



AU AstroNews

The Newsletter of the Astronomical Unit

May 2003

Sponsored by the Santa Barbara Museum of Natural History

A Filter is NOT Just a Filter

If you have ever asked yourself questions like “Why are those small Coronado solar telescopes so expensive?”, or “How much could you possibly see through a little 60mm refractor anyway?”, then you would have enjoyed last month’s talk by David Lunt of Coronado Technology Group. David educated us about some of the technological insights built into each Coronado hydrogen-alpha solar filter, and about how precisely they have to be made to function properly. It is hard to imagine all the reasoning and science that goes into a “simple” solar filter. We also learned that you can see a WHOLE LOT of detail on the sun through a 60mm telescope, including not only sunspots, but flares, prominences, filaments, and some amazing spiculae and faculae. If you missed the talk, you can get more information and see some great pictures at www.coronadofilters.com. Thanks, David! Also thanks to Jim Williams for sharing some of the highlights of his trip to Sri Lanka. Details of Jim’s talk are on page two of this newsletter.

May Speaker

Our speaker for the AU May meeting will be Mike Barber of Santa Barbara Instruments Group. SBIG makes some of the world’s finest instruments for imaging and studying the night sky, from CCD cameras to spectrometers to adaptive optics. Mike is a Vice President of SBIG, and will show us some of their hottest products as well as stunning astroimages from the users of their equipment around the world.

April Outreach Volunteers

We had a super turnout of volunteers for the Dark Sky event at the Museum, with 20 AU members bringing 16 telescopes or binoculars. Thanks to all of you for a fun evening and the great show of support!

Outreachies sharing the sky at public and school events this month were Jim Billig, John Boyd, Tim Crawford, Joe Doyle, Patrick Greenfield, Laurence

Harms, Art Harris, Mark Holbrook, Jason Hunton, Gustavo Litvin, Pat & Chuck McPartlin, Barb O’Grady & John Prebish, Egdar Ocampo, Helen Osenga, Kathy & Ken Pfeiffer, Craig Prater, Tom Whittemore, Jim Williams, and Paul Winn. We brought the fun of astronomy to a whopping 890 people - good job!

Why Participate in Outreach?

Edgar Ocampo is not only the AU’s outreach coordinator, but a star outreachie himself, present at nearly every outreach event. Why does he do it? “One of the reasons that inspires me about outreach is that I educate myself about astronomy. Using and learning to use my telescope is another reason. But perhaps the biggest reason is seeing the surprised and happy faces of children and adults alike when they see unknown stellar objects and the great distances between them. Some of the favorites are seeing the moons of Jupiter, the rings of Saturn, and so on.” The public and the AU are very grateful for your efforts, Edgar! Below is a picture of Edgar at last month’s Dark Sky Week event.



AU Events for May

Saturday, May 3, all night – Dark sky observing.

Contact Paul Winn (strg8zn@cox.net) or Joe Doyle to find out where and when.

May 7 to May 14 – Astronomy Week in the Santa Ynez Valley. WeWatch and the AU will present slide shows at various schools in the area that week.

Thursday, May 8, setup 4:30 PM – Telescopes for the Mt. Carmel School Science Day. Sunset isn't until 7:49, so we'll need volunteers with solar viewing equipment.

Friday, May 9, setup 7:30 PM (for scopes) – Cachuma Lake Campgrounds. AU and WeWatch are presenting slide show at 7:15 and scopes at 8 PM for the public. Scopes set up at Dakota Plains.

Saturday, May 10, 10 AM to 10 PM – Astronomy Day at SBMNH. Displays, activities, and star party. We'll need volunteers to man displays, solar viewing, and telescopes.

Friday, May 16, 8 PM – Monthly Public Observation at Westmont College's Van Kampen Observatory.

May 23 to May 26 – RTMC Astronomy Expo at Camp Oakes in Big Bear. www.rtmc-inc.org The AU will have several members in attendance.

Wednesday, May 28, TBA – Kellogg School Science Night. Scopes only, including solar viewing.

Thursday, May 29, setup 5:30 PM – Harding School Science Night. Sunset is at 8:05, so we'll need volunteers with solar viewing equipment.

Saturday, May 31, setup 8 PM – Telescopes for campers at Refugio Beach State Park. Surprisingly, this site often has really nice sky conditions.

Saturday, May 31, all night – Dark sky observing. Contact Paul Winn (strg8zn@cox.net) or Joe Doyle to find out where and when.

Scheduled events are subject to change and additions with little notice! For the latest and greatest, contact Edgar Ocampo (eocampo26@earthlink.net) or Chuck McPartlin (macpuzl@west.net) for the latest developments.

Astronomy Day, 2003

Saturday, May 10, is Astronomy Day. This year, instead of setting up at the beach, we'll be at the Museum, with good parking and nearby restrooms. We're planning to set up at 10 AM, with an information table, astrophoto displays, solar viewing, a telescope clinic, and a sale of telescope equipment.

