



Desert Sky Observer

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NEWSLETTER OF THE ANTELOPE VALLEY ASTRONOMY CLUB, INC
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*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

August 10: Club Meeting @ The S.A.G.E Planetarium

August 11: Annual Club Picnic @ The Trotta's

August 13: Board Meeting @ The Pedroza's

* 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

It's been a couple of months now since we changed the format of the club meetings. How does everyone like it? Does it work better for those with children? Is it more community friendly? Please give me your input; I'd like to know.

I'd like to introduce Jeff Reichman as our new Aerospace Liaison. He will be the person that contacts all the aerospace related companies that the AVAC partners with. Congrats Jeff, I know you'll do the AVAC a great service.

Please be thinking about the upcoming election in October. Are YOU a member of the 2008 Executive Board just waiting to take your post? Do you know someone who is? Let the current board know so that we can get you or the person of your choice nominated. It's not very far off. You can talk to any of us about what the various positions entail or for any information that you might want.

The annual club picnic is coming up so don't forget to contact Karole or Shane with your donations and or your RSVP.

Have a great month and may your skies be clear and steady

Terry

Vice President

This month's speaker for the August 10th is Dr. William (Bill) Hargus, he will be speaking about Electric Propulsion for Spacecraft from the Air Force Research Laboratory.

Don't forget about our "Club Picnic" on Saturday August 11th at 3:00 p.m. at Steve Trotta's house. Plus, we have our club star party later that night, so don't forget your telescopes. We are still looking for donations for the silent auction and raffle for the club picnic. If you have anything you would like to donate please contact Shane, so he can arrange to pick up the items for the party.

In addition if you have not signed up on the list for the pot luck on what you are going to bring, again please contact Shane, so he can advise on what we need for the party. If you have any questions please call Shane.

Interesting tid bits:

Venus, Saturn, Regulus, and a waning crescent Moon greet early risers September 9th. Look for an even tighter pattern from the trio in early October.

Watch Europa glide across Jupiter's cloudy disk September 8th. The giant planet moves into twilight by month's end, so observe Jupiter early in the month.

Moon: Look for the straight wall in the Shallows of Mare Nubium just north of where the terrain abruptly rises to the bright southern highlands.

Shane Barker

Director of Community Development

Thank you to all that participated in July's events! We have 3 Lunar Club events for the month of August. Matt Leone, the organizer, is the person to contact for any information. Please check the website for the dates!

We do not have anything booked for the club as far as public events this month...so far. Dick Hague has contacted Painted Turtle, and we are going to see about doing an event for them. This year we hope to present the star party to a group of older kids.

Don't forget the 'Aerospace Walk of Honor'- Celebrate Downtown event on Saturday, Sept. 15th, in Lancaster. The event runs from 5:30pm to 9:30pm, set up is starting at 2pm. Further info to come. Please sign up, we need volunteers!

October brings us up to the Palmdale Fall Festival, October 13th and 14th, and is an all day event. You may sign up for just a block on one or both days, however you can donate time. Please come out to meet the public and show them what we do!

Jean Scott, from the Poppy Reserve, and I have been playing phone tag, but it looks like we will be at the Poppy Reserve in November for the Leonid Meteor Showers and our monthly public star party. Don't forget our club picnic on Saturday, Aug. 11th! See you there!

Clear skies!

Rose M.



Omit Needless Bytes!

by Patrick Barry and Tony Phillips

Now is an exciting time for space enthusiasts. In the history of the Space Age, there have never been so many missions “out there” at once. NASA has, for example, robots on Mars, satellites orbiting Mars, a spacecraft circling Saturn, probes en route to Pluto and Mercury—and four spacecraft, the two Voyagers and the two Pioneers, are exiting the solar system altogether.

It’s wonderful, but it is also creating a challenge.

The Deep Space Network that NASA uses to communicate with distant probes is becoming overtaxed. Status reports and data transmissions are coming in from all over the solar system—and there’s only so much time to listen. Expanding the network would be expensive, so it would be nice if these probes could learn to communicate with greater brevity. But how?

Solving problems like this is why NASA created the New Millennium Program (NMP). The goal of NMP is to flight-test experimental hardware and software for future space missions. In 1998, for instance, NMP launched an experimental spacecraft called Deep Space 1 that carried a suite of new technologies, including a new kind of communication system known as Beacon Monitor.

The system leverages the fact that for most of a probe’s long voyage to a distant planet or asteroid or comet, it’s not doing very much. There’s little to report. During that time, mission scientists usually only need to know whether the spacecraft is in good health.

