

## Sky Watcher

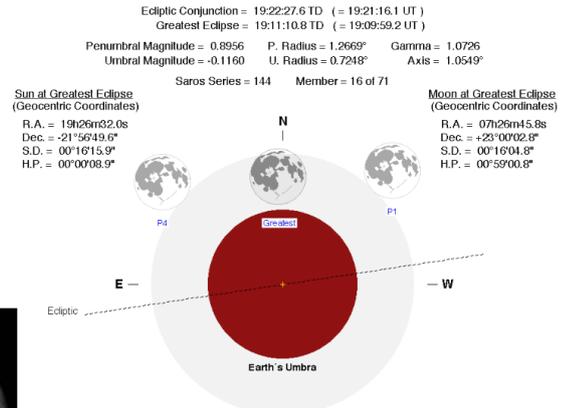
 Welcome to a new decade!

What a great way to start the year but with a Penumbral Eclipse to get us warmed up using our new toys from the holidays. They certainly have been lying dormant this winter. Hopefully Britain has better weather tonight to observe this interesting phenomenon.



A photograph of a rare Total Penumbra Lunar Eclipse showing the slight variation of brightness. The two images of the Moon side-by-side make it fairly easy to see the slight tone change. However observing a total penumbra lunar eclipse, even with a telescope can be difficult to see due to such slight differences in appearance.

### Penumbra Lunar Eclipse of 2020 Jan 10



The comparison image to the left gives a good idea on what to expect. The human eye is very good at detecting changes in brightness so the shadow causing a slight dimming will be noticeable although subtle. Good luck and let me know how you get on seeing this event tonight! Until next time...SLK

### Trips / Events

Ideas for trips and events always welcome!

[events@weymouthastronomy.co.uk](mailto:events@weymouthastronomy.co.uk)

**15 Jan CADAS—**  
**Developments in Radio Astronomy by Paul Spurr**

**4 Feb WAS—TBA**

**19 Feb CADAS—Building a gentlemen' observatory – Amateur Astronomy in Victorian Style by Tim Wetherell**

**3 Mar WAS—Space Weather and it's Effect on the Earth by Katie Turnbull**

**11 Mar —The Surface of Mars: Ancient and Modern Processes on the Red Planet by Joel Davis, (Natural History Museum) at 19:00 County Hall, Dorchester. £5 entry fee.**

**18 Mar CADAS— The Formation of Stars and their Planetary Systems by Dr Claire Davies (Exeter University)**

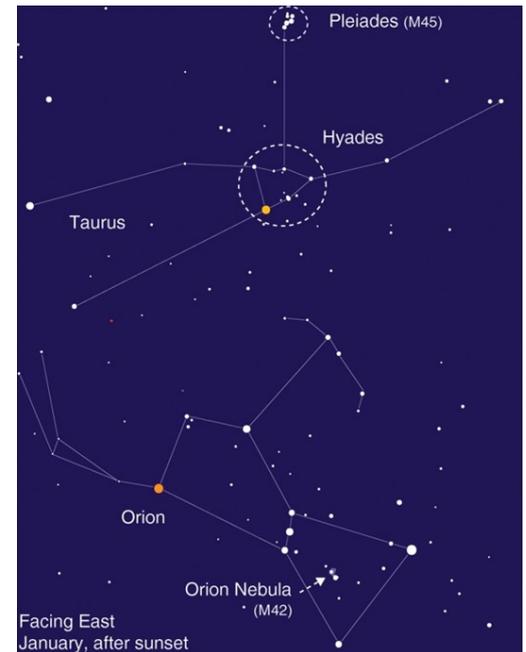
If you are interested in giving a talk or workshop, let the organisers know. They like to offer new titles in their programme line-up.



### Spot the Young Stars of the Hyades and Pleiades by David Prosper

Orion is the last of a trio of striking star patterns to rise during the late fall and early winter months, preceded by the diminutive Pleiades and larger Hyades in Taurus. All three are easily spotted rising in the east in early January evenings, and are textbook examples of stars in different stages of development.

