WEYMOUTH ASTRONOMY

Sky Watcher

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Trips / Events

Ideas for trips and events always welcome!

events@weymouthastronomy.co.uk

- **12 Mar BNSS—Plutonium: the Stellar Element for our Future Energy—Brendan McNamara**
- ***16 Mar CADAS—Dawn of the Solar System—Chris Starr***
- ***5 Apr WAS—Eclipses—Chris Bowden***
- ***9 Apr BNSS—Exoplanets—Don Pollacco***
- ***20 Apr CADAS—Names in the Sky—Bob Mizon***
- ***3 May WAS—Images of the Universe Vol 2—Paul Money***
- ***17 May BNSS—Pluto from Myth to Discovery—Graham Bryant***
- ***18 May CADAS—Surface features of the Moon—Barry Fitzgerald***
- ***4 June BNSS—Rosetta—Kim Birkett***

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 News—

This month's main astronomical feature was the total solar eclipse on the 9th. Looking forward to Chris Bowden's commentary on this spectacular event and hopefully some excellent photos as well. For the rest of us remaining in the UK, the evening of the 6th surprised many with a strong solar storm and bright aurora visible from much of the UK. If you have time, check out:

https://www.eveningexpress.co.uk/fp/news/local/pictures-and-video-stunning-photographs-show-northern-lights-display-over-north-east1/

The best site I have found for aurora predictions is the Service Aurora. http://www.aurora-service.eu/aurora-forecast/ It provides all the important monitoring figures and a useful expected visibility graphical forecast.

Until next month~SK

The Closest New Stars to Earth By Ethan Siegel

When you think about the new stars forming in the Milky Way, you probably think of the giant star-forming regions like the Orion Nebula, containing thousands of new stars with light so bright it's visible to the naked eye. At over 400 parsecs (1,300 light years) distant, it's one of the most spectacular sights in the night sky, and the vast majority of the light from galaxies originates from nebulae like this one. But its great luminosity and relative proximity makes it easy to overlook the fact that there are a slew of much closer star-forming regions than the Orion Nebula; they're just much, much fainter.

If you get a collapsing molecular cloud many hundreds of thousands (or more) times the mass of our sun, you'll get a nebula like Orion. But if your cloud is only a few thousand times the sun's mass, it's going to be much fainter. In most instances, the clumps of matter within will grow slowly, the neutral matter will block more light than it reflects or emits, and only a tiny fraction of the stars that form—the most massive, brightest ones—will be visible at all. Between just 400 and 500 light years away are the closest such regions to Earth: the molecular clouds in the constellations of Chamaeleon and Corona Australis. Along with the Lupus molecular clouds (about 600 light years distant), these dark, light-blocking patches are virtually unknown to most sky watchers in the northern hemisphere, as they're all southern hemisphere objects.

In visible light, these clouds appear predominantly as dark patches, obscuring

WAC Upcoming Events:

8 Apr—Exoplanets—Don Pollacco [8pm start]

13 May—The Names of Stars—Bob Mizon

10 June—Ask the Experts!

8 July—Indonesian Eclipse—Chris Bowden

12 Aug—Club Public Open Evening at SACC

9 Sept—How Astronomy has Changed—Lillian Hobbs

More to come!

Plans for informal viewing nights will take place after the monthly meetings, weather permitting.

