



Desert Sky Observer

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NEWSLETTER OF THE ANTELOPE VALLEY ASTRONOMY CLUB, INC
P.O. BOX 8545, LANCASTER, CALIFORNIA 93539-8545
*The Antelope Valley Astronomy Club, Inc., is a 501(c)(3) Non-Profit Corporation.
Visit the Antelope Valley Astronomy Club website at www.avastronomyclub.org/ The
A.V.A.C. is a Sustaining Member of The Astronomical League and the International
Dark-Sky Association.*



Up-Coming Events

July 13: Club Meeting

July 14: Dark sky star party @ Mt. Pinos

July 16: Board meeting

* Monthly meetings are held at the S.A.G.E. Planetarium on the Cactus School campus in Palmdale, the second Friday of each month. The meeting location is at the northeast corner of Avenue R and 20th Street East. Meetings start at 7 p.m. and are open to the public. *Please note that food and drink are not allowed in the planetarium*

Club President Terry Pedroza

I can't believe that we are more than half way through our year already! In just four more months we will be having our annual club meeting and the election of officers. If you are interested in joining that group of officers who make our club run as smoothly as it does, please talk to one of the current officers about that opportunity.

Being on the Executive Board is a very rewarding opportunity for everyone that participates. I have personally had many challenges and much personal growth while on the Executive Board and have enjoyed every minute of it. You should give it a try!

As you know we are trying to get our Board of Trustees off the ground this year and we ask that you submit any and all ideas and suggestions that you may have on that effort. This is YOUR CLUB and I hope that as such YOU will join in the effort to make it even better than it is now. I feel very strongly on this matter and hope to see it through to completion this year so that our Club may have a more focused and secure future.

Have a Safe 4th of July and I hope to see everyone at the July meeting.

Terry

*“Space isn't remote at all. It's only an hour's drive away if your car could go straight upwards.”
- Sir Fred Hoyle (1915 – 2001)*

***Vice President
Shane Barker***

This month's speaker for July has been changed due to a schedule conflict. Our speaker for July will be Kevin Grazer who is replacing Shannon McConnell.

Just a reminder our club picnic is August 11, 2007 at Mt. Trotta in Acton. We are looking for donations for the silent auction and club raffle. If you have anything to donate please contact Shane Barker. Plus, we will have sign up sheets for members to indicate what they would like to bring to the picnic. Don't forget to bring your telescopes for a great star party that night.

Interesting tid bit:

A blue moon is the 2nd full moon in any calendar month.

Each day up to 4 billion meteoroids fell to Earth.
Don't worry, most of them are really minuscule in size.

See ya at the meeting.

Shane Barker

***Director of Community Development
Rose Moore***

Thanks again to those who have been coming out to our past events to help out with observing and talking to the public! I appreciate your time and participation!

For the summer we have just a couple of things lined up, however, I have had initial contact with 2 cub scout leaders about having a star party for 2 separate groups of cub scouts for their astronomy badge. I'll keep members posted as to when these may occur.

On July 28th, Saturday, we have a Full Moon Walk with Jeremy at Prime Desert Woodlands, starting at 8:30pm. We need volunteers with telescopes to come out and show the public the sky and have some fun! At this last event on 6/16, we had over 210 people show up! There were many people looking through telescopes for the first time and were excited and so grateful for us to be there and sharing!

Other upcoming events are the Aerospace Walk of Honor. The Walk of Honor, which is now the 'Celebrate Downtown' event, is on Saturday, September 15th. The application will be sent in the next week or two. We need volunteers for this to talk to the public, or bring telescopes for observing, or other items you might want to show the public.

Also in October is the Palmdale Fall Festival, on October 13th and 14th. You do not need to sign up for the whole day(s), but can sign up for a small block of time. Please keep this event on your calendar and come out and meet the public!

Here's to clear skies and no wind!
Rose M.



