Desert Sky Observer

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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

October 4: Antelope Valley High School Star Party
October 12: Annual Business Meeting
October 13: Dark Sky Star Party @ Devils Punch Bowl
October 13 & 14: Palmdale Fall Festival
October 27: Prime Desert Woodlands Moonwalk

* 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

Our annual business meeting is fast approaching and I only have five nominations for Club Officers! I'm terribly disappointed that every club member does not want to be on this list and have a say in the governing of OUR club. Nominations will be open until voting time.

The board is diligently working on getting the Board of Trustees rewritten so that some form of it will be on the ballot but I'm not sure that we can make it in time for this meeting. After talking to an attorney the board has decided to rewrite the proposal to ensure that the members will have no personal liability if any problems ever arose. Thank you to ALL the members who sent in their comments about this proposal.

Until there is a permanent Board I will (if re-elected) be setting up a long-term advisory committee to handle the study and writing of long term goals and a long-term plan for our club. If you would be interested in being on the committee please contact me.

I send this invitation to ALL CLUB MEMBERS to attend the Annual Meeting this month and be a part of YOUR club

See You There,
Terry

Vice President
Shane Barker

This month we won't be having a speaker due to the election for next year's executive board members.

Our November speaker will be Dr. Marc Rayman who will be speaking about the "Dawn Mission to the Asteroid Belt." More details to come in next month's issue.

Interesting tid bit:

9/28/07 Another sign of fall: the Great Square of Pegasus is now high in the eastern sky in early evening, balancing on one corner. Tonight it's far upper right of the Moon.

Venus is becoming a thicker crescent in a telescope as it climbs higher up, away from the sun in the morning sky.

See you at next month's meeting.

Shane Barker
Vice President

Director of Community Development
Rose Moore

We have lots of activities for club members to participate in and enjoy this month!

To begin, we will be having a star party and talk for the students at Antelope Valley High School in the evening, October 4th, Thursday. Time to be determined. We need members with telescopes, and any other visual items that would like to bring. We will be having a presentation before observing with the scopes, so any help would be appreciated!

We have the Palmdale Fall Festival on Saturday and Sunday, October 13th and 14th. This is an all day event. Members can sign up for part or all of one day, or both. We need scopes with solar filters, and any other items you may want to show the public. Also needed are several people to arrive early, time to be announced, to help set up. Please come out to support this fun activity and meet and greet the public!

Saturday, October 27th is a Moon Walk with Jeremy at Prime Desert Woodlands. Start time is 7pm, and set up time is before dusk. We need members to come out with their scopes to show the public the night sky! Please come out to support Jeremy and this event!

Also upcoming in November are: Joe Walker Super Science Saturday, Nov. 17th starting around 8:30am; Public and Club Star Party for the Leoind Meteor Shower also on Nov. 17th, in the evening, at the Poppy Reserve; and a Moon Walk with Jeremy at Prime Desert Woodlands the evening of Saturday, Nov. 24th.

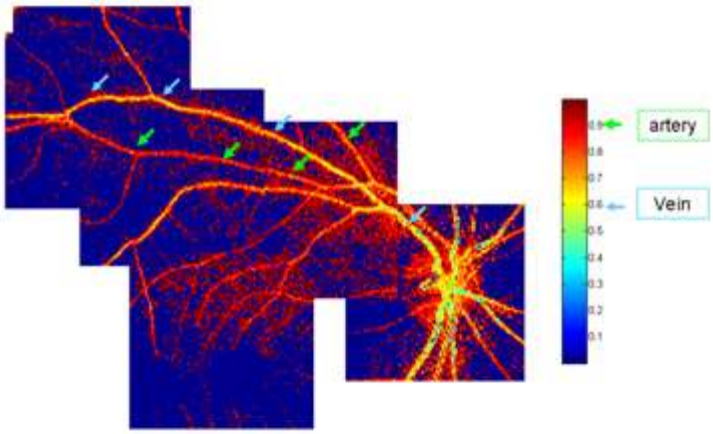
Please come out to support these events! We can not do these events without YOU! Also please attend October's club meeting on Friday, Oct. 12th for our business meeting and vote for next year's Executive Board!

Clear skies!
Rose M.

A Missile in Your Eye

by Patrick L. Barry

Satellite technology designed to catch ballistic missile launches may soon help doctors monitor the health of people's eyes. For the last 15 years, Greg Bearman and his colleagues at JPL have been working on a novel design for a spectrometer, a special kind of camera often used on satellites and spacecraft. Rather than snapping a simple picture, spectrometers measure the spectrum of wavelengths in the light coming from a scene. From that information, scientists can learn things about the physical properties of objects in the photo, be they stars or distant planets or vegetation on Earth's surface. In this case, however, the challenge was to capture snapshots of short-lived events—like missile launches! The team of JPL scientists designed the new spectrometer, called a computed tomographic imaging spectrometer (CTIS), in collaboration with the Ballistic Missile Defense Organization as a way to detect missiles by the spectral signatures of their exhaust.



