

### Trips / Events

Ideas for trips and events  
always welcome!

[events@weymouthastronomy.co.uk](mailto:events@weymouthastronomy.co.uk)

- ◆ 17 May BNSS—Pluto from Myth to Discovery—Graham Bryant
- ◆ 18 May CADAS—Yet More APODs—Bob Mizon
- ◆ 4 June BNSS—Rosetta—Kim Birkett
- ◆ 7 June WAS—Open Evening with Jo Richardson & Space Detectives
- ◆ 15 June CADAS—Ask the Experts Evening
- ◆ 5 July WAS—The International Space Station—Bill Coombes
- ◆ 20 July CADAS—Disks Around Stars and Galaxies—James Fradgley
- ◆ 2 Aug WAS—Project Alcock: A Comet Search Programme—Roger Dymock

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:

- 10 June—Ask the Experts!
- 8 July—Indonesian Eclipse—Chris Bowden
- 12 Aug—Club Public Open Evening at SACC
- 9 Sept—How Astronomy has Changed—Lillian Hobbs

### More to come!

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

### WAC News—

Just as testing and construction of the James Webb telescope are progressing to meet the October 2018 launch deadline, a headline from JAXA reminds us how difficult it is to launch and keep an orbiting observatory operational. Sky and Telescope news ran an article update on the 28 April informing the public that 'The Japanese space agency JAXA has just announced that they will end recovery attempts for the Hitomi X-ray satellite. Observations show that the solar panels were flung off during the spacecraft's too-fast rotation, depriving Hitomi of power and ending the mission.' [http://global.jaxa.jp/press/2016/04/20160428\\_hitomi.html](http://global.jaxa.jp/press/2016/04/20160428_hitomi.html)

Until next month~SK

### Hubble Shatters The Cosmic Record For Most Distant Galaxy

By Ethan Siegel

The farther away you look in the distant universe, the harder it is to see what's out there. This isn't simply because more distant objects appear fainter, although that's true. It isn't because the universe is expanding, and so the light has farther to go before it reaches you, although that's true, too. The reality is that if you built the largest optical telescope you could imagine -- even one that was the size of an entire planet -- you still wouldn't see the new cosmic record-holder that Hubble just discovered: galaxy GN-z11, whose light traveled for 13.4 billion years, or 97% the age of the universe, before finally reaching our eyes.

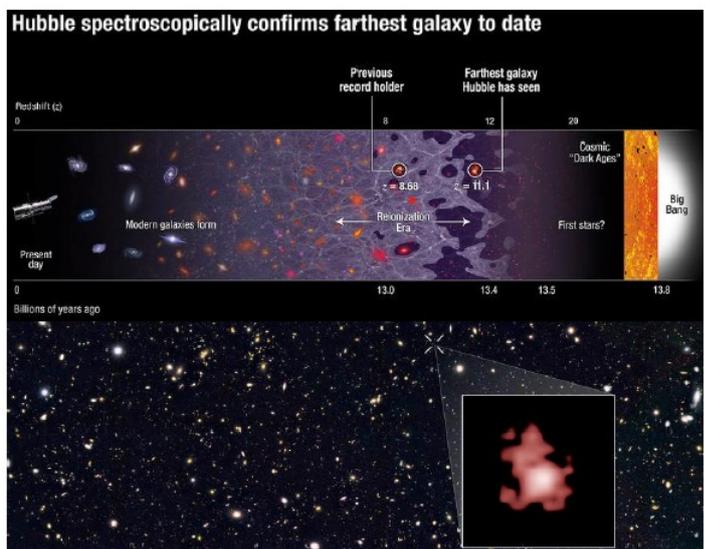
There were two special coincidences that had to line up for Hubble to find this: one was a remarkable technical achievement, while the other was pure luck. By extending Hubble's vision away from the ultraviolet and optical and into the infrared, past 800 nanometers all the way out to 1.6 microns, Hubble became sensitive to light that was severely stretched and redshifted by the expansion of the universe. The most energetic light that hot, young, newly forming stars produce is the Lyman- $\alpha$  line, which is produced at an ultraviolet wavelength of just 121.567



An artist's conception of Hitomi in space. JAXA

nanometers. But at high redshifts, that line passed not just into the visible but all the way through to the infrared, and for the newly discovered galaxy, GN-z11, its whopping redshift of 11.1 pushed that line all the way out to 1471 nanometers, more than double the limit of visible light!

Hubble itself did the follow-up spectroscopic observations to confirm the existence of this galaxy, but it also got lucky: the only reason this light was visible is because the region of space between this galaxy and our eyes is mostly ionized, which *isn't true* of most locations in the universe at this early time! A redshift of 11.1 corresponds to just 400 million years



Images credit: (top); NASA, ESA, P. Oesch (Yale University), G. Brammer (STScI), P. van Dokkum (Yale University), and G. Illingworth (University of California, Santa Cruz) (bottom), of the galaxy GN-z11, the most distant and highest-redshifted galaxy ever discovered and spectroscopically confirmed thus far.



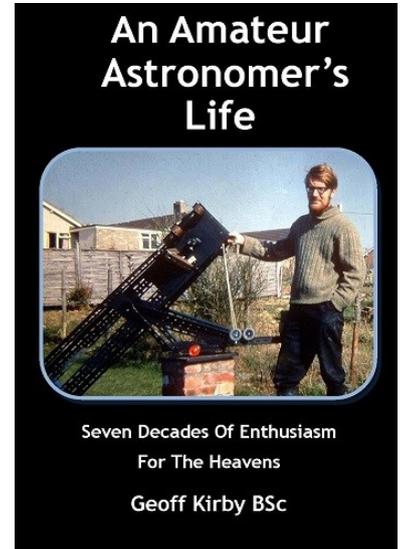
## Cosmic record (continued)

after the Big Bang, and the hot radiation from young stars doesn't ionize the majority of the universe until 550 million years have passed. In most directions, this galaxy would be invisible, as the neutral gas would block this light, the same way the light from the center of our galaxy is blocked by the dust lanes in the galactic plane. To see farther back, to the universe's first true galaxies, it will take the James Webb Space Telescope. Webb's infrared eyes are much less sensitive to the light extinction caused by neutral gas than instruments like Hubble. Webb may reach back to a redshift of 15 or even 20 or more, and discover the true answer to one of the universe's greatest mysteries: when the first galaxies came into existence!

## Shameless plug...

Club member Geoff Kirby has written a book "An Amateur Astronomer's Life" summarising his seventy years' experience as an amateur astronomer. Details can be seen at [www.geoffkirby.co.uk/Books](http://www.geoffkirby.co.uk/Books) and a 75 page sample of the book can be downloaded from that website to whet your appetite to buy a copy.

Geoff will be bringing signed copies to the next and future WAC meetings. A First Edition Harry Potter book signed by JK Rowling recently sold for \$1.8 million so why not buy a signed copy of my book and – maybe - sell it for a fortune in the future? Geoff will be donating all proceeds from his book sales at WAC meetings to Bob Mizon for the Commission for Dark Skies.



## Members Featured Images

Brave attempts by WAC members to view the Transit of Mercury from Dorset. The flat grey skies and frustrated expression says it all!



Taken by John Gifford from a pub car park in Lincs. Canon 1000D, 300mm lens, 1/2000 @ f8, 800ASA, mylar filter.



North of Hadrian's Wall the skies were ideal for all day imaging. Images by S Karl taken with a Lunt60 THa DS and Skynyx 2.1.