Chew on This

The Mars robotic rovers, Spirit and Opportunity, are equipped with RATs, or Rock Abrasion Tools. Their purpose is to abrade the surface patina off the Mars rocks so that the alpha x-ray spectrometer can analyze the minerals inside the rocks, rather than just on the surface.

But future robotic missions to Mars will be asked to go even further below the surface. Scrapers and corers will gather rock samples of substantial size, that, in order to be analyzed by a spectrometer, will need to be crushed into a fine powder.

Crushing rocks on Mars? Now there's a problem that brings to mind a multitude of possible approaches: Whack them with a large hammer? Squeeze them until they explode? How about just chewing them up? It was with this latter metaphor that the planetary instrument engineers struck pay dirt—so to speak.

Thanks to NASA's Planetary Instrument Definition and Development Program, a small group of NASA engineers came up with the Mars Rock Crusher. Only six inches tall, it can chew the hardest rocks into a powder.

The Mars Rock Crusher has two metal plates that work sort of like our jaws. One plate stays still, while the other plate moves. Rocks are dropped into the jaw between the two plates. As one plate moves in and out (like a lower jaw), rocks are crushed between the two plates. The jaw opening is larger toward the top and smaller towards the bottom. So when larger rocks are crushed near the top, the pieces fall down into the narrower part of the jaw, where they are crushed again. This process repeats until the rock particles are small enough to fall through a slit where the two plates are closest.

Engineers have tested the Mars Rock Crusher with Earth rocks similar to those expected to be found on Mars. One kind of rock is hematite. The rusted iron in hematite and other rocks help give Mars its nickname "The Red Planet." Another kind of rock is magnetite, so-called because it is magnetic. Rocks made by volcanoes are called basalts. Some of the volcanoes on Mars may have produced basalts with a lot of a mineral called olivine. We call those olivine basalts, and the Rock Crusher chews them up nicely too.

Visit www.jpl.nasa.gov/technology to read the latest about other NASA technologies for exploring other planets and improving life on this one.



Looking down on the jaws of the Mars Rock Crusher, we see a magnetite rock get crushed into smaller and smaller particles.

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

News and Headlines

Lunar liquid telescope not so distant

Scientists have taken a giant leap toward making possible the dream of building a powerful telescope on the moon that could withstand even the harshest of lunar conditions.

http://www.cnn.com/2007/TECH/space/06/22/moon.telescope.reut/index.html?eref=rss_space

Genesis II Successfully Launched

Genesis II, the second experimental pathfinder spacecraft by Bigelow Aerospace, has been successfully launched and inserted into orbit. The privately-funded space station module was launched atop a Dnepr rocket at 8:02 a.m. PDT from the ISC Kosmotras Yasný Cosmodrome located in the Orenburg region of Russia.

<http://www.spaceref.com/news/viewpr.html?pid=22984>

NASA Mars Rover Ready For Descent Into Crater

NASA's Mars rover Opportunity is scheduled to begin a descent down a rock-paved slope into the Red Planet's massive Victoria Crater. This latest trek carries real risk for the long-lived robotic explorer, but NASA and the Mars Rover science team expect it to provide valuable science.

<http://www.spaceref.com/news/viewpr.html?pid=22973>

Hubble Catches Jupiter Changing Its Stripes

Jupiter's turbulent clouds are always changing as they encounter atmospheric disturbances while sweeping around the planet at hundreds of miles per hour. But these Hubble images reveal a rapid transformation in the shape and color of Jupiter's clouds near the equator, marking an entire face of the globe.

<http://www.physorg.com/news102338851.html>

NASA Wants to Open Station to Outsiders

NASA is in talks with several government agencies, most notably the National Institutes of Health, and private businesses that want to conduct research in the microgravity laboratory orbiting 220 miles above Earth.

<http://www.physorg.com/news102055061.html>

Rethinking black holes

"Nothing there," Case Western Reserve University physicists concluded about black holes after spending a year working to calculate black hole formation. The research may solve the information-loss paradox that has perplexed physicists for the past 40 years.

