



AU AstroNews

The Newsletter of the Astronomical Unit

March 2015

Sponsored by the Santa Barbara Museum of Natural History



Martin Meza sets up early for the public at the February Westmont outreach. Photo credit: Tom Totton.

OUR MARCH SPEAKER

Our speaker for the March 6th meeting will be Dr. Jerry Clifford from Cal State Channel Islands. His topic will be “The Sun: Star of our Solar System.” A synopsis of his talk follows: “The Sun is our local star – a good place to learn about stellar activity. Our star is the source of most of the energy we use on Earth. The Sun is a volatile gas ball that seethes and churns; large magnetic storms spit out charged particles in solar flares and coronal mass ejections – sometimes towards Earth. Violent solar weather can damage electrical systems, disrupt communications and satellites, and threaten astronauts. Astrophysicists study the Sun to learn how it produces its solar weather and hopefully, learn how to predict solar storms that might impact life on Earth. Dr. Jerry Clifford will examine the Sun as a dynamic sphere of plasma that constantly evolves. We will look at the Sun as a magnetic dynamo – in fact a group of magnetic dynamos that stretch and bend the solar magnetic field lines like rubber bands. The solar dynamo is responsible for the chaotic behavior and cyclic changes in the Sun’s surface that affect us here on Earth. Today satellites monitor the solar weather and alert government and industry to protect vulnerable communications and utility systems.”

OUTREACH SUMMARY

Since the last newsletter, AU volunteers Chatt Aiton, Angela Bates, Krissie Cook, Tim Crawford, Zak Dafaallah, Mike Farris, Sam Goodwin, Art Harris, Jürgen Hilmer, Sean Kelly, Chris Larson, Pat & Chuck McPartlin, Janet & Martin Meza, Kim Miller, Bruce Murdock, Max Neufeldt, Edgar Ocampo, Tom Totton, Javier Rivera & Quasars, Tom Whittemore, Jerry Wilson, and Linda & Harold Yarbrough showed the sky to **1314** viewers.

MARCH OUTREACH

Here are the AU events scheduled for March. To get the latest information on schedules, or directions, just contact Chuck at 964-8201 or macpuzl@west.net Remember, events are subject to cancellations and changes.

THURSDAY, MARCH 5, SETUP 5 PM

Telescopes for Science Night at Hollister Elementary School, 4950 Anita Lane in Goleta. We'll set up on their playground, entering through a gate on the eastern side.

FRIDAY, MARCH 6, 7 PM

Monthly AU meeting in Farrand Hall at SBMNH. Hear a talk about about the Sun.

SUNDAY, MARCH 8, 2 AM

Don't forget to switch to Daylight Saving Time!

THURSDAY, MARCH 12, SETUP 5 PM

Telescopes for Science Night (6-8) at Montessori Center School in Goleta. They're in the back of the school lot across Fairview from the Goleta Public Library.

THURSDAY, MARCH 12, SETUP 5 PM

Telescopes for Science Night (6-8) at El Camino School, 5020 San Simeon Drive in Goleta.

SATURDAY, MARCH 14, 5 PM

AU planning meeting in the classroom outside Javier's office at SBMNH. All members are welcome to help plan your club's activities.

SATURDAY, MARCH 14, 7 PM

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

THURSDAY, MARCH 19, SETUP 5:30 PM

Telescopes for Science Night at Santa Barbara Charter School, on the east end of the campus of Goleta Valley Junior High, 6100 Stow Canyon Road in Goleta.

FRIDAY, MARCH 20, 3:45 PM

Vernal Equinox - It's Spring!

FRIDAY, MARCH 20, 7:30 PM

Monthly Public Telescope Night at Westmont College observatory. Look through the big scope!

SATURDAY, MARCH 21, ALL NIGHT

Messier Marathon at the Shotgun Range of the Winchester Canyon Gun Club, at the end of West Camino Cielo.

TUESDAY, MARCH 24, 7 PM

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

WEDNESDAY, MARCH 25, SETUP 6 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.

MONDAY, MARCH 30, SETUP 5 PM

Telescopes for the science fair at St. Raphael School, 160 Saint Josephs Street in Goleta. We set up in the parking lot on the west side, by La Sumida Garden apartments.

“Time Travel”

Tom Totton, SBAU 2015 President

Back on our February, first Friday Meeting, UCSB Professor Harry Nelson gave us a fantastic presentation on the LUX experiment that uses a bottle of liquefied Xenon, a noble atomic element, trying to detect a hit from a dark matter particle, deep in a South Dakota mine. His review of the known elementary particles led us into a Feynman diagram of the potential relationship

of particles, seen and unseen. Gluons and Higgs, anyone?