Planetarium shows will be free all day, and there will be pop rockets and constellation tubes for children. If you have any clear Fuji 35mm film containers, or paper towel or toilet paper tubes, please collect them and bring them to the Museum that day. We'll be there all afternoon, and that evening the monthly Star Party at the Museum will be free, ending at 10 PM. We'll need volunteers willing to staff the displays and tables, and folks with telescopes for both the solar viewing and Star Party. We'll have a sign-up sheet at the meeting, or contact Chuck at macpuzl@west.net or 964-8201 if you want to help.

Astronomy Education in Developing Countries

Jim Williams just returned from Sri Lanka, where he completed a tour with the former national planetarium director, T.C. Samaranayaka (Sam). They were preparing for the "Sri Lankan Skies and Sir Arthur 2003", conference to be held July 27th to 2nd August 2003. For more information check out www.srilankanskies2003.com. Sri Lankan history is amazingly complex and interesting. You can see ancient ruins, stay in clean and comfortable hotels, and be greeted with unmatched hospitality. Jim visited 6 different schools and met with various school Astronomical Societies and Clubs. Sri Lankan school children are remarkably bright, incredibly polite, and very hungry for knowledge. Sam has organized interested teachers into the "All Island Teacher's Astronomical Association", to be a core group for promoting astronomy. Telescopes are scarce, so Jim took them an ETX 90 in the name of the AU. Sam is a national treasure, and is working diligently past retirement to bring astronomy to the children of Sri Lanka. Don't miss this opportunity to make a real difference. If you have ANY questions about being a westerner in Sri Lanka, see Jim at the meetings or contact him at j_alison_w@hotmail.com.

Meteorites

AU member Dale Lowdermilk, who is also a member of the Santa Barbara Mineral & Gem Society, gave a well received lecture on meteorites at Dr. Jeff Molony's Cal Lutheran University astronomy class on April 3. He will be giving the same lecture on June 7 at the Ventura County Fairgrounds. Details are at www.afms-cfmshow.org/. You can check this out if you are interested in meteorites. Also, check out Dale's website at <http://meteorites.notsafe.org/>.



Total Lunar Eclipse

On the evening of Thursday, May 15, we will be treated to a total eclipse of the Moon. For Santa Barbara, the Full Moon

will rise at 7:48 PM PDT with the penumbra of the Earth's shadow already on the Moon. Totality, when the Moon is fully covered by the umbra of the Earth's shadow, will commence at 8:14 PM, and last until 9:06 PM. During totality, expect to see the Moon still glowing with a ruddy hue, caused by sunlight refracting through the Earth's atmosphere around its edges, with the shorter wavelengths scattered by clouds and dust particles, leaving mainly reds and oranges.



In Search of Alien Oceans

by Patrick L. Barry and Dr. Tony Phillips

A robotic submarine plunges into the dark ocean of a distant world, beaming back humanity's first views from an alien ocean. The craft's floodlights pierce the silty water, searching for the first, historic sign of extraterrestrial life. Such a scenario may not be as fantastic as it sounds. Many scientists believe that Jupiter's moon Europa conceals a vast ocean under its icy crust. If so, heat from the moon's interior-which would keep the ocean from freezing solid-may also drive subaquatic volcanoes and hydrothermal vents. On Earth, such deep-sea vents provide chemical energy for ecosystems that thrive without sunlight, and some scientists even suggest that Earthly life first got started around these vents. So a warm European ocean spotted with thermal vents could be a natural incubator for life. That's why some scientists hope that someday we will send a probe to Europa that could bore through the ice and explore the ocean below like a submarine.

To plan for such a mission, scientists would first need to put a camera in orbit around Europa. By looking for places where water has welled up to fill the spindly cracks that riddle Europa's surface, scientists can estimate where the ice is thinnest-and thus easiest to bore through. That mission scenario presents a problem, though. Europa orbits Jupiter inside the giant planet's punishing radiation belts. Continuous exposure to such high radiation would damage today's scientific cameras, making the information they gather less reliable and perhaps ruining them completely. That's why NASA is designing a more radiation-tolerant CCD that could be used on a mapping mission to Europa. A CCD (short for "charge-coupled device") is a digital camera's chip-like core, which converts light into electric signals. "We've seen the effects of this radiation during the Galileo mission to Jupiter," says JPL's Andy Collins, principal investigator for the Planetary Imager Project. "Galileo has orbited Jupiter for many years, dipping inside the radiation belts only for brief intervals. Even so," he says, "we've seen clear signs of damage to its instruments."

By using the hardier CCD's developed by the Planetary Imager Project, a future probe could remain in Jupiter's radiation belts for many months, gathering the maps scientists will need to finally get a peek behind Europa's icy veil. And who knows, maybe there will be something peeking back!

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