

WEYMOUTH ASTRONOMY

Sky Watcher

Volume 10, Issue 7
13 November 2015

Trips / Events

Ideas for trips and events
always welcome!

events@weymouthastronomy.co.uk

- ◆ 18 Nov CADAS—Members' short talks evening
- ◆ 1 Dec WAS—Members' video and digital images
- ◆ 16 Dec CADAS—Steve Tonkin: *Star of Bethlehem and Christmas social*

2016 Meeting programmes
to be announced soon.

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.

More events to come!!

WAC Upcoming Events:

11 Dec—Christmas Quiz Night

Happy Holidays!

2016 Programme

Jan—Members 10 min talks

Feb—Public open evening.

More to come!

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

WAC News—

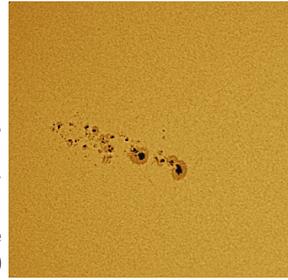
This month is typically known for its reliable meteor showers and still somewhat mild evenings. Mark your calendars for the Northern Taurids peaking around 12 Nov and the more spectacular Leonids between 15—20 Nov peaking on the 18th. No equipment required but a comfortable lawnchair and warm clothing helps. The waxing crescent moon is setting near 22:00 so there should be a good dark night for viewing this year. Send us your meteor counts!

Until next month...clear skies! ~SK

How we know Mars has liquid water on its surface by Ethan Siegel

Of all the planets in the solar system other than our own, Mars is the one place with the most Earth-like past. Geological features on the surface such as dried up riverbeds, sedimentary patterns, mineral spherules nicknamed "blueberries," and evidence of liquid-based erosion all tell the same story: that of a wet, watery past. But although we've found plenty of evidence for molecular water on Mars in the solid (ice) and gaseous (vapor) states, including in icecaps, clouds and subsurface ices exposed (and sublimated) by digging, that in no way meant there'd be water in its liquid phase today.

Sure, water flowed on the surface of Mars during the first billion years of the solar system, perhaps producing an ocean a mile deep, though the ocean presence is still much debated. Given that life on Earth took hold well within that time, it's conceivable that Mars was once a rich, living planet as well. But unlike Earth, Mars is small: small enough that its interior cooled and lost its protective magnetic field, enabling the sun's solar wind to strip its atmosphere away.



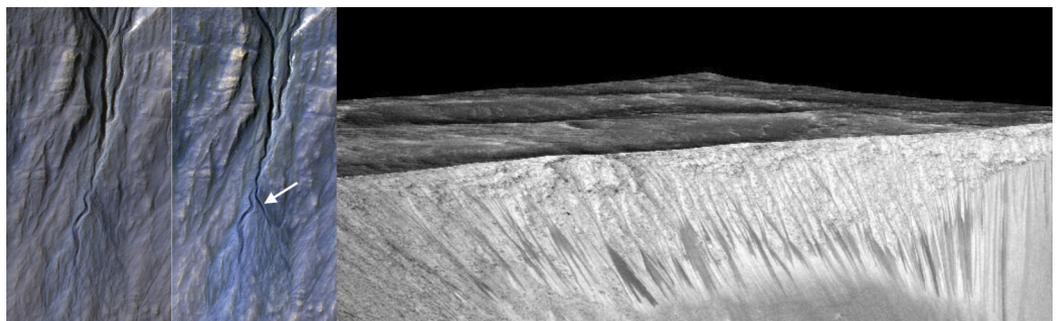
Sunspots from AR2443 on the left spanning ~200,000km at the time of the image 2 Nov 2015.



AR2445 on the right I think resembles a mushroom on its side. What does it look like to you?

Without a significant atmosphere, the liquid phase of water became a virtual impossibility, and Mars became the arid world we know it to be today. But certain ions—potassium, calcium, sodium, magnesium, chloride and fluoride, among others—get left behind when the liquid water disappears, leaving a "salt" residue of mineral salts (that may include table salt, sodium chloride) on the surface. While pure liquid water may not persist at standard Martian pressures and temperatures, extremely salty, briny water can indeed stay in a liquid state for extended periods under the conditions on the Red Planet. It's more of a "sandy crust" like you'd experience on the shore when the tide goes out than the flowing waters we're used to in rivers on Earth, but it means that under the right temperature conditions, liquid water does exist on Mars today, at least in small amounts.

The measured presence and concentration of these salts, found in the dark streaks that come and go on steep crater walls, combined with our knowledge of how water behaves under



Images credit: NASA/JPL-Caltech/Univ. of Arizona, of a newly-formed gully on the Martian surface (L) and of the series of gullies where the salt deposits were found (R).

Water (continued)

certain physical and chemical conditions and the observations of changing features on the Martian surface supports the idea that this is the action of liquid water. Short of taking a sample and analyzing it in situ on Mars, this is the best current evidence we have for liquid water on our red neighbor. Next up? Finding out if there are any single-celled organisms hardy enough to survive and thrive under those conditions, possibly even native to Mars itself!

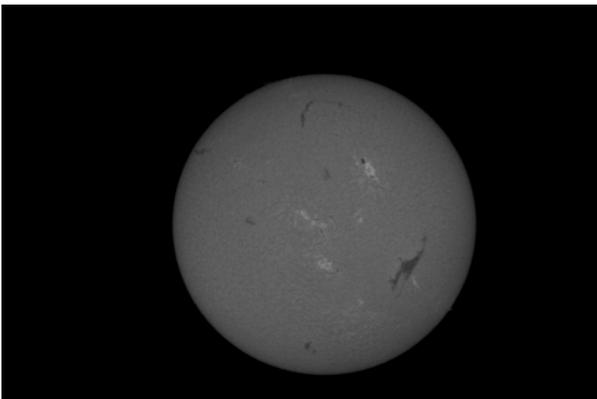
Members Images—



This month some lovely sunrises at Greenhill were sent in by Jim Nicholson. There are some interesting atmospheric optical phenomena captured here. Can you identify any?

Send your answers to sheri@svalin.eu with the subject Optics.

Answers next month!



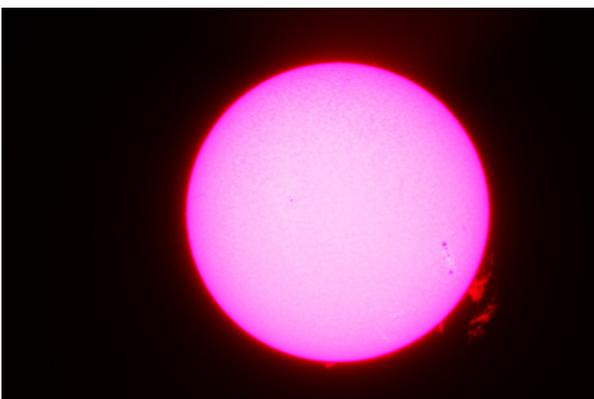
Images (left) taken by Peter Kemp in late September 2015.

Coronado SolarMax II 60xB/F 15

The first image was taken with a Double stack unit and x2.5 Barlow attached to a Canon 60D with the camera setting in Mono.

The colour image showing the detached prominence is single stack with the x2.5 Barlow.

Images below were taken by John Gifford of the 'Halloween Asteroid' TB145 which was only discovered on Oct. 10, 2015 prior to closest approach with Earth. The star in the image is Phad.



Images (right) taken by Sheri Karl 2 Nov 2015

Lunt60 DS for H-alpha

WO110 with Baader Herschel wedge for white light

