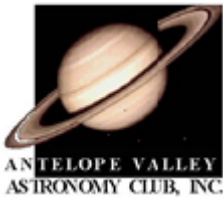




Desert Sky Observer

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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, 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

- September 3:** Star Party, Mt. Pinos
- September 3:** New Moon
- September 9:** **Monthly Club Meeting***
- September 11:** First Quarter Moon
- September 18:** Full Moon
- September 24:** Aerospace Walk of Honor
- September 25:** Last Quarter Moon

* Monthly meetings are 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 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 Debora
Pedroza

The third season of the year is nearing its end. What a hot summer it has been. Our club had quite a few activities during the month of August, both members-only and community events. We offered solar viewing at Painted Turtle Camp and also at "Thursday Night on the Square." The Trotts held a "members only" picnic at their home in Acton and quite a few club members came out to enjoy the scenic surroundings, friendship, and great barbecued food. The club offered moon walks at the Prime Desert Woodlands and a special Perseids Party was held for the public at Saddleback Butte State Park. Our club continues to make great stride in its endeavor to share the love and phenomena of astronomy with all who enjoy its mysterious wonder.

The Antelope Valley Press released a full-page article along with beautiful photographs, taken by Matt Taylor, on August 11th of this year. The article highlighted the Perseids meteor shower event and our club, with information provided by Terry Pedroza in an exclusive interview. The following evening was our club meeting and we had one of the largest turnouts ever with four new members/families joining.

It was awesome. Thank you, each and every club member, who came to any of these summer events. Without your participation, the club would not be known for what it is today.

As with any organization there is always a core group who does the majority of the tasks at hand, and as your club president I'd like to see more members get involved. For members who do not own telescopes, please take advantage of the New Beginners Class and the club's library 'scopes. We have quite a collection of telescopes available. For members who own very expensive equipment and are not comfortable with setting up due to the hazards of the public, the club also invites you to utilize the club telescopes. That option is always there. We ALL love astronomy and we ALL have busy lives. Let's increase our core group so there is enough help to go around. Thank you.

Last but not least, I want to announce the date and time of our holiday party. Yes, yikes, it's only a few months away! This year it will be held on Saturday, December 3rd at 6pm. at Eduardo's Restaurant in West Palmdale. Mark your calendars and plan to go! Until next time, please take good care.



*Vice
President
Mindy
Peterson*

As we move into the beginning of our autumn sky, I am encouraging all members to attend our Star Party at Mt. Pinos on September 3rd. The sky is so clear and crisp and viewing is usually outstanding. Bring extra warm clothes, preferably in layers, as the evening can become quite cool. Also, don't forget your sunscreen. Mt. Pinos is over 8,000 feet and your skin will easily burn in the sunlight. I would suggest arriving early as this is Labor Day weekend and the viewing area could be very congested.

I am proud to announce that our speaker for the September 9th meeting is SpaceShipOne pilot, Brian Binnie. Mr. Binnie is a Program Business Manager and Test Pilot at Scaled Composites in Mojave, California. He has 21 years of flight test experience, including 20 years of Naval Service in the Strike-Fighter community. He has logged over 4600 hours of flight time in 59 different aircraft and is a licensed Airline Transport Pilot.

Mr. Binnie's educational background includes a B.S. in Aerospace Engineering and an M.S. in Fluid Mechanics and Thermodynamics from Brown University and an M.S. in Aeronautical Engineering from Princeton University. He is a graduate of the U.S. Navy's Test Pilot School at Patuxent River, MD and the Naval Aviation Safety School at Monterey CA. He is a member of the Society of Experimental Test Pilots and a published member of the American Institute of Aeronautics and Astronautics.

However, Mr. Binnie is best known for his history making flights aboard SpaceShipOne.

On December 17, 2003, flew SpaceShipOne, breaking the sound barrier at 1.2 Mach or 800 miles per hour. On October 4, 2004, Mr. Binnie was the pilot when SpaceShipOne literally rocketed into history, becoming the first private manned spacecraft to exceed an altitude of 328,000 feet twice within the span of 14 days. In addition, Brian Binnie also broke the August 22, 1963 record held by Joseph A. Walker, who flew the X-15 to an unofficial world altitude record of 354,200 feet.

