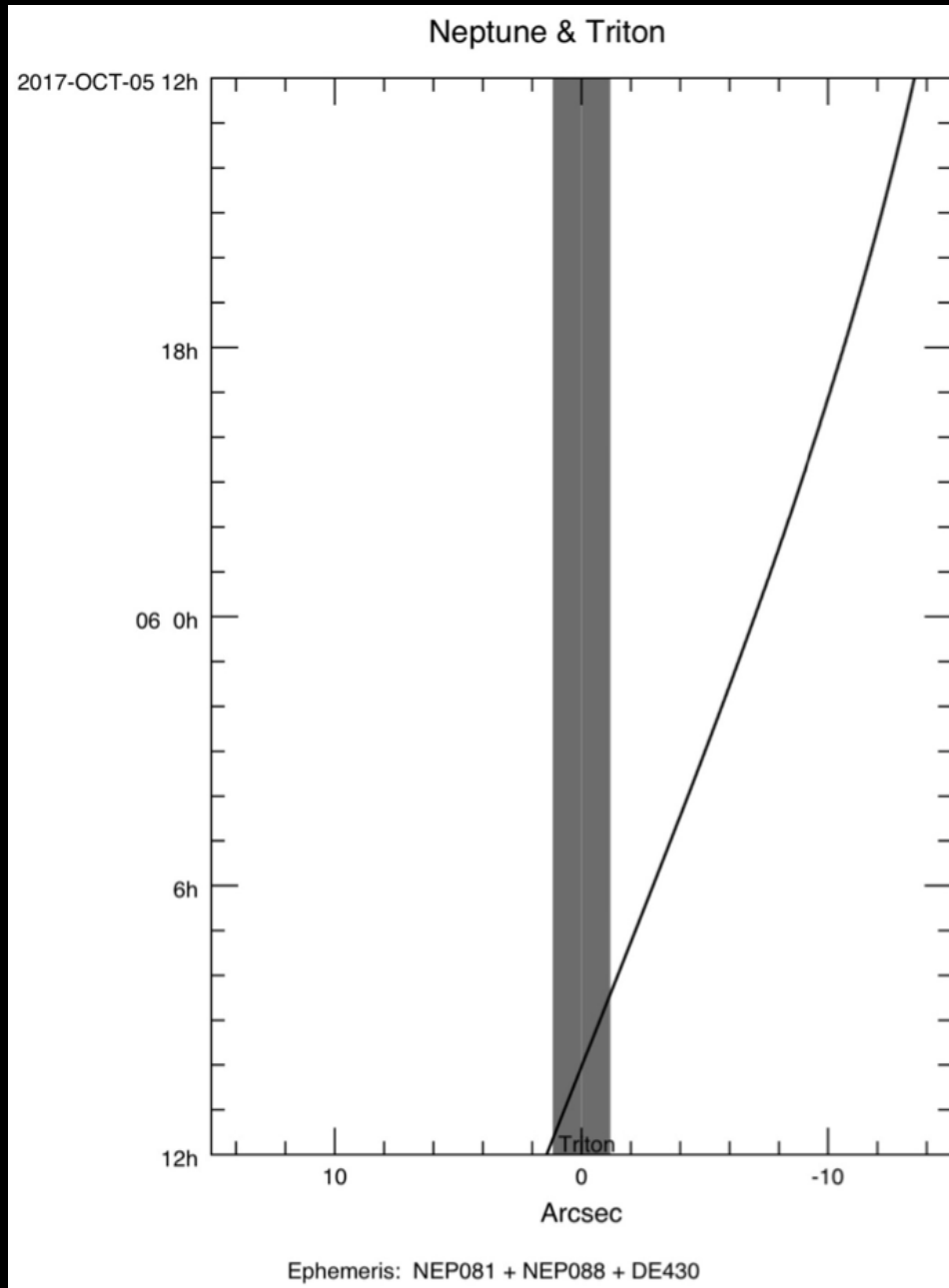


- 06 October 2017
00:00

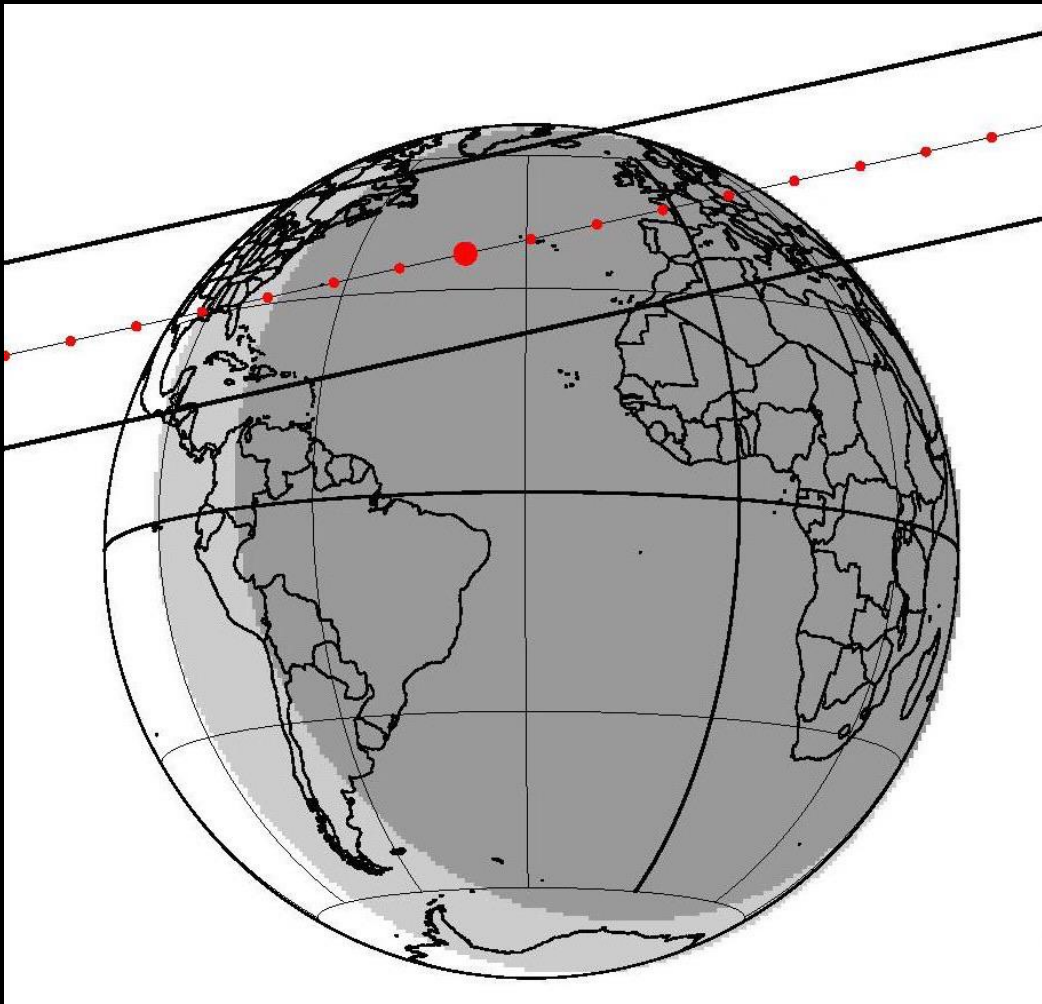
Not mirrored
Not inverted

Triton





< time of event

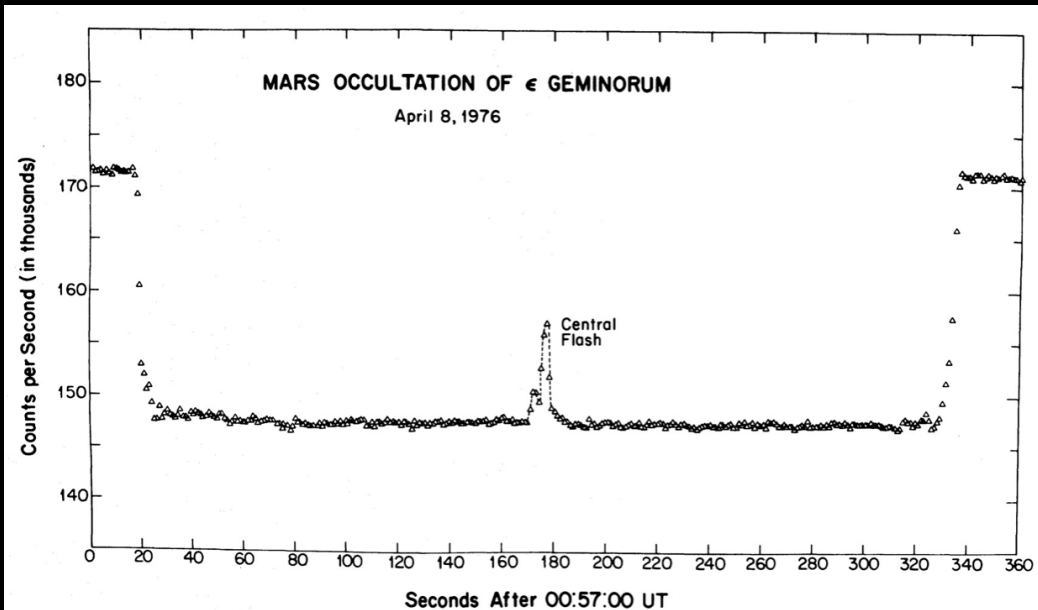


- Shadow Track

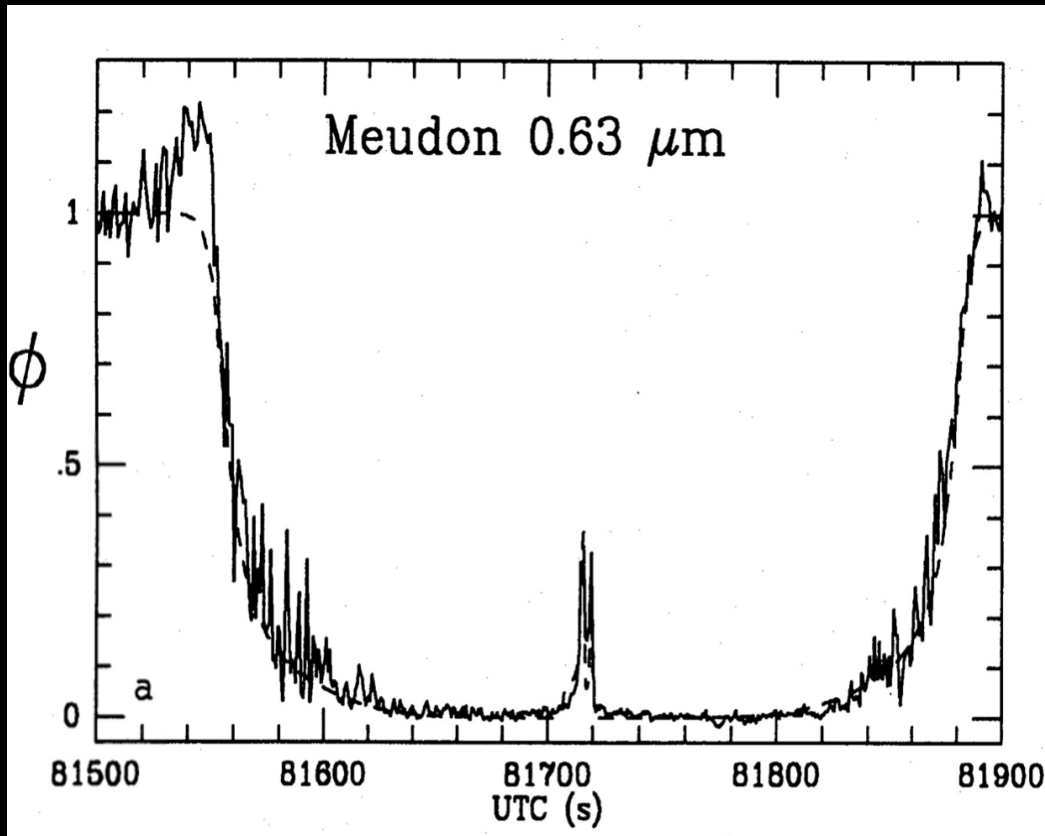
- 08 April 1976
Mars occulted
 ϵ Geminorum

ref:

Astrophysical Journal,
217, 661-679 (1977)



- 03 July 1989
Saturn moon Titan
occulted 28 Sagittarii



ref:
Astronomy &
Astrophysics, 269, 541-563
(1993)

Online Resources

- North American Asteroidal Occultation Program
 - <http://www.asteroidoccultation.com/observations/NA/>
- International Occultation Timing Association
 - <http://iota-es.de>
- European Research Council Lucky Star Project Group
 - <http://lesia.obspm.fr/lucky-star/predictions>
- Neptune Viewer 2.9
 - https://pds-rings.seti.org/tools/viewer2_nep.html
- BAA ARPS
 - <http://britastro.org/asteroids>

Paper Resource

- Journal of the British Astronomical Association
 - Volume 127, Number 4, August 2017, Page 194-5

BAA Observing Hints

- Campaign
 - Practice on at least one previous occasion (preferably the night before) or on the night before occultation event
- Instrumentation
 - Long focal length + Barlow lens
 - CCD or video 1 sec or less exposure
- Visual Observing
 - At least 300mm aperture
 - Audio recording of event on smartphone with time signals