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

February 2: Dark Sky Star Party @ Pedroza Flats
February 8: Club Meeting with Chris Butler speaking
February 9: Prime Desert Woodlands Moon Walk
February 11: Board Meeting @ Pedroza Flats
February 20: Total Lunar Eclipse

* 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

The Toyota commercial that several of the Antelope Valley Astronomy Club members were involved in is out. Bill Reidhart is clearly shown in the commercial, as are his and Tom Vardens telescopes. I will try to get it up on the dome at the next meeting. Congratulations to all those members involved!

I sent an email out to all club members the second week of January trying to get as many back issues of the Desert Sky Observer as possible for our club archives and have had little luck. We are complete from January 2000 and have a few issues previous to that. I am hoping to get the complete run of OUR newsletter from the beginning before the end of 2008. One thing that I did receive were the minutes from the very first "Antelope Valley Astronomical Society" meeting dated February 20, 1981. Thank you Bill for that. I actually know four of the eight that were present that night. Two of those are CURRENT members of the Antelope Valley Astronomy Club.

From the history of the club to the future I am hoping to make a major impact in 2008. If you have any input as to what YOU would like to see the Antelope Valley Astronomy Club do in the future please let any Board member know. In this way those ideas may be added into the long-range plan that we are currently working on. I myself would like to see an Antelope Valley Astronomy Club Observing site, complete with an observatory and warm room/clubhouse. Having a large RC telescope on a paramount would be nice also, complete with Internet access and instruments to do REAL science by our members.

If we make a plan and have the drive WE CAN ACCOMPLISH ANYTHING!

Clear Skies,
Terry

Vice President
Debora Pedroza

Our club is proud to announce the return of one of our members' most popular speakers for the club meeting on Friday, February 8th.

Chris Butler is an internationally renowned artist and public speaker whose work focuses on science, astronomy, nature and maritime subjects. His illustrations have appeared in thousands of publications worldwide, from The Times of London to Scientific American. Chris's unique art and presentation style reflects his diverse experience; he has been the director of a children's science museum, a tour guide on the original Queen Mary, a technical illustrator, a representative for a telescope manufacturer, an amateur astronomer, and a financial analyst on the space shuttle program for Rockwell International.

Chris will be presenting "Our Little Corner of the Galaxy: Cycles of Fire". This is his first fully animated presentation, which takes his science art into motion. The effect is such that the viewer will get a much richer impression of what it might be like to visit alien star systems. All the stars we'll be visiting are visible in the winter sky, so we amateur astronomers can rush out to get our own impressions. Our club members have enjoyed Chris Butler's visits immensely so as the new V.P. this year- I just want to tell the new members- you don't want to miss this one!

I am ending my article this month with a request for help. The Youth Exploring Astronomy Essay Contest needs individuals who can help get essay fliers out to the schools in all areas (Palmdale, Elizabeth Lake, Acton, Keppell, and Wilsona). If you can possibly do this, please call me at (661) 728-0130.

Thanks so much and take good care.

Director of Community Development
Karole Barker

Saturday February 9th is a New Moon Walk with Jeremy at Prime Desert Woodlands, at 6:00pm. We will need volunteers with telescopes for this event! Please contact Jeremy, e-mail me or give me a call if you can make it out that night.

Here are some events in the coming months:

April 19th & 20th is the Poppy Festival here in Lancaster. We will need volunteers for each day at the festival.

One of the big events for our club is Mt. Wilson, which is on Saturday June 28th. You definitely, don't want to miss this event. Sign up now, so you don't miss out!
Don't forget to mark your calendar! Next meeting will go over more details regarding this event.

Clear skies,
Karole Barker

No Mars Rock Unturned

by Patrick L. Barry

Imagine someday taking a driving tour of the surface of Mars. You trail-blaze across a dusty valley floor, looking in amazement at the rocky, orange-brown hillsides and mountains all around. With each passing meter, you spy bizarre-looking rocks that no human has ever seen, and may never see again. Are they meteorites or bits of Martian crust? They beg to be photographed.

But on this tour, you can't whip out your camera and take on-the-spot close-ups of an especially interesting-looking rock. You have to wait for orders from headquarters back on Earth, and those orders won't arrive until tomorrow. By then, you probably will have passed the rock by. How frustrating!

That's essentially the predicament of the Spirit and Opportunity rovers, which are currently in their fourth year of exploring Mars. Mission scientists must wait overnight for the day's data to download from the rovers, and the rovers can't take high-res pictures of interesting rocks without explicit instructions to do so.

However, artificial intelligence software developed at JPL could soon turn the rovers into more-autonomous shutterbugs.

