AU AstroNews

The Newsletter of the Astronomical Unit

February 2025 **Sponsored by the Santa Barbara Museum of Natural History**

SpaceX early morning launch. Photo credit: M. O'Rourke.

Outreach Summary

In 2024, the AU held **147** outreach events, about **2,121** hours of volunteer time, with an attendance total of **12,245**. Since we began keeping records in 2003, we've reached **270,617** people. Good work and **THANK YOU** to our volunteers!

SBAU volunteers Andy Allen, Krissie Cook & Girl Scouts, Tim Crawford, Joe Doyle, Tessa Flanagan, Art Harris, Ronnie Herron, Ila Jade Komasa, David Larson, Pat & Chuck McPartlin, Janet & Martin Meza, Bruce Murdock, Edgar Ocampo, Javier Rivera, Michael Robertson, Tom Totton, Chuck Watson, Diane Welcenbach, Tom Whittemore, Lee Wilkerson, and Andre Yew showed cool stuff in the sky to **1299** people, helped by Carolyn Adams and Jen Ito & students.

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

Tuesday, February 4, setup 7 PM

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

Wednesday, February 5, setup 5 PM

Telescopes for an Astronomy Night at Cleveland Elementary School, 123 Alameda Padre Serra, up from the roundabout. We set up down on the blacktop of the playground, entered by the southwest side of the parking lot.

Friday, February 7, 7 PM

Monthly AU meeting in Fleischmann Auditorium at SBMNH. Another hybrid Zoom/in person meeting. Short planetarium show at 7 PM, followed by a talk on "The Underground Search for Dark Matter" by Dr. Chami Amarasinghe at 7:30.

Saturday, February 8, 4 PM

Monthly AU planning meeting via Zoom. Watch your email for the link.

Saturday, February 8, 7 PM

Monthly public star party at SBMNH, by the Palmer Observatory.

TUESDAY, FEBRUARY 11, SETUP 5 PM
Telescopes for Science Night at Monte Vista School, 730 N Hope Avenue in Santa Barbara. We set up in the kindergarten playground area to the southwest.

THURSDAY, FEBRUARY 13, SETUP 4 PM
Telescopes for STEAM Night at Santa Ynez Elementary School, 3525 Pine Street. We set up in their central plaza.

FRIDAY, FEBRUARY 21, 6 PM
Monthly public telescope night at Westmont's Keck Observatory, next to the athletic fields.

THURSDAY, FEBRUARY 27, SETUP 4:30 PM
Telescopes for Science Night at Ellwood School, 7686 Hollister Avenue in Goleta. We set up on the blacktop out back.

"Somewhere, something incredible is waiting to be known." This wonderful quote from Carl Sagan lies above the exit doors at the Palmer Observatory on the SBMNH campus. Photo credit: T. Whittemore.

FROM THE PRESIDENT

Jerry Wilson

As the first event of the Big Bang there was a short period of incredible inflation. The universe expanded faster than the speed of light. Way faster than the speed of light. As a matter of fact, Mel Brooks would say it was "Ludicrous speed." The very early universe can be thought of as doubling in size every 10^{-32} seconds. Assuming even a small size at 10^{-32} then at $2*10^{-32}$ it has doubled, and again at $3*10^{-32}$. It's like the old parable about the guy who asked his servant what he wanted for a reward after an important task was concluded. The servant brought out a chess board and put a penny on the first square, and then asked that each successive square be doubled in value. Since the are 64 squares on a chessboard that amounted to 2 to the 64th power on the last square. During the inflationary epoch, which lasted from around 10^{-32} seconds to 10^{-12} seconds after the Big Bang, the universe expanded exponentially, with the Hubble parameter being approximately constant.

The first thing we see of the universe is the Cosmic Microwave Background (CMB) which occurred at about 380,000 years after the start. We really cannot say what happened between 10^{-12} seconds and 380,000 years in terms of expansion, but assuming it is on the order of our post inflationary epoch value of the Hubble parameter, it is by now very large. We can see objects we date to 13.8 billion years ago, and are receding from us at near light speed. So the diameter of our observable universe is double that or 27.6 billion light years. During the 13.8 billion years it took for the light from the most distant objects to reach us they are now much farther away and traveling even faster. The current estimate is that our universe is at least 96 billion light years in diameter. Light being emitted, right now, from objects nearly a hundred billion light years away, will never reach us. The universe is expanding too fast.

When clouds turn into prisms. Ice crystals in a high cloud above Patterson Park glimmer late in the afternoon. Photo credit: T. Whittemore.

Club members strike a pose at a recent Second Saturday Outreach at the SBMNH. Photo credit: Owen Duncan

Krissie and Javier share a hug at the same Second Saturday outreach. Photo credit: Owen Duncan

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SBMNH Astronomy Programs Manager
CURRENTLY VACANT

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 rate: $20

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FEBRUARY 2025						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
						1
2	3	4 Camino Real Marketplace 7PM	5 FQ Moon Cleveland Elementary 5PM	6	7 SBAU Hybrid Meeting 7PM	8 Zoom Planning 4PM Star Party 7PM
9	10	11 Monte Vista School 5PM	12 Full Moon	13 Santa Ynez Elementary 4PM	14	15
16	17	18	19	20 LQ Moon	21 Westmont Public Star Party 6PM	22
23	24	25	26	27 New Moon Ellwood School 4:30PM	28	