



AU AstroNews

The Newsletter of the Astronomical Unit

April 2004

Sponsored by the Santa Barbara Museum of Natural History

April Meeting

At our monthly meeting on Friday, April 2, Chris Butler will be presenting his third galactic tour, wandering out to the stars of the Big Dipper.

Chris Butler is a respected artist in the field of science and nature illustration, and his artwork has been published internationally. He is an avid amateur astronomer, and a member of the Orange County Astronomers. He has made numerous professional presentations to aerospace corporations, scientific societies, and astronomy clubs, incorporating his art to teach people about the Universe. Some of his most popular presentations are his "go there" galactic tours, where he takes his audience on a trip through our galactic neighborhoods, showing scenes from stars you can see in the night sky, all with correct starry backgrounds as though you were looking back toward home. He is an engaging and highly entertaining speaker.

Weather on Jupiter

On the afternoon of March 17, Professor Phil Marcus of UC Berkeley gave a presentation at UCSB on his theory that Jupiter is about to undergo a global climate change. His studies of the cyclonic and anticyclonic vortices in Jupiter's atmosphere, which we see at the Great Red Spot and various white ovals, coupled with Voyager, Galileo, and Hubble images, has led him to the conclusion that the vortices, especially the white ovals at higher latitudes, are merging at an accelerated rate. This is reducing the heat transport and mixing that keeps Jupiter's atmosphere (at least the upper levels) at a fairly homogeneous temperature. This will eventually cause Jupiter's jet stream bands to lose all vortices and become chaotic for a while, and then the whole cycle will restart with the appearance of numerous small vortices. He believes it to be a roughly 70 year cycle, with the last big change

happening around 1938. Keep your eye on Jupiter, and let's see whether he's right!

Possible New Scope at Westmont

Westmont College is applying for a Keck grant to replace the venerable Carroll 16 inch Newtonian/Cassegrain reflector. If the grant goes through, they are planning to get a new computer-controlled 24 inch Ritchey-Chrétien telescope in an upgraded automated dome. AU members who have received training in the use of the scope will be permitted to operate it for public viewing nights, as we currently do with the Carroll Scope. We haven't heard what they plan to do with that big old iron monster.

Astronomy Trivia

- Black Holes are known as "frozen stars" in Russia.
- Galileo had observed Neptune without realizing what it was.
- "When the blank for the Palomar mirror was being transported, it was encased in armor, in case anyone took a shot at it."
- Stars can not be green.
- 20% of the universe is obstructed from view by stars and dust.
- The sky appears blue due to the Tyndall effect.
- The first woman in space was the cosmonaut Valentina Tereshkova in June, 1963.

March Outreach Volunteers

Since the last newsletter, AU outreach volunteers Bill Clausen, Tim Crawford, Laurence Harms, Art Harris, June Kelley, Pat & Chuck McPartlin, Edgar Ocampo, Helen Osenga, Ken & Kathy Pfeiffer, Craig & Kenyon Prater, Jim Williams, and Tim Wittenburg showed the sky to 243 customers.

AU Events for April

Friday, April 2, 7:30 PM

Monthly AU meeting in Farrand Hall at the Museum. Our speaker, returning for the third time, will be the incomparable Chris Butler, with his "go there" tour of the Big Dipper stars.

Thursday, April 8, setup 5:30 PM

Telescopes for Science Night at Hope School and Science Night at Laguna Blanca School (San Ysidro campus). Two schools simultaneously, at different sites, so we'll need extra volunteers for this night! Sunset isn't until around 7:30 PM, and the events nominally end at 8 PM, so we can use solar filters and people who can find the planets in the daylight (Venus and Jupiter). Alas, no Moon.

Saturday, April 10, 8 PM

Monthly SBMNH Star Party outside Palmer Observatory. Saturday, April 10, 5:30 - 7 PM Planning meeting (with pizza!) at SBMNH in the classroom next to Krissie's office. Bring your favorite soda and come help work out the final details for Astronomy Day. Then, stay for the Star Party.

Tuesday, April 13, setup 7:30 PM

Telescopes for Family Camp, probably at Paradise Campground. Contact Chuck for details.

Friday, April 16, 8 PM.

