

WEYMOUTH ASTRONOMY

Sky Watcher

Volume 15, Issue 1
12 June 2020

Trips / Events

Ideas for trips and events
always welcome!

events@weymouthastronomy.co.uk

**Society Meetings
cancelled until further
notice—Please check
their websites for the
latest schedule**

In the meantime, the British
Astronomical Association has
moved their meetings to an
online format. Live streamed
on release and 'catch-up' on
Youtube available. These
webinars are Open to All.

<https://britastro.org/>

**BAA live webinars, 7pm
every Wednesday**

[https://
www.youtube.com/user/
britishastronomical](https://www.youtube.com/user/britishastronomical)

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.

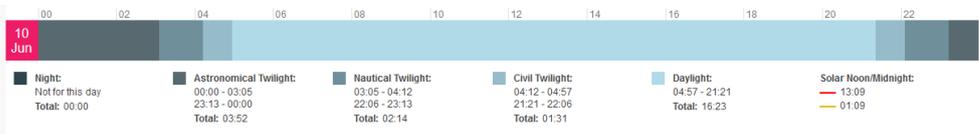
WAC Upcoming Events:

Meeting room cancelled until further notice.	Watch website for online options.
10 July	Online 'Zoom' Meeting - Chris Bowden - The view from here..and there and there!
14 Aug	Online 'Zoom' Meeting - Geoff Kirby - Unbelievable Astronomy
11 Sept	TBC
9 Oct	Ask the Panel

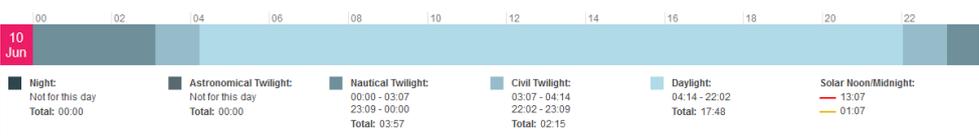


Summer is now fully upon us with the hours of darkness reaching a minimum for the year. It is always of interest to me to monitor how the day length changes and the amount of daylight we can expect at these northern latitudes. A website I tend to use often is <https://www.timeanddate.com/sun/uk/weymouth>

One of the graphics illustrates the daily breakdown of darkness categories for a particular location. On the 10 June while I am writing this, Weymouth is expecting:



In contrast, 600 miles north in Aberdeen we are experiencing:



For solar observing, this is the best time of year with plenty of time each day for the sun to make an appearance for viewing. However, night sky observers are probably ready for the return of darker skies and celestial vistas. Not to worry, Summer Solstice is right around the corner and the nights will start to slowly draw in...

Until next time...SLK

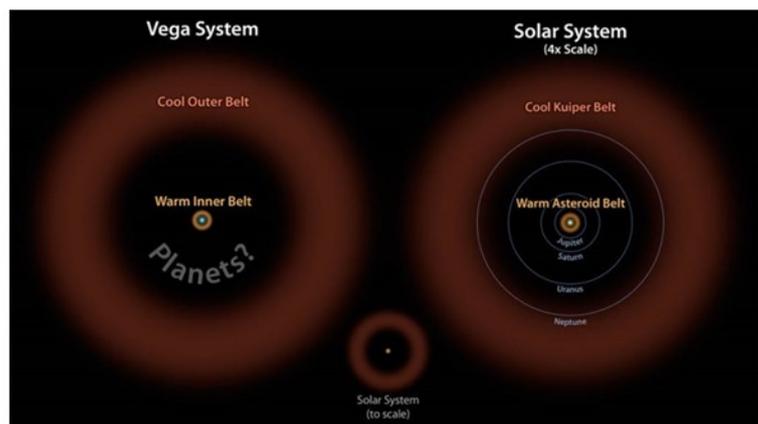


Summer Triangle Corner: Vega! by David Prosper and Vivian White

If you live in the Northern Hemisphere and look up during June evenings, you'll see the brilliant star **Vega** shining overhead. Did you know that Vega is one of the most studied stars in our skies? As one of the brightest summer stars, Vega has fascinated astronomers for thousands of years.

Vega is the brightest star in the small Greek constellation of Lyra, the harp. It's also one of the three points of the large "Summer Triangle" asterism, making Vega one of the easiest stars to find for novice stargazers. Ancient humans from 14,000 years ago likely knew Vega for

another reason: it was the Earth's northern pole star! Compare Vega's current position with that of the current north star, Polaris, and you can see how much the direction of Earth's axis changes over thousands of years. This slow movement of axial rotation is called **precession**, and in 12,000 years Vega will return to the northern pole star position. Bright Vega has been observed closely since the beginning of modern astronomy and even helped to set the standard for the current magnitude scale used to categorize the brightness of stars. Polaris and Vega have

