



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

- February 2: Last Quarter Moon
- February 5: Dark Star Party, [Crystalaire](#)
- February 8: New Moon
- February 11: **Monthly Club Meeting***
- February 12: Public Star Party
- February 16: First Quarter Moon
- February 24: 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



*Club
President Debora
Pedroza*

Our new year has brought us record breaking winter storms and an aftermath of area clean-ups and repairs. I hope this finds you safe and well and not too inconvenienced by Mother Nature's wrath. There is such beauty in our heavens however, bringing us as of late breathtaking day and night skies to feast our eyes upon. How blessed we are to live in a country where we can freely enjoy what we are given!

I would like to address the subject of organizing committees, which I wrote about in last month's DSO. I cannot express just how passionate I feel about our membership- its status and well-being. This means **you**. This means **us**. I would like to have a membership committee consisting of volunteers who would have small job tasks that would greatly impact the success of our club spirit and camaraderie. For example, our club secretary, Larry Oschner, has offered to handle our club clothing shopping line. We will be able to order hats, shirts and jackets engraved with our logo on an ongoing basis. Thanks, Larry! We need a few people to work on a "welcome" committee. It would require just a few hours each month sending out welcome letters to new members and giving care calls to absent members. The club needs one or two volunteers to help maintain our club handouts, tri-folds and posters so that we can look our best everywhere we go. I desperately need help with getting the Youth Exploring Astronomy Essay contest materials out to the schools. Last but not least, let us share our talents and enthusiasm amongst one another by starting planetary observing groups, doing Messiers together at star parties, sharing astro-photography and binocular viewing.

We are amateur astronomers who are continuously amazed and astounded by the awe-inspiring beauty of our universe. Let us aspire to continue to share this love of astronomy with all who seek it.

Together we can make a difference.



*Vice
President
Mindy
Peterson*

I hope all of you enjoyed Dr. Gary Peterson's presentation at our January meeting. For February, we have a new speaker who will be joining us. He is James Sokolik, a Dryden life support technician employed by Lockheed Martin Aeronautical Systems. His topic is "Life Support." Mr. Sokolik is affiliated with NASA and has also worked with pilots at Scaled Composites, home of the famous SpaceShipOne.

This year should bring many opportunities for observing the night sky. We have scheduled additional star parties each month in addition to our club dark sky parties. These additional star parties will give the public the opportunity to learn about the night sky as well as to provide a back-up should our club dark star party become rained or clouded out.

We will have a new and exciting fundraiser for 2005. I have donated fabric, batting and thread for an opportunity quilt entitled "Galaxy." The quilt is 60" x 60" and will be a great addition to a wall in any astronomer's home. The quilt is almost complete and will be on display at the February meeting. Tickets will be available for purchase in the coming months and I am counting on you to not only buy a lot of tickets, but also to sell a lot of tickets. Tickets will be \$1.00 each or six for \$5.00. The quilt will be displayed at all major events, including the Poppy Festival, the Walk of Honor, RTMC, the Antelope Valley Quilter's Association show and the Fall Festival. The winner will be chosen on the last day of the Fall Festival. Let's raise a lot of funds for the Club!



*Director of
Community
Development
Terry Pedroza*

It's February, the rains have subsided for now, and the night skies have been beautiful. Have you hugged your telescope today? Cleaned your eyepieces? Got your equipment ready for the up-and-coming star party? Remember, next month is the Messier Marathon and someone needs to knock Matt off the Messier Pedestal. No one has bagged more Messier Objects in the last three- or is it four?- years than Matt.

I have been having a large number of people asking if the Club can do events with only one or two weeks notice. I have been telling them that I will ask the membership and get back to them. This is what I did at the January meeting and will continue to do. If you would like to help with an event, GREAT. If not, that's okay, too. Please do not feel obligated to help with an event if you do not wish to. I have turned down several groups because we could not man their events.

Our event, the Messier Marathon, is in just two short months. Please plan to attend if you can. This has been a great event to be a part of, a good way to hone your skills, and just a lot of fun. We will be at Saddleback Butte's Group camp this year. This is a member-only event so that we can work our best at dethroning Matt. Yes, there is a challenge here, for Messier bragging rights.

Let's hope the rains have left us with clear skies for the remainder of 2005. May your skies be clear and warm.

