
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 Darksky Association



Up-Coming Events

- September 6:** Last Quarter Moon
- September 10:** Monthly Club Meeting*
- September 11:** Walk of Honor, Lancaster
- September 11:** Star Party, [Saddleback Butte](#)
- September 14:** New Moon
- September 21:** First Quarter Moon
- September 26:** Children's Museum of AV event
- September 28:** Full Moon

* 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

President's Report

Terry Babineaux

The last time I found myself disoriented and spatially confused in the windowless void known as a shopping mall, it occurred to me that though we as humans have strayed far from our natural roots, the bond is not entirely broken. In my case, without windows through which reliable shadows could project, I simply could not figure out which way was north, south, east or west. I don't know how many of you have emerged from such a cavern into the parking lot to discover that your car is gone. It is only after the panic has resided a bit that you realize that you are in the *north* parking lot while your car is in the *south*! I never have such problems when I'm in the sunlight (or starlight, for that matter). Some internal mechanism, provided by Mother Nature and keying off natural light sources and other clues, provides a built-in guidance system. When these clues are cut off by roofs and lack of windows, the natural bond breaks and the guidance goes astray.

My neighbors recently installed low-intensity lighting in their back yard. My observatory blocks most of this, making this unwelcome intrusion more of a nuisance than a hindrance to my observing activities. I find it very ironic that at one end of the spectrum we have people asserting light *into* the night sky while at the other they avoid the light *from* the sky by congregating inside monolithic department stores and office buildings. It seems as if we are deliberately contrary and spiteful of whatever Mother Nature is providing for us at the moment.

At our last meeting, Terry Pedroza described the sense of peace attainable by drawing objects seen through his telescope. Though I don't personally do drawings in this way, I have found that nature is full of such opportunities. Who cannot help but feel a sense of relaxation when passing a waterfall or an expansive vista with a distant mountain range in the background. Conversely, man-made shapes, such as freeways and skyscrapers, only make me nervous and apprehensive.

It is only recently, after many years of observing, that I have come to have a sense of the shape, texture, and size of objects in the night sky. This makes the universe more accessible while simultaneously increasing its mystery. Sitting next to my telescope, I have spent countless peaceful hours thinking of these things. As with witnessing beauty, exploring one's bond with nature is both simple and pleasing to behold yet extremely complex in its implications.

Vice President's Report

Doug Drake

Well ya'll, I'm back from Ft. Worth, Texas, for the rest of the year and I can get back into the Club saddle. As I am getting into the saddle again, I feel like I'm ready to ride, but there is something that I need to talk about. I love this club, its Board members, club members and the very spirit that makes this club wonderful. Our club has progressed from the old days of virtual dormancy to the dynamic machine that it has become today.

Our club supports a large number of quality activities. To name just a few, they are: Aerospace Walk of Fame, Children's Museum of Lancaster, Palmdale Boys and Girls Club, Prime Desert Woodlands, California Poppy Reserve, Poppy Festival, Palmdale Fall Festival, Painted Turtle, Youth Exploring Astronomy Essay Contest, Devil's Punchbowl, Beginner's Class, club meetings, SAGE Planetarium support, youth group, equipment library, equipment storage, news letter (DSO), website, club picnic, club Christmas dinner and star parties each month.

By now you're probably wondering were I'm going with this. My point of listing some of our activities is not pointing out the qualitative value, but the quantitative number. Sure, we have quality built into our club because the spirit of our Board members and club members is the very best. What I'm noticing, while getting back into the saddle, is the small number of people who participate to make all of our activities happen. Beautiful people like you make the difference- each of us. Without you we have no agenda, no activities and in fact no club. At the next club meeting, Friday, September 10th, each of us needs to put our name on a list of "What can I do for my club." This list should be there at each meeting. We need not worry about what we can do, but that we are simply available to support our club.

As I told our club president, Terry Babineaux: A captain, with a small crew can only command a small ship and with a large crew command a large ship. We have become a large club and need a large crew as only you can do.

