



# Desert Sky Observer

Volume 28 Issue 1

January 2008



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/](http://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

**January 5:** New Moon Walk and Star Party @ [Prime Desert Woodlands](#)

**January 11:** Club Meeting\* Matt Leone and "Are there Dilithium Crystals in the Universe?"

**January 14:** Board Meeting @ [Pedroza Flats](#)

\* 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 20<sup>th</sup> 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**

2008 is upon us as 2007 lingers behind as only a memory. I hope that everyone received the gifts they had hoped for from Ole Saint Nick and that all your New Year's resolutions hold strong.

I would like to thank the 2007 Executive Board for all their hard work and long hours. You Guys and Gal ROCK! There are many committee members who deserve a great big Thank You also. Without the hard work of all the members of the YEA team this would not have been our best year to date. The awards committee made the Keith Lawson Award and all the certificates of appreciation possible. The teams that worked on our Annual Picnic and Christmas party did a fantastic job. Last but not least all the club members who did so much to make OUR club better and gave so much of their time and expertise Thank You. All of you make OUR club shine.

I would also like to welcome the 2008 Executive Board and say "Thank You" for accepting the challenge to help your club grow and prosper! Thank you also to Jenn Reidhart for accepting the challenge of starting up our Long Term Advisory committee, you will help OUR club stay strong for the many years to come.

This is already looking to be a very busy year for the Antelope Valley Astronomy Club. The calendar is filling fast and the projects are beginning to take shape. If you have any suggestions to make OUR club better please see me or any of our board members.

See you at the January Meeting  
Terry

***Vice President***  
***Debora Pedroza***

Happy New Year to all of you and as the new Executive Board Vice President, I look forward to another year of exciting and interesting speakers and a fun-filled annual club picnic. As you all know our club has always offered such a wide variety of speakers; from artists to geologists to space mission engineers (just to name a few). Because of this, one will hear a club member repeatedly boast at a public event, telling prospective new members to come to our monthly meetings to hear them. It feels so good to share what our club has to offer with others and to say it with such confidence!

Astronomy is so diverse and space exploration is history in the making and I intend to tap into that diversity with the selection of our speakers. There will be some popular returnees such as Chris Butler and also some presentations from time to time from several of our own talented members. Since each and every one of us make up the core of our club, please feel free to add insight, advise or recommend a speaker at any time throughout this coming year. I am always open to suggestions and you know how it works... you know people...who know people...who know people. The power of communication is awesome!

Until next time, take good care and thanks again for this opportunity.

***Director of Community Development***  
***Karole Barker***

Saturday January 5th 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:

February 9th is a Moon Walk with Jeremy at Prime Desert Woodlands. We will need volunteers with telescopes for this event as well.

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!

Clear skies,  
Karole Barker



## Ultraviolet Surprise

by Patrick L. Barry and Tony Phillips

How would you like to visit a universe full of exotic stars and weird galaxies the likes of which astronomers on Earth have never seen before?

Now you can. Just point your web browser to [galex.stsci.edu](http://galex.stsci.edu) and start exploring.

That's the address of the Galaxy Evolution Explorer image archive, a survey of the whole sky at ultraviolet wavelengths that can't be seen from the ground. Earth's atmosphere blocks far-ultraviolet light, so the only way to see the ultraviolet sky is by using a space telescope such as NASA's Galaxy Evolution Explorer.

About 65% of the images from the all-sky survey haven't been closely examined by astronomers yet, so there are plenty of surprises waiting to be uncovered.

"The Galaxy Evolution Explorer produces so much data that, beyond basic quality control, we just don't have time to look at it all," says Mark Seibert, an astronomy postdoc at the Observatories of the Carnegie Institution of Washington in Pasadena, California.

This fresh view of the sky has already revealed striking and unexpected features of familiar celestial objects. Mira is a good example. Occasionally visible to the naked eye, Mira is a pulsating star monitored carefully by astronomers for more than 400 years. Yet until Galaxy Evolution Explorer recently examined Mira, no one would have guessed its secret: Mira possesses a comet-like tail 13 light-years long.

