WEYMOUTH ASTRONOMY

Sky Watcher

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Trips / Events

Ideas for trips and events always welcome!

events@weymouthastronomy.co.uk

- **19 July CADAS—Mike Witt: Tales from the Darkside of the Universe**
- **1Aug WAS—Guy Hurst: Guest Stars, Ancient and Modern**
- **16 Aug CADAS—Bill Combes: The International Space Station**
- **5 Sept WAS—Steve Tonkin: Ten Ways the Universe Tries to Kill You**
- **20 Sept CADAS–Richard Miles: The Mystery of Comets Unveiled**

More events to come... 2017.

Programmes for many local Societies will be available in the near future. Check their websites for more details.

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 Upcoming Events:

11 Aug—Open evening at SACC

8 Sept—USA Eclipse of 2017: Chris Bowden

13 Oct—Binocular Astronomy: Stephen Tonkin

10 Nov—Impacts: Bob Mizon

8 Dec—Christmas Quiz Night

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

WAC News—

Eclipse Stamps!

One month to go until the great Solar Eclipse over North America takes place. The USPS has commissioned what I think are the most unique eclipse stamps created to date. Read more from EOS on these pieces of art. Until next month ~SK

The *Total Eclipse of the Sun, Forever® stamp* transforms into an image of the Moon from the heat of a finger. Espenak shot the eclipse photo from Jalu, Libya in 2006, while the Full Moon image was made from his observatory in Portal, Arizona in 2010. The stamp commemorates the total solar eclipse of August 21, 2017 that crosses the USA.

https://eos.org/articles/innovative-postage-stamp-celebrates-upcoming-total-solar-eclipse?utm_source=eos&utm_medium=email&utm_campaign=EosBuzz062317

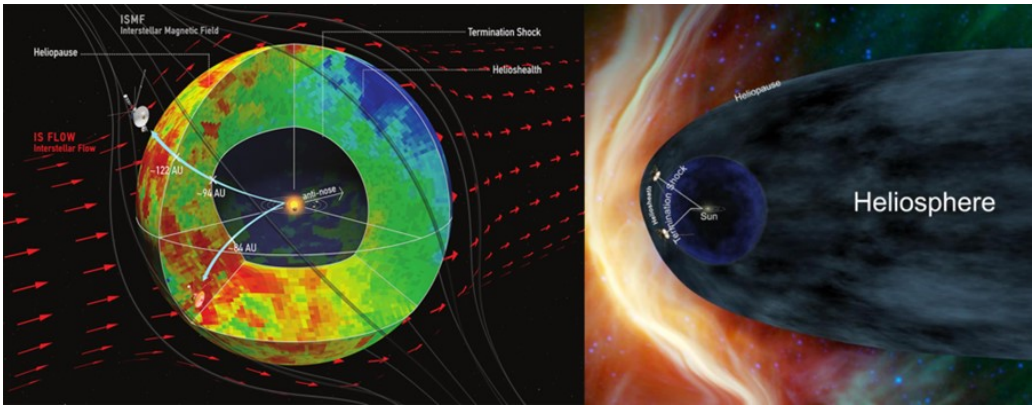
The Shape of the Solar System By Marcus Woo

When Stamatios (Tom) Krimigis was selected for the Voyager mission in 1971, he became the team's youngest principal investigator of an instrument, responsible for the Low Energy Charged Particles (LECP) instrument. It would measure the ions coursing around and between the planets, as well as those beyond. Little did he know, though, that more than 40 years later, both Voyager 1 and 2 still would be speeding through space, continuing to literally reshape our view of the solar system.

The solar system is enclosed in a vast bubble, carved out by the solar wind blowing against the gas of the interstellar medium. For more than half a century, scientists thought that as the sun moved through the galaxy, the interstellar medium would push back on the heliosphere, elongating the bubble and giving it a pointy, comet-like tail similar to the magnetospheres—bubbles formed by magnetic fields—surrounding Earth and most of the other planets

"We in the heliophysics community have lived with this picture for 55 years," said Krimigis, of The Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland. "And we did that because we didn't have any data. It was all theory."