<http://www.astronomy.com/ASY/default.aspx?c=a&id=5715>

Has a Tunguska Crater Been Found?

Here's a story that just hit our radar screen, and we wanted to share the news immediately rather than wait for further facts to come out. In the online journal Terra Nova, a team of Italian researchers led by marine geologist Luca Gasperini reports on what may be the missing Tunguska impact crater.

<http://www.skyandtelescope.com/news/8134097.html>

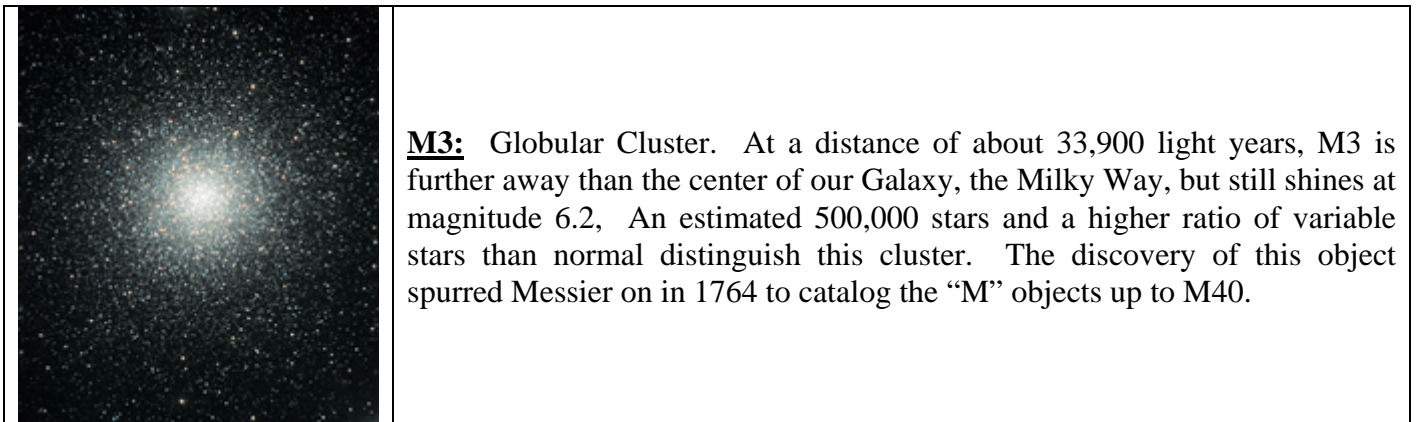
AVAC Observing Challenge

By Tom Koonce

What better time than our next Star Party to refine your observing skills and tackle a few of the Messier Objects. This month is perfect for finding the three awe-inspiring galaxies and the globular cluster described below.

First for a challenge of moderate difficulty. Wait until it finally gets dark about 9:30 pm. You'll need a good pair of binoculars or a telescope of any size along with reasonably dark skies. Our first target is M3, a globular cluster in Canes Venatici. Find the Big Dipper. Follow the arc of the handle towards zenith (in the direction straight over your head) and "Arc down to Arcturus," the bright star at the south end of the constellation Bootes. Now pick a point out that is directly over your head. Sweep your binoculars slowly from Arcturus about two-thirds of the way towards the zenith point, then bring your gaze a few degrees to the west. Wide field binoculars will allow you to find this prominent globular. Once you've found it in binoculars, try it in your telescope with your lowest power eyepiece.

In binoculars, you'll be able to tell right away that this is not just an ordinary star! In fact, M3 is one of the brightest objects in the sky. It will look like a fuzzy snowball at first glance. Through a small telescope you'll begin to resolve individual stars. The hardest part of this object is locating it in a portion of sky that contains few bright landmarks.



Now that you've found a glittering jewel in the night sky, we're going to try for three pearls – three galaxies, two within the same field of view!

This search is for telescopes only and is considered an "advanced" challenge. We'll be going after M84, M86 and M87. These objects are quite dim compared to M3. The brightest galaxy in the Virgo Cluster is M87 and it's just magnitude 8.6.

