

SKYWATCHER NEWSLETTER

LATEST NEWS

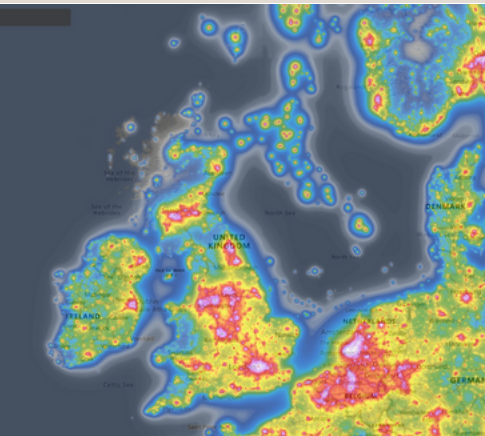
This past month has had several astronomical events including a partial lunar eclipse, partial solar eclipse and several aurora events around the spring equinox magnetic field geometry with the solar wind / events. The WAC members have shared several successful images from the partial solar eclipse. A significant improvement over the 1999 Total Solar Eclipse observational attempt!

Looking forward to more solar observing as the spring is brightening nicely!

Until next month... SLK



This illustration shows the wavelength sensitivity of a number of current and future space- and ground-based observatories, along with their position relative to the ground and to Earth's atmosphere. The wavelength bands are arranged from shortest (gamma rays) to longest (radio waves). The vertical color bars show the relative penetration of each band of light through Earth's atmosphere. Credit: NASA, STScI



Light pollution map

Interactive world light pollution map. The map uses NOAA/EOG VIIRS, World Atlas 2015, Aurora prediction, observatories, clouds and SQM/SQC overlay contributed by users.

lightpollutionmap.info



April's Night Sky Notes: Catch the Waves!

By Kat Troche

The Electromagnetic Spectrum

If you've ever heard the term "radio waves," used a microwave or a television remote, or had an X-ray, you have experienced a broad range of the electromagnetic spectrum! But what is the electromagnetic spectrum? According to Merriam-Webster, this spectrum is "the entire range of wavelengths or frequencies of electromagnetic radiation extending from gamma rays to the longest radio waves and including visible light." But what does that mean? Scientists think of the entire electromagnetic spectrum as many types of light, only some that we can see with our eyes. We can detect others with our bodies, like infrared light, which we feel as heat, and ultraviolet light, which can give us sunburns. Astronomers have created many detectors that can "see" in the full spectrum of wavelengths.

Telescope Types

While multiple types of telescopes operate across the electromagnetic spectrum, here are some of the largest, based on the wavelength they primarily work in:

- Radio: probably the most famous radio telescope observatory would be the Very Large Array (VLA) in Socorro County, New Mexico. This set of 25-meter radio telescopes was featured in the 1997 movie Contact. Astronomers use these telescopes to observe protoplanetary disks and black holes.

- Another famous set of radio telescopes would be the Atacama Large Millimeter Array (ALMA) located in the Atacama Desert in Chile. ALMA was one of eight radio observatories that helped produce the first image of supermassive black holes at the center of M87 and Sagittarius A* at the center of our galaxy. Radio telescopes have also been used to study the microwave portion of the electromagnetic spectrum.
- Infrared: The James Webb Space Telescope (JWST) operates in the infrared, allowing astronomers to see some of the earliest galaxies formed nearly 300 million years after the Big Bang.
- Infrared light allows astronomers to study galaxies and nebulae, which dense dust clouds would otherwise obscure. An excellent example is the Pillars of Creation located in the Eagle Nebula. With the side-by-side image comparison below, you can see the differences between what JWST and the Hubble Space Telescope (HST) were able to capture with their respective instruments.

LOCAL EVENTS

16 Apr - FA - 19:30 - 22:00 The Elm Tree
The UK Space Agency and its Missions

16 Apr - CADAS - Apr 16 Professor Chris Lintott

6 May - WAS - Prof. Brad Gibson – How the universe will end (In Person)

21 May - FA - The James Webb Telescope at Work - John Thatcher

3 June - WAS - Paul Fellows – Quark stars (In Person)

18 June - FA - Astro Processing. Curves, Levels and Layers - Ken Pitts

CADAS - The third Wednesday of the month from January 2025 to December 2025

1 July - WAS - Robert Harvey – Stumbling around in the dark – a 2 hour astrophoto session (In Person)

16 July - FA - Equipment Clinic. Come along and see what other people are using. Display your own kit, or bring along anything you need some help with.

MORE TO COME IN 2025!