"Mira shows us that even well-observed stars can surprise us if we look at them in a different way and at different frequencies," Seibert says.

Another example: In April, scientists announced that galaxies such as NGC 1512 have giant ultraviolet spiral arms extending three times farther out into space than the arms that can be seen by visible-light telescopes. It would be like looking at your pet dog through an ultraviolet telescope and discovering his ears are really three times longer than you thought!

The images from the ultraviolet space telescope are ideal for hunting new phenomena. The telescope's small, 20-inch primary mirror (not much bigger than a typical backyard telescope) offers a wide field of view. Each image covers 1.2 degrees of sky—lots of territory for the unexpected.

If someone combing the archives does find something of interest, Seibert advises that she or he should first search astronomy journals to see whether the phenomenon has been observed before. If it hasn't, email a member of the Galaxy Evolution Explorer science team and let them know, Seibert says.

So what are you waiting for? Fire up your web browser and let the discoveries begin!

To see an image of Mira in UV, visit [http://spaceplace.nasa.gov/news\\_images/mira.jpg](http://spaceplace.nasa.gov/news_images/mira.jpg)

*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

(Countdown: 2 months to go until the March Messier Marathon!!)

During the cold, crisp January evenings, get out your telescope and warmest clothes for something memorable. This month, you will be rewarded by your commitment during our visit to the constellation Auriga, The Charioteer. Auriga is one of the oldest constellations going back to the Babylonian times. It has always been associated with a charioteer. In fact, the Babylonians, Greeks, Arabs, and Chinese have all associated Auriga with a chariot.

Auriga (pronounced Oh-REE-guh or Ah-Rye-guh) offers several types of observing challenges. Of the seven brightest stars that make up the constellation, 5 are actually close binaries, which means they're not single stars at all, but multiple star systems, orbiting so close around one another that they appear as one bright star. Auriga shares the star Elnath with the constellation Taurus. Moving clockwise around the constellation from Elnath, you can easily pick out the brightest star, Capella. Observe Capella with your telescope under moderate power, 50X – 75X, and try to imagine that you are looking at a star 42 light years away, 14 times bigger than our own Sun, yet brighter than more than 160 of our Suns put together! Keep these in mind as you move your telescope clockwise around Auriga to the very next bright star, Almaaz. It looks a little dimmer than Capella, but it may surprise you that it's over 50 times farther away than Capella and shines with the luminosity of 21,453 Suns. At 2038 light years away, this monster star is 121 times bigger than our Sun. It just happens to look dimmer than Capella because of its extreme distance from us.

As you observe you should remember that, “the higher the magnification, the dimmer the object.” Planets are good from 80X to 200X. Beyond that, atmospheric turbulence typically makes further magnification counter-productive. 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 over 10 inches). Beyond that, the already dim object will become too faint to see at all. A few bright nebulae (like the Ring Nebula, M57, in Lyra) can withstand more magnification.

There are several open clusters in this constellation. About 60 members belong to M36. It's a good object for the use of binoculars. A beautiful group of stars is M38 showing an oval shape. The richest of these three Messier objects is M37. It contains about 150 stars with magnitudes of 12.5 and brighter and about 500 in total. Ref: <http://seds.org/messier/>

We'll start in the middle of the constellation and work our way outwards, then our Advanced Challenge will return within the outlines of the Charioteer.



From Upper right to lower left: Open Clusters M38, M36, and M37



M38

**M38: Open Cluster**

Right Ascension: 05 : 28.4 (h:m); Declination: +35 : 50 (deg:m); Distance: 4.2 (kly); Visual Brightness: 7.4 (mag); Apparent Dimension: 21.0 (arc min)

Messier 38 (M38, NGC 1912) is one of the three Messier open clusters in the southern part of constellation Auriga. Lying only 2.5 degree northwest (proceeding) of M36, this cluster was silently discovered by Hodierna before 1654, and independently found by Le Gentil in 1749. Charles Messier included it in his catalog on September 25, 1764.