“If you don’t need to transmit a full data stream, if you only need some basic state information, then you can use a much simpler transmission system,” notes Henry Hotz, an engineer at NASA’s Jet Propulsion Laboratory who worked on Beacon Monitor for Deep Space 1. So instead of beaming back complete data about the spacecraft’s operation, Beacon Monitor uses sophisticated software in the probe’s onboard computer to boil that data down to a single “diagnosis.” It then uses a low-power antenna to transmit that diagnosis as one of four simple radio tones, signifying “all clear,” “need some attention whenever you can,” “need attention soon,” or “I’m in big trouble—need attention right now!”

“These simple tones are much easier to detect from Earth than complex data streams, so the mission needs far less of the network’s valuable time and bandwidth,” says Hotz. After being tested on Deep Space 1, Beacon Monitor was approved for the New Horizons mission, currently on its way to Pluto, beaming back a simple beacon as it goes.

Discover more about Beacon Monitor technology, as well as other technologies, on the NMP Technology Validation Reports page, <http://nmp-techval-reports.jpl.nasa.gov>.

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

New Mission Given to Lockheed Martin-Built Stardust Spacecraft

Lockheed Martin [NYSE: LMT] is on a team that has been awarded a \$25 million contract by the National Aeronautics and Space Administration (NASA) for the Stardust-NExT (New Exploration of Tempel) mission. The mission gives a new assignment to the currently-orbiting spacecraft built by Lockheed Martin.

<http://sev.prnewswire.com/aerospace-defense/20070710/AQTU19410072007-1.html>

Digitized Apollo Flight Films Available Online

Nearly 40 years after man first walked on the Moon, the complete lunar photographic record from the Apollo project will be accessible to both researchers and the general public on the Internet. A new digital archive - created through a collaboration between Arizona State University and NASA's Johnson Space Center in Houston - is making available high-resolution scans of original Apollo flight films.

<http://www.spaceref.com/news/viewpr.html?pid=23141>

Japanese and NASA Satellites Unveil New Type of Active Galaxy

An international team of astronomers using NASA's Swift satellite and the Japanese/U.S. Suzaku X-ray observatory has discovered a new class of active galactic nuclei (AGN).

<http://www.spaceref.com/news/viewpr.html?pid=23135>

Lunar Flash Mystery Solved: Moon Just Passing Gas

Changes in the brightness and color over small areas of the moon's surface, known as Transient Lunar Phenomena, or TLP, have been observed telescopically for hundreds of years.

http://www.space.com/scienceastronomy/070730_gassy_moon.html

Hidden Black Holes Revealed

Some galaxies hide the normally bright output of supermassive black holes at their centers behind thick veils of dust and gas, a new study finds.

http://www.space.com/scienceastronomy/070731_hidden_agm.html

NASA Insiders Propose Stepping Stone Path to Deep Space

NASA's Constellation Program – including the deployment of the Orion crew vehicle replacing the space shuttle – will first be assigned to International Space Station flights, then propel humans and cargo to the Moon. Expeditionary missions to Mars and beyond will follow.

http://www.space.com/missionlaunches/070730_asteroid_probe.html

Quadruple Sunsets Possible

Astronomers have spotted a dusty disk in a four-star solar system that could be home to a planet in the making. Using the infrared eyes of NASA's Spitzer Space Telescope, astronomers spotted the swirling disk around a pair of stars in the quadruple-star system HD 98800, located 150 light-years away in the constellation TW Hydrae.

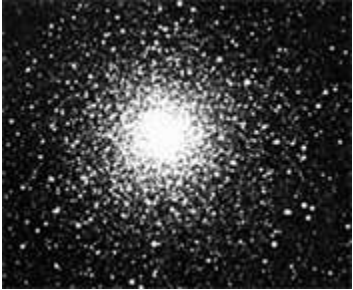
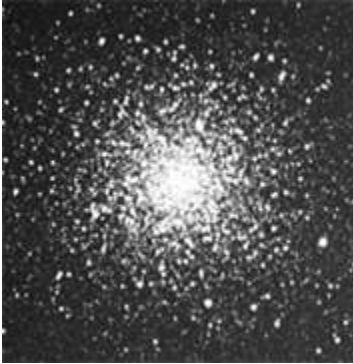
http://news.yahoo.com/s/space/20070725/sc_space/quadruplesunsetspossible: ylt=AovWPPjzx15BYq5BJYscOlqHgsgF

AVAC Observing Challenge

By Tom Koonce

The Annual Club Picnic will be held again this year at Steve Trotta's house under the fairly dark skies of Acton. During the Star Party that will follow the picnic, why don't you try for a few of the objects below? I'm going to break these challenges up into "beginner" and "intermediate" levels this month.

