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

April 5: Dark Sky Star Party @ Mt. Pinos
April 11: Club Meeting*
April 14: Board Meeting @ Pedroza Flats
April 19: Poppy Festival @ Lancaster City Park
April 20: Poppy Festival @ Lancaster City Park

* 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

We are making steady progress on our goals for 2008 that we made in January. Our long-term plan is in the works with goals and hopes for the future. The final design for our club trailer is near to being a reality but…our work on our club history seems to have HIT a roadblock.

I have only had input from two club members about our history! I have been working hard to acquire past Desert Sky Observer newsletters with little response. Please if you have any DSO's prior to 2000 send us a copy. If you have any old newspaper clipping about the club or any info about the club prior to 2000 please share them. I would like to see a comprehensive history about our club for all to share. Thank you in advance for any help

In the next couple of months I will be showing the design for the inside of the club trailer for your input. We are trying to make the trailer even more user friendly than it now is! We envision a counter running along the left wall with cabinets underneath and closet space across the front. We are planning a walk-up ramp for the side door and many other items to showcase our club when we are out. A body wrap has also been brought up to enhance the outside appearance of the trailer and to put our name out there when it is parked at our many events.

Lastly, Jen Riedhart is working hard on making our long-range plan a reality. She has been getting our inputs and putting them into something that we can use for OUR clubs future. Thank you Jen!

I'll see you at the next club event,

Clear Skies

Vice President
Debora Pedroza

It's hard to believe that spring is nearly here; bringing us fairer skies and new club activities to participate in. One of the tools that our club takes advantage of to help us show visuals of astronomy is the "Night Sky Network". Last year about a dozen interested club members got together and spent an afternoon viewing the Night Sky Network video materials and various kits. It was thoroughly entertaining and informative. Our club members will all get a chance to see a presentation on the Night Sky Network at our April club meeting. Dick Hague will emcee this special presentation and our speakers will be our very own Rose Moore, Karole Barker and Matt Leone. It should be quite enjoyable, especially with Matt to humor us along the way!

The awards ceremony for the Youth Exploring Astronomy Essay Contest winners will not be held on the night of our club meeting in May. We will have a mystery speaker that I have been working closely with. You will not be disappointed. The YEA awards ceremony will be held at the planetarium on May 14 or May 15. I am still working on getting dignitaries, school administrators and space personnel to attend and trying to accommodate all of their schedules is a bit of a challenge. I will keep our web master posted on upcoming details so you can come out and support these kids' enthusiasm and efforts!

Until then, everyone take good care.

Director of Community Development
Karole Barker

The month of April has a few events for our club, starting Saturday April 5th with our dark sky party at Mt. Pinos. The Poppy Festival is April 19th & 20th here in Lancaster. We will need volunteers for each day at the festival. Please either call or e-mail me if you are going, so I can have enough passes for each day.

The Science Fair at Leona Valley Elementary is on April 24th. We need volunteers early in the day for judging the science projects. We only have three judges so far and need at least 5 more! We will meet at 1:00 pm at the school for a Judges meeting where we'll tell you everything you need to know to judge the displays, hand out scoring sheets and pencils, and have some have refreshments. All you need to do is show up and have fun. In the evening we need members with scopes, from 6:30 pm to 7:30 pm, on the school playground to show the kids Saturn in the daylight and Mercury just after the Sun sets. If you have any question, please contact me or Tom Koonce.

On May 3rd we have a dark sky party at Saddleback Butte State Park. On May 10th it is National Space Day as well a Moon Walk at Prime Desert Woodlands. We will need members with scopes to help out. In May 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. Please come out to support our club.

Clear Skies,
Karole Barker

AVAC Observing Challenge

By Tom Koonce

We had a real AV Blow Out for the March Messier Marathon, but there are still two bits of good news; the first is that all of the Messier Objects are still up in the sky and we can still see them anytime we want… of course not all of them in one night, but probably no one except for Matt, Steve, Terry, Darrell and a few others were really going see all 110 objects anyway; and second, our next Dark Sky Star Party will be April 5, 2008, up on Mt. Pinos, outside of Frazier Park with FANTASTIC viewing of the sky. You can find complete driving directions and a map if you visit: http://www.avastronomyclub.org/sites/pinos.htm.