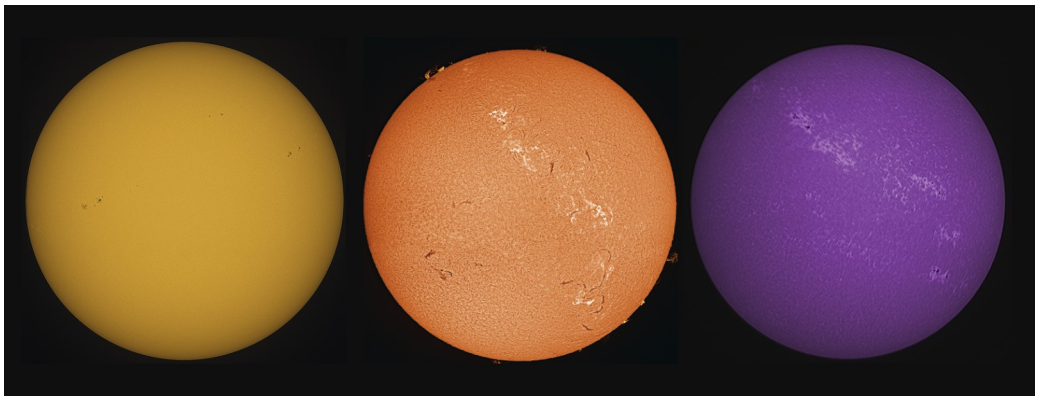
Image credit: NASA and ESA Hubble Space Telescope. Acknowledgements: Kevin Luhman (Pennsylvania State University), and Judy Schmidt, of the Chamaeleon cloud and a newly-forming star within it—HH 909A—emitting narrow streams of gas from its poles.

Stars (continued)

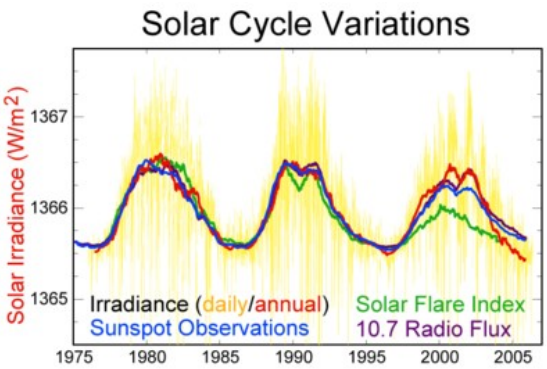
and reddening the light of background stars. In the infrared, though, the gas glows brilliantly as it forms new stars inside. Combined near-infrared and visible light observations, such as those taken by the Hubble Space Telescope, can reveal the structure of the clouds as well as the young stars inside. In the Chameleon cloud, for example, there are between 200 and 300 new stars, including over 100 X-ray sources (between the Chamaeleon I and II clouds), approximately 50 T-Tauri stars and just a couple of massive, B-class stars. There's a third dark, molecular cloud (Chamaeleon III) that has not yet formed any stars at all.

While the majority of new stars form in large molecular clouds, the closest new stars form in much smaller, more abundant ones. As we reach out to the most distant quasars and galaxies in the universe, remember that there are still star-forming mysteries to be solved right here in our own backyard.

Solar Cycle *by Sheri Karl*



Here are a selection of solar images taken in white light, hydrogen alpha and Calcium K line respectively on the 9 February 2016. The general alignment of the sunspots being along the solar equator is indicative of the approaching solar minimum. This is currently forecast to be near 2020. Please note the images are not fully rotated to be aligned with respect to each other. The white light image is rotated approximately 45degrees anti-clockwise from the others.



The Solar Cycle is an 11 year cyclic increase and decrease of the number of sunspots and a number of other solar activity indicators. The most recent solar maximum appears to have occurred in 2013 therefore we are on a downward trend of the number of active regions visible on the solar surface. During a minimum there are fewer incidences of solar storm radiation making it safer for astronauts and for aircraft passengers to fly. However, the opportunity for aurora diminishes as well. During the Solar Maximum, the Sun may hurl coronal mass ejections (CME) into space containing electrified gas which can cause a variety of problems at Earth including disruption of communications, high levels of radiation, satellite malfunctions, power outages and strong aurora.

Sunspot observations have taken place since telescopes were first turned to the Sun in the 1600s. During this 400 year record, there have been many periods of intense solar activity and also what appears to be a climate effecting long duration solar minimum. This Maunder Minimum took place during the historical Little Ice Age of the 1645—1715. This type of long term reduction of sun spot numbers has been closely monitored in recent years due to the relatively low count of sunspots during the recent solar maxima. There has been a great deal of research regarding the climatic influence of solar activity and sunspot count. If you would like to read further on this topic, the NASA / Marshall Solar Physics department has a wealth of information on the internet. http://solarscience.msfc.nasa.gov/whysolar.shtml