Starting off with the Beginner Level challenge, wait until it finally gets dark about 9:15 pm. You'll need a good pair of binoculars or a telescope with low power of any size along with reasonably dark skies. We're going to be searching the constellation of Ophiuchus, north of the constellation of Scorpius. Using your star maps to guide you, look for a pair of Globular Clusters separated by about 3 degrees south of the center of Ophiuchus. M10 will be the cluster to the east and M12 the cluster located to the west, and further north.

<p>Beginner Level Challenge</p> 	<p><u>M10 and M12:</u> Globular Clusters separated by 3.16 degrees.</p> <p>M10: Right Ascension 16:57.1 (h:m), Declination -04:06 (deg:m); Magnitude 6.6</p> <p>M10 is at a distance of about 14,300 light years, and while it appears visually to be just 9 arc minutes in diameter, deep photos indicate that it extends nearly 2/3 the diameter of the full Moon. It's 83 light years across and moving away from us at 69 km/sec. Globular cluster M12 is found either 2 deg N and 2 deg W of M10.</p>
<p>Beginner Level Challenge</p> 	<p>M12: Right Ascension 16:47.2 (h:m), Declination -01:57 (deg:m); Magnitude 6.7</p> <p>M12 is 2000 light years further away than M10 at 16,000 light years and is approaching us at 16 km/sec. It is noticeably denser as you look towards the middle of the cluster. It's a jewel to look at under higher magnification, with more and more stars resolving themselves towards the center. M12 was one of the first objects discovered by Charles Messier May 30, 1764.</p>

Other objects not to be missed while you're in the neighborhood: [M8](#), a bright emission nebula in Sagittarius, easily visible to the naked eye. The common name of M8 is the Lagoon nebula. In binoculars M8 is an oval cloud of light larger than the full moon with several bright stars embedded within it. A telescope makes this nebula larger and brighter but does not really improve the view. [M20](#), Another diffuse nebula in Sagittarius only 1.4 degrees northwest of M8 and is called the Trifid nebula. This is easily seen in binoculars looking like a cloud of smoke around some bright stars. A view through a telescope appears much the same, although try to pick out the three dust lanes that gives M20 its name. This is a somewhat difficult object to see right away, at first glance it looks like the optics are in need of cleaning and are causing the light from the bright stars to "smear".

Are you ready to step it up a notch? Let's go for this month's Intermediate level Challenges.

Intermediate Challenge



NGC 457 is a bright cluster located in the rich star fields in Cassiopeia, about four degrees southwest of Gamma Cassiopeia.

In the eyepiece NGC 457 appears as a scattered group of stellar points some 10' in diameter, consisting of about 100 stars brighter than 13th magnitude at 9,000 light years away. One bright foreground star, Phi Cassiopeia, is in the middle of NGC 457 but is not a member of the cluster. A 6-inch telescope reveals almost all the stars of the cluster.

Besides its official name, NGC 457 has another one: "The ET Cluster". To find out why, you will have to use your imagination a little. Take a close look at the NGC 457, can you see ET? Two bright stars form ET's eyes, scattered rows of faint stars make up the arms, and the rest of the cluster forms a body.

Other objects not to be missed while you're in the neighborhood: **NGC 7789**, an open cluster in Cassiopeia with about 1000 stars. Magnitude 6.7. Also try for the diffuse nebula **IC 155** in Cassiopeia. This is a beauty, but may require a nebula filter to bring out contrast.



NGC 7789



IC 155

I hope you enjoyed these challenges and will spend time exploring the surrounding areas of both of these objects!

Astrophoto of the Month



M-8 by Paul Miller

- Canon Rebel 350 DSLR
- Televue Powermate 2x Barlow
- Celestron CR-150 6" Refractor
- Orion Atlas Mount
- Single 96 second, unguided exposure
- Shot in RAW mode, Auto Dark subtract in camera.

View the full size photo at the [AVAC Gallery](#)

Send your photos to dso@avastronomyclub.org

Ask an Amateur Astronomer

Send questions to Secretary@avastronomyclub.org

Beginner's Telescope?

Anyone know where to get a nice one for the right price. Some of them are expensive and yes I know you get what you pay for, but I'm just starting out, don't want to waste my bank account on a telescope that turns out to be junk.