Its brightest stars form a pattern resembling the Greek letter Pi. At its distance of 4,200 light years, its angular diameter of about 20' corresponds to about 25 light years, similar to that of its more distant neighbor M37. It is of intermediate age, about 220 million years according to the Sky Catalog 2000. (ref: SEDS)



M36

**M36: Open Cluster**

Right Ascension: 05 : 36.1 (h:m); Declination: +34 : 08 (deg:m); Distance: 4.1 (kly); Visual Brightness: 6.3 (mag); Apparent Dimension: 12.0 (arc min)

Messier 36 (M36, NGC 1960) is the first of three bright open clusters in the southern part of constellation Auriga, included in Messier's catalog (the other two are M37 and M38). All three have been first recorded by Giovanni Batista Hodierna before 1654, as pointed out by Kenneth Glyn Jones; however these discoveries came to light as late as 1984, so that Le Gentil has independently rediscovered M36 and M38. Charles Messier included it in his catalog on September 2, 1764.

M36 is about 4,100 light years distant, so that its angular diameter of 12' corresponds to about 14 light years. It has about 60 proven members; the luminosity of the brightest member is about 360 times that of the Sun. Many of these bright stars are rapidly rotating, as shown by their broadened spectral lines, an effect which is also found for the bright type B members of the Pleiades (M45). If it were at the same distance (i.e., 10 times closer), this cluster would look as conspicuous as and very similar to the Pleiades.

As it is quite young at about 25 million years, it contains no red giants, in contrast to its neighbors M37 and M38, which lie roughly at the same distance. (ref: SEDS)



M37

**M37: Open Cluster**

Right Ascension: 05 : 52.4 (h:m); Declination: +32 : 33 (deg:m); Distance: 4.4 (kly); Visual Brightness: 6.2 (mag); Apparent Dimension: 24.0 (arc min);

Although Messier 37 (M37, NGC 2099) is the brightest of the 3 open clusters in southern Auriga, this cluster was missed by Le Gentil when he rediscovered M36 and M38 in 1749, so that it was Charles Messier who found this one independently on September 2, 1764. Generally unknown until 1984, all three clusters had been previously recorded by Hodierna before 1654.

M37 is the also the richest of the Auriga cluster, containing about 150 stars brighter than mag 12.5, and perhaps a total of over 500 stars. As indicated by the fact that it has at least a dozen red giants, and that the hottest main sequence star is of spectral type B9V, this cluster is a more evolved group with an estimated age of about 300 million years. Its distance is given discordantly between 3,600 light years and 4,700 light years. Its apparent diameter of 24' corresponds to a linear extension of about 20 to 25 light years, according to which distance is taken. (ref: SEDS)

## Advanced Challenge

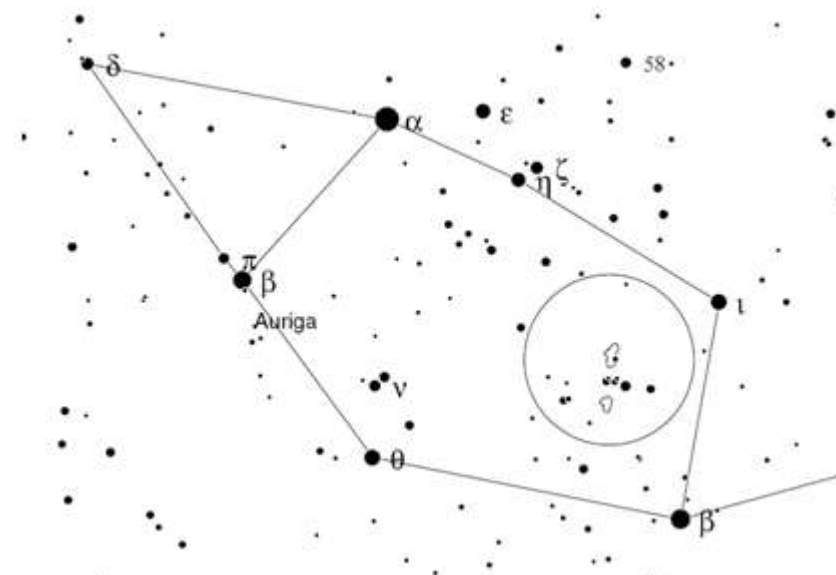


*Image IC 405, the Flaming Star Nebula (right) and IC 410, through an H-Alpha Filter, 1520 sec. Credit: Cyril Cavadore*

**IC 405 (Flaming Star Nebula):** Emission, Reflection Nebula.  
Right Ascension: 5h 16m 5s; Declination Dec: +34 27' 49"; Overall Visual Brightness 10.0 (mag), Apparent Dimension Size: 37.0 x 19.0 (arc min).