As discussed in last month's Notes, the famous Orion Nebula (M42), found in Orion's "Sword," is a celestial nursery full of newly-born "baby stars" and still-incubating "protostars," surrounded by the gas from which they were born. Next to Orion we find the Hyades, in Taurus, with their distinctive "V" shape. The Hyades are young but mature stars, hundreds of millions of years old and widely dispersed. Imagine them as "young adult" stars venturing out from their hometown into their new galactic apartments. Bright orange Aldebaran stands out in this group, but is not actually a member; it just happens to be in between us and the Hyades. Traveling from Orion to the Hyades we then find the small, almost dipper-shaped Pleiades star cluster (M45). These are "teenage stars," younger than the Hyades, but older than the newborn stars of the Orion Nebula. These bright young stars are still relatively close together, but have dispersed their birth cocoon of stellar



*Caption: Locate Orion rising in the east after sunset to find the Orion Nebula in the "Sword," below the famous "Belt" of three bright stars. Then, look above Orion to find both the Hyades and the Pleiades. Binoculars will bring out lots of extra stars and details in all three objects, but you can even spot them with your unaided eye!*

gas, like teenagers venturing around the neighborhood with friends and wearing their own clothes, but still remaining close to home

### WAC Upcoming Events:

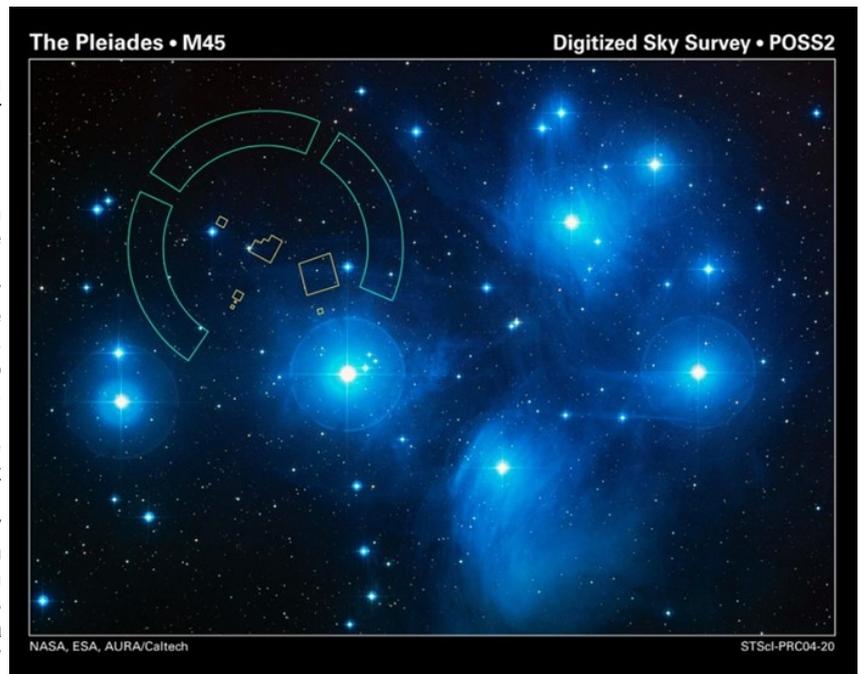
|          |   |
|----------|---|
| 14th Feb | Robin Catchpole - Frontiers of Astronomy                                      |
| 13th Mar | Nick Higginbottom - Cataclysmic Variables, X-ray Binaries & Stellar Cannibals |
| 3rd Apr  | David Bacon - The Dark Ener-  |
| 1st May  | AGM + John Macdonald -  |

## Orion (more!)

- for now. Astronomers have studied this trio in great detail in order to learn more about stellar evolution.

