



AU AstroNews

The Newsletter of the Astronomical Unit

May 2023

Sponsored by the Santa Barbara Museum of Natural History



Tim Crawford demonstrates how to make a precision mirror.
Photo credit: Tom Totton.

OUTREACH SUMMARY

Since the last newsletter, certified AU volunteers Brandy Ackerman, Krissie Cook & Quasars, Raf Cottom, Tim Crawford, Joe Doyle, Art Harris, Sean Kelly & SBCC students, Pat & Chuck McPartlin, Janet & Martin Meza, Bruce Murdock, Javier Rivera, Tom Totton, and Andre Yew showed cool stuff in the sky to **1045** people.

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

THURSDAY, MAY 4, SETUP 7 PM

Telescopes for the Ritz-Carlton Bacara. We set up on the blufftop lawn by the Angel Oak restaurant.

FRIDAY, MAY 5, 7PM

Quick planetarium show, then our monthly meeting at 7:30 in Farrand Auditorium at SBMNH. This will be a hybrid meeting, also on Zoom. Watch your email or get the link from the webmaster. Our speaker will be Dr. Joseph Farah of Las Cumbres

Observatory, on Imaging the Black Hole at the Center of Our Galaxy.

THURSDAY, MAY 11, SETUP 4:30 PM

Rocks from Space for Science Night at El Camino School, 5020 San Simeon Drive in Santa Barbara.

SATURDAY, MAY 13, 5 PM

AU monthly planning meeting on Zoom. Watch your email for the link, or check the SBAU web page.

SATURDAY, MAY 13, SETUP 7:30 PM

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

TUESDAY, MAY 16, SETUP 8 AM

Solar scopes from 9 AM to Noon for Santa Barbara High School students at the Westmont Observatory.

THURSDAY, MAY 18, SETUP 7 PM

Telescopes for the Ritz-Carlton Bacara. We set up on the blufftop lawn by the Angel Oak restaurant.

FRIDAY, MAY 19, SETUP 7 PM

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

TUESDAY, MAY 23, SETUP 7 PM

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

THURSDAY, MAY 25, SETUP 7 PM

Telescopes for a Moon Night for 5th graders at Hope School, 3970 La Colina Rd. We set up on the blacktop around back, with access through the end of their parking lot.

SATURDAY, MAY 27, SETUP 7:30 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.

GRAND CANYON STAR PARTY

The annual Grand Canyon Star Party will be on June 10-17 this year. Dark! For details, see:

<https://www.nps.gov/grca/planyourvisit/grand-canyon-star-party.htm>

2024 ASTRONOMY CALENDARS!

By Pat McPartlin

Yes, time to think about 2024 Astronomy calendars! As Merch Manager, I've ordered these in years past. They are beautiful, full-color paper calendars (no batteries needed), and make great gifts. The club sells these for \$10 each, which is a break from store prices of \$12.95, at least. Please email me if you're interested by Tuesday, 5/16/23: merchmgr@sba.u.org Or, call and leave a message at 805-964-8201.

If I can sell 20 or more, then I will place the order this summer and have them in time for the October 2023 SBAU meeting, Friday, 10/6/23.

Let me know! Thank you.

FROM THE PRESIDENT

Jerry Wilson

There is an interesting variable star in the eastern sky in the evenings this time of year, called R Corona Borealis. It is a low-mass yellow [supergiant](#) star in the constellation of [Corona Borealis](#) and is the prototype of the [R Cor Bor class](#) of [variable stars](#). These stars fade by several [magnitudes](#) at irregular intervals. R Coronae Borealis itself normally shines at approximately magnitude 6, just about visible to the [naked eye](#), but at intervals of several months to many years, fades suddenly to as faint as 15th magnitude. Over successive months it then gradually returns to its normal brightness, giving it the nickname "reverse [nova](#)", after the more common type of star which rapidly increases in brightness before fading.

These sudden drops in brightness have led to this star being referred to as a reverse nova. Whereas a nova suddenly brightens very quickly and then slowly fades away, R Corona Borealis seems to turn off suddenly and then slowly turn back on.