Rich Harper's Planet WatchMercury

Mercury rises about an hour before the sun. It will be a difficult target, not only due to its proximity to Sol, but because its low elevation means viewing will be hampered by atmospheric effects. Moreover, its tiny disk, only 5 arcseconds across, won't show any detail. Just spotting Mercury, however, can be its own reward.

Venus

Venus lies near Mercury in the pre-dawn sky. It will shine brighter than magnitude -3.5, overshadowing Mercury's comparatively dim magnitude 0.3. Both lie in the southern Milky Way, in the region around Sagittarius. Venus has an angular diameter of about 10 arcseconds.

Mars

Mars, too, is poorly placed for observation. Mars lies near Antares. Somewhat feeble, at magnitude 1.5, and tiny, only 4 arcseconds across, Mars is over 2 A.U. away. Mars will slowly draw closer throughout the year, reaching opposition in November. Plan ahead if you need any observing accessories for Mars as they will likely sell out before opposition. Recommended accessories for Mars observing are a neutral density filter (or "moon" filter) to reduce glare if you have a larger telescope, and, of course, an orange #21 filter to enhance surface features.

Jupiter

Mighty Jupiter hovers near Virgo and shines at magnitude -2.8. It lies about 5 A.U. away, and shows a disk 37 arcseconds across. Jupiter rises around 11:00pm now, and is becoming accessible to observation without having to pull an all-nighter. Still, it is best to wait an hour or two after its rise-time, until Jupiter is 15 to 30 degrees above the horizon, to get the best views.

Saturn

Saturn has been in the news lately and you can view the latest Huygens pictures from the ESA at <http://www.esa.int>. ESA has released 37 pages of raw pictures and some audio clips as well. For observing, Saturn is now well-placed. Just past opposition, Saturn shines at about magnitude 1 and has an angular diameter of 20 arcseconds. Saturn is about 8.7 A.U. away and lies near Castor and Pollux in Gemini. Saturn rises at about 4:00pm, and transits the meridian around midnight, the ideal time for observation. A blue filter will bring out some banding on Saturn. Don't forget to look for Titan.

Uranus

Uranus lies in Aquarius and shines faintly at magnitude 5.9. That means it can be seen unaided from a dark sky location. Uranus rises at about 9:00pm, so you may want to wait until midnight or later, when it's higher above the horizon, to try for Uranus with the naked eye. Uranus spans a tiny, but definitely non-stellar, 3 arcseconds.

Neptune

Neptune lies in Capricornus, over 31 A.U. away. Like Uranus, it would show a non-stellar disk spanning 2 arcseconds, visible in even a small telescope, though faintly at 8th magnitude. Unfortunately, it doesn't rise until around 8:00am, denying us the opportunity to observe.

Speaker Donation Policy



The AVAC wishes to continue to bring in quality speakers to Club meetings. In order to show our appreciation to such speakers, we collect voluntary donations from members in attendance. However, it is awkward- particularly for the speakers- for us to ask for donations in their presence. Therefore, in the future we will keep an envelope at the front desk in the Planetarium lobby, which is manned by the Club Treasurer. If you would like to receive a receipt, please let David Abrass or any other Club Officer know. Be aware that your contribution is expressly for the speakers at the Club Meetings and will not be collected on behalf of the school district.

Please consider making a small donation for each speaker. Even merely paying for the speaker's gasoline or a meal is a gesture which will help ensure that guest speakers understand that they are appreciated.

Astrophoto of the Month



by Terry Babineaux; NGC 7331; at least five galaxies are visible in this photo.

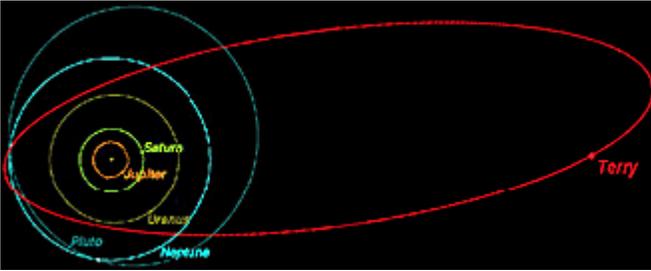
Submit your "Astrophoto of the Month" to the following address by the 20th of each month:
newsletter@avastronomyclub.org

Did you know? ? ?

The surface temperature on Titan where Huygens landed was 291 degrees below zero, Fahrenheit. Yikes.

