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# 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 is a California non-profit Corporation  
Visit the Antelope Valley Astronomy Club website At [www.avac.av.org](http://www.avac.av.org)  
The A.V.A.C. is a Sustaining Member of The Astronomical League*



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## Up-Coming Events

- August 3:** Sun Party, Boys & Girls Club of Palmdale  
**August 5:** First Quarter Moon  
**August 7: Monthly Club Meeting\***  
**August 12:** Full Moon  
**August 16:** Talk/Star Party, [Prime Desert Woodlands](#)  
**August 19:** Last Quarter Moon  
**August 23:** Barbecue/Star Party at [Steve Trotta's house](#)  
**August 27:** New Moon

## Anytime: Observe

\* Monthly meetings 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 20<sup>th</sup> Street East. Meeting starts at 7 p.m. Please note that food and drink are not allowed in the planetarium. Monthly A.V.A.C. meetings are open to the public.

## President's Report

Terry Pedroza

The Annual Membership Meeting in October is rapidly approaching for those who would like to submit proposed changes to the AVAC Constitution. The Executive Board must mail these to our members one month before the elections to be included on the ballot. Nominations are currently open for Executive board positions and will remain open until the night of the elections. If you would like to make a nomination, please see a Board member or bring it up at the meeting. If you are interested in running for a position and would like more information see any Board member.

Mars is getting closer and many of our members have asked about a Mars Party. I say "how about August 30<sup>th</sup> at Kings Canyon?" Or... we will be at Steve Trotta's on the 23<sup>rd</sup> for a barbecue and star party and could do it then. Let me know and I will try to get it set up. Speaking of set up, the 2<sup>nd</sup> night of the two half nights at Mount Wilson is set up for November 22<sup>nd</sup>. I will talk more about this at the meeting.

I hope everyone had a great time at the Picnic and that I will see you at the next meeting.

### *Vice President's Report*

*Tom Koonce*

Hi Everyone. August's guest speaker will be **Nagin Cox** from the Pasadena Jet Propulsion Laboratory. She is the Chief Engineer for the Mars Exploration Rovers, which are now on their way to Mars. Please make plans to attend her fascinating talk at our next club meeting on **THURSDAY**, August 7. She is an excellent speaker and will share her enthusiasm for planetary exploration with all of us.

Congratulations to **Sara Prestel** for completing her Honorary Messier Certificate. Sara knocked off M95 to complete all 110 Messier objects this last month. Sara is the youngest female in Club history to earn this honor. Way to go, Sara!

We have a busy fall coming up with plenty of opportunities to learn more about the night sky. Come on out to one of the star parties and learn more about the constellations and other night sky wonders.

### *Dir. of Community Development*

*Debora Pedroza*

Hello club members! This summer season is certainly a warmer one than recent ones past and thankfully, our community events calendar is lighter during the next couple of months. Here is a short update of what lies ahead. Of course, by the time you all read this we will have had the best time together at our annual club picnic! Thanks to one and all for your companionship and for coming out to join the fun.

On Sunday, August 3<sup>rd</sup>, we have a three hour sun party scheduled at the Boys and Girls Club in Palmdale (3pm-6pm). It is a quite a large event with many organizations participating and I believe there will be vendors there as well. Please let me know if you can help with this short event. In the past, the kids have gone nuts over our solar viewing.

Next on our agenda is an event at the Prime Desert Woodlands on Saturday, August 16th. Our very own club president will be doing a presentation on astronomy and we will offer some evening viewing afterwards. If you would like to join in on this event, please contact Terry or myself.

Rounding out August is our dark sky party and barbeque at Steve Trotta's on the 23rd. He has a beautiful place in Acton. It is so peaceful with lots of trees and a pool to cool off in. You simply cannot miss this one! This is it for now and until I see you again at the next club meeting... happy Mars viewing and take good care.

