

Trips / Events

Ideas for trips and events
always welcome!

events@weymouthastronomy.co.uk

♦ 21 Dec CADAS—
Christmas Social and
Members Short Talks

More events to come in
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:

13 Jan—The Stars over Egypt—
Bob Mizon

10 Feb—Inside Stars—James
Fradgley

10 Mar—Time—Paul Spurr

7 Apr—A Life on Mars—Bud
Budzynski

More to come in 2017!

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

WAC News—

Comet Campaign Seeks Imagers Worldwide—If you're crazy about comets, here's an opportunity to make an important contribution to their understanding. The [Planetary Science Institute](http://www.planetaryscienceinstitute.org) (PSI) is putting out the call to amateurs and professionals alike to make the best of a unique opportunity. Three comets — [41P/Tuttle-Giacobini-Kresak](http://www.41ptuttle.com), [45P/Honda-Mrkos-Pajdusakova](http://www.45phonda.com), and [46P/Wirtanen](http://www.46pwirtanen.com) — will all pass Earth at very close distances ranging from 7.4 million to 14 million miles (11.9 to 22.5 million km) within the next two years. Close approaches of three comets within two years are rare and only happen every few decades. You can submit photos taken in regular light showing dust features or taken through narrowband filters that enhance a comet's gaseous emissions. PSI suggests the best time to obtain images will be from about mid-February through mid-March 2017 for 45P/H-M-P and the end of January through July 2017 for 41P/T-G-K. Because it's still far off, the Institute will specify the best times for 46P/Wirtanen in 2018. <http://www.skyandtelescope.com/observing/worldwide-4p-comet-campaign-needs-your-photos/>

Until next month ~SK

Dimming stars, erupting plasma, and beautiful nebulae

By Marcus Woo

Boasting intricate patterns and translucent colors, planetary nebulae are among the most beautiful sights in the universe. How they got their shapes is complicated, but astronomers think they've solved part of the mystery—with giant blobs of plasma shooting through space at half a million miles per hour.

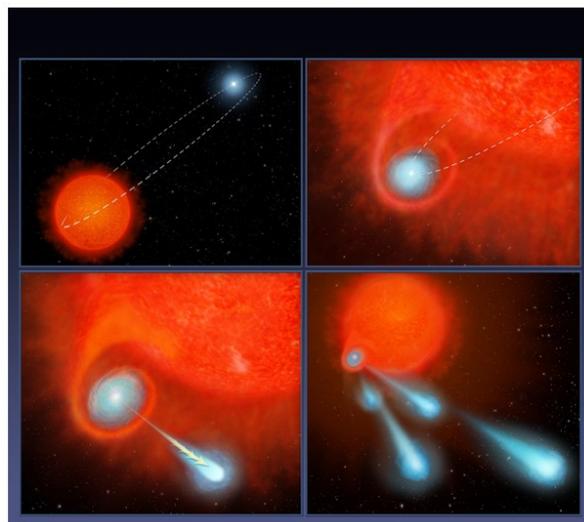
Planetary nebulae are shells of gas and dust blown off from a dying, giant star. Most nebulae aren't spherical, but can have multiple lobes extending from opposite sides—possibly generated by powerful jets erupting from the star.

Using the Hubble Space Telescope, astronomers discovered blobs of plasma that could form some of these lobes. "We're quite excited about this," says Raghvendra Sahai, an astronomer at NASA's Jet Propulsion Laboratory. "Nobody has really been able to come up with a good argument for why we have multipolar nebulae."

Sahai and his team discovered blobs launching from a red giant star 1,200 light years away, called V Hydrae. The plasma is 17,000 degrees Fahrenheit and spans 40 astronomical

units—roughly the distance between the sun and Pluto. The blobs don't erupt continuously, but once every 8.5 years.

The launching pad of these blobs, the researchers propose, is a smaller, unseen star orbiting V Hydrae. The highly elliptical orbit brings the companion star through the outer layers of the red giant at closest approach. The companion's gravity pulls plasma from the red giant. The material settles into a disk as it spirals into the companion star, whose magnetic field channels the plasma out from its poles,



This four-panel graphic illustrates how the binary-star system V Hydrae is launching balls of plasma into space. Image credit: NASA/ESA/STScI





Dimming (continued)

hurling it into space. This happens once per orbit—every 8.5 years—at closest approach.

When the red giant exhausts its fuel, it will shrink and get very hot, producing ultraviolet radiation that will excite the shell of gas blown off from it in the past. This shell, with cavities carved in it by the cannon-balls that continue to be launched every 8.5 years, will thus become visible as a beautiful bipolar or multipolar planetary nebula.

The astronomers also discovered that the companion's disk appears to wobble, flinging the cannonballs in one direction during one orbit, and a slightly different one in the next. As a result, every other orbit, the flying blobs block starlight from the red giant, which explains why V Hydrae dims every 17 years. For decades, amateur astronomers have been monitoring this variability, making V Hydrae one of the most well-studied stars.

Because the star fires plasma in the same few directions repeatedly, the blobs would create multiple lobes in the nebula—and a pretty sight for future astronomers.



Binocular Advice:

Here is one of the best astronomical pieces of equipment that tends to be overlooked when astronomers succumb to 'aperture fever'. The humble binocular still plays an important roll in observing and may even become your favourite piece of equipment. Chris Bowden has written a nice review of his experience looking for a suitable pair of binoculars...

Binoculars really need to be tried out to see what suits, as they really are very much a personal taste and not all will be suitable for you. It's best to avoid the zoom type or fixed models that don't allow adjustment to your face however, but trying them out for yourself is critical.

I have a pair of 8x42 Nikon Aculon A211 Bins which I bought some years back for under 50 quid at PC World. They really suit me having an 8 degree FOV, good (12mm) eye relief and a large (> 5mm) exit pupil diameter with the distance between the oculars suited to my face dimensions. These allow a view of the region of Orion's belt and sword area in the same field which is a truly glorious sight. Similarly views of the Pleiades, the Double in Perseus and Praesepe in Cancer are also stunning targets in these Bins. The 8x42's are bright, crisp and wide angled, but not too low powered that you can't see anything. Of course if magnification is important to you then there are many more higher powered ones to go for, but you do really need to try them out for yourself first before buying. I also have a pair of high powered (30x60) Astro Bins which don't come anywhere near the Nikons for clarity and enjoyment of the night sky.

So I highly recommend the Nikon Bins - the 8x42's are a happy medium solution - not as bright or wide angled as the lower powered 7x35's or as powerful as the 10x50's (or great spec 12x50's) but for me they seem just right for what I want to use them for on the night sky (and for daytime use too) and they won't break the bank either. Here's a link to the Nikon site showing these models:

Nikon | Sport Optics | ACULON A211 - Specifications

http://nikon.com/products/sportoptics/lineup/binoculars/aculon/aculon_a211/spec.htm

We have Steve Tonkin coming to WAC next May to give his excellent talk on Binocular Astronomy. Steve is a great source for advice on Bins and has his own site: BinocularSky - Home where you can gain more tips on what to look for.



A terrific Astrotrac image of the Orion Nebula taken by Chris last month. The image was taken with a 200mm lens at F2.8 & ISO 800 at 2 to 3 minute exposures.

If you've not had a chance to use an Astrotrac or similar type of tracking device suited to SLR/DSLR cameras, they are worth a look and certainly the investment. They typically are mounted on a sturdy photographic tripod and follow the sidereal motion of the sky. A remote shutter release is very useful so time intervals for exposures can be programmed in and set to run automatically.