The Club is also holding a silent auction that evening with many photographs signed by Burt Rutan, Mike Melvill and Brian Binnie, a calendar signed by the trio, bobblehead dolls of Burt Rutan and astronaut Vance Brand, etc. The items will be available for bidding prior to and up through the end of the meeting. We also ask that anyone who wishes to contribute a speaking honorarium to Brian Binnie, please give the money to Treasurer, David Abrass during the meeting. So be sure and join us for a great evening and bring family and friends.



*Director of
Community
Development
Terry Pedroza*

With all of the public events that have been going on, I have heard some people say that they would love to help but they don't want to use their personal 'scopes. Well, here's your answer: use one of the AVAC club 'scopes! These 'scopes have always been available to our members and can (should) be used for club events. What better way to show the public our club assets than to use them at public events? If you don't want to check out the 'scope for the month, have one of the board members bring it to the event for your use.

If anyone is interested in a solar eclipse cruise in March of 2006, we have received information that you might enjoy. Atlantis Cruises & Tours is offering two different packages, one for 12 days to Turkey for under \$3,000.00 and one to Egypt for 8 days for about \$3,000.00. If you would like more information see David Abrass.

Our next major public event is the "Aerospace Walk of Honor" on Saturday, September 24. We will be setting up at 9:00am., the event starts at 10:00, and we will finish at 2:00 pm. Teardown will be immediately afterwards. This all happens in the parking lot on Sierra Highway across from the Sheriff's station in Lancaster. If you would like to help with this event, please let me know.



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Rich Harper's Planet Watch



Highlights: Jupiter and Venus start the month one degree apart. A three-day old moon, Jupiter, and Venus will lie within 6 degrees of each other on September 6th at sunset.

Mercury

Mercury is not well positioned for viewing this month. Mercury begins the month as a morning star, then swings into and through the sun's glare to end the month as an evening star, never further from the sun than 15 degrees.

Venus

Venus will be well-positioned for viewing this month- an evening star about 40 degrees away from the sun and gleaming at magnitude -4.0. A dark red, polarizing, or neutral density filter will cut Venus' significant glare should you choose to observe. Venus will show a distinct crescent shape. Atmospheric turbulence will probably hamper viewing for the first hour or so after sunset. Venus, being so bright, is easily photographed.

Mars

By the end of September, Mars will grow from 14.3 seconds of arc in diameter to 17.9, and will brighten from magnitude -1.0 to -1.7. It will also be reasonably well positioned for viewing by midnight. Compare the color of Mars to the orange or orange-red color of Aldebaran in Taurus, and also to the hot, young, blue stars in the Pleiades. In addition to the major surface features, Mars is now large enough to show changes in the polar caps, "melt lines," and atmospheric effects (clouds, limb hazes) at higher magnifications in good seeing conditions.

Jupiter

Jupiter lies in the southwest sky at sunset, and continues to close with the sun. By the end of September, Jupiter will lie a mere 15 degrees east of the sun and will be poorly positioned for viewing until mid-November, when it peeks out of the sun's glare as a morning star.

Saturn

Saturn lies one degree south of M44 in Cancer in the pre-dawn sky, and will linger there all month, providing for plenty of photo opportunities.

Uranus

Uranus will lie 5 degrees northwest of the moon on the 16th.

Neptune

Neptune will lie 5 degrees north of the moon on the 14th, and about 6 degrees south of M72 and M73 all month.



Improbable Bulls-Eye

by Tony Phillips

Picture this: Eighty-eight million miles from Earth, a robot spacecraft plunges into a billowing cloud almost as wide as the planet Jupiter. It looks around. Somewhere in there, among jets of gas and dust, is an icy nugget invisible to telescopes on Earth- a 23,000 mph moving target.

The ship glides deeper into the cloud and jettisons its cargo, the “impactor.” Bulls-eye! A blinding flash, a perfect strike.

As incredible as it sounds, this really happened on the 4th of July, 2005. Gliding through the vast atmosphere of Comet Tempel 1, NASA’s Deep Impact spacecraft pinpointed the comet’s 3x7-mile wide nucleus and hit it with an 820-lb copper impactor. The resulting explosion gave scientists their first look beneath the crust of a comet.

