



AU AstroNews

The Newsletter of the Astronomical Unit

February 2014

Sponsored by the Santa Barbara Museum of Natural History



*All set up for outreach at the Camino Real Marketplace!
Photo: Bruce Murdock.*

OUR FEBRUARY MEETING

Our speaker this month is Andrew Norton, who is a Ph.D. student in EE at UC Santa Cruz. Andrew works at the Laboratory for Adaptive Optics (AO) where he investigates the potential use of Micro-Electrical-Mechanical System (MEMS) Deformable Mirrors (DM) to pre-correct a laser guide star for AO applications. Tonight he will talk about his work in this field.

2013 OUTREACH SUMMARY

We had another good year for outreach, with **215** events despite 18 cloudouts. We had more than **100** volunteers helping out during the year, and **18,476** happy viewers, plus one mountain lion. ***This brings our total for the years 2003 to 2013 to 131,133, well on our way to 93 million.*** Volunteers with 6 or more events who get their membership extended for a year are Angela Bates, Tim Crawford, Zak Dafaallah, Susan Jackson & John Edkins, Carolyn & Ed Edwards, Mike Farris, Ruben Gutierrez, Art Harris, Jürgen Hilmer, Chris Larson, Zanna Lucy, Pat & Chuck McPartlin, Janet & Martin Meza, Bonnie & Bruce Murdock, Max Neufeldt, Edgar Ocampo, Julio Orozco, Rosemary & Al Rice, Bob Richard, Javier Rivera, David Salvia, Colin Taylor, Cez & Tom Totton, Tom Whittemore, Patricia & Jerry Wilson, Paul Winn, and Tim Wittenburg.

Those with 5 or more outreaches, so add in Peter Angeloff, Joe Doyle, and Nancy Rohrer, get a Night Sky Network recognition pin at the February meeting.

FEBRUARY 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.

SATURDAY, FEBRUARY 1, SETUP 6 PM

Telescopes for Bacara Resort and Spa. We set up on the Miro Lawn.

WEDNESDAY, FEBRUARY 5, SETUP 5:30 PM

Telescopes for kids and parents at St. Andrews preschool, on Arroyo Road near Auhay Drive in Goleta. The official address is 4575 Auhay Drive, but the entrance is off Arroyo.

THURSDAY, FEBRUARY 6, SETUP 6 PM

Telescopes for the Eureka! Program at Girls, Inc in Carpinteria, at 5315 Foothill Road. Eureka! is a college bound, STEM based program for middle and high school students.

FRIDAY, FEBRUARY 7, 7 PM

Catch a quick planetarium show, followed by our monthly meeting at 7:30 in Farrand Hall at SBMNH.

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.

TUESDAY, FEBRUARY 11, 7 PM

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

SATURDAY, FEBRUARY 15, SETUP 6 PM

Telescopes for Bacara Resort and Spa. We set up on the Miro Lawn.

THURSDAY, FEBRUARY 20, 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.

FRIDAY, FEBRUARY 21, 7 PM

Monthly Westmont Public Telescope Night at their observatory by the baseball field. The big 24-inch scope should be open for viewing.

SATURDAY, FEBRUARY 22, SETUP 6 PM

Telescopes for Bacara Resort and Spa. We set up on the Miro Lawn.

THURSDAY, FEBRUARY 27, SETUP 5 PM

Telescopes for Science Night at El Camino School, 5020 San Simeon Drive in Goleta. We set up on the sidewalk in front of their auditorium. Pat and Chuck can't make this one, so we need help!

FRIDAY, FEBRUARY 28, SETUP 6 PM

Telescopes for Bacara Resort and Spa. We set up on the Miro Lawn.

From the Workshop...

Tim Crawford

Crafting a telescope mirror can be a rewarding experience. Once, in my earlier years, I went downtown and bought a telescope mirror kit from Douglas Telescopes. For my project, I also bought a 55-gallon drum to use as a worktop. I set it all up and opened Allyn Thompson's "Making Your Own Telescope".... I opened this classic and was stunned. The book made no sense! Frustrated, I put everything away. For years! The reason for this short aside is to let you know it is not uncommon to be lost in the beginning when you try to do it a cappella. I strongly advise you to find someone to guide you, like you get in a workshop like ours. There are many in the group with hundreds of hours crafting mirrors. They have vast experience and can guide you through all aspects of crafting your own mirror.