## Doug Drake's *Planet Watch*



### Mars

As everyone knows, this is it, the best Mars ever gets! Throughout this month Mars will be on center stage and, by month's end, will rise in the East as the Sun sets in the West. The 27th of August is the day of all-time closeness to Mars for the rest of our lives. Midnight will be the time to observe Mars in the Southern sky- bright orange as you've never seen before. Remember to take your time while observing Mars. Let the sky settle for brief moments to glimpse the subtle details of Mars' features.

Patience is a virtue- remember to draw what you see; this will help your eye see more detail than by not drawing. First draw the polar cap, then draw what subtle surface detail you can see, then draw any bright or light spots you may spy out, then draw any limb (outer sides) darkening or brightening you see. If you do this you gotta show me so we can share the experience together.

By-the-way, if you have a 10-inch or larger telescope, you can check out Deimos and Phobos, the two moons of Mars. Look in the August edition of *SKY & Telescope* and *Astronomy* magazines to find their position around Mars. You can also attempt this with an 8-inch telescope, but the sky must be very dark.

### Uranus & Neptune

Uranus can be seen just East of Capricornus and Neptune can be seen within Capricornus. Remember, Capricornus looks like one of three things: the B-2 bomber, an Australian boomerang, or a bat wing residing in the Southern night sky. Like Mars, Uranus and Neptune will also be at opposition and will be the closest to us this month and we will have to wait until next year to get a closer view. May you have the best planetary viewing you've ever had. Happy viewing.



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## ***What to do with an old Reflecting Telescope***

by Tom Koonce

What if you have an old reflecting telescope from the 80's and would like to get it up and working to see Mars next month? It's really dusty and the mirror looks a little "spotty." What can you do to get the scope back in order? For the sake of this article, the telescope was a fairly common Tasco 4.5" mirror, f/8 with a 900 mm focal length. In this instance, I would not recommend just cleaning the mirror, per se (read more below), but I'd like to offer you a couple of courses of action that you can follow that will lead to excellent views of the sky.

### **Option 1: Mirror Replacement**

Switching out your existing mirrors for new mirrors is your easiest and certainly lowest cost solution. It's not something to be afraid of at all since very little mechanical ability is needed to do this task. Check out Orion Telescope's website (<http://www.telescope.com>) for replacement mirrors. A replacement set of mirrors in this instance (4.5" f/8 Primary Mirror) would be \$39.95. Your secondary mirror will have to be measured before you order it. It is a small elliptical flat mirror on the back side of the spider near the front of the telescope. More than likely, you will need to take off the spider to remove this mirror. Often they were glued onto the spider. If so, measure the mirror (in millimeters and inches) BEFORE you try to pry it off the spider. It's real hard to measure something in 100 pieces if it should break! The new secondary mirror from Orion will cost \$15 - \$20

(Orion's replacement mirror is listed as a  $D=4.5" = 114.3 \text{ mm}$ , and since  $114.3 \text{ mm} \times f/8 = F = 914.4 \text{ mm}$ , which is very close to the example's telescope's focal length of 900 mm. The Orion replacement mirror should work very well). Total cost for this option including shipping will be about \$65.00.

### **Option 2 – Re-silvering**

With a reflecting scope older than 10-15 years, at the very least it's a good bet that the primary and secondary mirrors need to be re-silvered. The aluminum oxide silvering oxidizes over time and typically lasts between 7-10 years before its reflectivity is sharply reduced. If this is the case, the good news is that you won't have to run the risk of scratching the primary mirror by wiping the dust off. Just take the mirrors out of their mirror cell mounts and rinse them thoroughly with distilled water. The idea is that without physically touching the mirror surface to get as much of the dirt off so they won't get scratched when shipping them back to be re-silvered. After dry, use fresh newspaper and masking tape to cover the entire mirror, covering the optical surfaces carefully. Wrap each mirror up in several layers of soft paper towels, using more tape on the outside, THEN package up the mirrors for shipping with plenty of bubble wrap to the re-silvering company (See "Mirror Coating Services below). The cost of this including shipping, insurance, and telephone calls will be about \$100. It will take about 2-3 weeks after they receive your mirrors. Upon receipt of the freshly re-silvered mirrors, carefully reinstall, re-collimate and enjoy your "new" telescope!

