



Desert Sky Observer

Volume 28 Issue 5

May 2008



NEWSLETTER OF THE ANTELOPE VALLEY ASTRONOMY CLUB, INC
P.O. BOX 8545, LANCASTER, CALIFORNIA 93539-8545
*The Antelope Valley Astronomy Club, Inc., is a 501(c)(3) Non-Profit Corporation.
Visit the Antelope Valley Astronomy Club website at www.avastronomyclub.org/
The A.V.A.C. is a Sustaining Member of The Astronomical League and the
International Dark-Sky Association.*



Up-Coming Events

- May 3:** Dark Sky Star Party at [Pedroza Flats](#)
May 9: Club Meeting @ Sage Planetarium*
May 10: [Prime Desert Woodland](#) Preserve Moon Walk
May 12: Board Meeting @ [Pedroza Flats](#)
May 23-26: [RTMC](#)
May 31: Dark Sky Star Party @ [Saddleback Butte](#)

* Monthly meetings are held at the S.A.G.E. Planetarium on the Cactus School campus in Palmdale, the second Friday of each month. The meeting location is at the northeast corner of Avenue R and 20th Street East. Meetings start at 7 p.m. and are open to the public. *Please note that food and drink are not allowed in the planetarium*

Club President Terry Pedroza

The Poppy Festival is now behind us. If you missed this fine event, you missed a lot of fun. Wendy from Rosamond won our opportunity drawing for the Meade 114 scope that Woodland Hills Telescope donated for this event, congrats Wendy!

RTMC is our next large event and you should be sure not to miss it. We have booth space and will setup a non-manned booth. I know for myself I am not at RTMC to work and know that most of you feel the same. Deb and I will be there on Thursday to Setup the AVAC base camp as we normally do and are expecting a large turnout of AVAC members.

Remember The Motto the Tom Koonce and I have, "You cannot bring to much money to RTMC." Also, "If you find something that you want, buy it. If you wait, when you come back to get it, IT WILL BE GONE." Lessons learned my friends, lessons learned.

I know that it seems a long way off but elections are coming up in October. Have you thought about running for an AVAC Board position? Being on the Board of the AVAC will give new perspective into the club and allow you to grow as a person. I have learned a lot as a Board member and will cherish having had the opportunity to serve. I feel that I have done my part and that it is time to turn the reins over to someone new and let him or her have their opportunity. If you have thought about a position on the Board see any Board member for more details and let them know that you are interested.

Clear Skies,
Terry

Vice President
Debora Pedroza

Our “mystery” guest speaker for May is Dr. Laura Danly from Griffith Observatory. She is an astronomy professor and museum curator who played a significant role in developing the Space Odyssey project at the Denver Museum of Nature and Science. She is passionate about sharing the science of astronomy with broad audiences and feels that there is something for everyone. She will be presenting one of her new talks casually titled, “What’s Up There”. I have spoken to her several times on the phone and she is an absolute delight!

The new shuttle will be the focus of our June presentation craft fully done by Captain Bob Redman. He will have models and film footage of what we can expect from NASA in 2010.

Mark your calendars for Wednesday, May 14 at 7PM. We will be holding our 8th Annual Youth Exploring Astronomy Essay Contest Awards Ceremony at our very own Sage Planetarium. We have quite a line-up of very special people scheduled to congratulate and celebrate these students’ successes. Our dignitaries this year include: Assemblyman Steve Knight, the late Senator Pete Knight’s widow Gayle Knight and Mayor Jim Ledford from Palmdale. We will have representatives from Lockheed Martin and the Palmdale School District. Our semi-final judges this year were from Scaled Composites and it will be wonderful to have Zachary Reeder and Will Peters on board with us for the evening. Captain Bob Redman will join in the festivities and Jeremy will do a special planetarium show just for the kids and their families. Please come out and show your support, not only for the kids but also for your fellow club members who work so hard all year long to put this together.

See you there! Take good care...

Director of Community Development
Karole Barker

The month of May has a few events for our club, starting with National Space Day with Lockheed Martin @ Desert Sands Park starting @ 4:00 p.m. and on May 10th it is National Astronomy Day which will be held on Saturday from 12:00 to 3:00 at Prime Desert Woodlands and later that night around 7:30 p.m. will be a New Moon Walk with Jeremy. We need volunteers to help out and bring scopes or other items of interest for the public. One of the big events is the Riverside Telescope Makers Conference on May 23-26 at Camp Oakes in Big Bear, CA. Last year was a blast. Another big event for our club is Mt. Wilson, which is on Saturday June 28th.