Imagine this: you are handed a round blank and a grinding tool of the same diameter. As noted in the previous letter, you will use a grinding medium between the two to grind a telescope mirror. Before you begin, however, there is one important step to do. You must bevel the outer edge of your blank. You may use a carborundum sharpening stone to do this. Soak it in water and, using a downward 45-degree angle, grind slowly the edge of your mirror. For the purpose of these essays, I will use Pyrex as the material for your mirror. By beveling the edge, you will prevent chipping your Pyrex blank when you begin to grind. The bevel should be at least 1/8th inch wide. Choose a workplace that provides a constant temperature, and a work surface that has strong support.

You may wonder. How do two flat surfaces become a perfect sphere and a perfect convex complement of this sphere? The answer is elegant. It will become more obvious with some hindsight. Let's not think so much about the abrasives here. Let's think of the two discs passing over each other. The disc on top will be your mirror and, by its own weight, will exert a downward pressure on the lower disc. So, the upper disc wears preferentially in the center whereas the lower disc wears at its edges. But, you may also think of this action another way. If the center of the upper disc more often passes over the lower disc's edge, the middle of the upper disc suffers more wear. Just the opposite is true for the lower disc. It will exhibit more wear at its edge. The result of this action is that the upper disc becomes concave and the lower disc convex. To make this process more uniform, you must walk around your worktop in one direction as you turn the mirror in the other direction. At this point you may have a question. How long should I keep up this process? That is, how deep should my mirror be? I will give you that answer in the next edition of "From the Workshop."

From the President's Pen...

Mike Farris

Hi AU Members and friends,

I was in Japan last month and had the pleasure of going to the new Tokyo Skytree, which is a 2,080-foot high broadcasting tower with two observation decks. The highest observation point is 1,476 feet above the ground, and the view was just amazing! People are so small that they look smaller than ants.

This is the closest to the stars that I have ever been. It's just too bad it wasn't dark when I went. If you ever go to Japan, I would highly recommend you go and see this amazing giant structure. It took 3 years and 8 months to build and 1.8 billion dollars to build.

2013 was another great year for the club and 2014 will be even better. We have lots of exciting things happening this year, so please keep up to date with the website and newsletter, and please make sure to come to events.

We now have the new SBAU bookmarks to help promote the club, so please make sure to come to the meeting on February the 7th and get your bookmarks and spread the word about the club to your friends and family.

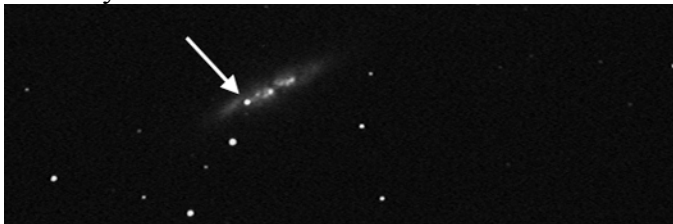
Distant Light...

Tom Whitemore

Last night one of my students and I imaged the recently discovered Type Ia Supernova in M82. We had a good night of imaging despite the sometimes-unsteady conditions of the sky. After we saved the data for later analysis, I started on my way home.

Now, the incredible distances to the objects we see in the sky have often struck me. But tonight I revisited this thought for a jaw-dropping moment. We grabbed light that had been coming to our "neck of the woods" for 12 million years. Think of that. 12 million years! As a species I am not sure that we were even upright and walking when this light started its journey. While you're at it, think about the star that, as a White Dwarf, ended its life as an object pretty much as bright as its host galaxy.

When I finally arrived home I also thought that we, as members of the AU, enjoy and share with the public a wonderful hobby. Having parked the car in the driveway, I got out and looked up at the still clear sky and smiled.



SN2014J on January 22 from Noleta. Photo: Chuck McPartlin

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

February 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 BACARA RESORT 6PM
2	3	4	5 ST. ANDREWS 5:30PM	6 GIRLS, INC.  5315 FOOTHILL ROAD 6PM	7 SBAU GENERAL MEETING 7PM	8 PLANNING MEETING 5PM STAR PARTY 7PM SBMNH
9	10	11 CAMINO REAL MARKETPLACE 7PM	12	13	14 	15 BACARA RESORT 6PM
16	17	18	19	20 ELLWOOD 4:30PM	21 WESTMONT COLLEGE 7PM	22 BACARA  RESORT 6PM
23	24	25	26	27 EL CAMINO SCHOOL 5PM	28 BACARA RESORT 6PM	

The Astronomical Unit

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