### Option 3 - Entire Telescope Replacement

Used 6" reflectors in excellent shape are advertised quite often on Astromart (<http://www.astromart.com/>) for prices around \$125 - \$175. You can get a "Dobsonian" mount reflector and +77% more light gathering area with an optical surface that has been most likely configured by a modern optical grinding machine. Alternatively, you could make your own 6" reflector in about 2 - 3 weekends and have the mirror silvered for about \$150, but you would enjoy the scope even more because you made it. Telescope Making Websites: <http://www.atmsite.org/> , <http://www.starastronomy.org/TelescopeMaking/Links/> , <http://tie.jpl.nasa.gov/tie/dobson/index.html#TOC>.

### Mirror Coating Services

**US Evaporated Metal Films:** Toll Free, 800-456-7070, toll free fax, 800-456-3227.

Visit [www.emf-corp.com](http://www.emf-corp.com) or email Joseph Howe at [joe@emf-corp.com](mailto:joe@emf-corp.com).

**P.A.Clausing, Inc.** 847-676-0330 Voice, 847-676-2930 Fax, e-mail: [hclaus@clausing.com](mailto:hclaus@clausing.com). Beral, Silver, Gold, Aluminum, Copper, Rhodium, (most other evaporable metals) and overcoatings, Fast turn around available.

**Majestic Optical Coatings** 732-388-5604, Fax 732-388-5826. [optcoating@aol.com](mailto:optcoating@aol.com)

**Research Service Co.** 781-284-0393. Specializing in recoating of telescope mirrors. Charge amateurs \$4.00 per inch up to 18". One week turn around typical. [COATERRSC@aol.com](mailto:COATERRSC@aol.com)

**Spectrum Coatings** 904-789-6662. email [paul@spectrum-coatings.com](mailto:paul@spectrum-coatings.com)

I hope this information helps in your great choice to have a working telescope that you can start observing with next weekend!





## From the Belly of an Airplane: Galaxies

by Dr. Tony Phillips

On April 28th a NASA spacecraft named GALEX left Earth. Its mission: to learn how galaxies are born, how they grow, and how they die.

"GALEX- short for Galaxy Evolution Explorer- is like a time machine," says Caltech astronomer Peter Friedman. It can see galaxies as far away as 10 billion light years, which is like looking 10 billion years into the past. The key to the mission is GALEX's ultraviolet (UV) telescope. UV rays are a tell-tale sign of hot young stars, newly formed, and also of galaxies crashing together. By studying the ultraviolet light emitted by galaxies, Friedman and colleagues hope to trace their evolution spanning billions of years.

This kind of work can't be done from the ground because Earth's atmosphere absorbs the most energetic UV rays. GALEX would have to go to space. To get it there, mission planners turned to Orbital Science Corporation's Pegasus rocket.

"Pegasus rockets are unusual because of the way they're launched- from the belly of an airplane," says GALEX Project Engineer Frank Surber of JPL.

It works like this: a modified L-1011 airliner nicknamed *Stargazer* carries the rocket to an altitude of 39,000 feet. The pilot pushes a button and the Pegasus drops free. For five seconds it plunges toward Earth, unpowered, which gives the *Stargazer* time to get away. Then the rocket ignites its engines and surges skyward. The travel time to space is only 11 minutes.

"The aircraft eliminates the need for a large first stage on the rocket," explains Surber. "Because *Stargazer* can be used for many missions, it becomes a reusable first stage and makes the launch system cheaper in the long run." (To take advantage of this inexpensive launch system, GALEX designers had to make their spacecraft weigh less than 1,000 lbs- the most a Pegasus can carry.)

