

Trips / Events

Ideas for trips and events
always welcome!

events@weymouthastronomy.co.uk

Society Meetings

Nov 17—@CADAS

How Old is the Universe?
by Steve Tonkin

7 Dec—@WAS The History of Radio Astronomy
by James Fradgley

Dec 15—@WAS Members' short talks and Social

Lots more to come in the new year. Stay tuned!

2022

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Hopefully the talk on Solar Cycles has piqued your interest in delving deeper into historical solar activity or perhaps looking into the variety of numerical modelling that is used to forecast the activity of the current Solar Cycle 25.

A great place to start is the website SpaceWeatherLive.com. Within this site they cover all aspects of solar activity and geomagnetically related auroral activity. <https://www.spaceweatherlive.com/en/solar-activity/solar-cycle.html>

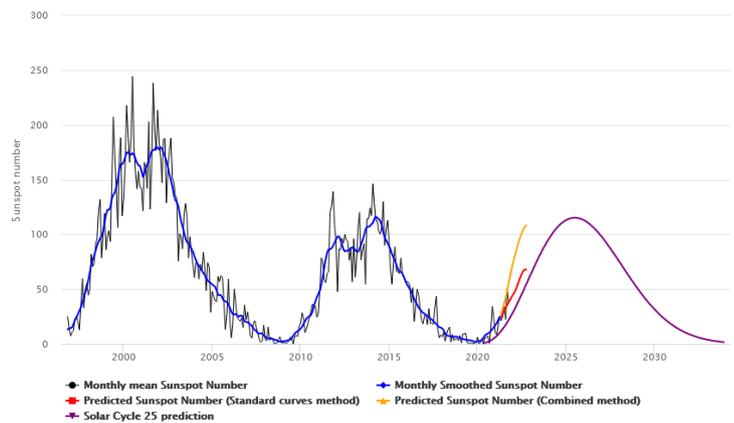
The site also provides realtime images of solar activity, it also provides the auroral forecasts at: <https://www.spaceweatherlive.com/en/auroral-activity/aurora-forecast.html>

With the increasing solar activity and the dark nights drawing in, we'll likely see aurora more often in the next few years.

Let us know if you do!

Until next month...Clear Skies! ~SLKarl

Solar Cycle progression – Sunspot number



Measure the Night Sky

by David Prosper



Fall and winter months bring longer nights, and with these earlier evenings, even the youngest astronomers can get stargazing. One of the handiest things you can teach a new astronomer is how to measure the sky – and if you haven't yet learned yourself, it's easier than you think!

Astronomers measure the sky using degrees, minutes, and seconds as units. These may sound more like terms for measuring time – and that's a good catch! – but today we are focused on measuring **angular distance**.

Degrees are largest, and are each made up of 60 **minutes**, and each minute is made up of 60 **seconds**. To start, go outside and imagine yourself in the center of a massive sphere, with yourself at the center, extending out to the stars: appropriately enough, this is called the **celestial sphere**. A circle contains 360 degrees, so if you have a good view of the

horizon all around you, you can slowly spin around exactly once to see what 360 degrees looks like, since you are in effect drawing a circle from inside out, with yourself at the center! Now break up that circle into quarters, starting from due North; each quarter measures 90 degrees, equal to the distance between each cardinal direction! It measures 90 degrees between due North and due East, and a full 180 degrees along the horizon between due North and due South. Now, switch from a horizontal circle to a vertical one, extending above and below your head.

Handy Sky Measurements

Hold your hand out in front of your face as far as you comfortably can, and measure:



WAC Upcoming Events:

	Watch website for online options.
10 Dec	Winter Social (TBC)
More to come in 2022!	