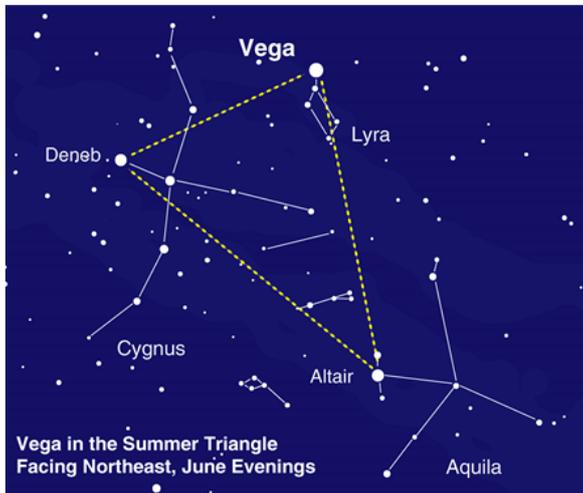


Vega possesses two debris fields, similar to our own solar system's asteroid and Kuiper belts. Astronomers continue to hunt for planets orbiting Vega, but as of May 2020 none have been confirmed. More info: bit.ly/VegaSystem Credit: NASA/JPL-Caltech

Vega (more!)

something else in common, besides being once and future pole stars: their brightness varies over time, making them **variable stars**. Variable stars' light can change for many different reasons. Dust, smaller stars, or even planets may block the light we see from the star. Or the star itself might be unstable with active sunspots, expansions, or eruptions changing its brightness. Most stars are so far away that we only record the change in light, and can't see their surface.

NASA's TESS satellite has ultra-sensitive light sensors primed to look for the tiny dimming of starlight caused by transits of extrasolar planets. Their sensitivity also allowed TESS to observe much smaller pulsations in a certain type of variable star's light than previously observed. These observations of **Delta Scuti** variable stars will help astronomers model their complex interiors and make sense of their distinct, seemingly chaotic, pulsations.



Vega in the Summer Triangle Facing Northeast, June Evenings
Can you spot Vega? You may need to look straight up to find it, especially if observing after midnight.

This is a major contribution towards the field of astroseismology: the study of stellar interiors via observations of how sound waves "sing" as they travel through stars. The findings may help settle the debate over what kind of variable star Vega is. Find more details on this research, including a sonification demo that lets you "hear" the heartbeat of one of these stars, at: bit.ly/DeltaScutiTESS

Interested in learning more about variable stars? Want to observe their changing brightness? Check out the website for the American Association of Variable Star Observers (AAVSO) at aavso.org. You can also find the latest news about Vega and other fascinating stars at nasa.gov.



Members Corner

Crescent Moon 25 May 2020—Bob Mizon

Canon EOS 600D with 400mm lens and 2x teleconverter.

WEYMOUTH ASTRONOMY

Fun with Hubble: <https://www.nasa.gov/content/goddard/what-did-hubble-see-on-your-birthday>

John Macdonald: 19 th March Pinwheel Galaxy 	Nigel Dalley: 9 th July Hoag's Object 	Sara Harpley: September 14 th Goods South Field 	James Fradgley: 10 th April Circinus Galaxy 	Sheri Karl: 8 th April Galaxy NGC 4650A
Geoff Kirby: 1 st October Galaxy NGC 3949 	Chris Bowden: 6 th March Disk Beta Pictoris 			

Send your pictures to: webmaster@weymouthastronomy.co.uk

Thank you to those members and friends who have already sent in their Hubble pictures but there are still plenty of spaces to fill. All you need to do is log on to the NASA website and find what Hubble looked at on your birthday. Send your name, images and birthday to webmaster@weymouthastronomy.co.uk and we'll do the rest.

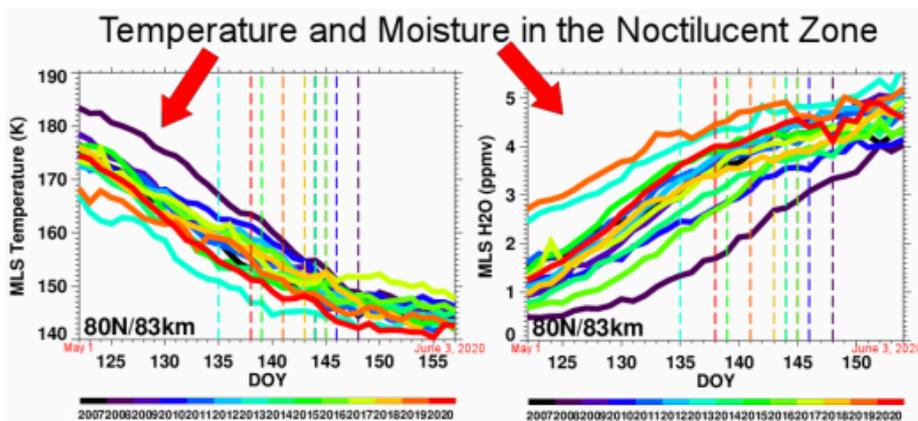


RECORD COLD IN THE MESOSPHERE: [Spaceweather.com 10 June 2020] It's getting cold in the mesosphere. Very cold. "At polar latitudes (60N-80N) temperatures have been breaking 14-year records in the last few days," says Lynn Harvey of the University of Colorado Laboratory for Atmospheric and Space Physics. This development is causing noctilucent clouds (NLCs) to spill out of the Arctic to middle latitudes.