IC 405 is the red/blue nebula to the right of center. It is being illuminated by the energetic star AE Aurigae (embedded in the nebula). However AE Aurigae's story is inextricably linked to another star called Mu Columbae. Around 2.7 million years ago these two stars were formed and had a close encounter with one another in the Great Orion Nebula. The encounter was so close (another star was certainly involved) that each of them was ejected from the Orion complex never to return again. Currently these stars are 66 degrees away from one another in the sky. Astronomer's discovered these two runaway stars by measuring their apparent (fast) motion and noting that if you work backwards in time- the origin is in the same place at the same time! But AE Auriga is certainly the more glamorous of the two stars since it just happens to be moving through a region of gas that makes it look like a "Flaming Star."

It is challenging to locate, but a rewarding object to view, sketch or image. A H-Alpha filter and/or a Deep Sky filter is required to view this object. The Flaming Star Nebula is located within the circle:



If you haven't observed with specific filters to improve contrast or bring out details, take your time and plan on comparing images with and without the filter in place to get a sense of the effect they have on the view at the eyepiece. There are several nebulae that must be observed with filters as they are invisible to our naked eyes without them. To read more about filters and their usage in amateur astronomy, check out:

[http://www.astro-tom.com/technical\\_data/filters.htm](http://www.astro-tom.com/technical_data/filters.htm)

Clear Skies!

- Tom

## *News and Headlines*

### **Asteroid may hit Mars in next month**

A newly discovered hunk of space rock has a 1 in 75 chance of slamming into the Red Planet on Jan. 30, scientists said Thursday.

[http://news.yahoo.com/s/ap/20071221/ap\\_on\\_sc/mars\\_asteroid\\_9](http://news.yahoo.com/s/ap/20071221/ap_on_sc/mars_asteroid_9)

### **It's Official: 2009 Is the Year of Astronomy**

In a triumph for everyone who looks up in wonder at the starry sky, the United Nations' General Assembly has formally proclaimed 2009 the International Year of Astronomy.

<http://www.skyandtelescope.com/news/12718882.html>

### **Exoplanet atmosphere detected**

University of Texas at Austin astronomer and Hubble Fellow Seth Redfield has used the Hobby-Eberly Telescope (HET) at McDonald Observatory to make the first ground-based detection of the atmosphere of a planet outside our solar system.

<http://www.astronomy.com/asy/default.aspx?c=a&id=6371>

### **Major lunar probe begins full operation**

Japan's first lunar probe, the world's most extensive mission to the moon in decades, has gone into full operation on schedule, the space agency announced Wednesday.

[http://www.moondaily.com/reports/Major\\_lunar\\_probe\\_begins\\_full\\_operation\\_Japan\\_999.html](http://www.moondaily.com/reports/Major_lunar_probe_begins_full_operation_Japan_999.html)

### **Subaru Reveals "Frameworks" of Galaxies at 11 Billion Years Ago**

A team of Japanese astronomers from the National Astronomical Observatory of Japan, Tokyo University, and Kyoto University in Japan obtained infrared and high-resolution images of galaxies from 11 billion years ago

<http://www.spaceref.com/news/viewpr.html?pid=24382>

### **Star sheds via reverse whirlpool**

Astronomers have found the best evidence yet of matter spiraling outward from a young, still-forming star in fountain-like jets.

<http://www.astronomy.com/asy/default.aspx?c=a&id=6432>

### **A Gamma-Ray Burst Out of Nowhere**

Whenever astronomers think they've got gamma-ray bursts all figured out, along comes another one that upsets the applecart.