On July 2nd there will be a star party at Edwards Air Force Base for about 30 cadets around 6:30 on Wednesday evening. I will have more information at the next meeting.

Please come out to support our club.

Clear Skies,
Karole



Stellar Compass for Space Explorers

by Patrick L. Barry

In space, there's no up or down, north or south, east or west. So how can robotic spacecraft know which way they're facing when they fire their thrusters, or when they try to beam scientific data back to Earth?

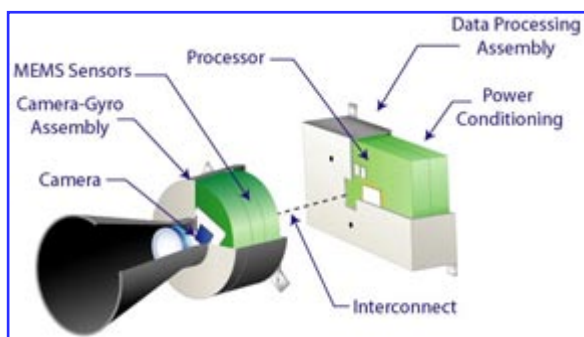
Without the familiar compass points of Earth's magnetic poles, spacecraft use stars and gyros to know their orientation. Thanks to a recently completed test flight, future spacecraft will be able to do so using only an ultra-low-power camera and three silicon wafers as small as your pinky fingernail.

"The wafers are actually very tiny gyros," explains Artur Chmielewski, project manager at JPL for Space Technology 6 (ST6), a part of NASA's New Millennium Program.

Traditional gyros use spinning wheels to detect changes in pitch, yaw, and roll—the three axes of rotation. For ST6's Inertial Stellar Compass, the three gyros instead consist of silicon wafers that resemble microchips. Rotating the wafers distorts microscopic structures on the surfaces of these wafers in a way that generates electric signals. The compass uses these signals—along with images of star positions taken by the camera—to measure rotation.

Because the Inertial Stellar Compass (ISC) is based on this new, radically different technology, NASA needed to flight-test it before using it in important missions. That test flight reached completion in December 2007 after about a year in orbit aboard the Air Force's TacSat-2 satellite.

"It just performed beautifully," Chmielewski says. "The data checked out really well." The engineers had hoped that ISC would measure the spacecraft's rotation with an accuracy of 0.1 degrees. In the flight tests, ISC surpassed this goal, measuring rotation to within about 0.05 degrees.



Compass is built as two separate assemblies, the camera-gyro assembly and the data processor assembly, connected by a wiring harness. The technology uses an active pixel sensor in a wide-field-of-view miniature star camera and micro-electromechanical system (MEMS) gyros. Together, they provide extremely accurate information for navigation and control.

Click on the picture for a larger view

spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml.

That success paves the way for using ISC to reduce the cost of future science missions. When launching probes into space, weight equals money. "If you're paying a million dollars per kilogram to send your spacecraft to Mars, you care a lot about weight," Chmielewski says. At less than 3 kilograms, ISC weighs about one-fifth as much as traditional stellar compasses. It also uses about one-tenth as much power, so a spacecraft would be able to use smaller, lighter solar panels.

Engineers at Draper Laboratory, the Cambridge, Massachusetts, company that built the ISC, are already at work on a next-generation design that will improve the compass's accuracy ten-fold, Chmielewski says. So ISC and its successors could soon help costs—and spacecraft—stay on target.

Find out more about the ISC at nmp.nasa.gov/st6. Kids can do a fun project and get an introduction to navigating by the stars at

News and Headlines

Huge Black Hole Catapulted Through Space

A colossal black hole has been spotted exiting its home galaxy, kicked out after a huge cosmic merger took place.

http://news.yahoo.com/s/space/20080429/sc_space/hugeblackholecatapultedthroughspace

Will meteors from Halley's Comet surge?

Be on the lookout for a rush of meteors before dawn Monday morning. That's when the annual Eta Aquarid meteor shower reaches maximum activity. Seeing the shower with no interference from the Moon is nice, but there's a possible bonus. Astronomers think the Eta Aquarids could produce more than twice the usual number of meteors.

