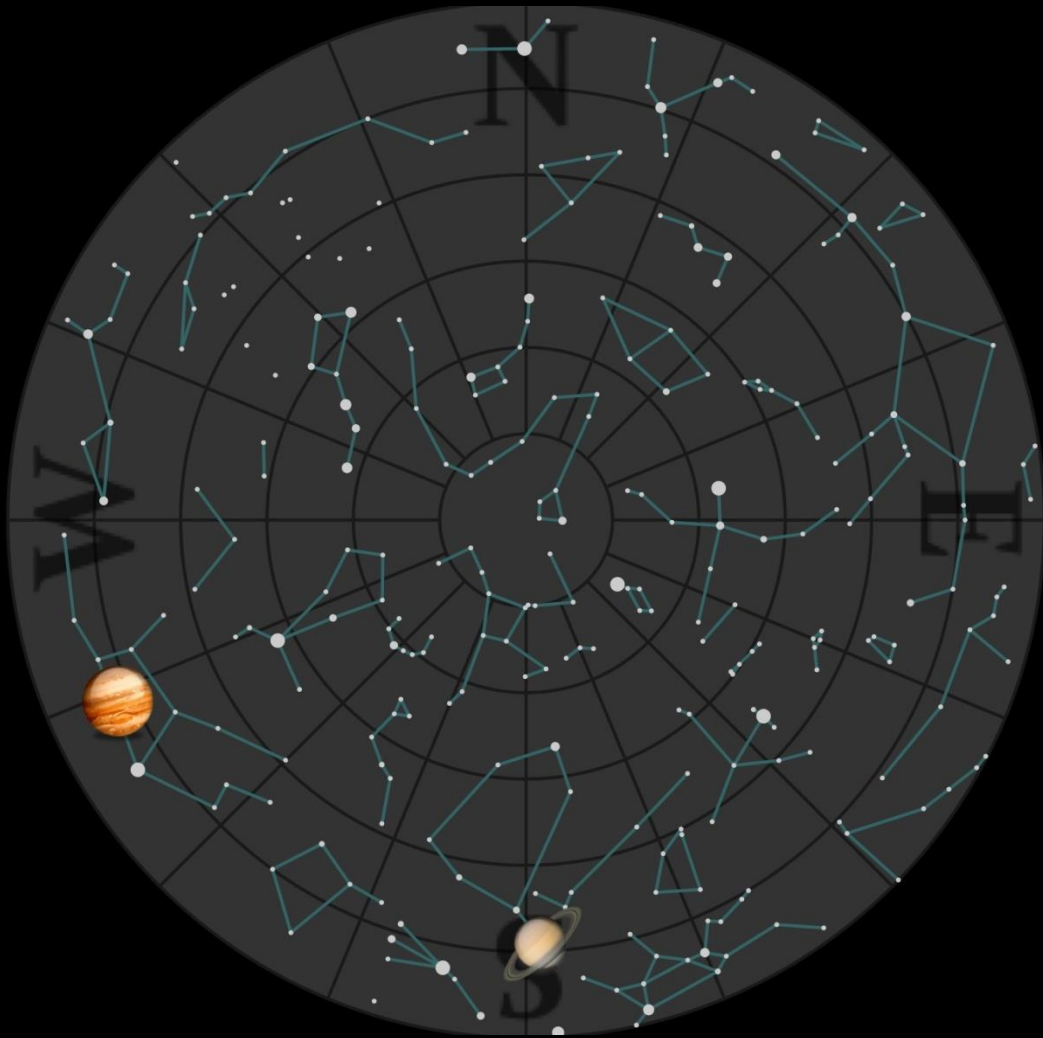


# What's Up?

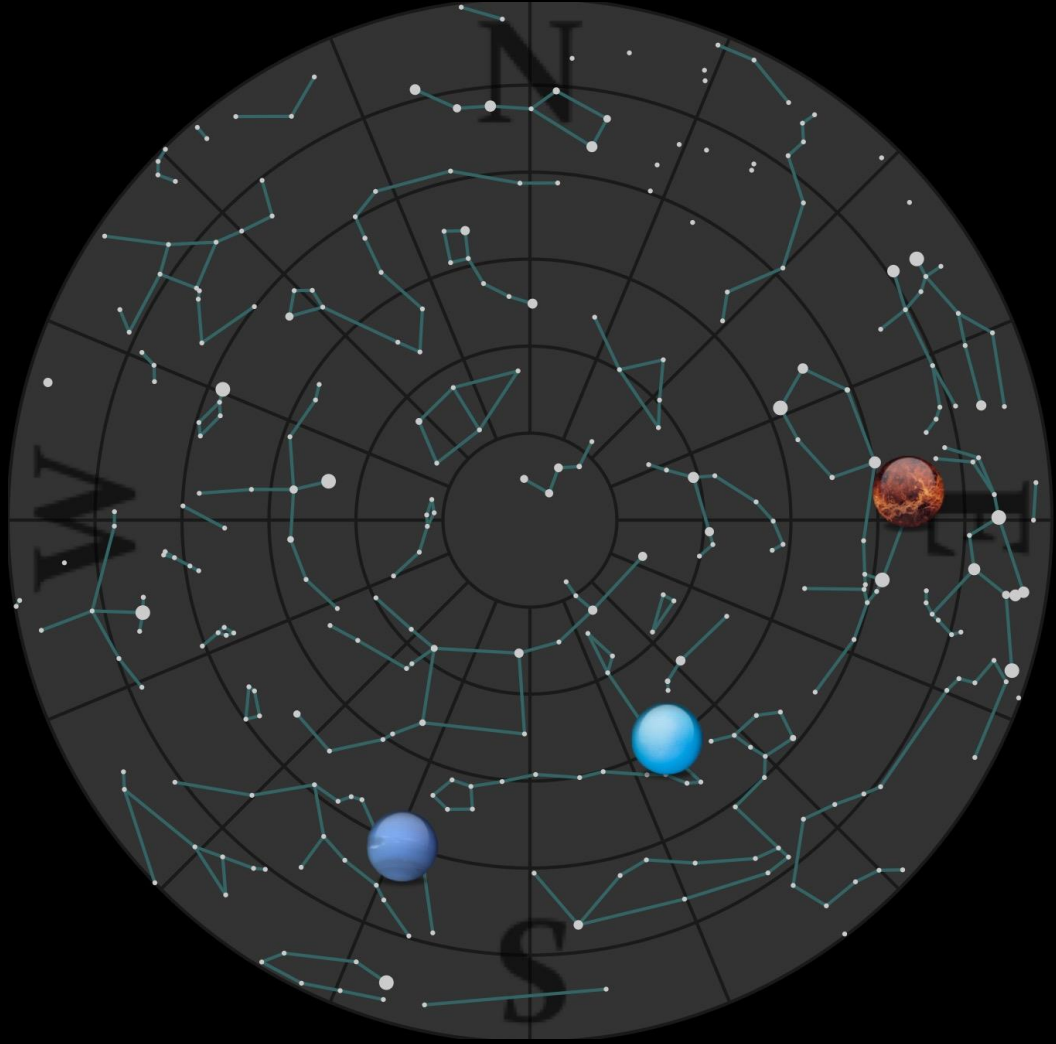
2017 July 24 to August 28

Bill Barton, FRAS

•The Sky 22:00  
Tonight



•The Sky 05:00  
Tomorrow Morning



# Inner Solar System

- Sun
  - Declination decreasing (solstice was on June 21), in Cancer then Leo
- Mercury
  - In the evening sky throughout this period, in Leo
  - Maximum elongation on July 30 ( $27^\circ$ ), inferior conjunction August 26
  - Brightness decreasing
- Venus
  - In morning sky, phase increasing, elongation decreasing, in Orion then Cancer
  - Maximum elongation was on June 03 ( $46^\circ$ )

# Earth

- Moon
  - First Quarter, 30
  - Full, 7 (Hay or Thunder Moon)
  - Last Quarter, 15
  - New, 21
- Eclipses
  - Next slides
- Meteors
  - $\delta$  Aquarids, July 15 - August 20, peak July 29, ZHR 20
  - Perseids, July 23 - August 20, peak August 12, ZHR 80+

# ECLIPSES

## Partial Lunar Eclipse of 2017 Aug 07

Ecliptic Conjunction = 18:11:46.3 TD (= 18:10:36.9 UT)  
 Greatest Eclipse = 18:21:38.0 TD (= 18:20:27.7 UT)