<http://www.skyandtelescope.com/news/12604061.html>

### **Spacecraft Reveals New Insights About the Origin of Solar Wind**

Images from NASA-funded telescopes aboard a Japanese satellite have shed new light about the sun's magnetic field and the origins of solar wind, which disrupts power grids, satellites and communications on Earth.

[http://www.nasa.gov/home/hqnews/2007/dec/HQ\\_07264\\_Hinode\\_Waves.html](http://www.nasa.gov/home/hqnews/2007/dec/HQ_07264_Hinode_Waves.html)



**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 Pedroza (661) 728-0130 [president@avastronomyclub.org](mailto:president@avastronomyclub.org)

**Vice-President:**

Debora Pedroza (661) 728-0130 [vice-president@avastronomyclub.org](mailto:vice-president@avastronomyclub.org)

**Secretary:**

Tom Varden [secretary@avastronomyclub.org](mailto:secretary@avastronomyclub.org)

**Treasurer:**

Tom Koonce (661) 943-8200 [treasurer@avastronomyclub.org](mailto:treasurer@avastronomyclub.org)

**Director of Community Development:**

Karole Barker (661) 940-3312 [community@avastronomyclub.org](mailto:community@avastronomyclub.org)

**Newsletter Editor:**

Errol Van Horne (661) 273-7646 [newsletter@avastronomyclub.org](mailto:newsletter@avastronomyclub.org)

**Equipment & Library:**

Karol Barker (661) 940-3312 [library@avastronomyclub.org](mailto:library@avastronomyclub.org)

**Club Historian:**

Tom Koonce (661) 943-8200 [history@avastronomyclub.org](mailto:history@avastronomyclub.org)

**Webmaster:**

Steve Trotta (661) 269-5428 [webmaster@avastronomyclub.org](mailto:webmaster@avastronomyclub.org)

**Astronomical League Coordinator:**

Steve Trotta (661) 269-5428 [al@avastronomyclub.org](mailto:al@avastronomyclub.org)

***Ponder this...***

Would you call a fear of sound and light coming from Mars' larger moon Phobophytophonophotophobia?

*For Cloudy Nights.....*

**Word Find: Astronomical League observing.** [www.astroleague.org](http://www.astroleague.org) has a number of certificates one can earn for observing. Find them all below.

A Y E G I M C H R U A K S U E O U T R E A C H B I  
 S S A E M I S A N D C O T R P N R E H T O I A R S  
 C B R N I O R E L P M A S E S R E V I N U R E O Y  
 S K T E T O H A R D U P N C E O S E S X E S A E C  
 L G H P T L E D N H W C I B I U D T E E S R D T I  
 Y N O S A S I R X U L E R O X O E M B O I E R E A  
 R I R N I O U B A U L Y L E A L E H U R L V U M B  
 A V B Y R G D L S L N P R L L C D T L O H R U A K  
 T R I E C S P T C R U D A A A X H N E L E E L S U  
 E E T R L M E M B D H C T B G E A W H B R S H T R  
 N S I K G R S O R O N I O O R W U L C O S B O E E  
 A B N B S T E C U E O A T N A S U L S L C O R R I  
 L O G R A L U C O N I B S E I K S N R E H T U O S  
 P N S L M B S E H M S K R P L B I B E S E E A B S  
 E A A S K Y P U P P Y U M A U P Y Y H O L M B S E  
 A B T C O I N K R T H W N D C O N K T G I O R E M  
 E R E H T T D C E E A L O S E A R E S S I C U R R  
 R U L X E L E L S T E U N U P T N G L P O X E V A  
 T E L R H T E E R E B N G D P O G I Y U E B N E L  
 C R I W H S O V U L C A S P R L T S R X T E K R U  
 S H T S C N A H E I K R A D A E C T H B A W D L C  
 L I E O S E I S A L U B E N Y R A T E N A L P G O  
 Y S P L R E T N I B S E I K I O R E M R I O A S N  
 R I V U M A M Y R O S A S I R L M B S E S H U G I  
 C N U S R E T S U L C R A L U B O L G A S P H R B

**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](http://www.telescopes.net)

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

