

WEYMOUTH ASTRONOMY

Sky Watcher

Volume 14, Issue 3
11 October 2019

Trips / Events

Ideas for trips and events
always welcome!

events@weymouthastronomy.co.uk

Oct 16 CADAS—Galaxies: do mergers matter? By Chris Lintott

Nov 5 WAS—Review of Astro-Imaging Techniques by Alan Jeffris

Nov 20 CADAS—Pseudoastronomy: Hollow Moons and Flat Earths by Steve Tonkin

Dec 3 WAS—Lesser Known Winter Sky Wonders by Bob Mizon

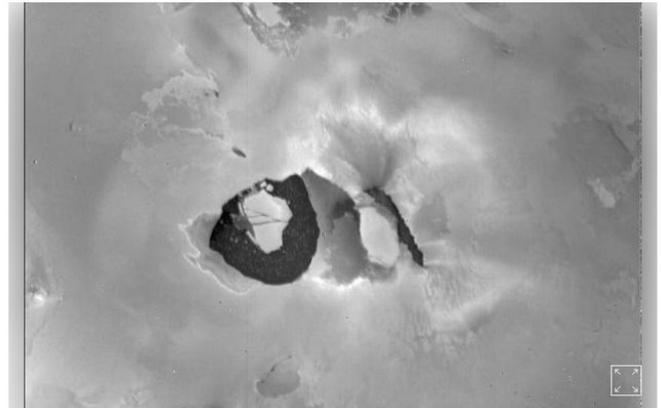
Dec 18—Christmas social and members' images/short talks

The events for the British Astronomical Society (BAA) can be found at <https://britastro.org/meetings/2019>

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.



This month a very interesting article appeared regarding Jupiter's moon Io. Its volcano Loki Patera appears ready to erupt. Because Loki brightens when it erupts, the timing of its volcanic activity can be calculated using archived observations of the moon. Julie Rathbun and her research partners at the Planetary Science Institute studied more than 20 years of observations. In the 1990s, Loki erupted roughly every 540 days. More recently, the Loki Patera has brightened every 475 days. Based on this, Loki is expected to erupt Sept 2019. https://www.upi.com/Science_News/2019/09/17/Researcher-predicts-volcano-on-Jupiters-moon-is-about-to-erupt/9331568732177/?sl=3



However, Loki 'The Trickster' has been changing its eruption cycle more recently. Keep watching Space News to see if it erupts 'on-time' or has played another trick in time for Halloween!

Until next time...SLK



Find Strange Uranus in Aries

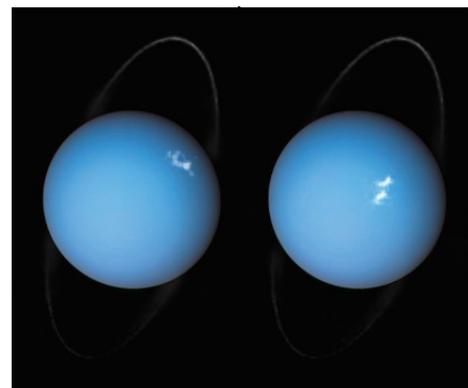
by David Proper

and greater will reveal its small greenish disc, while background stars will remain points.

Most of the planets in our solar system are bright and easily spotted in our night skies. The exceptions are the ice giant planets: Uranus and Neptune. These worlds are so distant and dim that binoculars or telescopes are almost always needed to see them. A great time to search for Uranus is during its opposition on October 28, since the planet is up almost the entire night and at its brightest for the year.

Try this observing trick from a dark sky location. Find Uranus with your telescope or binoculars, then look with your unaided eyes at the patch of sky where your equipment is aimed. Do you see a faint star where Uranus should be? That's not a star; you're actually seeing Uranus with your naked eye! The ice giant is just bright enough near opposition - magnitude 5.7 - to be visible to observers under clear dark skies. It's easier to see this ghostly planet unaided after first using an instrument to spot it, sort of like "training wheels" for your eyes. Try this technique with other objects as you

Search for Uranus in the space beneath the stars of Aries the Ram and above Cetus the Whale. These constellations are found west of more prominent Taurus the Bull and Pleiades star cluster. You can also use the Moon as a guide! Uranus will be just a few degrees north of the Moon the night of October 14, close enough to fit both objects into the same binocular field of view. However, it will be much easier to see dim Uranus by moving the bright Moon just out of sight. If you're using a telescope, zoom in as much as possible once you find Uranus; 100x magnification



Caption: Composite images taken of Uranus in 2012 and 2014 by the Hubble Space Telescope, showcasing its rings and auroras. More at bit.ly/uranusauroras Credit: ESA/Hubble & NASA, L. Lamy / Observatoire de Paris

WEYMOUTH ASTRONOMY

2019 – 2020 Subscriptions are now due
£15 Annual Membership
£3 per night for visitors

WAC Upcoming Events:

Nov 8 UFOs—REALLY? By Barry Fitzgerald

13 Dec Winter Social / Viewing Evening

Why don't you volunteer to give a short talk? What part of astronomy inspires you?