This software, called Autonomous Exploration for Gathering Increased Science (AEGIS), would search for interesting or unusual rocks using the rovers' low-resolution, black-and-white navigational cameras. Then, without waiting for instructions from Earth, AEGIS could direct the rovers' high-resolution cameras, spectrometers, and thermal imagers to gather data about the rocks of interest.

"Using AEGIS, the rovers could get science data that they would otherwise miss," says Rebecca Castaño, leader of the AEGIS project at JPL. The software builds on artificial intelligence technologies pioneered by NASA's Earth Observing-1 satellite (EO-1), one of a series of technology-testbed satellites developed by NASA's New Millennium Program.

AEGIS identifies a rock as being interesting in one of two ways. Mission scientists can program AEGIS to look for rocks with certain traits, such as smoothness or roughness, bright or dark surfaces, or shapes that are rounded or flat.

In addition, AEGIS can single out rocks simply because they look unusual, which often means the rocks could tell scientists something new about Mars's present and past.

The software has been thoroughly tested, Castaño says, and now it must be integrated and tested with other flight software, then uploaded to the rovers on Mars. Once installed, she hopes, Spirit and Opportunity will leave no good Mars rock unturned.

Check out other ways that the Mars Rovers have been upgraded with artificial intelligence software at http://nmp.nasa.gov/TECHNOLOGY/infusion.html#sciencecraft.

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

AVAC Observing Challenge

By Tom Koonce and Tony Cecce

(Countdown: 1 month to go until the March 8 Messier Marathon!!)

Next month is an amateur astronomy event on March 8 called a “Messier Marathon” that you should mark right now on your calendar. Our Club hosts this event each year around the middle of March. It’s not a public star party, it’s a time for us to get together and hone our observing skills trying to see how many of the 110 Messier Objects you can see in one night. There will be a barbecue, plenty of other amateurs with their telescopes and binoculars, our traditional Midnight Snack, and more moving from one scope to the next to verify an object’s location or shape. Sounds great doesn’t it?! It’s not a contest with anyone else but yourself and your own skills as an observer. You do not have to have someone else sign off your finds like you do when working on your Messier Observer’s Pin. In fact, I encourage you not to work on your observer’s pin during the Marathon. Just take the marathon evening for fun. You’re probably already familiar with a few of Messier objects (M objects) like the Great Orion Nebula (M42) and the Andromeda Galaxy (M31), but you may not find it so easy to find and distinguish between, the galaxies of the Virgo Cluster without some advance practice and planning. You will have a great time participating in the marathon ONLY IF you prepare ahead of time.

Once you completed the first ten Messier Objects, you can slow your pace a little. However, since you have the most energy early on, you need to move across the sky at a fairly good pace. You may need the extra time on the dreaded Virgo Cluster. You should be able to get through the first 48 by 10:30 or 11 pm. By then the Virgo Cluster will be in a good position in the sky to attack.

You will need a good plan to wind your way through the Virgo Cluster, (actually comprised of 14 galaxies in the constellations of Virgo and Coma Berenices). I recommend you follow the order suggested in the Marathon Order file marathon_order.pdf found on the Club website. The path starts in the eastern edge at Epsilon Virginis and goes toward the west rather than following the west to east, right ascension order from the list works well with most of the other objects. If you get halfway through and get lost, don't panic. Start over again and the second time you will be able to quickly get back to the last galaxy you had observed.

Successfully navigating the Virgo cluster is the biggest challenge in the Messier Catalogue, and is affectionately known as "Heartbreak Ridge" to marathoners. 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.

Get a good chart of the 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.

If this is your first Marathon, I recommend that you avoid large aperture scopes. Small telescopes 6"-8" in size make finding the M-objects easier. Large scopes will show many, many of the other faint galaxies and will cause you to become disoriented. Same is true for sky darkness. Minimal light pollution will also help to "filter out" the dimmer galaxies from the brighter Messier objects. In my moderately light polluted backyard with an 8" scope I can find the Messier objects easily, but can barely see the other galaxies. Of course to really enjoy and get the most out of any galaxy you want the largest scope and darkest skies you can find.

Plot your paths through the cluster, including a "home base". Your home base should be an easily recognizable M-object or field in the cluster. This will be the starting point for any excursions you plan, and a place to return to, should you become lost. I use M84, M86 as my home base. I can find this pair of galaxies easily by pointing my 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 I do this. I've heard of other people using M87 as their home reference because of its brightness.

The paths I like to use are:
M84, M86 -> M87 -> M89, M90 -> M91 -> M88
|----> M87 -> M89 -> M58 -> M59, M60
|----> M99 -> M98 -> M100

As you move from an identified object in search of a new object keep track of how far you have traveled. At low power the most you should have to move between objects is 3 or 4 fields of view. If you go much farther than that go back to your last object or all the way back to home.