You don't need to spend hundreds of dollars to get a good beginning telescope. For example, Wal-Mart sells a Meade 60mm telescope for less than \$75. Just be sure you get one from a good brand name such as Meade, Celestron or Orion. And buy the largest aperture (size of the mirror or lens) you can afford (60mm, 90mm, etc.) not by the listed magnification. The listed magnification is often exaggerated even for good telescopes. A rule of thumb is the useful magnification is twice the listed aperture size in millimeters (120x for 60mm, 180x for 90mm, etc.). The usual magnification for looking at the moon and planets is 100x to 200x so a 60mm to 90mm is a good beginner telescope. You can sometimes find these at a department store but a better bet is to go to a large camera store or purchase online directly from the company. Better yet, attend a star party and look through other people's telescopes and decide which one works the best for you.

If you are just getting started, a good pair of 7 X 50 binoculars might do the trick, to get you familiar with the sky and some of the brighter objects in it. The kind of telescope that gives you the best bang for your buck is a Newtonian reflector on a Dobsonian mount...these are available from Meade, Celestron and others, but my favorite Dobs are from Orion Telescope. The mirrors have to be periodically aligned (collimated). These scopes are excellent for deep sky objects like galaxies, open and globular clusters and nebulae, because they have good, wide aperture.

If you want a smaller scope, a good small refractor will set you back about \$500, plus a little more for a decent mount.

Stay away from scopes that use 0.925" eyepieces. Go with 1.25" eyepieces. Most department store scopes ship with some of the worst eyepieces imaginable. Expect to spend for a decent set of eyepieces. The Plossl design is a good way to start out. The Meade Series 4000 or Series 5000 are very good, and Televue is recognized for its excellent quality.

A good scope for you to start out with might be the Orion 4.5 inch Dobsonian. It runs \$200 plus shipping, and includes two eyepieces. It's the starter scope I always recommend. I have the Starblast, which is the same scope, just shorter, for my niece, because she isn't tall enough yet to use the full-sized scope.

Telescope Magnification?

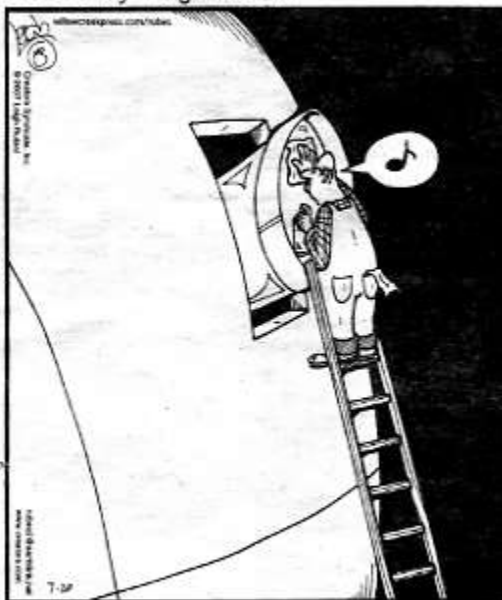
How powerful would a telescope have to be to do me any good? In terms of getting a cheaper one to just get started. Any info would be appreciated.

The best telescopes can magnify, under ideal conditions, about 50X per inch of aperture and still be useful. Under normal conditions, expect the image to break down after 30X per inch. In other words, a 4.5 inch reflector (if the optics are decent) can give about 135X magnification under normal conditions, and an 8 inch scope can give about 240X. Your mileage may vary. Stay away from cheap department store scopes...they might give you 10X per inch, beyond that, they are junk. The most important part of the telescope is the mount that the scope sits on. If it's wobbly, it will be of no use to you.

One thing to remember...the higher the magnification, the dimmer the object. Planets are good from 80X to 200X. Beyond that, atmospheric turbulence typically makes further magnification ridiculous. Double stars are good at 120X on up. Galaxies and nebulae are actually quite large, so viewing them at 10X to 40X is pretty much all you want, unless you have a HUGE aperture (like 10-16 inches). Beyond that, the already dim object will become unseeable. A few bright nebulae (like the Ring Nebula in Lyra) can withstand more magnification. If a place sells its scope by touting its amazing magnification, steer clear.

Humor

RUBES by Leigh Rubin



Great astronomical goofs: Never announce the discovery of a new galaxy until after a thorough lens dusting.

A.V.A.C. Membership Information

Membership in the Antelope Valley Astronomy Club is open to any individual.

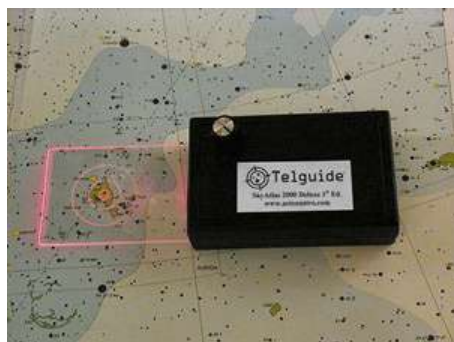
The Club has three categories of membership.

- 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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