



AU AstroNews

The Newsletter of the Astronomical Unit

February 2020

Sponsored by the Santa Barbara Museum of Natural History



Tim Crawford explains mirror making to a group of rapt visitors at Astronomy Day. Photo credit: Tom Totton.

FEBRUARY GENERAL MEETING

Please note: our general meeting will be held in Fleischmann Hall. Our speaker will be Steven Estrella, Engineer/Scientist at Freedom Photonics LLC, and UCSB PhD student with the Integrated Photonics Laboratory. He will educate us on the field of "Astrophotonics" for telescopes, communications, and sensing. Photonic integrated circuits may also be used for experiments involving Quantum Mechanics and Gravitation.

OUTREACH SUMMARY

Since the last newsletter, AU volunteers Farshad Barman, Krissie Cook & Skylar Metcalf & Annika Wagner, Raf Cottom, Tim Crawford, Joe Doyle, Dee & Luis Esparza, Tessa Flanagan & Duff Kennedy, Ruben Gutierrez, Baron Ron Herron, Sean Kelly, Ken Kihlstrom, Chris Larson, Pat & Chuck McPartlin, Janet & Martin Meza, Bonnie & Bruce Murdock, Isabelle Navar, Ray Ogella, Peggy O'Rork, Celeste & Gustavo Ritterstein, Javier Rivera, Diane & Russell Ruiz, David Salvia, Charles Schueler, Robert Smith, Cez & Tom Totton, Matthew Walton, and Tom Whittemore showed cool things in the sky to 708 viewers.

FEBRUARY OUTREACH EVENTS

Here's the schedule so far for February. Remember, the events are subject to change and cancellation, so for the latest updates, contact Chuck at 964-8201 or macpuzl@west.net.

The Telescope Workshop meets most Tuesday evenings at 7:30 PM at the Broder Building at SBMNH. Contact Tim Crawford at tcrawf3@cox.net for information. Listen to the AU on the radio at KZSB 1290 AM at 9 AM on the second and fourth Monday of each month. Here are the events scheduled so far for the month.

WEDNESDAY, FEBRUARY 5, SETUP 5 PM

Telescopes for a science night at St. Andrews Preschool, 4575 Auhay Drive in Noleta, entrance off Arroyo Road, setup at end of parking lot overlooking Auhay.

THURSDAY, FEBRUARY 6, SETUP 5 PM

Telescopes for a science night at St. Raphael School, 160 St Josephs Street in Goleta, setup in the eastern parking lot.

FRIDAY, FEBRUARY 7, 7 PM

Note: Not in Farrand Hall

Quick planetarium show, followed by the AU monthly meeting at 7:30 in Fleischmann Auditorium at SBMNH. Hear about photonics.

SATURDAY, FEBRUARY 8, 5 PM

Monthly AU planning meeting in the classroom outside Javier's office at SBMNH.

SATURDAY, FEBRUARY 8, 7 PM

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

FRIDAY, FEBRUARY 14, SETUP 6 PM

Telescopes at the Ritz-Carlton Bacara. We set up on the bluff by the Angel Oak Restaurant.

TUESDAY, FEBRUARY 18, 3:30 AM TO 4:30 AM

The Moon occults the planet Mars!

WEDNESDAY, FEBRUARY 19, SETUP 5 PM

Telescopes for an Astronomy Night at Santa Ynez Valley Charter School, 3525 Pine Street in Santa Ynez. This is the campus on the eastern side - the one toward the west is Santa Ynez Elementary. Food for volunteers.

THURSDAY, FEBRUARY 20, SETUP 4:30 PM

Telescopes for a science night at Monte Vista School, 730 N Hope Avenue in Santa Barbara. We set up by the kindergarten playground on the south side.

FRIDAY, FEBRUARY 21, SETUP 6 PM

Monthly Westmont Public Telescope Night at their observatory by the baseball field.

TUESDAY, FEBRUARY 25, 7 PM

Telescope Tuesday at the Camino Real Marketplace in Goleta. We set up in the plaza by the theater.