? ? ?

The Eccentric Orbit



of Terry Babineaux

I am sometimes amazed by the stupidity of the technology that we live with. A few weeks ago, I stopped for gas during a rainstorm. After I pulled my credit card from the machine, it asked me if I wanted a car wash. I doubt if the most dim-witted human clerk would have asked me the same question in these conditions. For a good laugh, try using the “translate” feature some internet search engines provide. Here’s an example, translated by Google from German: “for instance the format of its predecessor, with same size corresponds, is however a small monitor loudspeaker inserted and also the MEMORY unit standing on the Emfaenger is already void.” If the web page did not have a picture of a radio on it, I might otherwise think I was reading a transcript from an old Monty Python skit (the famous dead parrot sketch comes to mind). Even the badly translated manuals you get with Japanese products aren’t this absurd.

I grew up on a steady diet of science fiction novels and films full of wonderful spacecraft that landed on their tails and spinning space stations that made their own gravity. Compared to this, the reality of our technology somewhat pales. Real spacecraft don’t land on their tails and real space stations don’t create artificial gravity. In “Star Trek”, super-smart computers matched wits with Captain Kirk (who always won, by the way). But try getting useful information from an automated customer service system (or customer avoidance system, as I like to call them). Invariably, there is no choice on the telephone keypad for the question I need answered. These machines have no wits at all with which to battle.

Though I have great respect for the team that put the rovers on Mars, it is frustrating waiting weeks for a rover to make its way to an interesting formation a few hundred yards away. I realize that should the rover run into trouble, the nearest mechanic is millions of miles away and a small spill could turn the rover into the most expensive inverted turtle in history. Still, a greater immediacy would be more satisfying. A live human would have no problem quickly navigating intervening obstacles.

Arthur C. Clarke made a career creating stories about mankind’s evolution. In the highly symbolic film *2001, A Space Odyssey*, the infamous computer HAL senses its coming obsolescence at the hands of eminent evolution and tries, to no avail, to stop the process by murdering the spacecraft’s crew. Similarly, in the novel “Childhood’s End,” strange, listless children begin appearing. When they come back to life, they have evolved into a collective super-being capable of manipulating physical properties by power of thought. The novel ends with the destruction of Earth, technology and all, as the super-being tests its newfound powers by upending the forces of gravity.

What does this mean for space travel? I revisited that same pump at that same gas station a few days later. The sun was out. Of course the machine did not ask me about a car wash- quite a missed opportunity, as most of the cars on the road were covered with mud from the recent storms. In short, humans are smarter than machines and, as the unfortunate computer HAL learned, their evolution will continually outpace what our technologies can provide. Our machines may be stronger and faster than us, but they certainly aren’t smarter. There is nothing like actually being there and I hope to live long enough to see the first human’s arrival on a distant planet.

\$\$ FOR SALE \$\$

The Herald-Bobroff AstroAtlas, being sold by Al Shoomliansky. Click on the following link for information on the AstroAtlas: <http://www.heraldbobroff.com/>
Contact Al at alshoom@verizon.net



Stardust Up Close

by Patrick L. Barry and Dr. Tony Phillips

Like discarded lumber and broken bricks around a construction site, comets scattered at the edge of our solar system are leftover bits from the "construction" of our solar system.

Studying comets, then, can help scientists understand how our solar system formed, and how it gave rise to a life-bearing planet like Earth.

But comets have long been frustratingly out of reach- until recently. In January 2004, NASA's Stardust probe made a fly-by of the comet Wild 2 (pronounced "vilt"). This fly-by captured some of the best images and data on comets yet- and the most surprising.

Scientists had thought that comets were basically "rubble piles" of ice and dust- leftover "construction materials" held together by the comet's feeble gravity. But that's not what Stardust found. Photos of Wild 2 reveal a bizarre landscape of odd-shaped craters, tall cliffs, and overhangs. The comet looks like an alien world in miniature, not construction debris. To support these shapes against the pull of gravity, the comet must have a different consistency than scientists thought.

"Now we think the comet's surface might have a texture like freeze-dried ice cream, so-called 'astronaut ice cream.' It's solid and can assume odd, gravity-defying shapes, but it's basically soft and crumbles easily," says Donald Brownlee of the University of Washington, principal investigator for Stardust.

