



# AU AstroNews

## The Newsletter of the Astronomical Unit

September 2022

Sponsored by the Santa Barbara Museum of Natural History



STEAM students gather for some science tips at a recent Hope School outreach. Photo credit: Tom Totton.

### OUTREACH SUMMARY

To get full outreach credit, SBAU volunteers must be fully vaccinated and boosted, and have undergone the SBMNH background check to participate in outreach activities. To get vetted, contact SBMNH Volunteer Manager Rebecca Coulter <[rcoulter@sbnature2.org](mailto:rcoulter@sbnature2.org)>. It's quick and painless.

Since the last newsletter, certified SBAU/SBMNH volunteers Brandy Ackerman, Krissie Cook, Tim Crawford, Tessa Flanagan & Duff Kennedy, Art Harris, Sean Kelly, Pat & Chuck McPartlin, Janet & Martin Meza, Edgar Ocampo, Javier Rivera, Charles Schueler, Tom Whittemore, and Andre Yew showed the sky to 1786 guests. Chris Larson, Natalie & Brad Mechling, and Peggy O'Rork also helped out.

### OUTREACH EVENTS

#### FRIDAY, SEPTEMBER 2, 7:30 PM

AU monthly meeting on YouTube Live. SBMNH Astronomy Programs Specialist Krissie Cook and Dr. Rocio Kiman of CalTech will speak about "Krissie & Rocio's Grand Tour of the J. Webb Up to now."

#### SATURDAY, SEPTEMBER 3, SETUP 7:30 PM

Slide show and telescopes for campers at Cachuma Lake. We set up in the field at Dakota Plains.

#### SUNDAY, SEPTEMBER 4, SETUP 7 PM

Telescopes for campers at Refugio State Beach, setup in the southwest corner of the day use parking lot.

#### TUESDAY, SEPTEMBER 6, SETUP 7 PM

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

#### SATURDAY, SEPTEMBER 10, 6 PM

Monthly AU planning meeting in the Palmer Observatory Circle at SBMNH.

#### SATURDAY, SEPTEMBER 10, SETUP 7 PM

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

#### FRIDAY, SEPTEMBER 16, 7 PM

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

#### SATURDAY, SEPTEMBER 17, SETUP 7 PM

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

#### SATURDAY, SEPTEMBER 17, SETUP 6 PM

Star party at Los Flores Ranch Park in Santa Maria, 6245 Dominion Road. Entry to the observing area is the next entrance toward Santa Maria from the main entrance.

#### THURSDAY, SEPTEMBER 22, 6:04 PM

Autumnal Equinox for the Northern Hemisphere.

#### THURSDAY, SEPTEMBER 22 TO SUNDAY, SEPTEMBER 25

Annual CalStar gathering at the Lake San Antonio overflow camping area.

### SATURDAY, SEPTEMBER 24, SETUP 7 PM

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

### MONDAY, SEPTEMBER 26

Jupiter, at opposition, rises at sunset and is up all night.



“I’m not sure, Krissie. Our telescopes may not be powerful enough to capture details in your Hickson Group list.” Photo credit: Tom Totton.

### FROM THE PRESIDENT

Jerry Wilson

Astronomy, as a science, slowly evolved, step-by-step, from ancient times out of a need to describe the cycles of nature. The earliest were observations that would detail our progress through both the day and night. Positions of the Sun, Moon and prominent stars were correlated with the availability of food, particularly when humanity shifted from hunter-gathering to farming.

Structures were erected in ancient times to measure celestial events, such as sundials to time the days, and structures such as Stonehenge to monitor major celestial locations. There was also a drive to understand and describe nature itself and our place in it. Instruments were devised to more accurately map the stars and the motion of wandering stars. These efforts reached their pre-telescope high point with the development and use of the quadrant. These quadrants take many forms – from monumental structures to

smaller instruments. A sextant is basically a hand held Quadrant.

The pinnacle of a Quadrant’s design and use was realized by Tycho Brahe at his Uraniborg Observatory in Denmark. Tycho generated an extensive and highly accurate catalog of stellar positions of the northern hemisphere along with positions of wanderers, or planets. His impressive catalog became available to Johannes Kepler, a German mathematician with an interest in astronomy, who took the next key step. Using Tycho’s data base, Kepler found a pattern and was able to synthesize an accurate description of planetary motion in a Sun-centered system. His key step was to go from data to information.

His resulting three laws describe planetary motion. As important a step as it was, it was a description of planetary motion, but not an explanation of this motion. In other words, it was empirical information that had no particular physical mechanism. The first individual to supply an explanation of why Kepler’s laws applied was Sir Isaac Newton, who generated his law of Universal Gravitation.

Though Kepler and Newton’s laws would later be tweaked a bit by Albert Einstein’s General Relativity Theory, they remain the basis of being able to send astronauts to the Moon and landers to Mars. Our space program is based on 17th century science and all the incremental steps that preceded it.



“That’s right, Tim. You can set the collimation by focusing on this button on my jacket.” Photo credit: Tom Totton.



“Oh, Boy. I can’t remember where the mirror cell goes....” Photo credit: Tom Totton.



“Get this one, Quackie, a duck walks into a bar....” Photo credit: Tom Totton.

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AU **AstroNews**, the monthly publication of the **Astronomical Unit (AU)**, is mailed to the AU membership. For publishing consideration for the next month, submit astronomical items by the 20th of the current month!

**AU annual membership rates:**  
**Single = \$20 Family = \$25**

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# The Astronomical Unit

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## September 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2 AU MONTHLY MEETING ON YOUTUBE 7:30 PM	3 FQ MOON CACHUMA LAKE 7:30 PM
4 REFUGIO STATE BEACH 7PM	5	6 CAMINO REAL MARKETPLACE 7PM	7	8	9	10 FULL MOON PLANNING MEETING 6PM SBMNH STAR PARTY 7PM
11	12	13	14	15	16 WESTMONT PUBLIC STAR PARTY 7PM	17 LQ MOON LOS FLORES 6PM CARPINTERIA STATE BEACH 7PM
18	19	20	21 AUTUMNAL EQUINOX CALSTAR	22 CALSTAR	23 CALSTAR	24 CARPINTERIA STATE BEACH 7 PM CALSTAR
25 NEW MOON  CALSTAR	26 JUPITER AT OPPOSITION	27	28	29	30	