Desert Sky Observer

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NEWSLETTER OF THE ANTELOPE VALLEY ASTRONOMY CLUB, INC
P.O. BOX 4595, LANCASTER, CALIFORNIA 93539-4595
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 1: Star Party, Saddleback
October 3: Public Star Party, Prime Desert Woodlands
October 3: New Moon
October 8-9: Fall Festival
October 10: First Quarter Moon
October 14: **Monthly Club Meeting***
October 17: Full Moon
October 25: Third Quarter Moon
October 29: Star Party, Saddleback

* Monthly meetings are held at the S.A.G.E. Planetarium at the Cactus School in Palmdale on 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*

***Editor's Note*:** Due to illness, club president Debora Pedroza will not be able to provide her monthly report. Director of Community Development Terry Pedroza is busy taking care of her and also will be unable to give his report.

Vice President Mindy Peterson

What a great turnout we had for last month's meeting featuring Brian Binnie as our guest speaker. He kept us spellbound as he gave us the story of SpaceShipOne from start to finish. We also learned more about Scaled Composites and what they have in store for the future. The Club held a silent auction fundraiser featuring several signed photographs of the SpaceShipOne mission, a signed calendar, and a coffee mug. Half of the proceeds went to Brian Binnie and half went to the Club. Thank you to all of the participants. If you did not attend the September meeting, you missed out on hearing a man who is going to go down in history as one of the world's first private astronaut.

The month of October brings us to the annual business meeting. We will be voting in a new slate of officers and I encourage all of you to attend and participate in the election. If anyone would like to nominate someone to run for a particular office, you will be able to do so prior to the vote. After the business portion of our meeting, we will be featuring an annual event- "Ask The

Experts." A panel of experts from our Club will be on hand to answer questions from the audience. Questions can range from simple astronomy questions to astrophotography to complex issues. Come prepared to fire off those questions to our panel.

During the month of November, we will have a great opportunity to view Mars. We have a special public star party set up for that event on November 12th at the Poppy Reserve. The Club expects a huge turnout from the public so we will need volunteers to man scopes. If you have taken the Beginner's Class and would like to check out a scope for this event, please see Terry Pedroza or Matt Leone at the October meeting.

In December, we will have our annual Christmas party at Eduardo's. It is always a lot of fun. We will be accepting donations for raffle prizes, which do not necessarily have to be astronomy related. Until next month, clear skies to all.

Rich Harper's Planet Watch

Mercury:
Mercury begins the month very close to the sun in the evening sky, a few degrees from both Spica in Virgo and Jupiter. It will slowly increase in separation from the sun, from about 10 degrees to 23 degrees by the end of the month, which is when viewing should be best.

Venus:
Venus begins the month well-separated from the Sun and will be well-placed for viewing all month long. Venus will lie due southwest at sunset, in Libra. Venus will be passing through the heart of Scorpius later in the month, and will lie between M80 and M4 on the 13th and 14th. On the 23rd, Venus should pass within 15 arc-minutes of the oblate globular cluster M19 in Ophiuchus, though it is likely that dusk will interfere with observations.

Mars:
Mars lies on the Aries/Taurus border this month, and will pass within 5 degrees of the moon on the 19th. But who cares? Mars reaches opposition at the end of this month. While the 2003 opposition was a bit closer. this opposition will have Mars much higher in the sky for northern hemisphere observers- around 70 degrees elevation. Martian surface features are now distinct even in small refractors. When observing Mars, remember to use your colored filters. As we pass though the color spectrum, we pass through various depths of the Martian atmosphere. Violet filters will show Martian limb hazes and other upper atmosphere phenomena, but because they pass very little light, you will likely need an eight-inch or larger scope to use them effectively. Blue filters, by darkening the Martian surface, will highlight white clouds and ices on the surface. Yellow filters will show dust storms. Orange filters will filter out most atmospheric effects, and show the surface to the best degree. Red filters will increase the contrast of surface features, though, because they pass little light; larger apertures are to be preferred.

