

WEYMOUTH ASTRONOMY

Trips / Events

Ideas for trips and events
always welcome!

events@weymouthastronomy.co.uk

- ♦ 21 Sept CADAS—Deep Sky Imaging—Philip Perkins
- ♦ 4 Oct WAS—AGM & Astronomers' Question Time
- ♦ 19 Oct CADAS—Starting out in Astronomy
- ♦ 1 Nov WAS—Lunar geology from the comparative safety of your own home—Barry Fitzgerald
- ♦ 16 Nov CADAS—Solar Imaging—Sheri Lynn Karl
- ♦ 6 Dec WAS—TBA
- ♦ 21 Dec CADAS—Christmas Social and Members Short Talks

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 in 2017.

WAC Upcoming Events:

- 14 Oct—Sundial workshop—John Macdonald
- 11 Nov—Aurora in the Solar System—Sheri Karl
- 9 Dec—Christmas Quiz Night

More to come in 2017!

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

Sky Watcher



WAC News—

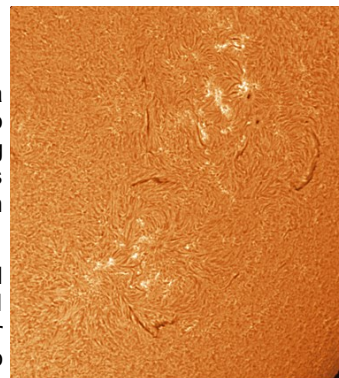
At the start of Meteorological Autumn we have seen a return to 'aurora season' around the Arctic Circle according to Spaceweather.com. The Sun did not disappoint with a strong showing the first few days of September. The Antarctic has been getting daylight now for some time but still enough darkness to show some beautiful Aurora Australis last week.

The solar surface has remained fairly active across all wavelengths recently. The end of August particularly revealed several dramatic features on the solar face. Despite heading for a solar minimum, there is still plenty of opportunity for the Sun to unleash some dramatic particle streams from Coronal Holes or the odd Coronal Mass Ejection as the magnetic fields try to rearrange themselves within a settling magnetic regime post polarity flip.

There was also an annular eclipse visible at the start of the month to round-out the solar activity. My favourite site to keep a watch on all the latest solar activity is at http://cesar.kso.ac.at/main/live_im.php?type=Ha

Until next month ~SK

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Is there a super-Earth in the Solar System out beyond Neptune?

By Ethan Siegel



When the advent of large telescopes brought us the discoveries of Uranus and then Neptune, they also brought the great hope of a Solar System even richer in terms of large, massive worlds. While the asteroid belt and the Kuiper belt were each found to possess a large number of substantial icy-and-rocky worlds, none of them approached even Earth in size or mass, much less the true giant worlds. Meanwhile, all-sky infrared surveys, sensitive to red dwarfs, brown dwarfs and Jupiter-mass gas giants, were unable to detect anything new that was closer than Proxima Centauri. At the same time, Kepler taught us that super-Earths, planets between Earth and Neptune in size, were the galaxy's most common, despite our Solar System having none.

The discovery of Sedna in 2003 turned out to be even more groundbreaking than astronomers realized. Although many Trans-Neptunian Objects (TNOs) were discovered beginning in the 1990s, Sedna had properties all the others didn't. With an extremely eccentric orbit and an aphelion taking it farther from the Sun than any other world known at the time, it represented our first glimpse

of the hypothetical Oort cloud: a spherical distribution of bodies ranging from hundreds to tens of thousands of A.U. from the Sun. Since the discovery of Sedna, five other long-period, very eccentric TNOs were found prior to 2016 as well. While you'd expect their orbital parameters to be randomly distributed if they occurred by chance, their orbital orientations with respect to the Sun are clustered extremely narrowly: with less than a 1-in-10,000 chance of such an effect appearing randomly.

Whenever we see a new phenomenon with a surprisingly non-random appearance, our scientific intuition calls



A possible super-Earth/mini-Neptune world hundreds of times more distant than Earth is from the Sun. Image credit: R. Hurt / Caltech (IPAC)



Planet (continued)

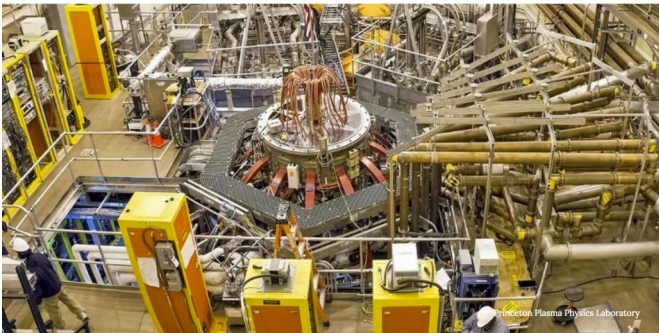
out for a physical explanation. Astronomers Konstantin Batygin and Mike Brown provided a compelling possibility earlier this year: perhaps a massive perturbing body very distant from the Sun provided the gravitational "kick" to hurl these objects towards the Sun. A single addition to the Solar System would explain the orbits of all of these long-period TNOs, a planet about 10 times the mass of Earth approximately 200 A.U. from the Sun, referred to as **Planet Nine**. More Sedna-like TNOs with similarly aligned orbits are predicted, and since January of 2016, another was found, with its orbit aligning perfectly with these predictions.

Ten meter class telescopes like Keck and Subaru, plus NASA's NEOWISE mission, are currently searching for this hypothetical, massive world. If it exists, it invites the question of its origin: did it form along with our Solar System, or was it captured from another star's vicinity much more recently? Regardless, if Batygin and Brown are right and this object is real, our Solar System may contain a super-Earth after all.



The Latest in Space News...

The past month has been very busy in the space science world. Not only have we had Juno arrive and Jupiter and begin sending back the highest resolution images and wondrous discoveries, we've had another SETI signal reach the public. Unfortunately this turned out to be terrestrial in nature but raises the possibility that we may in the near future detect something truly curious. A few other items you may find of interest listed on the space.com website:

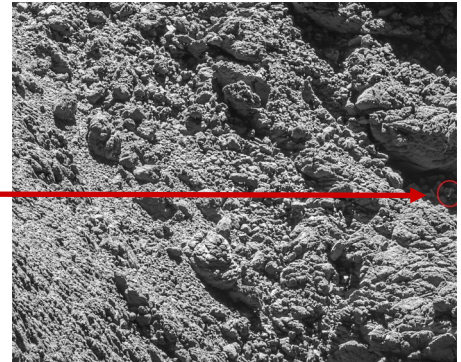


Start in a Jar: Space-Age Fusion Machine underway

<http://www.space.com/33900-star-in-a-jar-space-age-fusion-machine-underway.html>

Philae Lander's Grave on Comet Found at Last After Nearly 2-Year Search

<http://www.space.com/33971-lost-philae-comet-lander-finally-found-photos.html>



SpaceX Falcon 9 Explosion Could Have Ripple Effects Across Space Industry

<http://www.space.com/33961-spacex-falcon-9-explosion-space-industry-ripples.html>

On the lighter side....

'Star Trek' 50th Anniversary Postage Stamps: USPS Photos

<http://www.space.com/33954-usps-star-trek-stamps-50th-anniversary-photos.html>