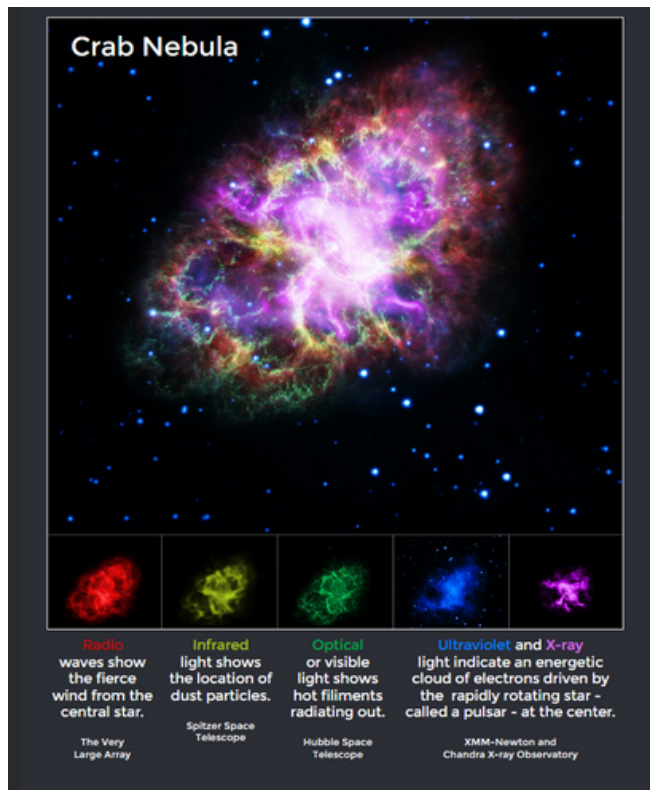
VISIT OUR WEBSITE FOR THE LATEST CLUB INFORMATION

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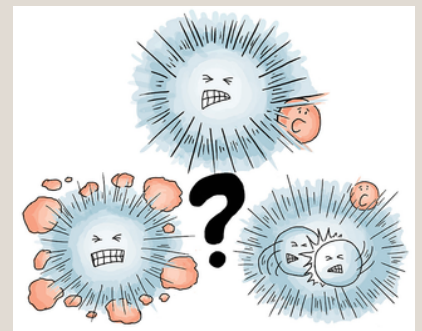
- **Visible:** While it does have some near-infrared and ultraviolet capabilities, the Hubble Space Telescope (HST) has primarily operated in the visible light spectrum for the last 35 years. With over 1.6 million observations made, HST has played an integral role in how we view the universe. [Review Hubble's Highlights here.](#)
- **X-ray:** Chandra X-ray Observatory was designed to detect emissions from the hottest parts of our universe, like exploding stars. X-rays help us better understand the composition of deep space objects, highlighting areas unseen by visible light and infrared telescopes. This image of the [Crab Nebula](#) combines data from five different telescopes: The VLA (radio) in red; Spitzer Space Telescope (infrared) in yellow; Hubble Space Telescope (visible) in green; XMM-Newton (ultraviolet) in blue; and Chandra X-ray Observatory (X-ray) in purple. You can view the breakdown of this multiwavelength image [here](https://chandra.harvard.edu/photo/2017/crab/). <https://chandra.harvard.edu/photo/2017/crab/>

Try This At Home

- Even though we can't see these other wavelengths with our eyes, learn how to create multiwavelength images with the [Cosmic Coloring Compositor](#) activity and explore how astronomers use representational color to show light that our eyes cannot see with our [Clues to the Cosmos](#) activity. <https://public.nrao.edu/color/>



The Crab Nebula, located in the Taurus constellation, is the result of a bright supernova explosion in the year 1054, 6,500 light-years from Earth. Credit: X-ray: NASA/CXC/SAO; Optical: NASA/STScI; Infrared: NASA/PL/Cattech; Radio: NSF/NRAO/VLA; Ultraviolet: ESA/XMM-Newton



WAC Upcoming Events

MAY 9 - AGM FOLLOWED BY TOM HINDE - OBSERVING (AND CONTROLLING) THE QUANTUM WORLD (IN-PERSON AND ZOOM)

JUNE 13 - MARY MCINTYRE - WOMEN IN ASTRONOMY (IN-PERSON AND ZOOM)

JULY 11 - EQUIPMENT EVENING, SOLARGRAPHS AND MEAL/SOCIAL (IN-PERSON ONLY)



NASA's Hubble Telescope captured the Pillars of Creation in 1995 and revisited them in 2014 with a sharper view. Webb's infrared image reveals more stars by penetrating dust. Hubble highlights thick dust layers, while Webb shows hydrogen atoms and emerging stars. You can find this and other parts of the Eagle Nebula in the Serpens constellation. Credit: NASA, ESA, CSA, STScI, Hubble Heritage Project (STScI, AURA)