That’s navigation.

Credit the JPL navigation team. By sending commands from Earth, they guided Deep Impact within sight of the comet’s core. But even greater precision would be needed to strike the comet’s spinning, oddly-shaped nucleus.

On July 3rd, a day before the strike, Deep Impact released the impactor. No dumb hunk of metal, the impactor was a spaceship in its own right, with its own camera, thrusters and computer brain. Most important of all, it had “AutoNav.”

AutoNav, short for *Autonomous Navigation*, is a computer program full of artificial intelligence. It uses a camera to see and thrusters to steer- no humans required. Keeping its “eye” on the target, AutoNav guided the impactor directly into the nucleus.

The system was developed and tested on another “Deep” spacecraft: Deep Space 1, which flew to asteroid Braille in 1999 and Comet Borrelly in 2001. The mission of Deep Space 1 was to try out a dozen new technologies, among them an ion propulsion drive, advanced solar panels and AutoNav. AutoNav worked so well it was eventually installed on Deep Impact.

“Without AutoNav, the impactor would have completely missed the nucleus,” says JPL’s Ed Riedel, who led the development of AutoNav on Deep Space 1 and helped colleague Dan Kubitschek implement it on Deep Impact.

En route to the nucleus, AutoNav “executed three maneuvers to keep the impactor on course: 90, 35, and 12.5 minutes before impact,” says Riedel. The nearest human navigators were 14 light-minutes away (round trip) on Earth, too far and too slow to make those critical last-minute changes.

Having proved itself with comets, AutoNav is ready for new challenges: moons, planets, asteroids... wherever NASA needs an improbable bulls-eye.

Dr. Marc Rayman, project manager for Deep Space 1, describes the validation performance of AutoNav in his mission log at <http://nmp.nasa.gov/ds1/arch/mrlog13.html> (also check mrlog24.html and the two following). Also, for junior astronomers, the Deep Impact mission is described at <http://spaceplace.nasa.gov/en/kids/deepimpact/deepimpact.shtml>

Astrophoto of the Month



M5, by Steve Trotta; 15-min. manually guided exposure; through a Celestron C-8 at f/6.3

Submit your "Astrophoto of the Month" to the following address by the 20th of each month:
newsletter@avastronomyclub.org

Did you know? ? ?

The club website has information about current weather, photos of various club events, our calendar of events, a chat forum, links to astronomy sites, and other goodies.

? ? ?



Astro-tom.com is dedicated to amateur astronomy



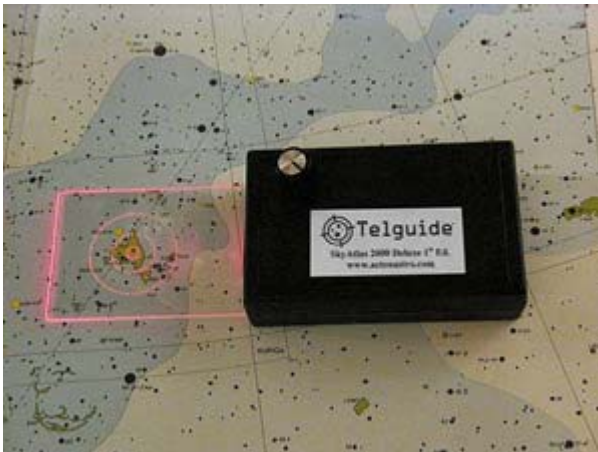
There's a rumor about Mars going around the Internet. Here are some snippets from a widely-circulated email message: "The Red Planet is about to be spectacular." "Earth is catching up with Mars [for] the closest approach between the two planets in recorded history." "On August 27th, Mars will look as large as the full moon." And finally, "NO ONE ALIVE TODAY WILL EVER SEE THIS AGAIN."

Only the first sentence is true. The Red Planet *is* about to be spectacular. The rest is a hoax. Here are the facts: Earth and Mars are converging for a close encounter this year on October 30th at 0319 Universal Time. Distance: 69 million kilometers. To the unaided eye, Mars will look like a bright red star, a pinprick of light, certainly not as wide as the full Moon.