Penumbral Magnitude = 1.2886 P. Radius = 1.2003" Gamma = 0.8568  
 Umbral Magnitude = 0.2464 U. Radius = 0.6745" Axis = 0.8024"

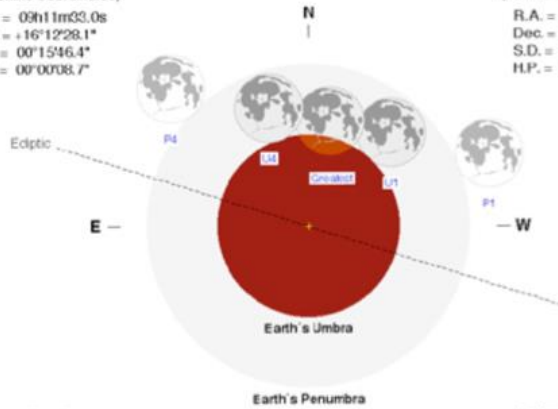
Saros Series = 119 Member = 62 of 83

Sun at Greatest Eclipse  
 (Geocentric Coordinates)

R.A. = 09h11m33.0s  
 Dec. = +16°12'28.1"  
 S.D. = 00°15'46.4"  
 H.P. = 00°00'08.7"

Moon at Greatest Eclipse  
 (Geocentric Coordinates)

R.A. = 21h10m53.1s  
 Dec. = -15°25'17.1"  
 S.D. = 00°15'08.1"  
 H.P. = 00°55'32.7"



### Eclipse Durations

Penumbral = 05h00m53s  
 Umbral = 01h55m14s

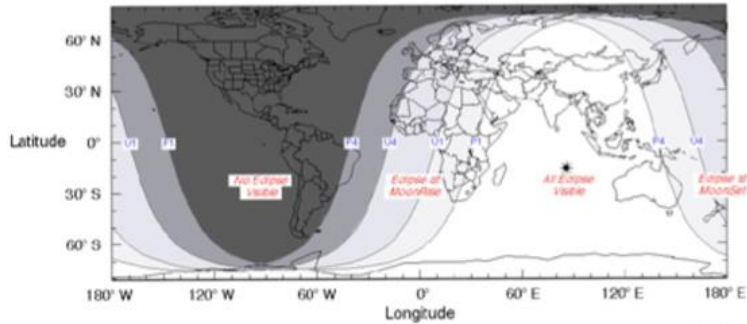
### Eclipse Contacts

P1 = 15:30:02 UT  
 U1 = 17:22:55 UT  
 U4 = 19:18:10 UT  
 P4 = 20:50:56 UT



$\Delta T = 70$  s  
 Rule = CdT (Danjon)  
 Eph = VSOP87/E1P2000-RS

F. Espenak, NASA's GSFC  
[eclipse.gsfc.nasa.gov/eclipse.html](http://eclipse.gsfc.nasa.gov/eclipse.html)



2017 Apr 29

- Lunar Eclipse August 7  
 Slight partial eclipse ending at moonrise

## ECLIPSES

### Total Solar Eclipse of 2017 Aug 21 Orthographic Projection Map of the Eclipse Path

Greatest Eclipse: 18:25:31.6 UT J.D.: 2457987.267727

Magnitude: 1.0306 Gamma: 0.4367

Saros Series: 145 Member: 22 of 77

Geocentric Libration (O + P):