After all your preparation to get ready for the Messier Marathon in March, why not bring your scope up to Mt. Pinos in April, even if you've never taken the drive before? It's only about an hour from your front door to the top of the mountain on great roads and through beautiful scenery. The parking lot of Mt. Pinos is over 8000 ft, putting you above most of the atmosphere, and you will literally be surrounded by amateur astronomers and telescopes. But there is a warning: If you're not extremely careful, you might have a lot of fun and learn more about the sky in the process! Plan your arrival at the top of the mountain no later than 4:00 pm so that you can set up in the parking lot in daylight and talk to the other astronomers. Remember to back into your space so you won't have to use your reverse lights on the car when leaving later. And since I'm always asked…Yes, there are PortaPotties at the top, but no running water. Dress very warmly.

Remember the necessary items to bring?

- A good low power, wide-field eyepiece.
- A Telrad Finder Scope
- An Oxygen III Nebula Filter (The Swan and Veil nebulae are stunning through an OIII)
- "Finder Charts of The Messier Objects", by Brent Watson
- Body / Hand Warming Packs

Challenge 1

Beginner:

This month is a great month to catch your last decent views of the Orion Nebula. It will soon be setting into the dusk and you'll have to wait for a couple of months before it emerges around the Sun back into the pre-dawn hours. But who wants to get up that early anyway? Enjoy it now as one of the first objects you view after sunset.

Saturn and its Magnificent Rings

Saturn is an easy target just after sunset as the brightest object due south. Look approximately 60 degrees up from the horizon. If you know where to look, Saturn is an easy target even in the day time. With the rings oriented as they are at present, you can clearly see that Saturn rotates so quickly that its poles are squished down and the center of the planet bulges out. You science professor would call this shape an 'oblate spheroid' but it's more fun to call it a squished down ball shape. A careful observer with a moderate 6" or larger telescope will be able to clearly distinguish up to five Saturnian moons. The chart in the monthly astronomy magazines will allow you to sort out which moon is which. It's more fun study Saturn when you know which point of light is a star and which is a moon in orbit around this beautiful world.

Intermediate:
With your telescope polar aligned, prepare a sketch of Saturn and the surrounding star field. Make the sketch as detailed as possible. Allow at least 15 minutes to draw out the planet. Mark down the time on your sketch and which direction is north. Wait two hours and then repeat the drawing. Comparing the two sketches will reveal which points of light were Saturn's moons and which were stars.

Advanced:
If you repeated the observations several more times, you could determine the orbits of each moon and even determine the moon's mass, for some real science. Alternatively, try astro-imaging the system and preparing a time lapse sequence of the orbiting bodies.

Challenge 2

Beginner:
Find the constellation Orion. Now look to the upper right for two equally bright stars, Pollux and Castor (left to right), the heads of the Gemini Twins. Next, look slightly below them and locate the third bright point of lights which forms a downward pointing triangle with the Twins. This point of light may have a slightly orange tint to it. Point your telescope at this and see if you can resolve the planet Mars as a disk. Congratulations! You've found your second planet for the evening!

Intermediate:
Try observing Mars through an orange and red filter separately. Can you make out a change in contrast of any surface features? Mars' apparent size continues to shrink quickly, so ideally you'll need at least an 8 inch scope and good seeing conditions.

Challenge 3

Intermediate:
Find the bottom of the cup of the Big Dipper. Use your Messier finder charts to locate M97 in your eyepiece, the Owl Nebula. Using averted vision, study the Owl and try to see as much detail in the nebula as possible. Burn it into your brain, or make a sketch. THEN, take out your eyepiece and screw in an OIII (ionized Oxygen filter) into your eyepiece. Now carefully compare the views. Quite a difference, isn't there? Remember, filters don't add anything to your view. They filter out the wavelengths of light that we don't want and thus improve the contrast of the view. In this instance your OIII allows only light with a wavelength of 532 nanometers to pass and blocks all of the other random starlight.


M97 – The Owl Nebula

Advanced:
Use the OIII filter to determine the greatest extent of Barnard's Loop in M42. Take your time and work in a spiral pattern outward from the center of the Orion Nebula. Estimate its angular size in degrees.

Clear Skies!
Tom

Tracking Wildlife from Space

by Patrick Barry

It's 10 o'clock, and do you know where your Oriental Honey Buzzard is?