Monthly public telescope night at Westmont.

Saturday, April 17, setup 7:30 PM

Telescopes for Family Camp, probably at Paradise Campground. Contact Chuck for details.

Saturday, April 17, all night

Dark Sky. Contact Paul Winn or Joe Doyle to find out where.

Monday, April 19 to Monday, April 26

National Dark Sky Week. Turn off your lights between 8:30 and 9 PM and enjoy a sky with less light pollution! Tell your neighbors, too!

Tuesday, April 20, setup 5:30 PM

"Family Science Night" at Mountain View School. Sunset isn't until 7:30, so we'll do solar filters, static displays, and Venus and Jupiter in a bright sky.

Please RSVP with Chuck if you're coming, as they provide us with dinner and need a head count.

Wednesday, April 21, setup 7:30 PM

Telescopes for Messier objects night at La Colina Junior High School.

Saturday, April 24, all day

National Astronomy Day. Join the AU at the Museum starting at 10 AM for solar viewing, mirror grinding, a yard sale, planetarium shows, and a raffle to give away a new telescope to a child who is 5 to 12 years old and present at the event. Later there will be a clinic for new telescope owners (or folks who just want help), followed by a star party from 8 to 10 PM.

Scheduled events are subject to change and additions with little notice! For the latest and greatest, contact Chuck McPartlin at macpuzl@west.net.

Special Thanks

A special thanks goes out to the good people at Orion Telescopes. They have donated a wonderful StarBlast scope to give away to one lucky young amateur astronomer on Astronomy Day! Club member Tim Wittenburg talked with Orion, and they agreed to donate the StarBlast scope to us. Thank you very much Tim for all your efforts.

Reminder

If you volunteer a minimum of 6 times per year, your next year's membership is free. So volunteer! It's good for the heart, the hobby and the wallet.

Finding Planets with Dr. Charles Beichman

By Dean Mars

The Kavli Institute for Theoretical Physics (KITP) presented their 24th Public Lecture on March 3, 2004. David Gross, director of The KAVLI Institute, introduced the featured speaker, Dr. Charles Beichman.

Dr. Beichman is Executive Director of Michelson Science Center, explains, "The Space Interferometer Mission (SIM) will provide a census of planetary systems by conducting a broad survey of 2,000 stars that will be sensitive to the presence

of planets with masses as small as 15 Earth masses (1 Uranus mass) and a deep survey of 250 of the nearest stars with a planet mass limit of 3 Earth masses. The broad survey will include stars spanning a wide range of ages, and other important parameters. With these data in hand, we will provide data, for the first time, on such important questions as: What processes affect the formation and dynamical evolution of planets? What is the initial mass distribution of planetary systems around young stars? How might planets be destroyed? What is the origin of the eccentricity of planetary orbits? What is the origin of the apparent dearth of companion objects between planets and brown dwarfs seen in mature stars?"

Scheduled for launch in 2009, free from the distortions and noise of Earth's atmosphere, and with a maximum baseline of 10 meters, SIM will enable astronomers for the first time to measure the positions and motions of stars with microarcsecond accuracy - capable of detecting the small reflex motion of stars induced by orbiting planets a few times the mass of Earth. SIM will conduct a detailed survey for planetary companions to stars in the solar neighborhood, and will give us a more complete picture of the architecture of planetary systems around a representative sample of different stellar types.

SIM will determine the positions and distances of stars throughout the Milky Way, hundreds of times more accurately than any previous program, and create a stellar reference grid, providing a visible light astronomical reference frame with unprecedented precision. Against this reference frame SIM will measure the internal dynamics of our galaxy and the dynamics in our local group of galaxies, measure the photometric and astrometric effects of condensed dark matter in our galactic halo, and calibrate the brightness of several classes of astronomical "standard candles."

How big is the universe? How old is it? Are there other planets like Earth out there among the stars? We have asked these questions around campfires and in the halls of universities for centuries. Today, we know that the answers lie hidden in the positions and distances of the stars and galaxies. And each time scientists have measured these positions and distances with greater accuracy, they have gained a wealth of new understanding. If you have a question that an article can answer, email me from my web

site at www.deanmars.com or www.moviesbymars.com

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