Pick a favourite object to speak on perhaps.

More to come in 2020!!

Uranus (more!)

Caption: The path of Uranus in October is indicated by an arrow; its position on October 14 is circled. The wide dashed circle approximates the field of view from binoculars or a finderscope. Image created with assistance from Stellarium.

Discover more about NASA's current and future missions of exploration of the distant solar system and beyond at nasa.gov

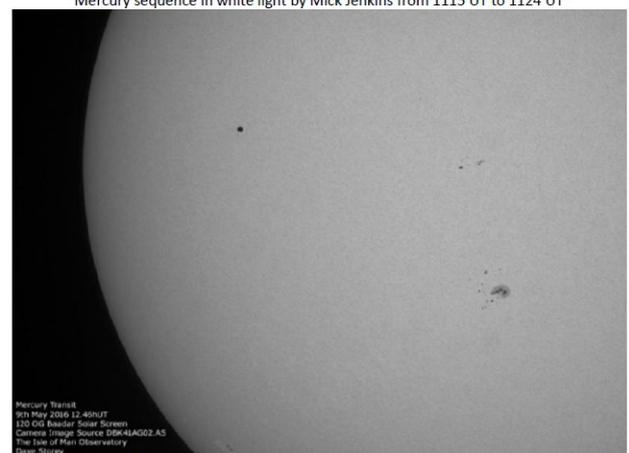
**BAA FLYER The Transit of Mercury 2019 November 11**

On Monday 11th November there will be a relatively rare transit of Mercury. For UK observers, the transit will occur during the afternoon with the transit still in progress at sunset. The geocentric contact timings can be seen in the following diagram when ingress occurs between 12:35 and 12:37 UT, greatest transit at 15:19 UT and egress occurs between 18:02 and 18:04 UT. Local timings are slightly different as also given below for various locations around the UK.

Observing the transit, whether visually or via imaging in white light, Hydrogen Alpha or Calcium K is very similar to that for sunspots or filaments. Given the small size of Mercury (10"), the planet will not be visible by the protected naked eye. A tutorial on solar observing written by the Director Lyn Smith can be found on the BAA web site at <https://britastro.org/node/10604>. Example images from the last transit by Solar Section members are shown below.



Mercury sequence in white light by Mick Jenkins from 1115 UT to 1124 UT



Mercury imaged at 1246 UT by Dave Storey, together with sunspot groups AR2542 and AR2543

For imaging, the main consideration is to ensure the duration of any webcam AVI files used to generate a processed image is sufficiently short to avoid any detectable motion of Mercury. The motion of the planet across the solar disk is approximately 5.8" per minute or 0.1" per second. If the allowed motion to avoid blurring is say 10% of Mercury's diameter this gives a maximum AVI imaging time of 10 seconds. Mercury may also be observed just before ingress in Hydrogen Alpha, especially if the planet appears in front of a prominence.

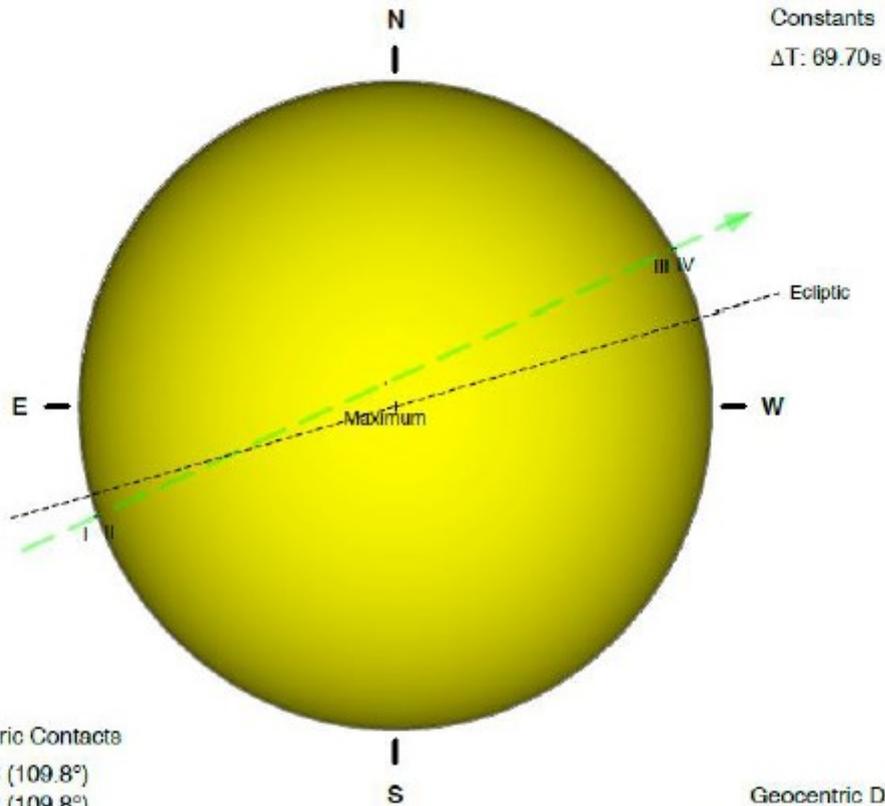
Your observations should be submitted to Lyn Smith (solar@britastro.org) and to the Mercury and Venus Section's Director Paul Abel (paul.abel@yahoo.co.uk) and Mercury Coordinator Chris Hooker (chrishooker1@virginmedia.com). Image filenames should ideally be in the format MERCURY_YYYY-MM-DD_HHMMUT_Filter_NAME where Filter is the name of any filter used (I suggest using WL for white light and Ha for hydrogen alpha).

