



AU AstroNews

The Newsletter of the Astronomical Unit

January 2003

Sponsored by the Santa Barbara Museum of Natural History

Krissie's Back

Krissie Cook is filling in as Astronomy Programs Coordinator at the Museum, now that Dave is gone. She's always been great to us, so let's welcome her back!

Election Results

After the usual bitter political infighting, assassinations, bribes, and mudslinging, the AU officers and appointees for 2003 are: President – Pat McPartlin, Vice President – Chuck McPartlin, Secretary – Craig Prater, Treasurer – Bob Brown, Newsletter Editor – Ken Pfeiffer, Outreach Coordinator(s) – Edgar Ocampo & Chuck McPartlin, Webmaster – Paul Winn, and Refreshments Coordinator – Jim Williams.

Members' Night Presentations

After the riot squad had cleaned up the debris from the elections, it was time for presentations by club members. June Kelley showed a children's book on astronomy and SETI written by a friend; Jim Billig spoke about calendars, analemmas, and sundials; Ken Pierskalla told us about the basics of GPS and its constellation of satellites; and Wayne Rothermich took us on a photographic tour of Lord Rosse's "Leviathan of Parsonstown." Thanks for making it an interesting evening!

January's Speaker

For the January meeting, we'll hear from **Dr. Randii Wesson** of JPL, who will tell us about **The Future of U.S. Planetary Exploration**.

As the millennium closed, so did the era of large-scale planetary spacecraft. Future planetary spacecraft will increase their capability, as compared to their predecessors, while reducing in size and consuming less power. These future spacecraft will be the landers and sample return missions of tomorrow.

Lander and sample return missions require innovative mission concepts, new operation

approaches, as well as technologies that have yet to be developed. In addition, these missions will be more numerous than in the past. Rather than one mission every decade, every decade will have multiple missions.

To organize this effort, the United States robotic planetary exploration program has been divided into five areas: Earth Exploration, Mars Exploration, Outer Planet Exploration, Asteroid & Comet Exploration, and the Universe.

Dr. Wesson's presentation will describe each of these areas; the major missions currently in operations, and those being planned. He will also have a special emphasis on Mars Exploration and the search for life.

New Telescope Workshop

On Saturday afternoon before the January Star Party at the Museum (January 11), we'll be holding a clinic for folks who got new telescopes from Santa Claus and need some help getting started. We'll gather outside Palmer Observatory at 2 PM, and also hold a planning meeting to plot future activities.

December Outreach Volunteers

Since the last newsletter, volunteers Joe Doyle, Art Harris, Mark Holbrook, Pat McPartlin, Edgar Ocampo, Helen Osenga, Ron Pembleton, and Paul Winn showed the night sky to **292** customers at AU events. Not bad, considering all the rain.

Speaking of Outreach

In 2002, the following people volunteered at outreach events, showing the night sky to the public: Barb O'Grady, Bob Brown, Chey Hahn, Ibrahim Khogeer, Jeff Molony, Justin Magness, Mark Holbrook, Paul Winn, Dale Lowdermilk, Joe Brown, John Boyd, Laurence Harms, Marsha Lopez, Tim Crawford, Dave Bloom, Jim Billig, John West, Warren Bitters, Clem Walsh, Dora Drake, Lee Smith, Marv Johnson, Matt Thomas, Craig Prater, Joe Doyle, Ron Pembleton, Gretchen & Greg

Brinser, Pat & Chuck McPartlin, Jim Williams, June Kelley, Helen Osenga, Arthur Harris, and Edgar Ocampo.

The new Prez has instituted a **Frequent Outreachie Award**, consisting of free AU membership for a year for volunteers at 6 or more events by banquet time (Prez and Veep not eligible). The winners and their totals are:

Craig Prater	6
Joe Doyle	7
Ron Pembleton	7
Jim Williams	9
Gretchen & Greg Brinser	11
June Kelley	12
Helen Osenga	24
Art Harris	35
Edgar Ocampo	66!

Thanks to all that hard work and dedication, we brought astronomy to **5655** people in 2002.

AU Events for January

Friday, January 3, 7:30 PM – Monthly meeting in Farrand Hall at SBMNH.

Saturday, January 4, all night – Dark Sky observing. Contact Paul Winn (strg8zn@cox.net) to find out where and when. **Saturn occults the Crab Nebula!**

Saturday, January 11, 2 PM – AU Planning Meeting and New Telescope Workshop at SBMNH.

Saturday, January 11, 6 PM – Monthly Public Star Party at SBMNH.

Sunday, January 12, setup 7 PM – Telescopes for Elderhostel in Ojai.