Scientists are currently assembling a 3-D computer model of this surface from the photos that Stardust took. Those photos show the sunlit side of the comet from many angles, so its 3-dimensional shape can be inferred by analyzing the images. The result will be a "virtual comet" that scientists can examine from any angle. They can even perform a virtual fly-by. Using this 3-D model to study the comet's shape in detail, the scientists will learn a lot about the material from which the comet is made: how strong or dense or brittle it is, for example.

Soon, the Stardust team will get their hands on some of that material. In January 2006, a capsule from Stardust will parachute down to Earth carrying samples of comet dust captured during the flyby. Once scientists get these tiny grains under their microscopes, they'll get their first glimpse at the primordial makings of the solar system.

It's heading our way: ancient, hard-won, possibly surprising and definitely precious dust from the construction zone.

Find out more about the Stardust mission at <http://stardust.jpl.nasa.gov>. Kids can read about comets, play the "Tails of Wonder" game about comets, and hear a rhyming story about aerogel at <http://spaceplace.nasa.gov/en/kids/stardust/>.

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



Observing Tips for the Messier Marathon

by Tom Koonce

The Messier Marathon is just one and a half months away. Now is the time to begin practicing for the big night. Here are some tips and tricks for observing the Messier Objects.

Getting Started with an Observing Buddy

People always ask, "What is the best way to observe the Messier Objects for my certificate?" The answer is, "Hook up with one or two other people who want to do the Messier objects too, make them your observing buddies and do the Messier list together." It's a lot more fun this way.

Progression of the Constellations

When attempting to learn the marathon order, try taking the approach of learning one at a time, and learning each one well before moving on to the next. Going out with a star chart or a planisphere for several nights in a row is a must and will give you confidence that you can translate the little dots on the charts to the vastness of the constellations in the night sky. Translating the distances shown on the charts to a physical distance in the sky can be a challenge at times, but if you'll learn the info in the chart below, it will make this a snap.

Sky Measures

Hold your fist at arm's length and sight past it with one eye

- ▶ Your fist from side to side covers about 10° of sky
- ▶ Three fingers at arms length cover about 5
- ▶ An index fingertip at arm's length covers about 1°
- ▶ The Sun and Moon are each ½° wide
- ▶ The Big Dipper is 25° long
- ▶ From the horizon to the point overhead (the zenith) is 90°.

Determine the size of your field diameter of the main telescope's lowest-power eyepiece

Since most of the Messier objects are actually quite large, you'll find yourself using low (or moderate) power of 90 out of 110 of the objects. To determine the field size, locate two stars that just fit into its edges (try pairs in the Big Dipper or Cassiopeia). Then see how many degrees apart these stars are on the map, by referring to the declination scale along the sides. That's the diameter of your eyepiece's field. It will probably be only about 1° or so- the area of sky your little fingernail covers at arm's length. This is so small that it may be hard to identify a good star pair on your map to measure the field size.

Now, using the scale on the margin of the charts, make little rings out of wire- or draw circles on clear plastic- corresponding to your field sizes. By sliding these circles across the charts, you can see exactly what star patterns will pass through your field of view when you sweep across the sky. Beginners are always surprised at how tiny the view really is. Keep these little tools with the charts; you'll need them whenever you observe.

Keeping Track of North

The biggest pitfall in going from map to sky is keeping directions straight. Remember that in the sky, celestial north is not up but toward Polaris, no matter how cockeyed this direction may be in the eyepiece. To find north as seen in the eyepiece, just nudge the telescope a bit toward Polaris. New stars will enter from the field's north side, showing you where this is. Turn the map around accordingly, so north on the map is oriented in this direction. This north-nudging trick will become such a habit at the telescope that you'll forget you're even doing it.

Furthering Astronomical Skills: Learning how to see

Why would you have to do something that you may take for granted everyday? Any experienced observer will be able to see vast amounts of detail in an object because they have taken the time to train their own eyes to see more than a novice. This training comes from practice, certainly, but you can apply the essentials to your next viewing session and be amazed at the new things you see. This will come in very handy when looking for some of the planetary nebulae and other dim objects (M77 comes to mind).

Low Contrast Deep Sky Objects

One of the most difficult class of objects for an intermediate amateur is of very low contrast, distended objects. These include diffuse nebulas, planetary nebulas, dark nebulas, and faint galaxies. The challenge lies in observing these objects during nights of less than optimum conditions. The first rule is to know what kind of object you are after.

