



AU AstroNews

The Newsletter of the Astronomical Unit

August 2025

Sponsored by the Santa Barbara Museum of Natural History

OUTREACH SUMMARY

Since the last newsletter, certified SBAU/SBMNH volunteers Brandy Ackerman, Andy Allen, Melissa Cohen, Tim Crawford, Tessa Flanagan, Brian & Morgan Green, Art Harris, Ronnie Herron, Sean & Mary Kelly, Ila Jade Komasa & helpers, David Larson, Pat & Chuck McPartlin, Mary Megrant, Janet & Martin Meza, Bruce Murdock, Edgar Ocampo, Javier Rivera, Michael Robertson, Charles Schueler, Tom Totton, Chuck Watson, Tom Whittemore, Lee Wilkerson, Jerry Wilson & Pat Forgey, and Andre Yew showed the sky to **1950** guests. Rachel Freed, Dr. Jen Ito, and Sohini Sengupta helped out.

SBAU volunteers must have undergone the SBMNH background check, and conform with the SBMNH policies for dealing with the public, to participate in outreach activities. To get vetted, contact SBMNH Volunteer Manager Rebecca Coulter <rcoulter@sbnature2.org>. It's quick and painless.

OUTREACH EVENTS FOR AUGUST

Friday, August 1, 7 PM

Short planetarium show, followed by the monthly SBAU meeting at 7:30 in Fleischmann Auditorium at SBMNH. This will be a hybrid meeting, also on Zoom. Watch your email or find the link on the SBAU web page. Our speaker will be UC Riverside Professor of Planetary Astrophysics Dr. Stephen Kane, who will discuss the factors that contribute to planetary habitability.

Saturday, August 2, setup 8 PM

Slide show and telescopes for campers at Cachuma Lake. We set up in the parking lot for the Fireside Theater.

Sunday, August 3, midnight to 4 AM

Titan's shadow transits Saturn.

Tuesday, August 5, setup 7 PM

Telescope Tuesday at the Camino Real Marketplace, in the plaza by the theater.

Friday, August 8, setup 7 PM

Telescopes for campers at Refugio State Beach. We set up in the day use parking lot, at the SW side of the campground.

Saturday, August 9, 4 PM

AU monthly planning meeting on Zoom. Watch your email for the link.

Saturday, August 9, setup 7:30 PM

Monthly Public Star Party at SBMNH, next to Palmer Observatory, 8:30 to 10 PM.

Monday-Wednesday, August 11-13, 4 AM

Venus and Jupiter in a brilliant predawn conjunction.

Tuesday, August 12, all night

Peak of the Perseid Meteor Shower, spoiled a bit by the Moon.

Wednesday, August 13, setup 8 PM

Telescopes for campers at Carpinteria State Beach. We set up on the sidewalk towards the beach from the entry kiosk.

Friday, August 15, setup 8 PM

Monthly Public Telescope Night at Westmont, at their Keck Observatory, next to the athletic fields.

Saturday, August 16, setup 8 PM

Slide show and telescopes for campers at Cachuma Lake. We set up in the parking lot for the Fireside Theater.

Friday, August 22, setup 7 PM

Star Party at Los Flores Ranch Park, 6245 Dominion Road in Santa Maria. We enter via a dirt road to the north past the main entrance - look for the sign.

Saturday, August 23, setup 8 PM

Slide show and telescopes for campers at Cachuma Lake. We set up in the parking lot for the Fireside Theater.

Friday, August 29, setup 7 PM

Telescopes for campers at Refugio State Beach. We set up in the day use parking lot, at the SW side of the campground.

Saturday, August 30, setup 8 PM

Slide show and telescopes for campers at Cachuma Lake. We set up in the parking lot for the Fireside Theater.

FROM THE PRESIDENT

Jerry Wilson

Hubble Tension (Part 2)

The discrepancy in neutron lifetime measurements has sparked intense debate among physicists, with two primary methods yielding different results: beam experiments measure 887.7 seconds, while bottle experiments report 878 seconds. Several theories attempt to explain this discrepancy.

1. Multiple Elastic Collisions: One possible explanation is the increase in decay probability due to multiple elastic collisions between neutrons and between neutrons and trap walls. This effect could be more pronounced in smaller traps, leading to a higher decay rate and shorter measured lifetime.

2. Invisible Hydrogen Atoms: Another theory proposes that neutrons sometimes decay into a hydrogen atom and a neutrino (instead of a proton, an electron and a neutrino), which could pass through detectors unnoticed. This would affect the beam experiment

measurements, as they rely on detecting protons.

- **3. Dark Matter:** Some theories suggest that neutrons might decay into dark matter particles, which wouldn't be detectable by current experiments. However, experiments searching for signs of dark matter decay have yielded inconclusive results.
- **4. Mirror Matter:** Another hypothesis proposes that neutrons could oscillate into mirror neutrons, which would exist in a parallel universe. Experiments are being designed to test this theory.

The Hubble tension refers to the discrepancy between the measured expansion rate of the universe and the predicted rate based on the standard model of cosmology. There are two primary methods of measuring the expansion rate:

- 1. Early Relic Methods:** These involve looking at the light from the cosmic microwave background radiation, a remnant of the Big Bang. This approach yields a value of around 67 km/s/Mpc.
- 2. Distance Ladder Methods:** These involve building a cosmic distance ladder by measuring distances to nearby galaxies using various techniques, such as: Cepheid variables, the Tip of the Red Giant Branch, J-Region Asymptotic Giant Branch stars, and Type Ia supernovae. This approach yields a value of around 70-73 km/s/ Mpc.