The next transit of Mercury will not be for another thirteen years, on 2032 Nov 13, and so every opportunity should be made to observe this transit (clouds permitting).

Peter Meadows, Assistant Solar Director.

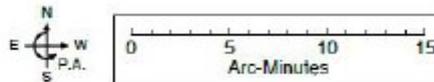
Mercury Transit of 2019 Nov 11 Geocentric Diagram and Visibility Map

Greatest Transit: 15:19:47.4 UT J.D.: 2458799.138743



Transit Geocentric Contacts

- I: 12:35:26 UTC (109.8°)
- II: 12:37:08 UTC (109.8°)
- G: 15:19:47 UTC (24.3°)
- III: 18:02:33 UTC (298.8°)
- IV: 18:04:14 UTC (298.7°)



Geocentric Data

- Minimum separation: 75.9"
- General Duration: 05h28m47s
- Central Duration: 05h25m25s

Circumstances of Transit of Mercury (from http://xjubier.free.fr/en/site_pages/transits/ToM_2019.html)

Location	I	II	G	III	IV	Duration		
						h	m	s
London	12:35:35	12:37:16	15:19:44	16:34*		3h	58m	25s
Glasgow	12:35:38	12:37:19	14:56:22	16:14*		3h	38m	22s
Belfast	12:35:38	12:37:19	15:19:47	16:25*		3h	49m	22s
Cardiff	12:35:36	12:37:17	15:19:44	16:26*		3h	50m	24s

* Sunset (from BAA 2019 Handbook)



9 May 2016 Transit of Mercury—S L Karl

Fireball on 8 September—Chris Bowen

I thought I'd share with you a couple of images I took whilst staying in Tenby west Wales on the morning of the 8th September where I was fortunate enough to witness a dazzlingly bright and fragmenting fireball low in the south eastern sky.

As is usual on a fine clear morning I was taking images of the pre-dawn sky and had my camera (a Sony A77 Mk II using a 16mm lens) set at 4 second exposures at ISO 400 and F4.5 at the time this event occurred. After taking one such shot over Tenby harbour I saw what I initially thought was a flare or firework and remember being annoyed that such an occurrence would potentially spoil my shots! It then dawned on me that I might be witnessing a meteor breaking up in the air, so I quickly repositioned my camera to take another shot. I continued to watch as what remained of the meteor continued its journey through our atmosphere moving fairly slowly as it further destabilised and continued south east and hoped I'd captured something on the camera. When I reviewed my material I found I did capture one image before the meteor flared with a large chunk of it breaking up and disintegrating in the air and also got some of what remained of it in the second image as I moved my camera to try to get it as it progressed. My shutter was on a 2 second delay unfortunately, so I missed the brightest fragmentation event. The images I do have however may be useful; especially as I appear to be one of the furthest west observing this event.



I immediately filed a fireball report on the UKmon database and soon found that many others had also done the same thing; one I notice from Corfe Mullen in Dorset, so you may already be aware of this event. There were also reports in the media of people calling the police about a potential plane going down and in Devon they sent helicopters up to investigate, however they concluded that it was a meteor.

To date there have been around 215 reports filed for this event on UKmon; my own amongst them. The flare and fragmentation was spectacular to witness and I wondered whether I had in fact seen a satellite de-orbit event. Indeed it reminded me of the awful Columbia disaster where the shuttle could be seen breaking apart in the air as it came back to Earth. I also wondered whether it could have been a military plane being shot down, with the "fireworks" I saw being decoys being deployed by the plane being pursued. Indeed if you closely examine the second image you can see a fainter trail higher up curving away from the other trail, as if another aircraft had broken off its pursuit! I'd be interested in what your own thoughts might be on this.



I attach my images and a link to this event on UKmon showing the many reports already filed there. In hindsight I wish I'd had the foresight to have taken video as soon as I saw what I thought were fireworks, so I guess the moral of the story is always to treat what you see as real and try to record it if you can!

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[United Kingdom Meteor Observation Network](http://www.ukmon.net)

Best regards,

Chris