l: 4.64°

b: -0.57°

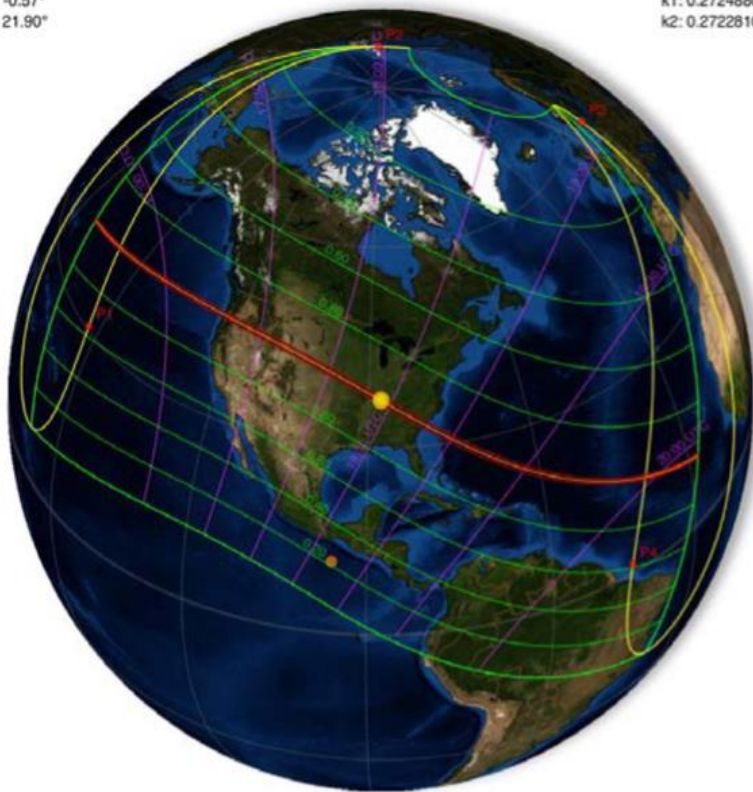
c: 21.90°

Constants

$\Delta T$ : 68.65s

k1: 0.2724880

k2: 0.2722810



External/Internal  
Contacts of Umbra

U1: 16:48:35.9 UT

U2: 16:49:35.9 UT

U3: 20:01:39.4 UT

U4: 20:02:34.2 UT

Local Circumstances at Greatest Eclipse

Lat.: 36°57.983'N

Lon.: 087°40.255'W

Path Width: 114.7km

Sun Alt.: 63.9°

Sun Azm.: 197.9°

Duration: 2m40.2s

External/Internal  
Contacts of Penumbra

P1: 15:46:51.2 UT

P2: 18:11:56.8 UT

P3: 18:39:24.7 UT

P4: 21:04:23.3 UT

Solar Eclipse Maestro - Xavier M. Jubier

(<http://xjubier.free.fr/>)

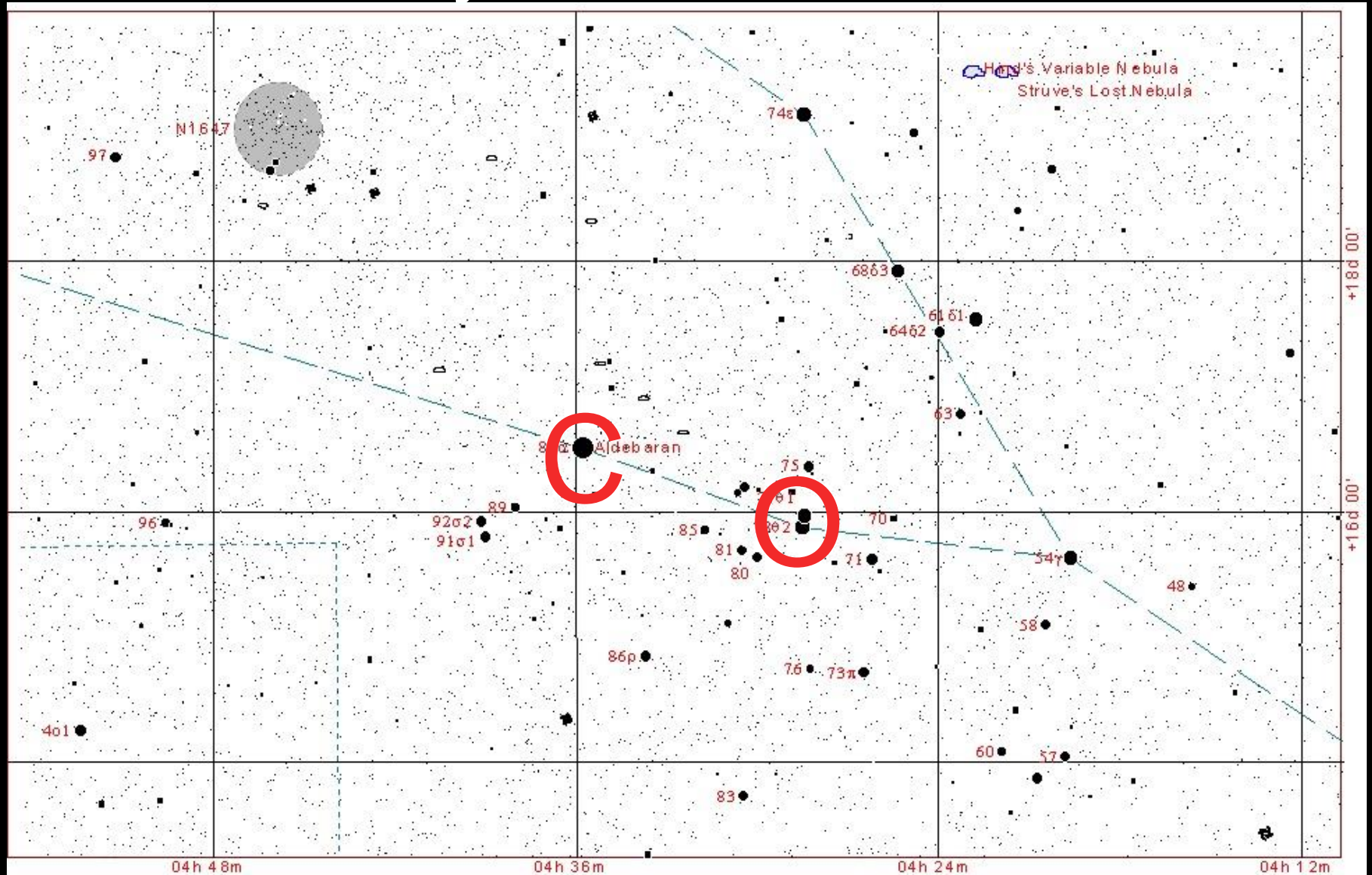
- Solar Eclipse August 21  
Slight partial eclipse at sunset