<http://www.astronomy.com/asy/default.aspx?c=a&id=6882>

Catch Mercury at Its Best

Most people have never knowingly seen Mercury. That's a pity, because viewing the innermost planet is very rewarding, whether you use a telescope, binoculars, or just your unaided eyes.

<http://www.skyandtelescope.com/observing/home/18363129.html>

Polaris's Pulsations Pick Up

Polaris is important not just because it's the North Star. It also happens to be the brightest and nearest Cepheid variable star, 430 light-years away.

<http://www.skyandtelescope.com/news/18333354.html>

Phoenix Lander Takes Aim at Martian Arctic

NASA's Mars-bound Phoenix spacecraft is gearing up for a landmark landing near the martian north pole this month to find out whether the region could have once supported microbial life.

http://news.yahoo.com/s/space/20080501/sc_space/phoenixlandertakesaimatmartianarctic

Oldest Known Objects Are Surprisingly Immature

Some of the oldest objects in the Universe may still have a long way to go, according to a new study using NASA's Chandra X-ray Observatory. These new results indicate that globular clusters might be surprisingly less mature in their development than previously thought.

http://www.nasa.gov/mission_pages/chandra/news/08-054.html

Stellar Ticking Time Bomb Explodes on Cue

Using NASA's Rossi X-ray Timing Explorer (RXTE) satellite, a team of four astronomers has discovered a timing mechanism that tells them exactly when a superdense star will let loose incredibly powerful explosions.

http://www.nasa.gov/topics/universe/features/timing_mechanism.html

Scientists Find Rings of Jupiter Are Shaped in Shadow

Scientists from the University of Maryland and the Max-Planck Institute for Solar System Research in Germany appear to have solved a long-standing mystery about the cause of anomalies in Jupiter's gossamer rings.

<http://www.spaceref.com/news/viewpr.html?pid=25348>

Did you know ? ? ?

A.V.A.C. Membership Information

Membership in the Antelope Valley Astronomy Club is open to any individual.

The Club has three categories of membership.

- Family membership at \$30.00 per year.
- Individual membership at \$25.00 per year.
- Junior membership at \$15.00 per year.

Membership entitles you to...

- Desert Sky Observer—monthly newsletter.
- The Reflector—the quarterly publication of the Astronomical League.
- The A.V.A.C. Membership Manual.
- To borrow club telescopes, binoculars, camera, books, videos and other items.

The Desert Sky Observer is available as a separate publication to individuals at a cost of \$10.00 per year. Subscription to the Desert Sky Observer does not entitle the subscriber to membership in the Antelope Valley Astronomy Club and its associated privileges.

A.V.A.C. Board Members

President:

Terry Pedroza (661) 728-0130 president@avastronomyclub.org

Vice-President:

Debora Pedroza (661) 728-0130 vice-president@avastronomyclub.org

Secretary:

Tom Varden secretary@avastronomyclub.org

Treasurer:

Tom Koonce (661) 943-8200 treasurer@avastronomyclub.org

Director of Community Development:

Karole Barker (661) 940-3312 community@avastronomyclub.org

Newsletter Editor:

Errol Van Horne (661) 273-7646 newsletter@avastronomyclub.org

Equipment & Library:

Karol Barker (661) 940-3312 library@avastronomyclub.org

Club Historian:

Tom Koonce (661) 943-8200 history@avastronomyclub.org

Webmaster:

Steve Trotta (661) 269-5428 webmaster@avastronomyclub.org

Astronomical League Coordinator:

Steve Trotta (661) 269-5428 al@avastronomyclub.org

Thank you to our sponsors for your generous support!

Al's Vacuum and Sewing: 904 West Lancaster Blvd. (661) 948-1521. Stop by and say "hey" to Matt and Sue and run from Michael.

Woodland Hills Camera: 5348 Topanga Canyon Blvd., Woodland Hills. 888-427-8766. www.telescopes.net

Astro-tom.com: Tom is dedicated to amateur astronomy. <http://www.astro-tom.com>

High Desert Broadcasting: General Manager, Vicky Connors (661) 947-3107; they assist us in advertising our Club.

ActonAstro: Club Web space provided by <http://www.actonastro.com>

Al's Vacuum and Sewing

WOODLAND HILLS *Camera*