Dir. of Community Development*Michael Roberson*

We have much to look forward to in the coming months. Summer is almost past, and fall is coming soon. With that, there is the Palmdale Fall Festival. The dates are October 9th and 10th. This is an all-day event for both days, and everyone is invited to attend with the club. Please get in touch with me if you can be a part of this event.

Also, we look forward to our next star party at Saddleback Butte. This is one of the club's favorite places for star parties.

Also coming in October is our annual club business meeting. This is important to help chart the course of our club for the coming year. For those who are thinking about joining the club, this is the time to find out how we do business.

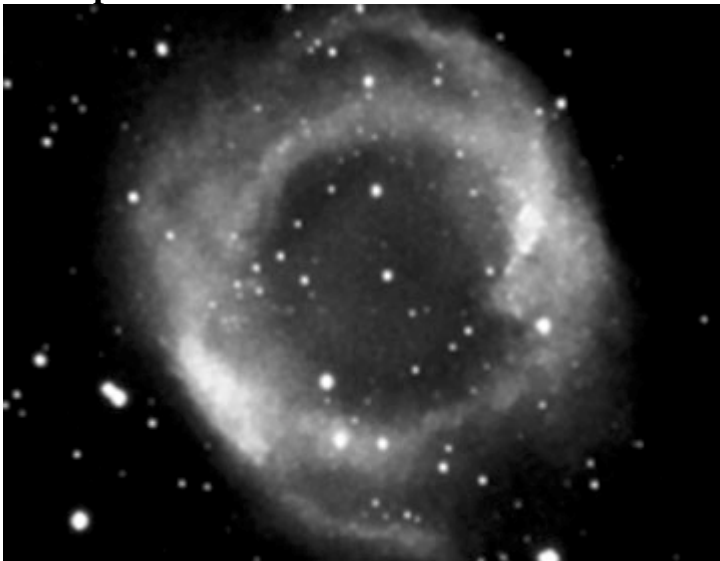
I am still looking for any ideas that any of you have about doing more events. Do you have any ideas? Please let me know. Don't be shy.

At the next club meeting at the SAGE Planetarium, our next speaker will be our very own Doug Drake. The talk will be on the Big Bang Theory. This is one that I have been waiting for, and would really like to see every member attend.

Our meetings have been a little small during the summer, due largely to vacations, and now we hope to see more people coming to the meetings again. If you know of someone who has not been around in a while, please encourage them to rejoin our team. We miss them. Every one of us brings something unique to our club, and we look forward to having you all.

Remember to check our website to keep abreast of any new activities that come up. The nights are starting to cool down, so get out your warm clothes again. I look forward to seeing as many people as possible at our next star party.

Keep looking up!

Astrophoto of the Month:

NGC7293 "Helix Nebula" Photographed by Terry Babineaux, Lake Elizabeth

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

Doug Drake's *Planet Watch*



The morning sky holds our planet delight this month. Venus, Saturn, the Moon and Mercury will be close to each other on the mornings of Sept. 9th, 10th and 11th. Look to the east before sunrise with your binoculars and spot Mercury just above the horizon.

Sun

This is the month the Sun crosses the celestial equator, September 22nd, which is known as the autumn equinox, the first day of autumn.

Moon

This is the month of the Harvest Moon, September 28th. The Moon will be large and bright on the horizon just after sunset. Look and see. A long time ago it gave light to farmers and helped them bring in the harvest just after the Sun set.

Mercury

Mercury is at greatest elongation from the Sun on September 9th and this is the best time to spot the swift running planet. Mercury will be observed as a half disk. Mercury runs so fast that you have to observe him around greatest elongation because he will disappear out of sight soon afterwards. Hint: Mercury will be next to the bright star Regulus. Hint: Use your binoculars.

Venus

Venus is still the morning lady of the morning sky. Very brilliant and requires an ND filter to see her gibbous shape.

Saturn

You will find Saturn just above Venus shining with a slight yellow-white. The lady Venus will get farther away from Saturn and start her journey around the Sun so she will become lower and lower in each morning sky. Something to look for: Titan, Saturn's biggest and brightest moon, will be just north of Saturn on September 9th and south on September 17th.