Recent studies using the James Webb Space Telescope (JWST) have confirmed the accuracy of the Hubble Space Telescope's measurements, suggesting that the discrepancy might hint at unknown cosmic phenomena. However, a new study led by Wendy Freedman found that the universe's expansion rate measured by Cepheid variables versus the cosmic background has overlapping error bars, which could indicate that the tension might be resolving. The measured expansion rate in this study is around 70.4 km/s/ Mpc, statistically consistent with the cosmic microwave background measurement of 67.4 km/s/ Mpc.

Some possible explanations for the Hubble tension include:

1. **New Physics Beyond the Standard Model:** The tension could be indicative of new physics beyond the standard model of cosmology, such as modifications to dark matter or dark energy.
2. **Measurement Errors:** The discrepancy might be due to unaccounted-for errors or uncertainties in the measurements.
3. **Unknown Cosmic Phenomena:** The Hubble tension could be hinting at unknown cosmic phenomena that affect the expansion rate of the universe.
4. **The resolution of the Hubble tension** remains an open question, with scientists continuing to refine their measurements and explore new explanations.

MY ASTRONOMY JOURNEY

Tim Crawford

I have a kind of nice story of how I became interested in Astronomy. When I was young I enjoyed science and math. They had hard answers, something I thought was interesting and tangible. Little did I know that things change over time. We get to know more as our ability to understand evolves.

My parents bought me a couple of books on Astronomy but by far my favorite was the Golden Book of Astronomy. I tell people at outreach that this book told me that Jupiter had 12 moons and Saturn 9! Ha! Little did I know. Actually, little did we know.

I lived up on a hill by our TV studio when I was young. My father was a sea captain. He took me outside one night and, putting me up on his knee, pointed to stars in the sky. He told me that he used some of the stars to navigate his ship! I could only imagine. How could this be?

I'd take my father's binoculars up on our roof that had a shallow pitch. I'd spread a blanket and look up at the stars. It gave me a sense of well being and tranquility. I liked that feeling.

My grandmother knew a man in the neighborhood who was an amateur astronomer and got permission

for me to come to his house and look at his telescope. Before we went in, she scared me and told me I'd better behave and not touch a thing! So, I balked and didn't go in at all. I thought it might be best. His name was Captain Adair. That's all I knew at the time.

Years went by...my interest in the stars waxed and waned. I knew there was a place at the Museum of Natural History that held star parties. I threatened to go, but never did for years. Finally one night I did go! A man showed me the Andromeda Galaxy through binoculars. I stood on the wooden seats in the pit area and was wild with excitement. One man in the pit had a huge telescope. He showed me a few things and then, late in the session that night, showed me the Veil Nebula! That was Joe Doyle and his 12.5" reflector I came to name "the beast". It was heavy!

I went over to a man and asked if he knew of a galaxy known as the Whirlpool? He smiled and turned on a red light and showed me his tee shirt. "This one?" he asked. His shirt had an image of M51, the Whirlpool. That man was Chuck McPartlin. That was it! I went to the front and asked a lady how much it cost to join the club. She told me there was no hurry but, I took off, went to get some cash, drove back and joined! I never looked back. That lady was Pat McPartlin. That was over 20 years ago I think.

We got a new member a couple of years later who asked one night at a meeting if anyone had a desire to learn how to grind a telescope mirror? I had bought a telescope mirror and all the makings years earlier but never could understand it. Now, I had the chance. That man is Tom Whittemore, who is editor of our newsletter. I cannot tell you how grateful I am to Tom. This gift of learning to make a telescope mirror combined most of the passions I have in life. Science, math, woodworking, and innovation in putting things together. He helped me to finish the 8" mirror I bought way back when I was 20 years old. I got the whole kit from Douglas Telescopes downtown for \$20!

To me, the best was yet to come. I mentioned all this one night to Chuck some time later and re-told this story. When I came to the part where I missed Captain Adair, he exclaimed, “ Captain Crutchfield Adair?!” I said yes. He told me that Crutchfield Adair was an original member of the Astronomy club that evolved into the SBAU!!

So, in my mind’s eye, I had now come full circle and indeed in some mystical way actually now visited Captain Adair.... Just in an oblique way. Still to me, this was very fulfilling and somewhat fateful!



Tim Crawford's "crafted from scratch" sky window.

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AU annual membership rate: \$20

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AUGUST 2025						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 FQ MOON GENERAL MEETING 7PM	2 CACHUMA LAKE 8PM
3	4	5 CAMINO REAL MARKETPLACE 7PM	6	7	8 REFUGIO STATE BEACH 7PM	9 FULL MOON ZOOM PLANNING MEETING 4PM STAR PARTY SETUP 7:30PM
10	11	12 PERSEID METEOR SHOWER	13 CARPINTERIA STATE BEACH 8PM	14	15 LQ MOON WESTMONT 8PM	16 CACHUMA LAKE 8PM
17	18	19	20	21	22 NEW MOON LOS FLORES RANCH PARK 7PM	23 CACHUMA LAKE 8PM
24	25	26	27	28	29 REFUGIO STATE BEACH 7PM	30 FQ MOON CACHUMA LAKE 8PM
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