As mentioned at the meeting, the January Telescope Tuesday Outreach, at the Camino Real Marketplace, received a nice Thank You email from one of the attending families for thrilling their daughter. Great work Chuck, Pat, Art, Martin, Edgar, and Jürgen! I showed up later after attending the regular Telescope Workshop at the SBMNH Broder building (730-9p). Please dress warm and join the outreaches!

Besides the great March first Friday general meeting coming up, keep an eye out for the latest NASA photos and science regarding the Dwarf Planet Ceres, with a close approach in March. It is coming in at a speed of less than 150 miles per hour! Try setting up a Twitter account (faking your profile as much as possible) and follow NASA tweets to stay up on the Dawn mission to Ceres. Please also follow SantaBarbaraAU and see whom we are following.

The new Flickr photo website for the SBAU for 2015 is at <https://www.flickr.com/photos/sbaushots/sets/> where you can review some of the latest images involving club activities, including some shots from the general meeting, telescope workshops, and outreaches. Contact me to upload your photos there as well.

Also, remember the SBAU Forum which can be reached by a link on our home page.

Take care and Thank You for supporting astronomy education in the Santa Barbara area!

From the Workshop

Tim Crawford

In an earlier article I discussed a qualitative test for our mirror - the Ronchi test. We placed our polished mirror on a test rack and bounced a beam of light placed at the mirror's center of curvature. The reflected light passed through a Ronchi screen. The pattern indicates how closely our mirror complies with the predicted curved-line pattern of a fully-parabolized mirror. Reading Ronchi patterns is both science and art: the more mirrors you read, the better you become at fine-tuning this qualitative test. But, once you are convinced that you have reached the point where the details you see on the test bench are pretty much what you see in the computer-generated models, it is time to move on to a far more quantitative test – The Foucault Knife-edge Test.

Who would think to place a razor blade into the path of light reflected from a mirrored surface could show information of that mirrored surface? Well, that is exactly what Leon Foucault did over 150 years ago! Below is a picture we took in the Tuesday mirror-making workshop of a mirror under test. The returning light is naturally amplified some 100,000 times. This optical feature allows the tester to see amazing details on the surface of his mirror.

In my next article I will show how “cutting” the returning light with a razor blade – both from the right and from the left - causes these patterns to appear as shadows that exhibit the curvature of the mirror. Further, I will also show how moving the tester toward and away from the mirror allows you to see details in different “zones” or areas on the mirror’s surface. This test may be an old one, but it is still one of the most critical tests one can perform on a mirror in its final stages of correction!



AU Information Box

President: Tom Totton
president@sbau.org

Vice President: Jerry Wilson 968-4056
jerrywilsonphd@gmail.com

Secretary: Colin Taylor 967-8140
dancingmagpie@cox.net

Treasurer: Tim Wittenburg
treasurer@sbau.org

Equipment: Art Harris 968-4017
n6is@cox.net

Outreach: Chuck McPartlin 964-8201
outreach@sbau.org

Newsletter: Tom Whittemore 687-2025
kometes@aol.com

Refreshments: Janet & Martin Meza 450-8383
AguilarPerryMeza@gmail.com

Webmaster: Paul Winn 886-2319
webmaster@sbau.org

SBMNH Astronomy Programs Manager

Javier Rivera 682-4711x173
jrivera@sbnature2.org

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AU mailing address:

Astronomical Unit
c/o Santa Barbara Museum of Natural History
2559 Puesta Del Sol Road
Santa Barbara, CA 93105-2998

On the Web: <http://www.sbau.org>

March 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5 HOLLISTER ELEMENTARY 5PM	6 SBAU MEETING 7PM	7
8 DST 2AM SPRING FORWARD!	9	10	11	12 MONTESSORI AND EL CAMINO SCHOOLS 5PM	13	14 SBMNH PLANNING MEETING 5PM STAR PARTY 7PM
15	16	17	18	19 SB CHARTER SCHOOL 5:30PM	20 WESTMONT COLLEGE 7:30PM SPRING BEGINS!	21 MESSIER MARATHON WINCHESTER GUN CLUB ALL NIGHT
22	23	24 CAMINO REAL MARKETPLACE 7PM	25	26 SY VALLEY CHARTER SCHOOL 6PM	27	28
29	30 ST. RAPHAEL SCHOOL 5PM	31				

The Astronomical Unit
 c/o Santa Barbara Museum of Natural History
 2559 Puesta Del Sol Road
 Santa Barbara, CA 93105-2998