NLCs are Earth's highest clouds. Seeded by meteoroids, they float at the edge of space 83 km above the ground. The clouds form when summertime wisps of water vapor rise up to the mesosphere, allowing water to crystallize around specks of meteor smoke. Usually they are best seen after the summer solstice, but this year they are getting an early start.

What's happening? To find out, Harvey has been looking at data from NASA's Microwave Limb Sounder (MLS), which can sense conditions 83 km high where NLCs form. "These plots show that 2020 is shaping up to be a very cold and wet year," she says.

"Temperatures, in particular, are *very cold*," she says. "In fact, mid-latitude (35N-55N) temperatures in late May (DOY 142-148) were the coldest of the AIM record"--that is, since 2007 when NASA's AIM spacecraft began monitoring noctilucent clouds.



Observing tips: The best time to look for NLCs is during the hours after sunset (or before sunrise) when the sun is more than 6 degrees below the horizon: diagram. If you see electric-blue tendrils spreading across the sky, take a picture and submit it to Spaceweather.com.

Members Equipment

Venus with an ETX 125EC—
Chris Bowden

Scope: ETX 125EC

Camera: QHY5L-II

Capture software: EZPlanetary on Dell Mini Windows XP PC.

Venus – started imaging at dusk when sky was quite bright @ 21:20 with Venus at 19.5° elevation

Phase: slender crescent 11.9% illuminated

AVIs captured with and without a Barlow.



Sky Watcher

Controversial Constellations

By Bob Mizon

"The night sky is one part of our environment we have shared with all cultures in all periods of human history. It is very special". So wrote Astronomer Royal Sir Martin Rees for the Commission for Dark Skies' light pollution handbook *Blinded by the Light?* (2020). The silent, slowly rotating night sky has inspired humans for millennia, honing our sense of wonder and leading us to theorise about things we cannot reach or touch. Increasing numbers of satellites, tens of thousands of them, are now being launched to provide global internet coverage, working for us but causing problems not just for astrophotography but for those seeking that calm experience of a pristine night sky.

That half of our environment with so little protection in law, the night sky, deserves the attention of legislators. Space and astronomy organisations worldwide have expressed concern at the threat of Starlink satellite 'constellations' to professional and amateur observational astronomy, and warn of the greatly increased number of orbital objects – eventual 'space debris', some say – as SpaceX and other companies with similar ideas proceed with launches. For example, the International Dark-Sky Association (IDA), the American equivalent of the BAA Commission for Dark Skies, has stated that "the number of low Earth-orbit satellites...has the potential to fundamentally shift the nature of our experience of the night sky...We therefore urge all parties to take precautionary efforts to protect the unaltered night-time environment before deployment of new, large-scale satellite groups". The International Astronomical Union (IAU) has issued a statement detailing "the problems which large satellite constellations such as Starlink pose for the advance of astronomy." The IAU calls for urgent discussion on ways "to mitigate or eliminate the detrimental impacts on scientific exploration as soon as practical".

SpaceX CEO Elon Musk has tweeted in reply to criticisms:

26 May 2019: *"If we need to tweak satellite orientation to minimize solar reflection during critical astronomical experiments, that's easily done."*

27 May 2019: *"Sent a note to Starlink team last week specifically regarding albedo reduction. We'll get a better sense of value of this when satellites have raised orbits and arrays are tracking to Sun."*

"Potentially helping billions of economically disadvantaged people is the greater good. That said, we'll make sure Starlink has no material effect on discoveries in astronomy. We care a great deal about science."

"There were already 4,900 satellites in orbit, which people notice ~0% of the time. Starlink won't be seen by anyone unless looking very carefully and will have ~0% impact on advancements in astronomy."

Time will allow us to judge whether these promises will be kept, and whether the satellites can be configured to minimise reflections and cause no hindrance to the progress of astronomy and our enjoyment of the starry heavens.



<https://www.bbc.co.uk/news/uk-england-52355706>

The Commission for Dark Skies' completely revised and updated 40-page handbook on all aspects of light pollution is now available at £3.50 plus postage.



Order *Blinded by the Light?* from Bob Mizon on

01202 887084 / bob.mizon@yahoo.co.uk

or via the website at

www.britastro.org/dark-skies/enquiries.php