

WEYMOUTH ASTRONOMY

Sky Watcher

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Trips / Events

Ideas for trips
and events
always
welcome!



- ◆ <http://www.wessex-astro.org.uk/programme.php?year=durlston>
- ◆ 14 Dec Durlston Country Park Public Event—Geminid meteors, galaxies, star clusters, Autumn and Winter Constellations
- ◆ 19 Dec CADAS—Christmas Social and Members Short Talks

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:

The 2019 programme is being finalised with dates and speakers to be available soon.

Why don't you volunteer to give a short talk? What part of astronomy inspires you? Pick a favourite object to speak on perhaps. Or a space mission?

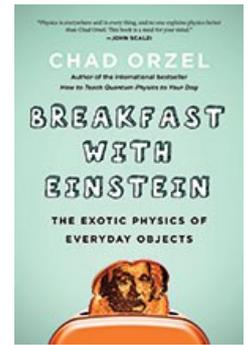
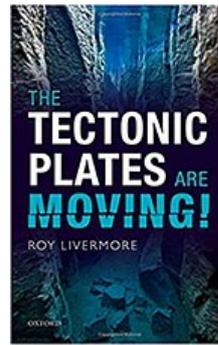
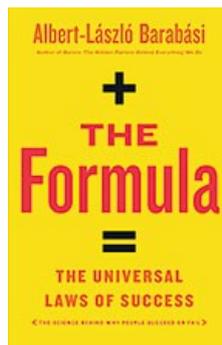
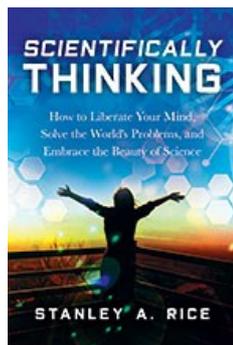
More to come!!

WAC News—

'Tis that time for gift giving to your favourite armchair scientist. Physics today has some interesting recommendations to keep our minds active during the dark, cold nights of winter. When it is not clear out for some observing of course! Their website has brief overviews of these interesting volumes. Perhaps something will catch your eye! The Tectonic Plates are Moving looks right up my alley. It is this aspect of geophysics that ignited a scientific passion from quite young. Looking forward to detecting plate tectonics on other worlds...hopefully soon!

https://physicstoday.scitation.org/doi/full/10.1063/PT.3.4096?utm_source=Physics%20Today&utm_medium=email&utm_campaign=10088186_NQ%20-%20December%202018&dm_i=1Y69,6083E,E1OC7F,NJG3K,1#s2

Until next ~~month~~—year, Happy holidays to All! ~SK



NASA Night Sky Notes: Observe Apollo 8's Lunar Milestones by David Prosper

December marks the 50th anniversary of NASA's Apollo 8 mission, when humans first orbited the Moon in a triumph of human engineering. The mission may be most famous for "Earthrise," the iconic photograph of Earth suspended over the rugged lunar surface. "Earthrise" inspired the imaginations of people around the world and remains one of the most famous photos ever taken. This month also brings a great potential display of the Geminids and a close approach by Comet 46P/Wirtanen

You can take note of Apollo 8's mission milestones while observing the Moon this month. Watch the nearly full Moon rise just before sunset on December 21, exactly 50 years after Apollo 8 launched; it will be near the bright orange star Aldebaran in Taurus. The following evenings watch it pass over the top of Orion and on through Gemini; on those days five decades earlier, astronauts Frank Borman, Jim Lovell, and Bill Anders sped towards the Moon in their fully crewed command module. Notice how the Moon rises later each evening, and how its phase wanes from full on Dec 22 to gibbous through the rest of the week. Can you imagine what phase Earth would appear as if you were standing on the Moon, looking back? The three brave astronauts spent 20 sleepless hours in orbit around the Moon, starting

on Dec 24, 1968. During those ten orbits they became the first humans to see with their own eyes both the far side of the Moon and an Earth-rise! The crew telecast a holiday message on December 25 to a record number of Earthbound viewers as they orbited over the lifeless lunar terrain; "Good night, good luck, a merry Christmas and God bless all of you - all of you on the good



Caption: Earthrise, 1968. Note the phase of Earth as seen from the Moon. Nearside lunar observers see Earth go through a complete set of phases. However, only orbiting astronauts witness Earthrises; for stationary lunar observers, Earth barely moves at all. Why is that?

Credit: Bill Anders/NASA



Apollo 8 (more!)

Earth." 50 years later, spot the Moon on these holiday evenings as it travels through Cancer and Leo. Just two days later the astronauts splashed down into the Pacific Ocean after achieving all the mission's test objectives, paving the way for another giant leap in space exploration the following year.