# Lunar Occultations

- Morning of Wednesday August 16<sup>th</sup>
- Moon phase, one day past 'last quarter'
  - Rising around 23:15UT (15<sup>th</sup>)
- Five stars occulted this morning, notably  $\theta^1$  &  $\theta^2$  and  $\alpha$  Tauri
  - $\theta^1$  Tauri dark limb reappearance 03:45UT
  - $\theta^2$  Tauri dark limb reappearance 03:47UT
  - $\alpha$  Tauri bright limb disappearance 06:42UT
  - $\alpha$  Tauri dark limb reappearance 07:39UT
- Sunrise 05:40UT



# The Hyades Star Cluster



# Outer Solar System

- Mars
  - In conjunction with the Sun on July 27
  - Then in morning sky
  - In Cancer then Leo
- Jupiter
  - Conjunction with the Sun will be on October 26
  - Sets around 11:00pm (BST)
  - In Virgo
- Saturn
  - In the sky at sunset and sets itself at 2:00am (BST)
  - Conjunction with the Sun will be on December 21
  - In Ophiuchus

# Society Events

- Saturday July 29
  - OASIfest at Waterfront Building, University of Suffolk, Ipswich, 09:00am till 6:00pm
- Wednesday August 9
  - Holywells Park Family Day, set-up 10:00am, finish 4:00pm
- Saturdays August 5 & 12
  - Christchurch Park Solar Observing, times and 'go-ahead' TBA
- Wednesday September 6
  - OASI 50<sup>th</sup> Annivesary Dinner, Felixstowe Ferry Golf Club, 7:00pm onwards

# Other Events I

- DASH
  - Solar Observing Meeting, Saturday August 19, 10:00am - 3:00pm, National Trust, Dunwich Heath
  - Discussion Meeting, Saturday September 02, 7:30pm, Westleton Village Hall, David Murton 'Beginners Observing' & 'Ask the Panel'
- LYRA
  - Observing Meeting, Tuesday July 25, 7:30pm, Barn Car Park, Coach House Hotel, Oulton
  - Summer Social Hog Roast, Tuesday August 8, Parkhill Hotel, Oulton
- Athenæum Astronomical Association
  - Observing Meeting, Nowton Park, Thursday August 03 & 17 from 7:30pm

# Other Events II

- Kelling Heath
  - Autumn Star Party, September 23 & 24
- Haw Wood
  - Astronomers Week October 13 to 20
  - Family Star Gazing Weekend, October 20 to 23