A Pegasus has three stages- not counting the aircraft. "Its three solid-rocket engines are similar to the black powder rockets used by amateurs. The main difference is that the fuel is cast into a solid chunk called a 'grain'- about the consistency of tire rubber. Like black powder rockets, once the grain is lit it burns to completion. There's no turning back."

In this case, turning back was not required. The rocket carried GALEX to Earth orbit and deployed the spacecraft flawlessly. On May 22nd, the UV telescope opened its cover and began observing galaxies- "first light" for GALEX and another success story for Pegasus.

For adults, find out more about the GALEX mission at <http://www.galex.caltech.edu/> Kids can read and see a video about Pegasus at <http://spaceplace.nasa.gov/galex/pegasus.html>

## \* \* ADVERTISEMENT \* \*

Astronomy/Space Alert for Southern California (also known as Launch Alert) is a free, e-mail based newsletter providing coverage of missile launches from Vandenberg AFB. Other topics covered include southern California astronomy and space news.

Many of the events mentioned in the newsletter are visible over a large portion of the Southwest. To subscribe, go to: <http://mailman.qth.net/mailman/listinfo/launch-alert>

\* \* \* \* \*

Did you know? ?

Mars rovers Spirit and Opportunity will reach the red planet in January.

? ? ?

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### Astronomy Links on the Web

<http://mars.jpl.nasa.gov/>

(everything Mars exploration)

<http://pages.prodigy.net/sstrott/>

(Steve Trotta's website)

<http://www.astro-tom.com/>

(Tom Koonce's website)

<http://www.projectsandhobbies.com/howtolearnastronomy.htm>

(Getting started in Astronomy...)

<http://antwrp.gsfc.nasa.gov/apod/archivepix.html>

(Astronomy Picture of the Day)

<http://www.avac.av.org/>

(Hey, that's us! So link yourself on over!)

**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) 718-3963 [res1atuo@verizon.net](mailto:res1atuo@verizon.net)

**Vice-President:** Tom Koonce(661) 943-8200 [takoonce@aol.com](mailto:takoonce@aol.com)

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**Club Librarian**

Terry Pedroza (661) 718-3963 [res1atuo@verizon.net](mailto:res1atuo@verizon.net)

**Astronomical League & Club Historian**

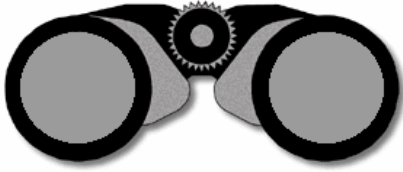
Tom Koonce (661) 943-8200 [takoonce@aol.com](mailto:takoonce@aol.com)

**Webmaster of Club Site**

Steve Trotta (661) 269-5428 [sstrott@prodigy.net](mailto:sstrott@prodigy.net)

The speaker for the September club meeting will be Chris Butler. He returns to speak about and show off his outstanding space artwork.



***A Look Ahead...*****September Calendar****September 12:** Club Meeting**September 27:** Star Party, [Mt. Pinos](#)**October Calendar****October 10:** Club Meeting and Elections**October 11-12:** Palmdale Fall Festival**October 25:** Star Party, [Kings Canyon Observing Site](#)**November Calendar****November 14:** Club Meeting**November 22:** Dark Sky Party**Our Sponsors****Al's Vacuum and Sewing:** 904 West Lancaster Blvd. (661) 948-1521. Stop by and say "hey" to Matthew and Suzanne.**ONET:** 1529 E. Palmdale Blvd., Suite 200. (661) 538-2028. As an Internet provider, they are kind enough to provide us with a free website.**Darkrooms Plus:** 20th St. W. near Pep Boys in Lancaster. (661) 945-1444. They offer all club members a 10% discount on all purchases. Stop by and say "hey" to Cathy or Hank.**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](http://www.telescopes.net) Please welcome our newest sponsor and see the ad above.***Thanks for your generous support!***

Don't forget to review the calendar and to help out wherever you can. And consider running for the Board so that the Club can utilize your creative genius... or at least your input.