But now, he and his colleagues have the data. New measurements from Voyager and the Cassini spacecraft suggest that the bubble isn't pointy after all. It's spherical.



Caption: New data from NASA's Cassini and Voyager show that the heliosphere — the bubble of the sun's magnetic influence that surrounds the solar system — may be much more compact and rounded than previously thought. The image on the left shows a compact model of the heliosphere, supported by this latest data, while the image on the right shows an alternate model with an extended tail. The main difference is the new model's lack of a trailing, comet-like tail on one side of the heliosphere. This tail is shown in the old model in light blue.

Shape (*continued*)

Their analysis relies on measuring high-speed particles from the heliosphere boundary. There, the heated ions from the solar wind can strike neutral atoms coming from the interstellar medium and snatch away an electron. Those ions become neutral atoms, and ricochet back toward the sun and the planets, uninhibited by the interplanetary magnetic field.

Voyager is now at the edge of the heliosphere, where its LECP instrument can detect those solar-wind ions. The researchers found that the number of measured ions rise and fall with increased and decreased solar activity, matching the 11-year solar cycle, showing that the particles are indeed originating from the sun.

Meanwhile, Cassini, which launched 20 years after Voyager in 1997, has been measuring those neutral atoms bouncing back, using another instrument led by Krimigis, the Magnetosphere Imaging Instrument (MIMI). Between 2003 and 2014, the number of measured atoms soared and dropped in the same way as the ions, revealing that the latter begat the former. The neutral atoms must therefore come from the edge of the heliosphere.

If the heliosphere were comet-shaped, atoms from the tail would take longer to arrive at MIMI than those from the head. But the measurements from MIMI, which can detect incoming atoms from all directions, were the same everywhere. This suggests the distance to the heliosphere is the same every which way. The heliosphere, then, must be round, upending most scientists' prior assumptions.

It's a discovery more than four decades in the making. As Cassini ends its mission this year, the Voyager spacecraft will continue blazing through interstellar space, their remarkable longevity having been essential for revealing the heliosphere's shape.

"Without them," Krimigis says, "we wouldn't be able to do any of this."

Passing in the night: Hubble spots 'double whammy' of individual galaxies speeding past each other at a million miles a hour

National Aeronautics and Space Administration

Hubble spotted object in Lepus constellation that's made up of two galaxies. The two galaxies are just 20,000 light-years apart, travelling over 1 million mph. While moving too fast to merge, their gravities are causing shapes to distort. The Hubble Space Telescope has spotted a peculiar object in the Hare constellation that's made up of two individual galaxies, speeding past each other at more than 1 million miles per hour. According to NASA, they're traveling too fast to merge into a single galaxy, but are close enough to massively distort their structures.

Hubble caught a glimpse of the pair from 500 million light-years away using its Wide Field Camera 3 (WFC3) and Advanced Camera for Surveys (ACS) instruments Over the years, the NASA/ESA Hubble Space Telescope has captured all kinds of bizarre galactic interactions, including 'galactic cannibalism, galaxy harassment, and galaxy collisions,' according to NASA. The galaxy IRAS 06076-2139, seen in the constellation Lepus (the Hare), is really two objects, not just one.

Two galaxies speeding past each other at roughly 2 million kilometers (1,243,000 mph) appear as one in the stunning Hubble photo, as they're just 20,000 light-years apart. According to NASA, galactic interactions can take many forms – and one day, even our own will be subjected to a merger with another.

'The Milky Way itself will eventually fall victim to [a collision], merging with the Andromeda Galaxy in about 4.5 billion years,' NASA explained.

'The fate of our galaxy shouldn't be alarming though: while galaxies are populated by billions of stars, the distances between individual stars are so large that hardly any stellar collisions will occur.

~An article shared with us by WAC member Malcolm McCarthy.

Perseids Viewing Evening

Wessex Astronomical Society will be holding a 'Perseids Viewing Evening' at Durlston country park on August 12th (9pm). For further details please contact Wessex Astronomical Society