Get a good chart of the Virgo Cluster region that shows not only the "M" objects, but also the brighter NGC galaxies. You should also have pictures of the objects in the region to help in confirmation of a sighting. Use low power while searching. When you find an object you can switch to higher powers to see more detail. Avoid large aperture scopes. Small telescopes 6"-8" in size make finding the Messier objects easier. Large scopes will show many of the other faint galaxies and may help you become disoriented. Same is true for sky darkness. A little bit of light pollution will actually help to "filter out" the dimmer galaxies from the brighter Messier objects.

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Successfully navigating the Virgo cluster is the biggest challenge in the Messier Catalogue. What makes the Virgo cluster such a challenge is the closeness of the Messier objects to each other, and the large number of other galaxies in this region. It is easy to become lost among the galaxies, and not be able to tell which one you are looking at. Here are several tips that can be of use as you navigate your way through the cluster.

By finding M84 and M86 during this search, you'll be able to tackle the Virgo Cluster with much more confidence later on. This pair of galaxies can be easily found by pointing your accurately aligned Telrad on the midpoint of a straight line from Denebola (Beta Leonis) to Vindemiatrix (Epsilon Virginis). This matched pair of small fuzzy balls will both be within a low power field of view every time.



The three brightest galaxies in this image from top left to bottom right are M87, M86, and M84

M84, M86: A pair of small fuzzy balls with bright, almost stellar cores. Both easily fit into the same low power field of view. M86 is slightly brighter and more oval than round M84. M86 is the galaxy which has the fastest approaching velocity, and thus the highest blue shift, of all Messier galaxies (and thus all Messier objects): It is approaching us at 419 km/sec.

M87: Another round fuzzy ball with a bright core, slightly to the east of the M84 - M86 pair. Slightly brighter than both M84 and M86. About 60M light years away, it is perhaps the galaxy with the most known globular clusters. While our Milky Way has the modest number of roughly 150 to 200 globulars, M87 possesses a remarkable system of several thousands of these objects.

Remember, you are looking for light that left its source about 70 million years ago. These galaxies are, at low power, not much more than dim, fuzzy, out of focus looking stars. Allow your eyes to become fully dark adapted and take your time looking at each field.

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

Did you know ? ? ?

Messier Marathons are events, held mainly in March or April, where amateur astronomers try to find as many of the Messier objects as possible in one night. In the 1700s, Charles Messier, a comet hunter, kept a list of fuzzy objects in the sky that were not comets. These 110 objects turned out to be nebulae, galaxies, star clusters, and other deep sky wonders

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.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>