Friday, January 17, 7:30 PM – Monthly Public Observation at Westmont College's Van Kampen Observatory.

Thursday, January 23, setup ? PM – Telescopes for Cleveland Elementary School? (Tentative at press time.)

Remember that outreach events often change at the last minute. Contact Edgar or Chuck for the latest developments.

Holiday Party

Once again, Bob Michael arranged a great party! Despite howling winds and pouring rain, the AU

gathered at the Beachside and had tons of fun. Jim Williams, taking his new Refreshments Coordinator job seriously, brought a delicious chocolate cake decorated with Saturn, Santa and his reindeer, and the AU logo. The gift exchange definitely had a Meteorite Night theme, with real and chocolate examples. Dale, Jim, Kathy, and Ken having fun:



Hunt For Planets

In case you missed it in the November newsletter, the Astronomical Society of the Pacific (ASP) announces a unique fundraising auction - an observing night at the W.M. Keck Observatory in Hawai'i with internationally renowned astronomer Dr. Geoff Marcy.

The highlight of the five day/four night trip for two is a once-in-a-lifetime opportunity to spend a night in the Keck I control room with Dr. Marcy and his team during one of his scheduled observing runs in 2003. Dr. Marcy will host dinner that evening, and the winner will be able to sleep overnight at the VSQ (Visiting Scientists' Quarters), which is open only to astronomers. The auction package includes round trip airfare for two, resort accommodations, car rental, meals, and a behind-the-scenes VIP tour of the W.M. Keck Observatory conducted by a Keck staff member.

Potential bidders can visit the ASP Web site at <http://www.astrosociety.org> immediately to get full information and to be notified exactly when the auction will begin. The auction will be held in mid-January 2003 on eBay. The winner can schedule the trip to coincide with any of Dr. Marcy's scheduled observing nights in 2003.



Frisbees in Space

by Dr. Tony Phillips

When Pete Rossoni was a kid he loved to throw Frisbees. Most kids do-it's pure fun. But in Pete's case it was serious business. He didn't know it, but he was practicing for his future career in space exploration.

Grown-up Pete Rossoni is now an engineer at NASA's Goddard Space Flight Center. His main project there is figuring out how to hurl spacecraft into orbit Frisbee-style.

The spacecraft are small-about the size of birthday cakes. This wouldn't work with big satellites or heavy space ships like the shuttle," notes Rossoni. But a cake-sized "nanosatellite" is just right.

Nanosatellites-nanosats for short--are an exciting new idea in space exploration. Ordinary satellites tend to be heavy and expensive to launch. The cost alone is a deterrent to space research. Nanosats, on the other hand, can travel on a budget. For example, a Delta 4 rocket delivering a communications satellite to orbit could also carry a few nanosats piggyback-style with little extra effort or expense.

"Once the nanosats reach space, however, they have to separate from their ride," says Rossoni. And that's where Frisbee tossing comes in.

Rossoni has designed a device that can fling a nanosat off the back of its host rocket. It's a lot like throwing a Frisbee," he explains. "The basic mechanics are the same. You need to impart the spin and release it cleanly-all in about a tenth of a second." (The spinning motion is important because it allows the science magnetometer to measure the surrounding field and lets sunlight play across all of the nanosat's solar panels.)

The ST5 nanosats are designed to study Earth's magnetosphere-a magnetic bubble that surrounds our planet and protects us from the solar wind. But their primary goal, notes Rossoni, is to test the technology of miniature satellites.

"We haven't done anything like this before," says Rossoni. Soon, however, the concept will be tested. A trio of nanosats is slated for launch in 2004 on the back of a rocket yet to be determined. The name of the mission, which is managed by JPL's New Millennium Program, is Space Technology 5 (ST5).

Can groups of nanosats maintain formation as they fly through space? Will their internal systems-miniaturized versions of full-sized satellite components-satisfy the demands of both the harsh space environment and critical science measurements? Is Frisbee-tossing as much fun in orbit as it is on Earth?

ST5 will provide the answers. Read about ST5 at <http://nmp.nasa.gov/st5> . Budding young astronomers can learn more at http://spaceplace.nasa.gov/st5/st5_tortillas1.htm

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Single \$15 Family \$25

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January 2003

			1 <i>Happy New Year!</i>	2 ●	3 Perihelion AU Meeting	4 Dark Sky Saturn in Crab Nebula
5	6	7	8	9	10 ⊙	11 SBMNH: Planning Mtg / Telescope Clinic / Star Party
12 Ojai Elder-hostel	13	14	15	16	17 Westmont Public Obs	18 ○
19	20 <i>Martin Luther King Day</i>	21	22	23 Cleveland School event ?	24	25 ⊙
26	27	28	29	30	31	

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