Tracking the whereabouts of birds and other migrating wildlife across thousands of miles of land, air, and sea is no easy feat. Yet to protect the habitats of endangered species, scientists need to know where these roving animals go during their seasonal travels.

Rather than chasing these animals around the globe, a growing number of scientists are leveraging the bird's-eye view of orbiting satellites to easily monitor animals' movements anywhere in the world.

The system piggybacks on weather satellites called Polar Operational Environmental Satellites, which are operated by the National Oceanic and Atmospheric Administration (NOAA), as well as a European satellite called MetOp. Sensors aboard these satellites pick up signals beamed from portable transmitters on the Earth's surface, 850 kilometers below. NOAA began the project—called Argos—in cooperation with NASA and the French space agency (CNES) in 1974. At that time, scientists placed these transmitters primarily on buoys and balloons to study the oceans and atmosphere. As electronics shrank and new satellites' sensors became more sensitive, the transmitters became small and light enough by the 1990s that scientists could mount them safely on animals. Yes, even on birds like the Oriental Honey Buzzard.

“Scientists just never had the capability of doing this before,” says Christopher O'Connors, Program Manager for Argos at NOAA.

Today, transmitters weigh as little as 1/20th of a pound and require a fraction of a watt of power. The satellites can detect these feeble signals in part because the transmitters broadcast at frequencies between 401 and 403 MHz, a part of the spectrum reserved for environmental uses. That way there's very little interference from other sources of radio noise.

“Argos is being used more and more for animal tracking,” O’Connors says. More than 17,000 transmitters are currently being tracked by Argos, and almost 4,000 of them are on wildlife. “The animal research has been the most interesting area in terms of innovative science.”

For example, researchers in Japan used Argos to track endangered Grey-faced Buzzards and Oriental Honey Buzzards for thousands of kilometers along the birds' migrations through Japan and Southeast Asia. Scientists have also mapped the movements of loggerhead sea turtles off the west coast of Africa. Other studies have documented migrations of wood storks, Malaysian elephants, porcupine caribou, right whales, and walruses, to name a few.

Argos data is available online at www.argos-system.org, so every evening, scientists can check the whereabouts of all their herds, schools, and flocks. Kids can learn about some of these endangered species and play a memory game with them at spaceplace.nasa.gov/en/kids/poes_tracking.

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

News and Headlines

European Spaceship Passes Rendezvous, Escape Tests
Europe's first automated "Jules Verne" cargo ship passed several crucial tests today above the Earth in preparation for docking at the International Space Station (ISS) in less than a week.
http://news.yahoo.com/s/space/20080329/sc_space/europeanspaceshippassesrendezvousescapetests

Cassini Tastes Organic Material at Saturn's Geyser Moon
NASA's Cassini spacecraft tasted and sampled a surprising organic brew erupting in geyser-like fashion from Saturn's moon Enceladus during a close flyby on March 12. Scientists are amazed that this tiny moon is so active, "hot" and brimming with water vapor and organic chemicals
http://www.nasa.gov/mission_pages/cassini/media/cassini-20080326.html

WMAP Reveals Neutrinos, End of Dark Ages, First Second of Universe
NASA released this week five years of data collected by the Wilkinson Microwave Anisotropy Probe (WMAP) that refines our understanding of the universe and its development. It is a treasure trove of information, including at least three major findings.
http://www.nasa.gov/topics/universe/features/wmap_five.html

Photo Suggests Planet Under Construction
Astronomers have peered into the womb of a stellar disk to capture an image of material falling onto what could be a planet in an early stage of formation.
http://news.yahoo.com/s/space/20080327/sc_space/photosuggestsplanetunderconstruction

A Record-Breaking Gamma-Ray Burst
With NASA's high-energy Swift Observatory in orbit, cosmic gamma-ray bursts just keep setting new records. The most powerful one yet — in fact, the most violent event ever seen in the universe — flashed into view on the morning of March 19th.
http://www.skyandtelescope.com/news/16952546.html

Space rocks from the beginning
Using visible and infrared data collected from telescopes on Hawaii's Mauna Kea, a team of scientists, led by the University of Maryland's Jessica Sunshine, has identified three asteroids that appear to be among our solar system's oldest objects.
http://www.astronomy.com/asy/default.aspx?c=a&id=6757

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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