Have patience and keep trying. Getting to know this area of sky is very rewarding. Under dark skies and with a large scope I can easily get seven galaxies into the same field of view... an amazing sight to behold. My personal record is eleven galaxies in my field and I'm sure that younger, sharper eyes could beat that.

Remember for most of these galaxies you are looking for light that left its source about 70 million years ago. Most of these objects at low power look like not much more than dim, fuzzy, out of focus stars. But if your eyes have become fully dark adapted and if you take your time looking at each field, you will discern more detail and get a sense of the size of these other island universes. When done with the Virgo Cluster, swing your scope over to M3 or M13 to let your photon starved retinas feast on a real meal.

Practice and patience payoff in the Virgo Cluster. The suggested observing order for objects in Coma Berenices and Virgo is as follows:

M No.	Con	RA	Deg	Sec	Mag	Type	Description
M 53	COM	13:13	18	10	7.7	GC	
M 64	COM	12:57	21	41	8.5	Spiral Galaxy	Black Eye Galaxy
M 98	COM	12:14	14	54	10.1	Spiral Galaxy	
M 85	COM	12:25	18	11	9.2	Elliptical Galaxy	
M 99	COM	12:19	14	25	9.8	Spiral Galaxy	Pin Wheel Nebula
M 100	COM	12:23	15	49	9.4	Spiral Galaxy	
M 84	VIR	12:25	12	53	9.3	Elliptical Galaxy	Lenticular galaxy
M 86	VIR	12:26	12	57	9.2	Elliptical Galaxy	Lenticular galaxy
M 87	VIR	12:31	12	24	8.6	Elliptical Galaxy	Virgo A
M 89	VIR	12:36	12	33	9.8	Elliptical Galaxy	
M 90	VIR	12:37	13	10	9.5	Spiral Galaxy	
M 88	COM	12:32	14	25	9.5	Spiral Galaxy	
M 91	COM	12:35	14	30	10.2	Spiral Galaxy	
M 58	VIR	12:38	11	49	9.8	Spiral Galaxy	
M 59	VIR	12:42	11	39	9.8	Elliptical Galaxy	
M 60	VIR	12:44	11	33	8.8	Elliptical Galaxy	
M 49	VIR	12:30	8	0	8.4	Elliptical Galaxy	
M 61	VIR	12:22	4	28	9.7	Spiral Galaxy	
M 104	VIR	12:40	-11	37	8.3	Spiral Galaxy	Sombrero Galaxy

There are some stunning views awaiting you within the depths of the Virgo and Coma Clusters. If this is your first Marathon, I envy the excitement you will feel as you walk your telescope across Markarian's Chain for the first time, or gazing at the Sombrero Galaxy on a night of excellent seeing.

For reference, an entire Messier Marathon guide can be found at:
http://www.astro-tom.com/messier/messier_objects.htm or
http://www.avastronomyclub.org/observing/messier/marathon.htm

To help you prepare for the Marathon take a look some tips at:
http://www.astro-tom.com/messier/marathon_order/marathon_tips.htm or
http://www.avastronomyclub.org/observing/messier/marathon_tips.htm

Planetary Events for February

By Tom Koonce

A full Lunar Eclipse will happen the night of February 20/21 bringing an interesting dark red shade to the face of the Full Moon. Locally, the Moon will rise about 5:45 pm shortly after the eclipse has begun. Totality starts at 7:01 pm. By 8:10 pm you should begin to notice the Moon emerging from the shadow of the Earth as the lower right hand south-east edge of the Moon begins to brighten. The Moon appears red because dust in the Earth's atmosphere scatters sunlight allowing only the red light to filter through and partially illuminate the face of the Moon.

The sooner you observe Mars, the better. During February, the Earth is on the inside orbital track and is pulling away from its closest approach to the orbit of Mars back in mid-December. Mars will shrink in apparent diameter by 25% by the end of February and decrease in brightness from magnitude -0.6 to magnitude +0.2. At 8:00 pm, Mars is directly overhead with very little of Earth's atmosphere to degrade your view. You'll have to wait another two years to get an equal view of Mars during its next opposition.

Saturn will be just 4 degrees to the Moon's lower left during the Lunar eclipse. The best view of Saturn will be when it reaches opposition on February 24. Saturn is located in the constellation Leo, 5.5 degrees east of the bright magnitude 1.3 star, Regulus.

Did you know? ? ?

How long does it take Earth to spin 1 degree on its axis?