Figuring the exact distance of the Pleiades from Earth is an interesting problem in astrometry, the study of the exact positions of stars in space. Knowing their exact distance away is a necessary step in determining many other facts about the Pleiades. The European Space Agency's Hipparcos satellite determined their distance to about 392 light years away, around 43 light years closer than previous estimates. However, subsequent measurements by NASA's Hubble Space Telescope indicated a distance of 440 light years, much closer to pre-Hipparcos estimates. Then, using a powerful technique called Very Long Baseline Interferometry (VLBI), which combines the power of radio telescopes from around the world, the distance of the Pleiades was calculated to 443 light years. The ESA's Gaia satellite, a successor to Hipparcos, recently released its first two sets of data, which among other findings show the distance close to the values found by Hubble and VLBI, possibly settling the long-running "Pleiades Controversy" and helping firm up the foundation for follow-up studies about the nature of the stars of the Pleiades.

You can learn more about the Pleiades in the Universe Discovery Guide at [bit.ly/UDGMarch](http://bit.ly/UDGMarch) , and find out about missions helping to measure our universe at [nasa.gov](http://nasa.gov).

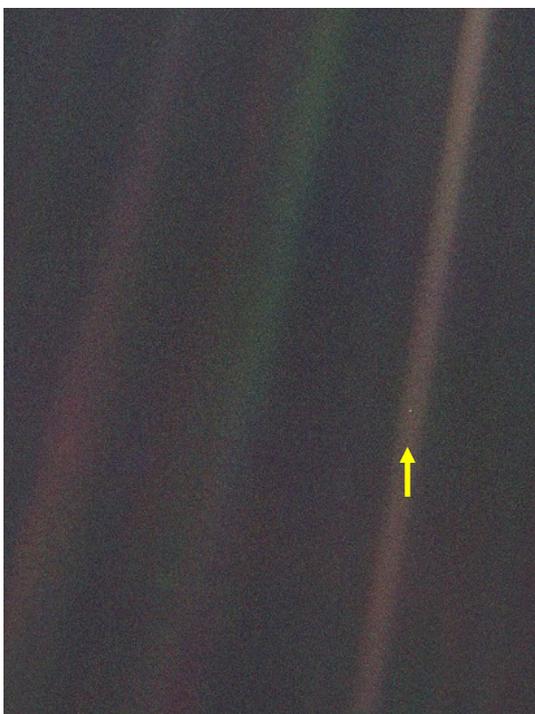


*Caption: Close-up of the Pleiades, with the field of view of Hubble's Fine Guidance Sensors overlaid in the top left, which helped refine the distance to the cluster. The circumference of the field of view of these sensors is roughly the size of the full Moon. (Credit: [NASA](http://nasa.gov), [ESA](http://esa.eu) and AURA/Caltech)*

## Interesting Finds of the Month

### From the FAS...

The 30th anniversary of the Voyager-1 Pale Blue Dot photograph will be celebrated on 14 February 2020. This unforgettable image illustrates the unique astronomical perspective of our planet Earth: from space, national boundaries disappear, and the fragility of our world becomes very evident. This perspective is pertinent to our current times, reminding ourselves that we are all global citizens and the need for us to take care of our home planet.



In response, the International Astronomical Union is inviting everyone to recognise this significant anniversary between 13th-20th February 2020 by organising activities around the topics of global citizenship and environmental awareness. A dedicated website

<https://www.iau-100.org/pale-blue-dot>

outlines the aims of the project but also provides a collection of resources and activity ideas to facilitate the organisation of events etc.

The Pale Blue Dot global project intends to help event organizers to use astronomy as a tool to initiate conversations in their respective communities about global citizenship and uniting people from all cultures and backgrounds. Furthermore, this initiative aims to inform audiences about climate change by using the perspective of astronomy to remind the public that the Earth is our only habitable home.

If you have any queries, please feel free to get in touch with me or the IAU Pale Blue Dot Project Coordinator, Bethany Downer, as outlined below. Professor Robert Walsh, UK IAU National Outreach Coordinator, [rwalsh@uclan.ac.uk](mailto:rwalsh@uclan.ac.uk) and [ukiaucentenary@uclan.ac.uk](mailto:ukiaucentenary@uclan.ac.uk)

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