Uranus and Neptune

You will need a dark sky to observe these two jewels. Uranus is near the star Sigma Aquarius, which is due south at about Midnight. Neptune is close to Theta Capricorn, just to the right of Aquarius.



Resisting Retirement: Earth Observing 1

by Patrick L. Barry

The Hubble Space Telescope isn't the only satellite that scientists have fought to keep alive beyond its scheduled retirement. Scientists also went to bat for a satellite called EO-1, short for Earth Observing 1, back in 2001 when the end of its one-year mission was looming.

The motivation in both cases was similar: like Hubble, EO-1 represents a "quantum leap" over its predecessors. Losing EO-1 would have been a great loss for the scientific community. EO-1, which gazes back at Earth's surface instead of out at the stars, provides about 20 times more detail about the spectrum of light reflecting from the landscape below than other Earth-watching satellites, such as Landsat 7.

That spectral information is important, because as sunlight reflects off forests and crops and waterways, the caldron of chemicals within these objects leave their "fingerprints" in the light's spectrum of colors. Analyzing that spectrum is a powerful way for scientists to study the environment and assess its health, whether it is measuring nitrate fertilizers polluting a lake or a calcium deficiency stressing acres of wheat fields.

Landsat 7 measures only 8 points along the spectrum. In contrast, EO-1 measures 220 points (with wavelengths between 0.4 to 2.5 μm) thanks to the prototype Hyperion "hyperspectral" sensor onboard. That means that EO-1 can detect much more subtle fingerprints than Landsat and reveal a more complete picture of the chemicals that comprise the environment.

As a NASA New Millennium Program mission, the original purpose for EO-1 was just to "test drive" this next-generation Hyperion sensor and other cutting-edge satellite technologies, so that future satellites could use the technologies without the risk of flying them for the first time. It was never meant to be a science data-gathering mission.

But it has become one. "We were the only hyperspectral sensor flying in space, so it was advantageous to keep us up there," says Dr. Thomas Brakke, EO-1 Mission Deputy Scientist at NASA's Goddard Space Flight Center.

Now, almost three years after it was scheduled to be de-orbited, EO-1 is still collecting valuable data about our planet's natural ecosystems. Scientists have begun more than a dozen environmental studies to take advantage of EO-1's extended mission. Topics range from mapping harmful invasive plant species to documenting the impacts of cattle grazing in Argentina to monitoring bush fires in Australia.

Not bad for a satellite in retirement.

Read about EO1 at <http://eo1.gsfc.nasa.gov>. See sample EO-1 images at <http://eo1.usgs.gov/samples.php>. Budding young astronomers can learn more at http://spaceplace.nasa.gov/eo1_1.htm

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

Did you know? ?

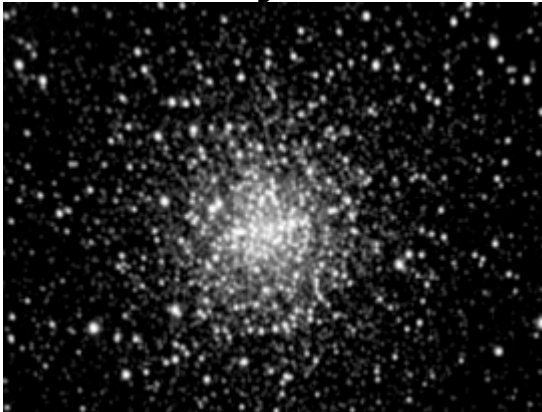
An international team of amateur astronomers has discovered a distant planet... using a 4-inch telescope.

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Astronomy 101



by Tom Koonce

Why aren't stars visible in the daytime?

Stars aren't visible during the sunlit hours of daytime because the light-scattering properties of our atmosphere spread sunlight across the sky. Seeing the dim light of a distant star in the blanket of photons from our Sun becomes as difficult as spotting a single snowflake in a blizzard.