This three-color composite image from the computed tomographic imaging spectrometer shows the oxygenation of the blood in the arteries and veins of a human retina. (Arteries appear red, veins appear yellow.) Click on the image for a larger view.

But now the scientists are pointing CTIS at another fast-moving scene: the retina of an eye. Blood flowing through the retina has a different spectral signature when it is rich in oxygen than when it is oxygen deprived. So eye doctors can use a spectrometer to look for low oxygen in the retina—an indicator of disease. However, because the eye is constantly moving, images produced by conventional spectrometers would have motion blurring that is difficult to correct. The spectrometer that Bearman helped to develop is different: It can capture the whole retina and its spectral information in a single snapshot as quick as 3 milliseconds. "We needed something fast," says Bearman, and this spectrometer is "missile-quick."

CTIS is even relatively cheap to build, consisting of standard camera lenses and a custom, etched, transparent sheet called a grating. “With the exception of the grating, we bought everything on Amazon,” he says. The grating was custom-designed at JPL. It has a pattern of microscopic steps on its surface that split incoming light into 25 separate images arranged in a 5 by 5 grid. The center image in the grid shows the scene undistorted, but colors in the surrounding images are slightly “smeared” apart, as if the light had passed through a prism. This separation of colors reveals the light's spectrum for each pixel in the image.

”We're conducting clinical trials now,” says Bearman. If all goes well, anti-missile technology may soon be catching eye problems before they have a chance to get off the ground.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

AVAC Observing Challenge

By Tom Koonce

This month's challenge is for beginners and advanced intermediate level amateur astronomers.

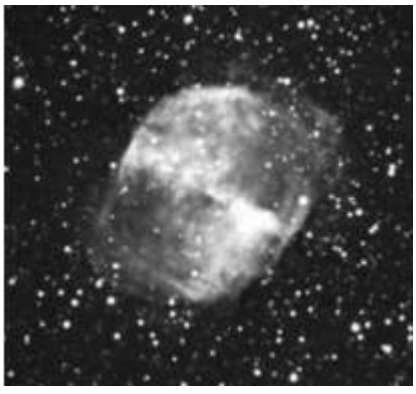
Darkness is falling earlier now and the stars are beautiful and there to enjoy… just don't forget to armor yourself against the chill! If you are going out in the middle of nowhere to observe, remember to bring along someone to share the experience with.

The Beginner's Challenge this month requires very little equipment beyond your two eyes, a comfortable chair, a blanket for warmth and your observing notebook to take notes. The Orionid meteor shower will be visible between October 16th and 27th with the peak activity forecasted to be well after midnight, but before dawn on October 22nd. The radiant is the point in the sky that appears to be the origin of all of the meteors, and in this instance will be from between Orion's Club and the constellation of Gemini. Peak rates in past years have been approximately 25 meteors per hour. Don't use binoculars or a telescope as they will just limit your view.

Start the evening with a sketch of the stars of Orion and Gemini or a photocopy of your planisphere setup for the date and time you'll be out. You'll use this to mark the meteor's origin and path in pencil. You'll be able to quickly determine if you've observed a random meteor or a genuine Orionid! To complete this challenge, you are to observe, track and record 5 Orionid meteors. Can you guess the name of the famous parent comet of the Orionids? The answer is at the end of this month's Observing Challenge.

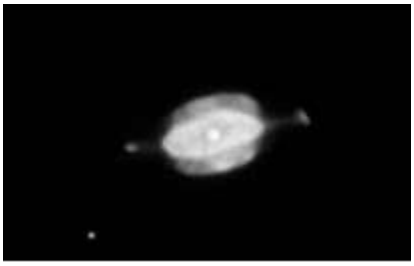
The Intermediate Challenge will require a telescope, starting with low and then moving to moderate power. In the case of M27, you may use 10x50 binoculars under very good skies. Since we've been observing several prominent globular clusters lately, we're going to try for more challenging quarry this month.

Intermediate Challenge



M27: Planetary Nebula. Right Ascension 19:59.6 (h:m), Declination +22:43 (deg:m), Estimated Distance 1250 (ly); Visual Brightness 7.4 (mag); Apparent Dimension 8.0x5.7 (arc min).

The Dumbbell Nebula (M27, NGC 6853) is perhaps the finest planetary nebula in the sky, and was the first planetary nebula ever discovered. It was recorded by Charles Messier on July 12, 1764. Distance estimates range from 490 to 3500 light years. Currently, investigations with the Hubble Space Telescope are under way to determine a more accurate value. This is a star party favorite that you will want to learn to find easily on your own.