- ▶ Keep observing. You will get better with practice. Your brain learns to see more as you do more observing.
- ▶ Sometimes if you are very tired you won't see as much. Take rests when you can. Some drugs can make seeing dim objects more difficult.
- ▶ Try to observe in a comfortable position. It really helps if you aren't straining your neck (or anything else) when you are trying to observe.
- ▶ If you will be looking at very dim objects try to keep your eyes protected from bright light the day before you observe.
- ▶ Try looking a little off to the side of the object (the averted vision technique)
- ▶ Try tapping the scope so that the image will move a little in the field. Some objects are very large ([M31](#)) so you may need to move the scope just to see the whole thing.
- ▶ Try different magnifications. Sometimes using more power when looking at a galaxy will make it easier to see.
- ▶ When looking at emission nebulae try using a narrow band or line filter nebula filter. (An [O-III filter](#) is excellent)
- ▶ Make sure your telescopes optics are clean and well [collimated](#). Make sure your eyepieces are [clean](#). Try different eyepieces some work better than others.
- ▶ Some nights are better than others. Seeing and transparency can change a lot even on the same night. Try to find the darkest site possible.
- ▶ Try a bigger scope. ;-) Really, if you're at a star party and you can look through a larger scope it can help give you a better idea what the object looks like and then it can be easier to see in your smaller telescope. If you know were to look when trying to see structure in a Deep Sky Object it can be a big help.
- ▶ If you don't have access to a larger telescope, find a photo of the object. Just remember the detail will be much more subtle through the eyepiece.

What Will I See?

The easiest objects to find in the Messier Catalog are the brightest nebulae (like the Orion Nebula) or the brightest globular star clusters. A couple of the open star clusters like M45, the Pleiades, and the Beehive Cluster are seen naked eye quite easily. The brightest galaxy in the night sky is the [Andromeda Galaxy, M31](#), and even this galaxy looks like a gray oval in 8" or smaller telescopes. One nice thing about the Messier list is that when you're looking for a particular object, it's *usually the brightest thing in that area*. Getting close to the right spot with the Telrad and then using about 40X and scanning the area and looking for subtle changes in contrast will usually let you pick even the dimmest Messier Object out from the background field.

Nebulae

You may or may not have to use a filter to spot particular nebulae. It depends on how good the contrast of the background sky is- how much light pollution or atmospheric moisture is in the air. The grayer the background sky is, the more difficult it will be for you to distinguish the object. Messier himself did not have access to Ultra High Contrast Nebula filters and O-III filters, but he had the pitch black night skies of a world without electric lighting.

Galaxies

Face-on galaxies will look like gray cloud circles that brighten noticeably towards their center. Edge-on galaxies range anywhere from a distinct oval shape to a straight line that appears gray, sometimes with a bright knot in their center.

Galaxies usually have very low surface brightness, even though their published magnitudes in the Messier Listing will seem much brighter. The reason for this is that a galaxy's published magnitude is its 'integrated' magnitude- that is, its brightness is summed up and not distributed over the relatively wide area that it spans. To find [M77](#), for instance, you better have a night of really good seeing and nice, black contrast.

Globular Clusters

I find that globular clusters are among the easiest Messier objects to spot. Even the dimmest of globulars is very distinctive in the eyepiece. Not exceptionally distinctive from other globular clusters necessarily, but they really stand out from their background. What you're looking for is a tight grouping of a *lot* of stars. Globular clusters have from hundreds to millions of stars all within several tens of light years. Perhaps the easiest globulars to see are [M13, The Hercules Cluster](#) and [M22](#).