Why do stars twinkle?

Because stars are so incredibly distant, to our eyes they appear strictly as points in the night sky. Irregularities in Earth's atmosphere cause starlight to dance around, and the minute changes in the path the starlight takes through the atmosphere results in apparent changes in color - the familiar "twinkling" effect.

Planets, however, actually form a tiny but definite circle on the sky just large enough to counter the distorting effect of turbulence. Such extended objects only "twinkle" when their light passes through very large amounts of atmosphere, such as when they lie close to the horizon.

How do I locate stars and planets in the night sky?

For the casual observer, locating stars, planets, and other astronomical objects in the night sky is most easily accomplished with the help of a star map. Many good books are available containing extensive maps of star positions for the entire sky, while magazines such as *StarDate*, *Astronomy*, and *Sky & Telescope* provide monthly maps that show the locations of the planets.

More careful observations require an understanding of the scales astronomers use to measure positions on the "surface" of the night sky. There are two primary coordinate systems used by astronomers. The first method employs a grid of right ascension and declination on the celestial sphere in the same manner that longitude and latitude are used on Earth's spherical surface.

A more intuitive system describes positions by their altitude in degrees above the local horizon and compass heading in degrees from 0 to 360, called azimuth. The flaw of this system is that the coordinates depend entirely on the location of the observer, and furthermore each object's position changes throughout the night as Earth turns toward the dawn. The simplicity of this system, however, underlies its appeal and common usage; most "stargazing tips" and calendars refer observers to positions on their local horizon and how high above the horizon to look - the altitude-azimuth system hard at work.

A helpful tool for using either of these two methods of finding your way around is found conveniently at the end of your arm. By extending your hand at arm's length, you can approximate many degree measurements: The apparent width of one finger at arm's length, for instance, is about one degree, and a fist covers about 10 degrees.

So with a star map, a working knowledge of the coordinate systems, and maybe a few waves of the hand, any observer can find almost any object visible.



AVAC Product Review

by Rich Harper

Antares 8.6mm eyepiece

I ordered an inexpensive (\$49) 1-1/4" Antares 8.6mm W70 eyepiece from ScopeStuff.com. By doing a little sleuthing on the Internet, I was able to determine that the optics are Chinese, manufactured by Synta, and assembled in Canada by Antares in their own custom housings. Available focal lengths include 5.7mm, 8.6mm, 14mm, and 19mm, all for \$49, and a 25mm, the most expensive at \$79.

Upon first inspection, it appears to be a nice eyepiece. It has an apparent field of about 66 degrees despite being called a W70, and about 15mm of eye relief. The lower barrel is chromed brass and the eyepiece body itself is brushed aluminum. The eyepiece seems to impart a slightly warm tone to the image, more noticeable on the moon and planets than on deep-sky objects. The eyepiece was tested in my Vixen refractor and compared to a University Optics 9mm HD Ortho.

Like a Nagler, this eyepiece incorporates a two-element Smyth lens at the bottom of the barrel. The upper lens assembly contains a further three elements, likely a Kellner- or RKE-type design. The Smyth lens is similar in function to a barlow, creating a diverging light cone for the upper lens assembly. Much as a 2x barlowed 20mm Plossl has more eye relief than a 10mm Plossl alone, this barlow-like effect allows the upper lens assembly to be of a focal length longer than the eyepiece's overall focal length for better eye relief. In addition, the Smyth lens corrects for astigmatism across a wide field of view. However, nothing is free, and one of the drawbacks of any design using a Smyth lens is rectilinear distortion (usually pincushion distortion) or spherical aberration of the exit pupil (frequently resulting in "kidney-beaning"), or both. The eyepiece designer can fully correct one aberration or the other, or partially correct both.

In this case, the designer chose to correct most of the rectilinear distortion. Even so, kidney-beaning with the W70, while moderate in daylight, is less apparent at night when it really counts. It is easily dealt with by maintaining the proper eye position, and after about an hour of observing I had already "learned" what the proper eye position was and had no further trouble with blackouts.