This variable has a different composition than our sun, even though being yellow means it has a similar surface temperature to our sun, about 5,000 to 6,000 degrees Kelvin. Our sun is at the first stage of a star's life, it is burning hydrogen to produce helium. R Corona Borealis has passed through this first stage and its core is essentially a

ball of helium fusing to form higher elements including carbon. Helium burning produces more energy so the star is bigger.

Computer modeling of the spherical harmonics of a gravitationally held ball of helium indicate oscillations of about 10% brightness with periods of 40 to 50 days should be detectable. These oscillations are observed in the light curve.

R Corona Borealis also produces copious amounts of carbon which circulates to the surface where it is periodically blown off the star as a cloud of soot. The cloud is extremely effective at blocking emitted light, so the star suddenly dims until its stellar wind blows the soot away.

This series of events can be observed by recording brightness changes over many months or years using the photometry option on camera control software. Have fun.

ARTS CORNER

"Ladder to the Pleiades"

Michael P. Branch

(from "Let There be Night")

My daughter, Hannah Virginia, who recently turned three years old, is teaching me about the stars. Far from being a liability to her, my own profound astronomical ignorance has turned out to be her boon and, through her, a boon to me as well. The most important thing the kid has taught me about the stars is the brilliant, open secret that if you don't go outside and look up, you won't see anything. Every night before bedtime she takes my hand and insists that I get my bedraggled self up and take her outside to look at the stars. If this sounds easy, ask yourself if you can match her record of going out every single night to observe the sky – something she has done without fail for more than a year now. Calculate, for example, your own ratio of commuting to stargazing, or TV watching to stargazing. It seems to me that Hannah has accomplished something impressive: she has perfect attendance at the one-room schoolhouse of night. That she has somehow brought her celestially illiterate father along is more amazing still.

Following the inexorable logic that makes a kid's universe so astonishing, Hannah insists on looking for stars no matter the weather. At first I attempted

the rational, grown-up answer: “It just isn’t clear enough to see anything tonight, honey.” But her response, which is always the same, is so emphatic and ingenuous that it is irresistible: “Dad, we can always check.” And so we check. And it is when we check that the rewards of lifting my head up and out of another long day come into focus. One cold and windy night we stepped out and discovered, through a momentary break in an impossibly thick mat of clouds, a stunning view of Sirius blazing low in the southeast. Another evening we stood in an unusual late winter fog and saw nothing – but then we heard the courtship hooting of a nearby great horned owl immediately by the distant yelping of coyotes up in the hills. At Hannah’s insistence we even stand out in snowstorms to stargaze, and while we’ve never seen any stars on those white nights, we’ve seen and felt and smelled the crisp shimmering that arrives only on the wings of a big January storm. Snow or no snow, she knows those stars are up there, and so she does easily what is somehow difficult for many of us grown-ups: she looks for them. And whether she sees stars or not, in seeking them every evening she has forged an unbreakable relation with the world-within-a-world that is night....



“All right, everyone. Sing along with me: Do, a deer, a female deer....” Photo credit: Tom Totton.

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The Astronomical Unit

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MAY 2023						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4 RITZ-CARLTON BACARA 7PM	5 FULL MOON "HYBRID" AU MONTHLY MEETING 7PM	6
7	8	9	10	11 "SCIENCE NIGHT" AT EL CAMINO SCHOOL 4:30PM	12 LQ MOON	13 ZOOM PLANNING MEETING 5PM STAR PARTY 7:30PM
14	15	16 SOLAR VIEWING AT WESTMONT FOR SBHS STUDENTS 8AM	17	18 RITZ-CARLTON BACARA 7PM	19 NEW MOON WESTMONT PUBLIC STAR PARTY 7PM	20
21	22	23 "TELESCOPE TUESDAY" AT CAMINO REAL MARKETPLACE 7PM	24	25 "MOON NIGHT" AT HOPE SCHOOL 7PM	26	27 FQ MOON LOS FLORES RANCH PARK 7:30PM
28	29	30	31			