



AU AstroNews

The Newsletter of the Astronomical Unit

August 2022

Sponsored by the Santa Barbara Museum of Natural History



Tim Crawford shares a view of the sun in white light to a visitor at a recent Astronomy Day event at the Camino Real Marketplace. 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>. It's quick and painless.

Since the last newsletter, certified SBAU/SBMNH volunteers Brandy Ackerman, Krissie Cook, Joe Doyle, Tessa Flanagan & Duff Kennedy, Sean Fox, Art Harris, Paul McClain, Pat & Chuck McPartlin, Janet & Martin Meza, Edgar Ocampo, Javier Rivera, and Tom Whittemore showed the sky to 1653 guests. Steven Faulstich, Morgan & Brian Green, Ken Kihlstrom, Natalie & Brad Mechling, and Peggy O'Rork also helped out.

OUTREACH EVENTS

TUESDAY, AUGUST 2, SETUP 7 PM
Telescope Tuesday at the Camino Real Marketplace, in the plaza by the theater.

FRIDAY, AUGUST 5, 7:30 PM

The SBAU monthly meeting will be on YouTube again this month. The speaker will be Claire Williams of UCLA, speaking on "Recent Supersonic Progress on the Foundation of the First Structures in the Universe." Check sbau.org for the link

SATURDAY, AUGUST 6, SETUP 7:30 PM

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

WEDNESDAY, AUGUST 10, SETUP 8 PM

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

AUGUST 12-13, PERSEID METEOR SHOWER PEAK RUINED BY MOONLIGHT.

FRIDAY, AUGUST 12, SETUP 8 PM

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

SATURDAY, AUGUST 13, 6 PM

Monthly AU planning meeting at SBMNH, outdoors at Palmer Observatory.

SATURDAY, AUGUST 13, SETUP 7 PM

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

AUGUST 14, SATURN AT OPPOSITION, RETURNS TO OUR NIGHT SKY!

FRIDAY, AUGUST 19, SETUP 7 PM

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

SATURDAY, AUGUST 20, SETUP 7:30 PM

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

WEDNESDAY, AUGUST 24, SETUP 8 PM

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

FRIDAY, AUGUST 26, SETUP 7 PM

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

SATURDAY, AUGUST 27, SETUP 7 PM

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

FROM THE PRESIDENT

Jerry Wilson

James Webb is on station and returning stunning images of the IR universe. A new, and potentially farthest-away galaxy has already been spotted. Farthest-away and farthest back in time. The candidate galaxy is called GLASS-z13 and appears to exist just 300 million years after the Big Bang, according to initial research. The Webb was able to capture an image of this galaxy because of two unique advantages of the telescope. First is that it is the largest telescope we have put in space, and the second is that it can focus and detect light from longer wavelength photons than previous imagers.

The Cosmic Microwave Background (CMB) is an image of the sky from 300,000 years after the big bang but before galaxies and stars appeared. A different span of time than the Webb is looking at. Using microwave photons that have much longer wavelengths than the deep IR of the Webb captured the CMB.

In either case we are looking back in time roughly 13.8 billion years. So how did the universe get so big that it takes 13.8 billion years for light to get to us anyway? That, of course, is the question of what exactly is the Big Bang and the source of an Excedrin headache. The idea is that the universe expanded from something smaller and very rapidly. Far more rapidly than the speed of light, so we only see back 13.8 billion years. But the rapid expansion

has continued so that the “right now” light from an estimated 46 billion light years is on its way to us. Don’t hold your breath. The famous speed limit of “nothing can travel faster than the speed of light” applies to information inside the universe. It does not apply to the boundary of the universe itself. If it has a boundary.

But it might be even bigger. The 46 B light year radius is predicated on a constant inflation right from the get-go. Recent measurements indicate that inflation is not constant but speeding up so the universe may be much bigger yet.

STAR STORIES

Dschubba

In last month’s “Star Story” we focused our attention on the bright red supergiant, Antares. This month we will stay in Scorpius and visit the blue giant Dschubba (pronounced shoe-ba) in the upper part of the constellation. Dschubba takes its name from the Arabic word for forehead and now lies in the scorpion’s claw section. In ancient times Scorpius extended all the way into Libra with its claws. But, in 1930, the International Astronomical Union reorganized the official 88 constellations and stripped Scorpius of its original claws – Zubenelgenubi and Zubeneshamali – the Southern Claw and the Northern Claw. These two stars now assist in shaping the Scales – just to the West of Scorpius.



Dschubba is a moderately bright star with an apparent magnitude of 2.28. For comparison, our North Star, Polaris, shines at magnitude 1.96 which makes Dschubba just a bit dimmer than Polaris in the night sky. And, at a distance of about 491 light years, the light you see beaming from Dschubba tonight left the star in the year 1531. A lot has happened here on Earth since 1531. What has the starlight been doing? Some of it has been kidnapped. There is so much dust and gas between us and the star that half of the light has been reflected and absorbed in the past 491 years. So, what we see is only half as bright as it would be if we had a clear view.

Dschubba is a [type B0 star](#), meaning it is hot, bright and massive. At 22,000 Kelvins, it is about four times as hot as our sun. It outshines our sun by a factor of 14,000 and is thirteen times as massive.

Finally, Dschubba has not one but two types of variability. First, it shows irregular small brightness variations. These variations happen every few days and are probably due to bright spots or clouds of gas between the star and us. The second type of variability is eruptive and unpredictable. Dschubba rotates quickly. At the equator it reaches a rotational speed some 90 times faster than our sun. Dschubba rotates once every 45 hours. Our sun rotates once in about 27 days. And so Dschubba gets itself into trouble. Astronomers believe that, occasionally, the star throws off material that forms a disk around its equator. This would be a big disk, 150 times larger than our sun. It's this disk that causes changes in the brightness of Dschubba. I remember, about 25 years ago, my former astronomy club, the SJAA, asked for volunteers to monitor this unusual behavior. Some members of the SJAA did document its sudden changes in brightness and sent their data to the AAVSO.

As you scan the night sky – maybe with a pair of binoculars – remember that not all the stars you see are steady twinklers.

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August 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 CAMINO REAL MARKETPLACE 7PM	3	4 FQ MOON	5 AU MONTHLY MEETING ON YOUTUBE 7:30 PM	6 CACHUMA LAKE 7:30 PM
7	8	9	10 CARPINTERIA STATE BEACH 8 PM	11 FULL MOON	12 REFUGIO STATE BEACH 8 PM	13 PLANNING MEETING 6PM STAR PARTY 7PM
14 SATURN AT OPPOSITION!	15	16	17	18	19 LQ MOON WESTMONT PUBLIC STAR PARTY 7PM	20 CACHUMA LAKE 7:30 PM
21	22	23	24 CARPINTERIA STATE BEACH 8 PM	25	26 REFUGIO STATE BEACH 7 PM	27 NEW MOON CACHUMA LAKE 7PM
28	29	30	31			