WAC Members Corner - Partial Solar Eclipse 29 March 2025



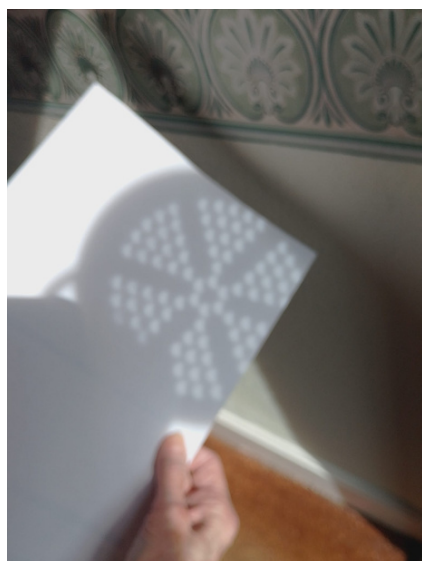
Successful Public Event at Hengistbury Head



Canon 1000d, 300mm, 100asa, f22, 1/250th. - John Gifford



Early and later in the eclipse event by Ennio..



Nice projection images by Steve and Ray.

WAC Members Corner

ON Saturday 15th March, intrepid members of Weymouth Astronomy Club led a Solar System Walk through Dorchester as part of the town's science festival. The youngsters learnt interesting facts about the planets and had to dodge asteroids between Jupiter and Mars. Some even turned up in their space suits.

Each member of the Club played to their individual strengths. Geoff provided the science, John carried the Sun and Sara produced solar system inspired fashion accessories in the form of planetary hats to add a creative dimension to the walk.



Geoff and John at the Sun



John, Sara and Geoff - Tour Guides



Geoff speaking to guests



Geoff at Uranus

WEYMOUTH ASTRONOMY



<https://www.spaceweather.com>

FRAM2 NEEDS OUR HELP -- URGENT CALL FOR AURORA PHOTOS: On Monday night, four first-time astronauts soared into space onboard a SpaceX Falcon 9 rocket, becoming the first humans to orbit over Earth's poles. Their mission is named "Fram2." For the next 3 to 5 days, the pioneering astronauts will have an unprecedented view of polar auroras. "I am the lead scientist on an aurora project called SolarMaX that takes place with the Fram2 astronauts," says Katie Herlingshaw of the University Centre in Svalbard. "We're going to be warning the crew when there are auroras coming up in their orbit--especially the 'weird auroras' we are interested in such as fragments, STEVE, streaks, and continuum aurora."

Above: Four types of "weird auroras" Fram2 will study. [more]
They need our help. Ground sightings and photos are essential to the project.
"We need photographers to submit their pictures of auroras," says Herlingshaw. "We are especially interested in times when Fram2 passes overhead a location with auroras present. This will allow us to triangulate the auroral features using the photographs from the ground and also from space."
Usually our readers submit aurora photos to the Space Weather Gallery. For this project, we ask that you also submit them to Fram2. "To make the photos useful, people should collect the correct camera time (to the second if possible) and their location for the observations," she says. "We can't use the photo for research unless it has the correct time and location."

Above: Jannicke Mikkelsen photographing aurora fragments during Fram2 training
Inside the Fram2 capsule, 38-year-old Jannicke Mikkelsen will take the lead on these observations. "Our ground support team hope we can watch people's observations and advise her on when to run to the window!" says Herlingshaw.
More resources: Submit Your Photos!, Ground Support Map, Detailed Photography Instructions



Above: Four types of "weird auroras" Fram2 will study. [more]



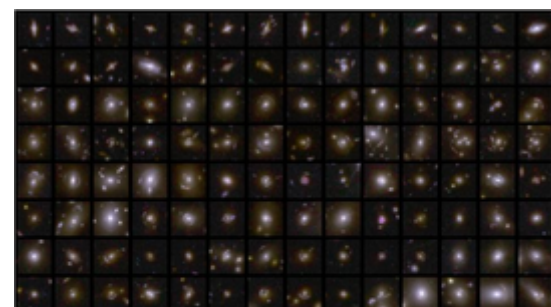
Above: Jannicke Mikkelsen photographing aurora fragments during Fram2 training



Real images of planets beyond our Solar System, courtesy of the James Webb Space Telescope

James Webb Space Telescope's direct image and study of star HR 8799 and the four exoplanets in orbit around it.

BBC Sky at Night Magazine / Mar 22



UK science uncovers mysteries of dark universe with Euclid data

Cutting-edge UK research is benefiting the European Space Agency's Euclid mission, with new data released today (19 March) set to uncover the secrets of dark energy...