Sky and Telescope's web site is still running the Mars Profiler, which will show which features are visible at any time. The link is http://skyandtelescope.com/observing/objects/planets/article_997_1.asp and the Profiler launcher is at the end of this article. You will need your browser's cookies enabled to use the profiler.

Jupiter:
Jupiter begins and ends the month very close to the sun. Setting about an hour after sunset on the 1st, Jupiter will rise about 20 minutes before dawn on the 31st. While not ideally situated for telescopic observation this month, Jupiter will form a nice visual or binocular pairing with Mercury on the 5th, separated by a bit over one degree.

Saturn:
Saturn is visible in the early morning hours in Cancer near M44. Rising around 2:00 a.m., if you've stayed up all night observing Mars, you can stay up just a bit longer and catch Saturn. However, since Saturn drifts though the sky at a leisurely 15 degrees per year, you can leave it in Cancer this month and it will still be there in November.

Uranus:
Rising at 2:00 p.m. and setting at 1:00 a.m., Uranus lies in Aquarius. It shines at magnitude 5.8 and has an apparent diameter of 3.6 arcseconds. It could provide a challenging warm-up to this month's main event.

Neptune:
Neptune is a bit tougher than Uranus. Neptune lies in Capricornus, has a magnitude of 7.9 and an angular diameter of 2.2 arcseconds. While you are waiting for Mars, spend some time on Uranus and Neptune.

Where No Spacecraft Has Gone Before

by Dr. Tony Phillips

In 1977 Voyager 1 left our planet. Its mission: to visit Jupiter and Saturn and to study their moons. The flybys were an enormous success. Voyager 1 discovered active volcanoes on Io, found evidence for submerged oceans on Europa, and photographed dark rings around Jupiter itself. Later, the spacecraft buzzed Saturn's moon Titan- alerting astronomers that it was a very strange place indeed!- and flew behind Saturn's rings, seeing what was hidden from Earth.

Beyond Saturn, Neptune and Uranus beckoned, but Voyager 1's planet-tour ended there. Saturn's gravity seized Voyager 1 and slingshot it into deep space. Voyager 1 was heading for the stars- just as NASA had planned.

Now, in 2005, the spacecraft is nine billion miles (96 astronomical units) from the Sun, and it has entered a strange region of space no ship has ever visited before.

"We call this region "the heliosheath." It's where the solar wind piles up against the interstellar medium at the outer edge of our solar system," says Ed Stone, project scientist for the Voyager mission at the Jet Propulsion Laboratory.

Out in the Milky Way, where Voyager 1 is trying to go, the "empty space" between stars is not really empty. It's filled with clouds of gas and dust. The wind from the Sun blows a gigantic bubble in this cloudy "interstellar medium." All nine planets from Mercury to Pluto fit comfortably inside. The heliosheath is, essentially, the bubble's skin.

"The heliosheath is different from any other place we've been," says Stone. Near the Sun, the solar wind moves at a million miles per hour. At the heliosheath, the solar wind slows eventually to a dead stop. The slowing wind becomes denser, more turbulent, and its magnetic field- a remnant of the sun's own magnetism- grows stronger.

So far from Earth, this turbulent magnetic gas is curiously important to human life. "The heliosheath is a shield against galactic cosmic rays," explains Stone. Subatomic particles blasted in our direction by distant supernovas and black holes are deflected by the heliosheath, protecting the inner solar system from much deadly radiation.

Voyager 1 is exploring this shield for the first time. "We'll remain inside the heliosheath for 8 to 10 years," predicts Stone, "then we'll break through, finally reaching interstellar space."

What's out there? Stay tuned…

For more about the twin Voyager spacecraft, visit voyager.jpl.nasa.gov. Kids can learn about Voyager 1 and 2 and their grand tour of the outer planets at spaceplace.nasa.gov/en/kids/vgr_fact3.shtml .