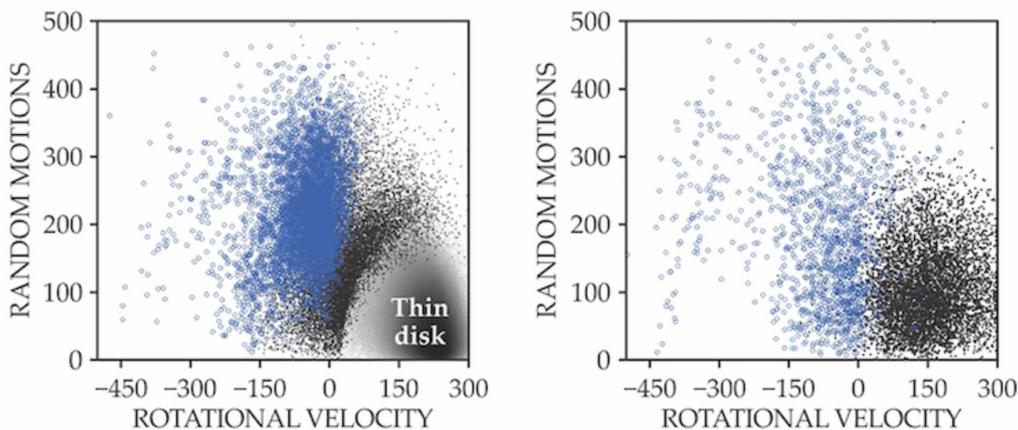


An ancient merger helped form our galaxy by Alex Lopatka

PHYSICS TODAY

Today, the merger of two massive galaxies is relatively uncommon. But the probability of an event may have been higher 12 billion to 13 billion years ago, when the Milky Way first formed, because the universe was smaller. Now two astronomers, Giuliano Iorio and Vasily Belokurov (both at the University of Cambridge), and a team led by Amina Helmi (University of Groningen) have interpreted new evidence that suggests the Milky Way merged with a smaller galaxy long before the birth of our solar system.

Although the idea of a large galaxy merging with the Milky Way has been considered before, the *Gaia* mission's release of its second star catalog in April has provided researchers with new data, including celestial positions for 1.7 billion stars and parallaxes and proper motions for 1.3 billion of them. Some stars are in the galactic plane, a disk about 30 kiloparsecs in diameter and 0.3 kpc thick, and some are found in the halo, a diffuse sphere of stars about 30 kpc across that envelops the galactic plane. Iorio and Belokurov focused on a collection of stars located in the halo and far away from our solar system. Helmi's team selected a nearby star sample, also in the halo, that is within 2.5 kpc of our sun.

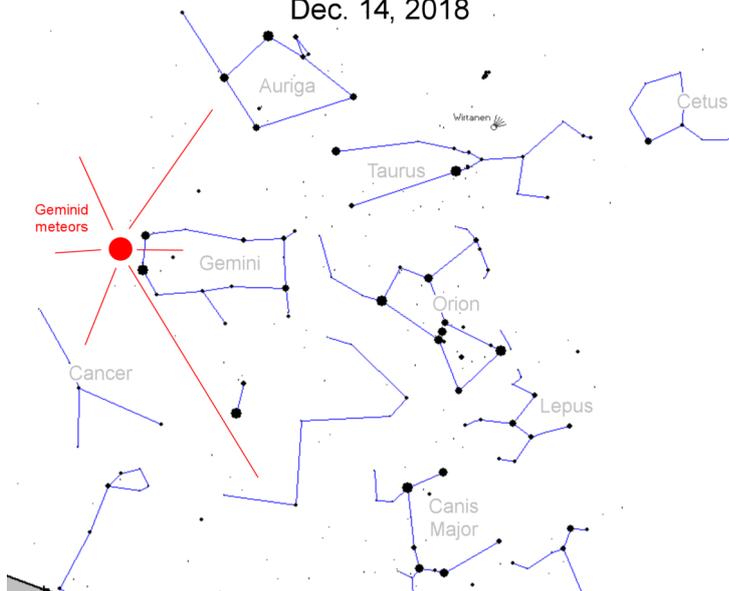


The stellar-density observations analyzed by Iorio and Belokurov indicate that the inner halo was stretched. According to Belokurov, that distortion in shape suggests that a massive satellite galaxy could have merged with the Milky Way. Additionally, the proper motion of the stars implies a significant radial-velocity component. Based on kinematic model results, that motion far away from the galactic center would be expected after a collision. Helmi's group compared the measured velocity distribution of stars (km/s) in the left panel with that of a merger simulation event in the right panel. The qualitative agreement suggests a large galaxy merged with the Milky Way. Earlier chronological modeling using the chemical abundances of iron and other elements in the stars indicates that the event happened about 10 billion years ago. And the velocity and chemical abundance observations suggest that the colliding mass was about 25% the mass of the Milky Way. (G. Iorio, V. Belokurov, *Mon. Not. R. Astron. Soc.*, 2018, doi:10.1093/mnras/sty2806; A. Helmi et al., *Nature* 563, 85, 2018; thumbnail credit: ESO/S. Brunier.)

Lots to see this weekend! by Sheri Lynn Karl

Wishing for clear skies... On the 14th December is when the Geminid Meteor shower is expected to peak. In addition, in the same stellar quadrant as the radiant of the Geminid meteor shower, is the approaching 5th magnitude Comet 46P/Wirtanen. Binoculars are helpful in light polluted skies.

looking southeast @ 10 pm local time
Dec. 14, 2018



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