WEDNESDAY, FEBRUARY 26, SETUP 5 PM

Telescopes for an astronomy night at Ventura Charter School, 2060 Cameron Street. We'll set up on the playground behind the school.

THURSDAY, FEBRUARY 27, SETUP 4:30 PM

Telescopes for Ellwood Elementary School's Science Night. They're at 7686 Hollister Avenue in Goleta. We set up on the blacktop out back. Food for volunteers.

FRIDAY, FEBRUARY 28, SETUP 7 PM

Telescopes for an astronomy night at Midland School, 5100 Figueroa Mountain Road in Los Olivos. Dark skies!

From the President

Jerry Wilson

I have always been fascinated by the idea of terraforming a planet. I first came across it in a science fiction story, but in recent years I have seen scientific speculation on how it might be achieved. The first real step will be establishing a permanent and self-sustaining base. The technologies used there can then, possibly, be scaled up to slowly change the global climate. We are actually achieving global climate change here on earth, but in the wrong direction.

Recently a group working at the University of Glasgow has developed a technique for obtaining oxygen and some metals from lunar regolith. Apparently lunar regolith is some 40 to 45% oxygen by weight. Oxygen extraction takes place using a method called molten salt electrolysis, involving placing regolith in a metal basket with molten calcium chloride salt to serve as an electrolyte, heated to 950°C. At this temperature the regolith remains solid. Oxygen has the obvious uses of breathing and along with hydrogen is useful as a rocket fuel.

There are also methods being developed to build structures using a process similar to 3D printing of local materials sintered by focused sunlight. Such structures will provide the mechanical integrity for habitats when sealed on the inside with inflated structures.

Three countries have announced lunar bases at the south pole in the next decade including ESA, China, and the US. The south pole is selected because it will provide continuous sunshine next to regions of perpetual shadow which are known to harbor quantities of water ice. These are exciting times. I look forward to the adventures to come.



“Whaddya mean you don’t want to sing along with Jerry and me?” Photo credit: Tom Totton.

First Light

Tom Whittemore

If you are like me, you can trace your interest in astronomy to an individual. In my case this person is my older brother, Paul. One summer, when I was very young, Paul borrowed a 6” telescope from a friend. Built on a budget, this telescope used a washing machine agitator as a counterweight. But Paul was able that summer to point this homemade

time machine to the Great Globular Cluster in Hercules and the Ring Nebula in Lyra. I never forgot these objects and the mystery they induced the rest of the summer. In fact, staring up into the night sky in Indianapolis made an impression on me that would last for years to come. Paul also taught me a poem he knew about how you could track the course of the year by identifying some of the brightest stars and patterns in the night sky. I don't know where he found this poem – I did recently try to find it on the internet – but I think it went something like this:

“First Regulus gleams on the view:
Arcturus, Spica, Vega, blue
Antares and Altair, the Goat's Head, the Square
Fomalhaut, Aldebaran, the Belt aglow
Then Sirius, most fair.”



“Not sure I have ever heard string theory explained so well, Javier!” Photo credit: T. Totton.

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AU annual membership rates:

Single = \$20 Family = \$25

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February 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5 ST. ANDREWS PRESCHOOL 5PM	6 ST. RAPHAEL SCHOOL 5PM	7 GENERAL MEETING 7PM	8 PLANNING MEETING 5PM SBMNH STAR PARTY 7PM
9	10 TECH TALK KZSB (AM 1290) 9-10 AM	11	12	13	14 RITZ-CARLTON BACARA 6PM	15
16	17	18 MOON OCCULTS MARS!	19 SY VALLEY CHARTER SCHOOL 5PM	20 MONTE VISTA SCHOOL 4:30PM	21 WESTMONT COLLEGE 6PM	22
23	24 TECH TALK KZSB (AM 1290) 9-10 AM	25 CAMINO REAL MARKETPLACE 7PM	26 VENTURA CHARTER SCHOOL 5PM	27 ELLWOOD ELEMENTARY 4:30PM	28 MIDLAND SCHOOL 7PM	29