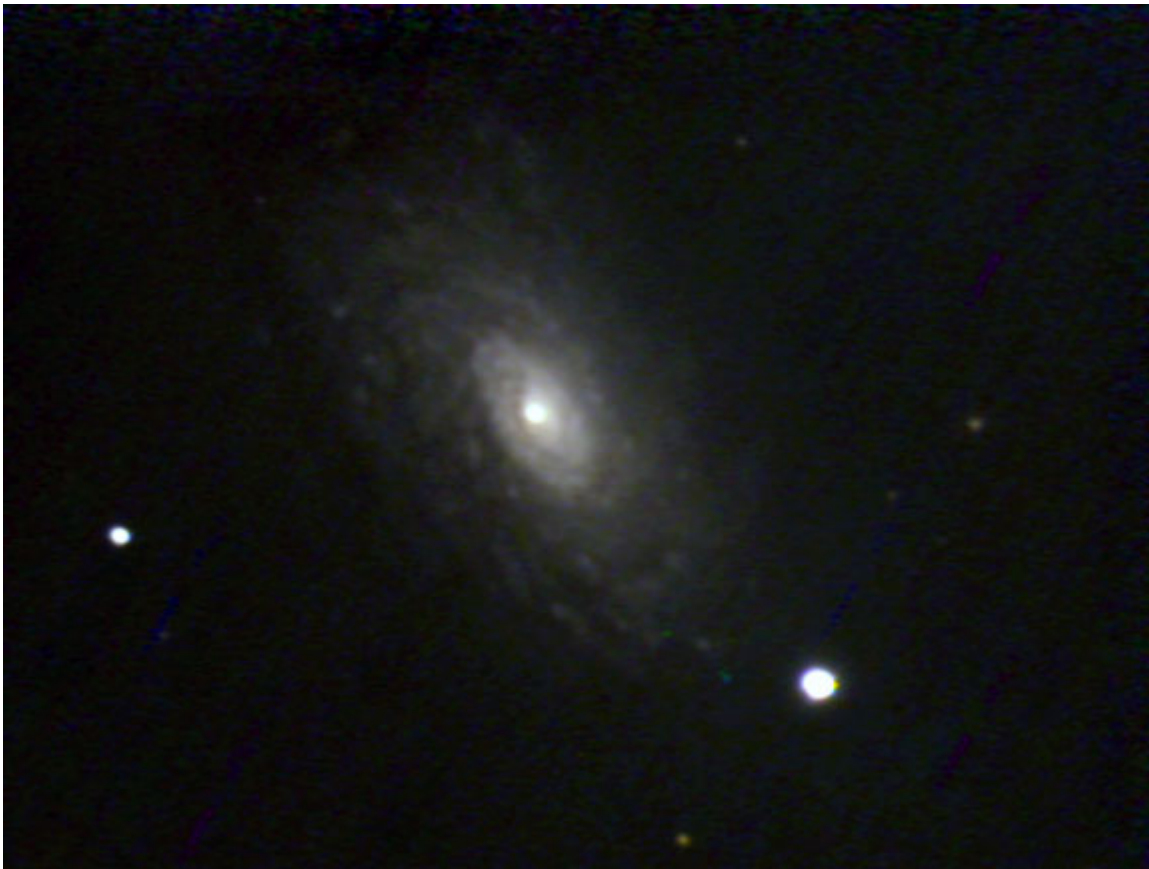
(the latest Saturn pics from Cassini)

<http://astronomy-mall.com/>

(shop 'til you go broke)

Astrophoto of the Month

Since we have so many people getting in to astrophotography, I decided to restart the astrophoto of the month. If you have any you would like to submit, send them to Steve at webmaster@avastronomyclub.org



M63 - Shot with a Meade DSI-C through a Celestron C9.25 @ f/6.3. 20 exp x 60 sec each. Adjusted curves and histogram in Photoshop. Photographer: Steve Trotta 6/16/07

Thank you to our sponsors for your generous support!

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.

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

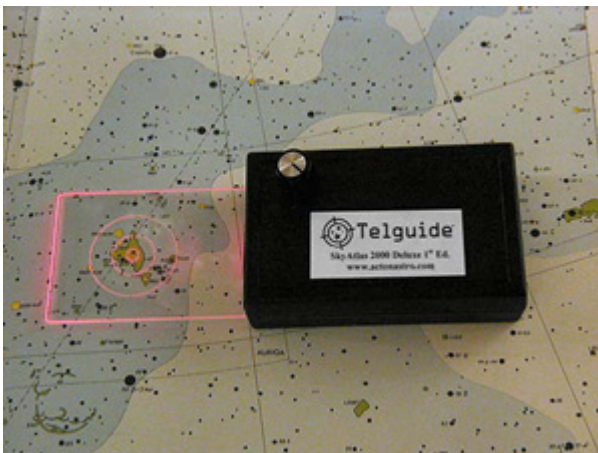
Astro-tom.com: Tom is dedicated to amateur astronomy. <http://www.astor-tom.com>

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

ActonAstro: Club Web space provided by <http://www.actonastro.com>

Al's Vacuum and Sewing

WOODLAND HILLS *Camera*



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, <http://www.actonastro.com>