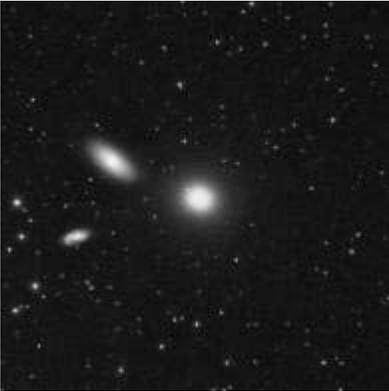
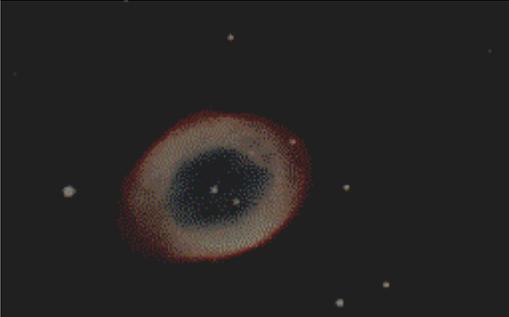
Open Clusters

While globulars are easy to see, open clusters are sometimes very difficult. The most distended of the Messier open clusters are little more than a localized increase in the star density in a particular area. I have never understood why Charles Messier took the time to log these areas so he wouldn't think they were comets. Even through a small scope, I don't think you could make that judgment. For example, look at [M6](#). Most of the open clusters like the Pleiades ([M45](#)) are distinctive enough to be spotted with a wide field eyepiece.

Filters

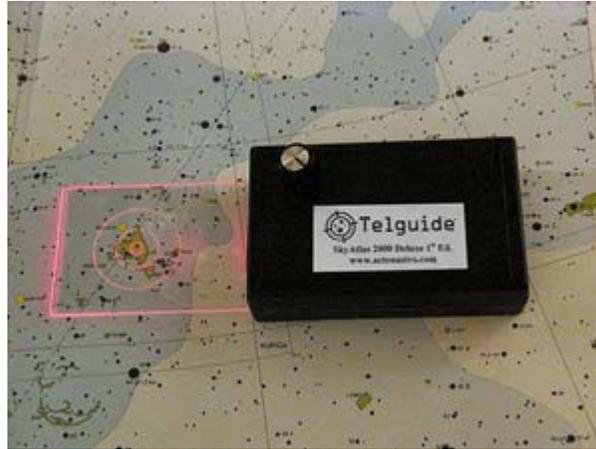
Certain nebulae are more visible when using an O-III filter or a nebula filter that removes extraneous wavelengths of light, improving contrast. These filters are completely *ineffective* when trying to observe galaxies. To spot these, star hop as close as you can get, and then there are methods for scanning the sky in a search pattern that will yield success. The trick to spotting dim galaxies is to know what you expect to see through the eyepiece.

Look at a picture of what you're going after and study not only the shape of the particular object, but the pattern of objects and stars in the immediate vicinity. This is crucial advice when tackling the [Virgo Cluster of galaxies](#), where there are so many galaxies, and only some of them are Messier Objects.

 <p>M100 - Spiral Galaxy (Use no filters and large aperture)</p>	 <p>M105 - Part of Galaxy Cluster (Use no filters and large aperture)</p>
 <p>M27 - The Dumbbell Nebula (Try O-III or UHC filter)</p>	 <p>M57 - Ring Nebula in Lyra (Try O-III or UHC filter)</p>

Trying to Log Messier Objects at a Public Star Party

You've got all of your stuff set up, the night is looking clear and steady, and you have planned out what you're going after. You've decided to tackle some of the dim objects in Leo, and maybe even start on the Virgo Cluster. But, you're at a public star party and occasionally someone comes up and asks, "How far away is Messier 61?" Kind of throws you off. But take a step back a moment from your scope and realize that you have a real opportunity to add to your own astronomical knowledge as well as the knowledge of the person asking the sincere question. If you happen to know the answer, great. But if you don't, why not take a minute or two and see if you can get the answer from another club member or from a book. You'll find that 99% of people who have taken their time to come out to a star party are genuinely interested in finding out more about the universe around them and are happy to wait to get a good answer. I have found that knowing solid answers for the questions above will get you through a large majority of the evening's questions. Above all, Have Fun!



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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.

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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://www.astroleague.org/> (The Astronomical League site)

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

www.avastronomyclub.org/ (that be us)

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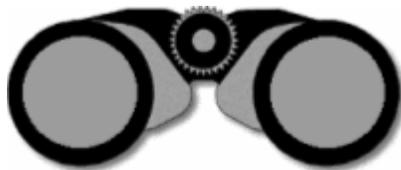
QNET: 1529 E. Palmdale Blvd., Suite 200. (661) 538-2028. As an Internet provider, they are kind enough to provide us with a free website.

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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A Look Ahead...



Upcoming Star Parties

March 12 Dark Star Party- Messier Marathon,
Saddleback Butte State Park