AVAC Product Review

by Tom Varden

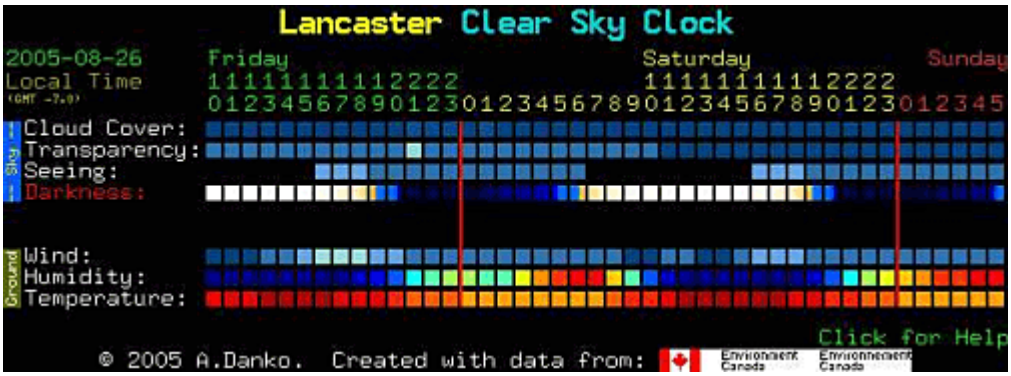
I was reluctant to write a product review initially. My budget dictates that most of the astronomy gear I buy is second hand or economy in nature. I use a 5-year-old digital camera on a 23-year-old telescope on a 2-year-old Chinese mount. These are not habits I wanted to encourage. Most of my new gear is some custom machined piece of aluminum that only I need and that most people will never use. Then, it hit me.

I had found the perfect product to review. I use it everyday. I don't ever set up my telescope without using it first. It can also benefit everyone in the club. To top it all off, the product is free.

When I plan to observe, I don't do anything until I've checked the Clear Sky Clock. We are all looking for the best views of space, whether visually or photographically. Most of us are engaged in a never-ending upgrade of gear, replacing eyepieces and filters and then buying larger telescopes on and on. Yes, the view gets better, but when you reach the end of your bank account, the only thing you have left is the weather. The only thing you can do once you've bought everything in *Sky & Tel*, is get somewhere darker or wait for an exceptionally good night. The Clear Sky Clock can help us do both.

Log on to http://cleardarksky.com/csk/ where you can pick the clock closest to your observing site from a list of states and provinces, or you can choose by latitude and longitude, click on a map or search for your town. If there isn't a clock nearby, they might even make one for your location. Luckily, most of the locations used by the AVAC have their own clock.

Once you pick a clock you'll see this:



For those of you who don't already use the CSC, the graph above is a forecast of weather conditions specifically tailored for astronomical observation. There are 7 seven variables plotted over time to help you make a sound judgment about the weather overhead. Six of these variables are calculated to forecast the seventh, seeing. As you probably already know, the view through your scope, binoculars, or even your naked eye depends heavily on the seeing. Seeing is a measure of the stillness of the air between you and your target. The earth radiates its heat into the

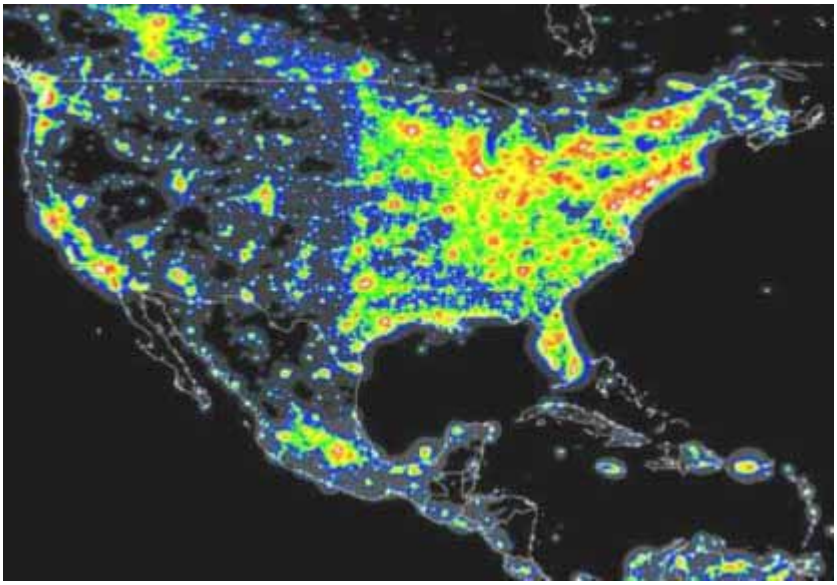
air and temperature differences can refract the light from distant objects and ruin your whole night. If the air is steady, the view is good. If the jet stream is overhead and the stars are twinkling like mad, I don't bother setting up.