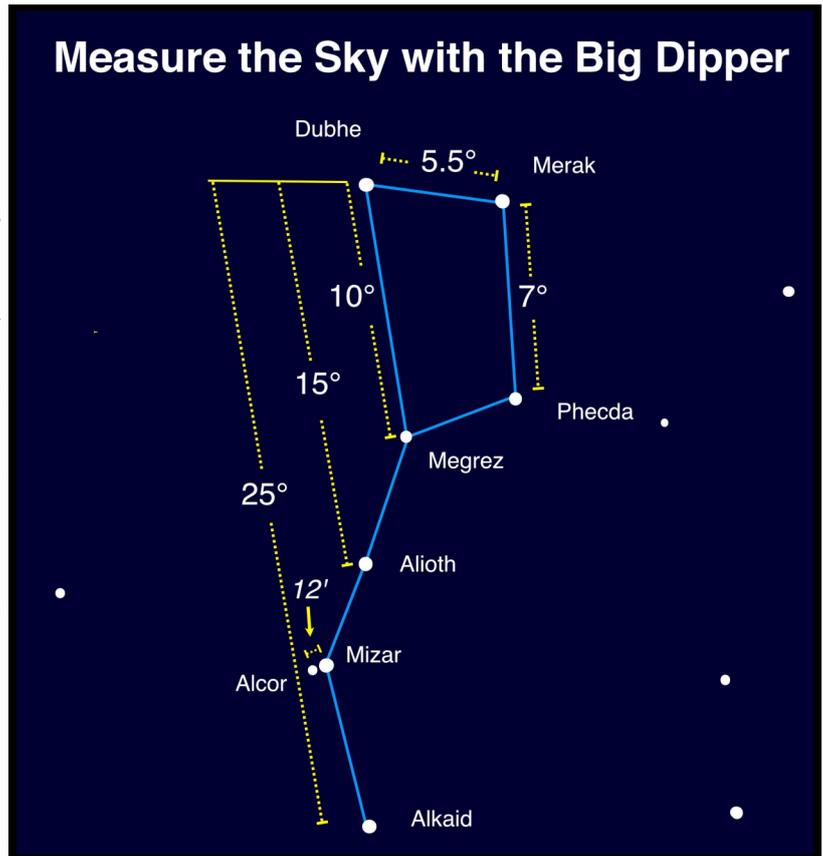
Measure the Sky (more!)

Look straight above your head: this point is called the *zenith*, the highest point in the sky. Now look down toward the horizon; it measures 90 degrees from the zenith to the horizon. You now have some basic measurements for your sky.

Use a combination of your fingers held at arm's length, along with notable objects in the night sky, to make smaller measurements. A full Moon measures about half a degree in width - or 1/2 of your pinky finger, since each pinky measures 1 degree. The three stars of Orion's Belt create a line about 3 degrees long. The famed "Big Dipper" asterism is a great reference for Northern Hemisphere observers, since it's circumpolar and visible all night for many. The Dipper's "Pointer Stars," Dubhe and Merak, have 5.5 degrees between them - roughly three middle fingers wide. The entire asterism stretches 25 degrees from Dubhe to Alkaid - roughly the space between your outstretched thumb and pinky. On the other end of the scale, can you split Mizar and Alcor? They are separated by 12 *arc minutes* - about 1/5 the width of your pinky.

Keep practicing to build advanced star-hopping skills.

How far away is Polaris from the pointer stars of the Big Dipper? Between Spica and Arcturus? Missions like Gaia and Hipparcos measure tiny differences in the angular distance between stars, at an extremely fine level. Precise measurement of the heavens is known as **astrometry**. Discover more about how we measure the universe, and the missions that do so, at nasa.gov.



Imagers Corner



With the night sky rapidly darkening since the equinox, it is definitely the season for Deep Sky Objects (DSO) imaging. Chris Bowden recently sent in this lovely set of DSO images taken with the Atik 320e camera and an Altair EDF60. Chris says, 'I was really pleased to get M33 this morning which is the first time I've managed to image it and I was able to take a 2.4 hour exposure no less!'



The dark nights are ideal for getting the scopes and binoculars out for some deep sky viewing before the evenings get colder!

We hope to see more images and sketches from members soon. ~SK

Featured Club in the Sky at Night Magazine—November 2021 Issue

This month the BBC Sky at Night Magazine features our very own Weymouth Astronomy Club. If you haven't seen the article yet, please see below for an excerpt.

What a great piece to advertise the great people and organisation of the group.

Definitely worth dropping in to your local WHSmith's or order a copy directly from <https://www.buysubscriptions.com/back-issues/bbc-sky-at-night-magazine-back-issues> or a digital issue from [Pocketmags.com](https://pocketmags.com).



SOCIETY IN FOCUS

Weymouth Astronomy Club meets on the South Coast on the second Friday of the month (except August). We are a friendly bunch with a wide range of astronomical interests. Some prefer practical observing and astrophotography, while others get stuck into the theoretical aspects of the night sky. Overall, however, the club has a good pedigree of helping those just beginning their astronomical journey and guiding them through what there is to discover in the heavens above.

We have a varied programme and our visiting speakers always bring expertise to our meetings, enabling members to deepen their knowledge of astronomy. Besides our monthly meetings, we hold viewing nights timed to coincide with special astronomical events, and arrange visits to places of interest like Sidmouth's Norman Lockyer Observatory. We have also held public viewing events in association with the Sandsfoot Castle and Rodwell Trail Trust, which have been well attended by



▲ **Weymouth Astronomy Club members during a pre-pandemic public open night**

people from across the area interested to learn more about observing the night sky.