Surprisingly, it doesn't take 24 hours to make one rotation. We can't ignore that the Earth also rotates around the Sun. It takes a little less than 24 hours for the Sun to get back to the zenith in the sky. For convenience, a day is rounded to 24 hours because a day is little bit more than 360 degrees of the Earth's rotation. One rotation of the Earth takes about 23 hours 56 minutes. Taking 23.933 (rounded) hours and dividing by 360 degrees for one rotation yields the answer in terms of how many minutes per one degree:
About 4 minutes for 1 degree of rotation.

News and Headlines

Surprises from Mercury
After a journey of more than 2 billion miles and three and a half years, NASA's MESSENGER spacecraft flew by Mercury on Jan. 14, 2008, and it has beamed back some surprises.
http://science.nasa.gov/headlines/y2008/30jan_mercurysurprise.htm

Journey to Saturn From Your Computer
Want a peek at Saturn as seen from space? A new interactive 3-D viewer that uses a game engine and allows users to travel to Saturn and see it the way the Cassini spacecraft sees it
http://www.spaceref.com/news/viewpr.html?pid=24673

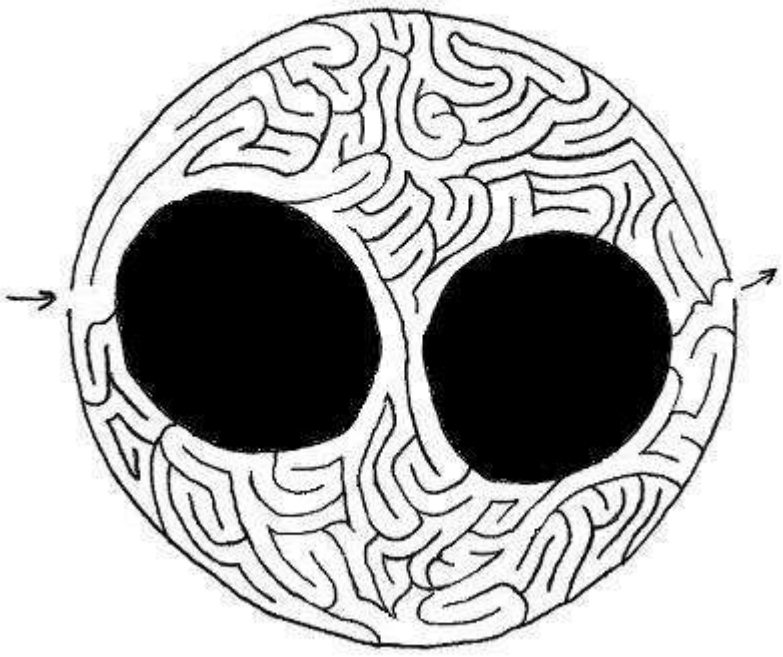
Linked Hawaiian Telescopes Catch a Nova Surprise
First results from a new NASA-funded scientific instrument at the W. M. Keck Observatory at Mauna Kea, Hawaii, are helping scientists overturn long-standing assumptions about powerful explosions called novae and have produced specific information about one nearby nova.
http://www.nasa.gov/topics/universe/features/keck-20080128.html

Cosmic Suburbia is a Better Breeding Ground for Stars
New observations from NASA's Spitzer Space Telescope suggest that galaxies prefer to raise stars in cosmic suburbia rather than in "big cities."
http://www.nasa.gov/mission_pages/spitzer/news/spitzer-20080125.html

For Cloudy Nights.....

Maze: Owl Nebula

Look like gray matter to you? Then see if you can find your way.



For Sale

Meade Series 4000 2X Barlow, for 1.25" eyepieces. Mint condition. Includes set screw, one cap and original box. $50 firm. (Originally sold for $120) Click for Photo. Call Tom, 661-943-8200

Celestron multi-coated 32mm Erfle 1.25" eyepiece. Excellent condition, no marks on barrel, threaded for filters, extremely sharp views of Moon and deep sky. Made in Japan, not China. Includes caps. $45 Firm. Click for Photo. Call Tom, 661-943-8200

Mint condition. Multi-coated 25mm Plossl, Series 500, from Hands-on-Optics. 1.25" barrel, threaded for filters. Great "star party" eyepiece. Rubber eye guard. $20. Click for Photo. Call Tom, 661-943-8200

Mint condition. Multi-coated Japanese "mystery eyepiece" with variable diopter adjustment. Equivalent to approximately 15mm? I bought this from a well-known amateur astronomer on top of Mt. Pinos. He told me I'd be amazed by its sharpness (and I was – it's very, very good!) 1.25" spotless barrel, threaded for filters. A great lunar and planetary eyepiece. Rubber eye guard. $25 firm, but I'll give you a money back guarantee if not happy with this little jewel. Click for Photo. Call Tom, 661-943-8200

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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