Intermediate Challenge 	**M73:** Asterism of 4 stars. Right Ascension 20:58.9 (h:m), Declination -12:38 (deg:m), Distance 2500 (ly); Visual Brightness 9.0 (mag); Apparent Dimension 2.8 (arc min) M73 is hard to find. Use moderate to high power. Apparently, this group found its way into Messier's catalog because he had determined its position at the same time when measuring M72, which is 1.5 degrees to the west. It may have been included because of its "first-glance nebulous" appearance in Messier's instruments. This "Y"-shaped group of stars is well visible in 4-inch telescopes; the fourth star is notably fainter and difficult in these instruments. It is best found from M72 which is almost at the same declination (very slightly North) and 1.5 deg West.
Advanced Intermediate Challenge  *Images of NGC 7009* 	**NGC 7009 (Saturn Nebula):** Planetary Nebula. Right Ascension 21:04.2 (h:m), Declination -11:22 (deg:m), Distance 2.4 (kly), Visual Brightness 8.0 (mag), Apparent Dimension 0.4 x 1.6 (arc min). The Saturn Nebula was the first discoveries of William Herschel on September 7, 1782, when he started his great survey. This remarkable planetary nebula has its name from its appearance, which resembles a faint suggestion of the planet Saturn with rings nearly edge-on (Lord Rosse named it in the 1840s). It appears as an out-of-focus star, the telltale sign of most planetaries at low power. It is challenging to locate, but a rewarding object to view, sketch or image. Saturn Nebula Finder Charts are located here: http://www.astronomical.org/portal/modules/wfsection/article.php?articleid=96

The challenge of finding more difficult objects like the Saturn Nebula, teach many important lessons to the amateur astronomer. Observing skills sharpen, your personal "search pattern" skills are honed to a finer edge, and star-hopping skills improve. These are increasingly important as you advance from a beginner to an intermediate amateur, completing the Messier list and perhaps wanting to tackle the more challenging Herschel 400 list, conduct advanced planetary observations, or to become a more skilled astro photographer.

Clear Skies!
- Tom

Did you know? ? ?

The Orionid meteor shower has been traced back to Halley's Comet which sails through the inner solar system roughly every 76 years. During each passage past the sun it sheds some of its dust, which becomes a shower of meteoroids. The comet was last visible from Earth in 1986 and won't be visible again until about 2062.

News and Headlines

NASA Plans Bigger Moon Base, Sporty Rovers for Future Missions
The next astronauts to work on the moon will likely live in larger habitats and drive sporty new rovers capable of two-week treks, NASA officials said Thursday.
http://news.yahoo.com/s/space/20070920/sc_space/nasaplansbiggermoonbasesportyroversforfuturemissions

NASA Orbiter Finds Possible Cave Skylights on Mars
NASA's Mars Odyssey spacecraft has discovered entrances to seven possible caves on the slopes of a Martian volcano. The find is fueling interest in potential underground habitats and sparking searches for caverns elsewhere on the Red Planet.
http://www.nasa.gov/mission_pages/odyssey/odyssey-20070921.html

A Galaxy with the Wrong Shape
The Sloan Digital Sky Survey recently swept up a previously unseen dwarf galaxy 430,000 light-years away in Hercules. Astronomers naturally assumed that the diminutive star system was shaped like the 17 others buzzing around the Milky Way and the millions more in the realm beyond: round, or nearly so.
http://www.skyandtelescope.com/community/skyblog/newsblog/9894622.html

NASA Rover Reaches First Stop Inside Giant Martian Crater
NASA's Mars rover Opportunity has arrived at its first stop inside an expansive crater, where it is poised to reach out and touch what may be the ancient remains of the red planet's surface, mission managers said Wednesday.
http://news.yahoo.com/s/space/20070927/sc_space/nasaroverreachesfirststopinsidegiantmartiancrater

NASA's Dawn Spacecraft Enroute To Shed Light On Asteroid Belt
NASA's Dawn spacecraft is on its way to study a pair of asteroids after lifting off Thursday from the Cape Canaveral Air Force Station at 7:34 a.m. EDT (4:34 a.m. PDT). Mission controllers at NASA's Jet Propulsion Laboratory, Pasadena, Calif., received telemetry on schedule at 9:44 a.m. EDT (6:44 a.m. PDT) indicating Dawn had achieved proper orientation in space and its massive solar array was generating power from the sun.
http://www.spacedaily.com/reports/NASA_Dawn_Spacecraft_Enroute_To_Shed_Light_On_Asteroid_Belt_999.html

Mysterious energy burst stuns astronomers
In a shock finding, astronomers using CSIRO's Parkes telescope have detected a huge burst of radio energy from the distant universe that could open up a new field in astrophysics.
http://www.spaceref.com/news/viewpr.html?pid=23654

New Stars in a Galaxy's Wake
Like a pixie trailing fairy dust that makes flowers bloom, a lone galaxy is shedding gas that's forming stars as it plunges toward the center of a massive galaxy cluster.
http://www.skyandtelescope.com/news/10003481.html

Neptune's warm south pole
An international team of astronomers has discovered that Neptune's south pole is much hotter than the rest of the planet.
http://www.astronomy.com/asy/default.aspx?c=a&id=6032

Member Astrophoto of the Month

M92 - Taken on 6/15/07 by Steve Trotta using Meade DSI-C through a Celestron C9.25 @ F/6.3. Stack of 20 exp @ 30 sec each. Click on the image to see a full size version or visit the AVAC Photo Gallery to view all of our members photos.

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.

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