One mechanical problem I've found is that the Smyth lens group is almost flush with the bottom of the eyepiece. It is so close, I am afraid it might mar the glass on my Lumicon UHC filter when I have it mounted. While this is only a problem with the Lumicon filter, Antares should have been aware of the Lumicon's mounting requirements as Lumicon filters are not exactly rare. In any event, I've gotten around this by mounting the threaded cell of an unused color filter- with the filter glass removed- to the bottom of the eyepiece, screwing the Lumicon filter into that. This seems to work well and results in no noticeable vignetting. I've heard threaded barrel extensions are also available, but have not yet located a source.

The large eye lens tends to reflect ambient light, but this can be avoided by shielding the eyepiece with your hand or observing from a dark site. This is not a fault of this particular eyepiece as any wide-field and/or long-eye relief eyepiece with a large eye lens can suffer from this ailment to a greater or lesser degree.

The lack of rectilinear distortion helps with lunar observing as craters and other features near the edge of the field of view do not become elongated. The image appears flat and sharp for the most part, but deteriorates abruptly at the edge. It is almost like the field of view is shaped like a pie pan. Nice and flat until the very edge, then, boom, it gets mushy. Restricting the apparent field of view slightly, from 66 degrees down to say 60-62 degrees, would cure that problem. Otherwise, sharpness and contrast were very close to that provided by my University Optics 9mm HD Ortho. At just over 100x, the W70 allowed me to view the entire moon in one field of view, something I can't do with the Ortho.

When observing Jupiter, the wider field of view was not of any real benefit to me, though it would likely benefit those using Dobsonian telescopes or other telescopes lacking drives. Again, the 9mm HD Ortho provided a slightly (and I mean slightly) better image than the W70, as well as lacking the weak ghosting apparent in the 8.6.

On deep-sky objects, the Antares performed very well, and better than it has a right to considering the price. No ghosting was evident on brighter nebulae or globular clusters. The wider field of view, compared to an Ortho, was quite spacious, and much appreciated on the larger deep-sky objects. Contrast was very good, and the image was very bright. I prefer this eyepiece to the Ortho for deep-sky work.

The Antares W70 eyepieces may prove to be an excellent series. In modest focal length telescopes at low- to medium-powers where eyepiece aberrations are not apparent, these eyepieces should provide an excellent value. Like many inexpensive eyepieces, though, I suspect they are likely to show weaknesses if pushed to the higher magnifications characteristic of the larger scopes. Unfortunately, each focal length in the W70 series has a different number of elements, therefore a different optical design, and no conclusions can be drawn for the line based on a review of one focal length.

The Antares 8.6mm W70 provides pleasing lunar, planetary, and deep-sky images. Even considering the minor ghosting on Jupiter, and the somewhat more serious problem regarding the lack of clearance for Lumicon filters, the 8.6mm W70 is a fine eyepiece and an excellent value.

* * FOR SALE * *

C-8 with equatorial mount, outstanding optics, heavy-duty metal tripod, Telrad, dew shield, motor drive, hard case, cool polar-align thingy and other goodies. \$1300.00, Call Brian Peterson at 661-273-1693 or e-mail (address below).

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Polaris' 114EQ-D Reflecting Telescope for sale for \$40. Michael 323-876-2178

* * * * *

C102 with a G-5 mount; wood tripod legs; dew shield; motor drive; carrying case for the tube; good 'scope for the planets; help Brian clean out his closet- \$450. 661-273-1693 or e-mail (address below).

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The *Telguide*.

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Astronomy Links on the Web

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

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

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

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

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

<http://antwrp.gsfc.nasa.gov/apod/archivepix.html> (Pic of the Day)

<http://www.avastronomyclub.org/> (us desert astronomy folks)

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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.V.A.C. Board Members

President: Terry Babineaux (661) 724-1248 president@avastronomyclub.org

Vice-President: Doug Drake (661) 724-0849 vice-president@avastronomyclub.org

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Webmaster of Club Site:

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

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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

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