Throughout the COVID-19 pandemic Weymouth Astronomy Club has remained active, using online technology to deliver our monthly meetings. We expect to use both face to face and online meetings to deliver our programme for the future.

To find out more about Weymouth Astronomy Club, come along to one of our meetings at St Aldhelm's Church, Spa Rd, Weymouth, or visit our website.

**John MacDonald, Chair,
Weymouth Astronomy Club**

► www.weymouthastronomy.co.uk

Skymaps.com—Feel free to download the full article directly each month.

The Evening Sky Map

FREE* EACH MONTH FOR YOU TO EXPLORE, LEARN & ENJOY THE NIGHT SKY

Sky Calendar – November 2021

Get Sky Calendar on Twitter <http://twitter.com/skymaps>

- 2 Mercury 4.1° NNE of Spica at 7h UT (16° from Sun, morning sky). Mags. –0.8 and 1.0.
- 3 Moon near Spica at 17h UT (17° from Sun, morning sky).
- 4 New Moon at 21:14 UT. Start of lunation 1223.
- 5 Uranus at opposition at 0h UT. Mag. 5.6.
- 5 Moon at perigee (closest to Earth) at 22:28 UT (distance 358,844 km; angular size 33.3').
- 6 Venus at southernmost declination (–27.2°) at 16h UT.
- 6 Moon near Antares at 18h UT (evening sky).
- 8 Moon near Venus at 6h UT (evening sky). Mag. –4.5.
- 10 Moon near Saturn at 17h UT (evening sky). Mag. 0.6.
- 11 First Quarter Moon at 12:47 UT.
- 11 Moon near Jupiter at 21h UT (evening sky). Mag. –2.4.
- 17 Leonid meteor shower peaks at 10h UT. Arises from debris ejected by Comet Tempel–Tuttle. Produces very fast meteors (71 km/sec). Expect 10–15 meteors per hour under dark skies. Bright moonlight will interfere with visual observations.
- 19 Full Moon at 8:58 UT.
- 19 Partial Eclipse of the Moon from 7:19 to 10:47 UT, mid-eclipse at 9:03 UT. Visible from the Americas, northern Europe, east Asia, Australia and the Pacific.
- 19 Moon near the Pleiades at 17h UT (midnight sky).
- 20 Moon near Aldebaran at 11h UT (morning sky).
- 21 Moon at apogee (farthest from Earth) at 2h UT (distance 406,279 km; angular size 29.4').
- 22 Moon at northernmost declination (26.3°) in 2021 at 23h UT.
- 25 Dwarf planet 1 Ceres at opposition at 21h UT (morning sky).
- 26 Dwarf planet 1 Ceres at opposition at 21h UT. Mag. 7.2.
- 27 Moon near Regulus at 3h UT (morning sky).
- 27 Last Quarter Moon at 12:29 UT.
- 29 Mercury at superior conjunction with the Sun at 4h UT. The innermost planet passes into the evening sky.

More sky events and links at <http://Skymaps.com/skycalendar/>

All times in Universal Time (UT). (USA Eastern Standard Time = UT – 5 hours.)

www.weymouthastronomy.co.uk

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 Copyright © 2000–2021 Kym Thalassoudis. All Rights Reserved.
 INSTRUCTIONS: THE SKY MAP SHOWS THE ENTIRE NIGHT SKY FROM HORIZON-TO-HORIZON AS IT APPEARS ON CERTAIN DATES AND TIMES. THE CENTER OF THE MAP IS THE PART OF THE SKY DIRECTLY OVERHEAD (ZENITH) AND THE OUTER CIRCLE IS THE HORIZON. CELESTIAL OBJECTS ARE LOCATED BY THE HOUR ANGLE AND DECLINATION. USE THE BIG DIPPER (OR POLARIS) TO FIND POLARIS, THE NORTH STAR. COMPASS DIRECTIONS ARE INDICATED ALONG THE HORIZON CIRCLE (FOR EXAMPLE NORTH). TURN THE SKY MAP AROUND ITS CENTER (JUST AS YOU ARE DOING NOW) SO THE COMPASS DIRECTION THAT APPEARS ALONG THE BOTTOM OF THE MAP IS THE SAME AS THE DIRECTION THAT YOU FACE. BEGIN BY USING THE SKY MAP TO FIND A BRIGHT STAR PATTERN IN THE SKY.
 Pegasus The Winged Horse, flies upside down almost overhead. This horse is marked by the star Ege.