To illustrate the effect seeing has on observation, consider this,

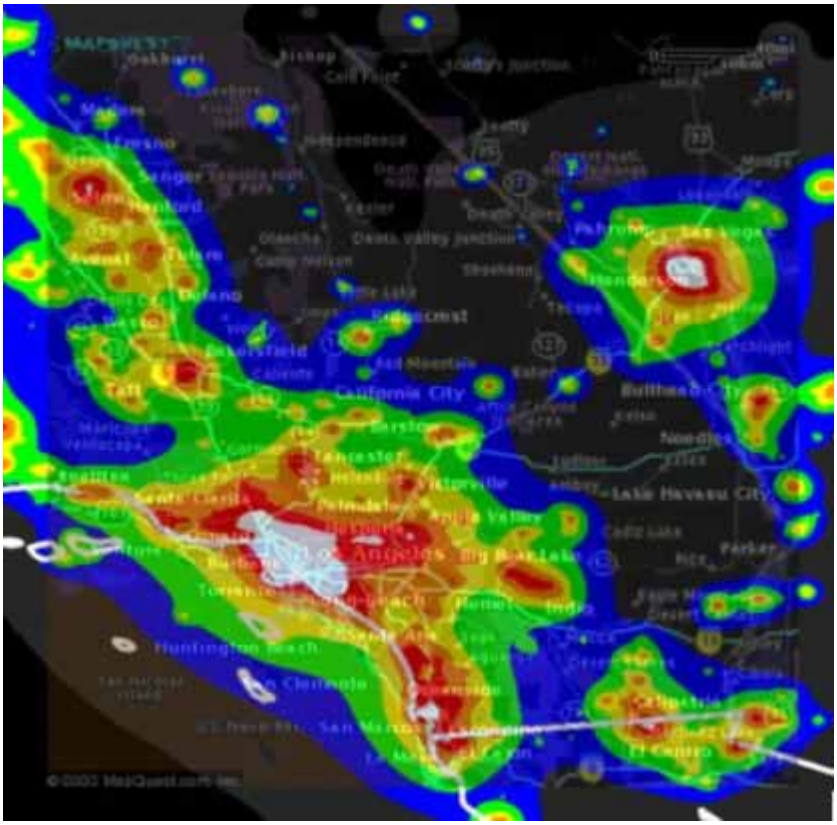
The photo on the left was taken with an 8"SCT on my driveway in Lancaster on a night with fair seeing, while the photo on the right was taken with the 60" telescope at Mt. Wilson on a night of bad seeing. Obviously, if conditions had been the same at both locations, the 60" would have greatly outperformed my 8", and we can see it did not.

Now that we've got that out of the way, the Clear Sky Clock can help you avoid those nights of frustration where the seeing reduces your priceless scope into junk and conversely, it can help you find those nights where you never knew your scope was so good.

It doesn't end there. Another great feature to the CSC is the light pollution map. For those of you who like deep sky objects, pay close attention. Here in Southern California, an amateur astronomer's nemesis is light pollution. We all run to Mt. Pinos or Red Rock Canyon to get that inky black sky whenever we get a chance. Over the years, even Mt. Pinos has been victim to nearby development and is no longer as dark as it once was. Where can we go? CSC to the rescue. Click on the red link that reads, "Light Pollution Map," and you'll get this:



With a little bit of Mapquest and a little bit of photoshop and a lot of zooming, we can do this:



This is a map of the light pollution in the L.A. area complete with towns and highways. Now with the help of the CSC, we can find that special place where the lights of Los Angeles don't compete with the light from distant galaxies.

So the Clear Sky Clock can show us not only when to go out for a good nights observing, but also where to go for dark skies. Not bad for free. I've found after about three years that the clock is very accurate. It is, however, just a forecast, so it never hurts to walk outside and look up for yourself. It has aided my observation for years and is now a prerequisite for my sessions. Most of the stories I've heard about jaw-dropping celestial or planetary views can be explained by 3 factors: good equipment, good seeing and good location. Thanks to Atilla Danko, the creator of the Clear Sky Clock, we can find the right seeing and the right location, but the equipment is up to you. For more on how to use the clock, please visit: http://cleardarksky.com/csk/

Did you know? ? ?

After this visit, Mars will not return again until the end of 2007.

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Astrophoto of the Month

Tom Varden took this shot of the Minotaur rocket launch on September 22.

Submit your "Astrophoto of the Month" to the following address by the 20th of each month: newsletter@avastronomyclub.org

A.V.A.C. Board Members

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Ford E250 Van: good for star gazing; factory built camper special where the rear bench seat folds down into a full size bed; small folding table; excellent condition, interior like new; too good to go to auto heaven. Call Bob Olesen, (714) 544-5666

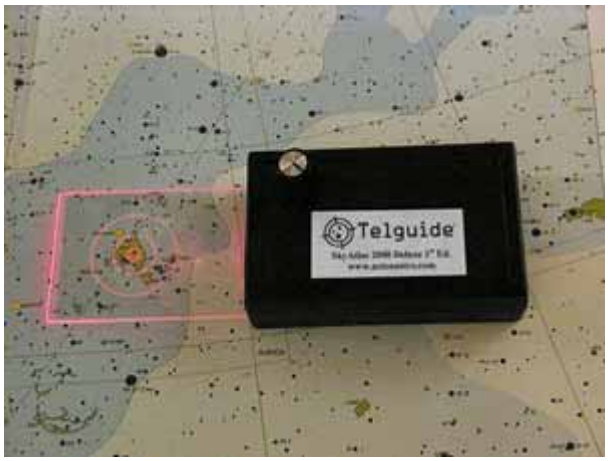
Our Sponsors

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.

QNET: 1529 E. Palmdale Blvd., Suite 200. (661) 538-2028. As an Internet provider, they are kind enough to provide us with a free website.

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

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



The ***Telguide***.

Our own Steve Trotta has invented the Telguide to aid you in your galactic hunts. For more information on how a Telguide can help you, click here.

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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.

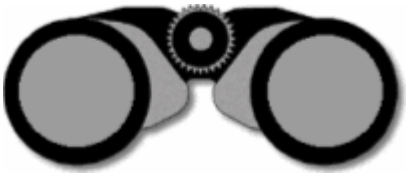
- Family membership at $30.00 per year.
- Individual membership at $25.00 per year.
- Junior membership at $15.00 per year.

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 Look Ahead…



Upcoming Events

November 12: Mars Star Party, Poppy Reserve
December 3: Annual Christmas Party

Astronomy Links on the Web

http://www.darksky.org/ (International Dark-Sky Association)

http://www.astro-tom.com/ (Tom Koonce's website)

http://www.noexitrecords.com/zerobox/astro.htm (Tom Varden's website)

http://www.astropaws.com (Terry Babineaux's astrophotos)

http://www.actonastro.com/ (Steve Trotta's website)

http://saturn.jpl.nasa.gov/multimedia/images/latest/index.cfm (the latest Saturn pics from Cassini)

http://astronomy-mall.com/ (shop 'til you go broke)

http://www.nineplanets.org/mars.html (Mars)

http://marsprogram.jpl.nasa.gov/ (and more Mars)

http://www.avastronomyclub.org/ the club's great website, run by Steve Trotta