Disappointed? Don't be. If Mars did come close enough to rival the Moon, its gravity would alter Earth's orbit and raise terrible tides. Sixty-nine million km is good. At that distance, Mars shines brighter than anything else in the sky except the Sun, the Moon, and Venus. The visual magnitude of Mars on Oct. 30, 2005, will be -2.3. Even inattentive sky watchers will notice it, rising at sundown and soaring overhead at midnight.

You might remember another encounter with Mars, about two years ago, on August 27, 2003. That was the closest in recorded history, by a whisker, and millions of people watched as the distance between Mars and Earth shrunk to 56 million km. This October's encounter, at 69 million km, is similar. To casual observers, Mars will seem about as bright and beautiful in 2005 as it was in 2003.

Although closest approach is still months away, Mars is already conspicuous in the early morning. Before the sun comes up, it's the brightest object in the eastern sky, really eye-catching. If you have a telescope, even a small one, point it at Mars. You can see the bright icy South Polar Cap and strange dark markings on the planet's surface.



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, [click here](#).

From Encarta.com**Space: How "Out of It" Are You?**

As Douglas Adams, author of *The Hitchhiker's Guide to the Galaxy*, said, "Space ... is big. Really big." That's certainly true, and it means there's a lot to know about space. How much do you know?

- 1 Which is larger?
 - a) A galaxy
 - b) A solar system
 - c) A universe

- 2 How many stars are in our solar system?
 - a) 1
 - b) 437,352 and counting
 - c) Too many to count

- 3 Which is closer to Earth, the Sun or the Moon?
 - a) Sun
 - b) Moon
 - c) They are the same distance from Earth

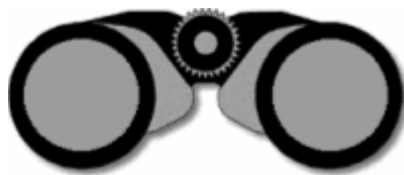
- 4 Which is the largest planet in our solar system?
 - a) Saturn
 - b) Jupiter
 - c) Earth

- 5 Which planet's orbit takes it farthest from the Sun?
 - a) Pluto
 - b) Mars
 - c) Neptune

- 6 Which celestial body has a greater diameter, the Earth or the Moon?
 - a) Earth
 - b) Moon
 - c) Neither. In an amazing coincidence, the Earth and the Moon have exactly the same diameter

- 7 Compared to the largest stars and the smallest stars, the Sun is:
- a) A large star
 - b) A middle-sized star
 - c) A small star
- 8 How many constellations are there in the sky?
- a) 12
 - b) 43
 - c) 88
- 9 Which planet's status as a planet has been questioned?
- a) Pluto
 - b) Venus
 - c) Saturn
- 10 In the Earth's sky, which appears larger?
- a) The Sun
 - b) The Moon
 - c) Neither. In an amazing coincidence, the Sun and Moon appear to be the same size in the Earth's sky

A Look Ahead...



Upcoming Events

- October 1:** Star Party, somewhere
- October 3:** Star Party, Prime Desert Woodlands
- October 8&9:** Palmdale Fall Festival
- October 14:** Annual Business Meeting
- October 29:** Star Party, somewhere else
- November 12:** Mars Star Party, Poppy Reserve
- December 3:** Annual Christmas Party

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)

A.V.A.C. Board Members

President:

Debora Pedroza (661) 718-3963 president@avastronomyclub.org

Vice-President:

Mindy Peterson (661) 273-1693 vice-president@avastronomyclub.org

Secretary:

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Treasurer & Astronomical League Coordinator:

David Abrass treasurer@avastronomyclub.org

Director of Community Development & Club Librarian:

Terry Pedroza (661) 718-3963 community@avastronomyclub.org

Newsletter Editor:

Brian Peterson (661) 273-1693 newsletter@avastronomyclub.org

Club Historian:

Tom Koonce (661) 943-8200 Takoonce@aol.com

Webmaster of Club Site:

Steve Trotta (661) 269-5428 webmaster@avastronomyclub.org

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.

Our Sponsors

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.

QNET: 1529 E. Palmdale Blvd., Suite 200. (661) 538-2028. As an Internet provider, they are kind enough to provide us with a free website.

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

Thank you to our sponsors for your generous support!

Answers to the Quiz:

1c, 2a, 3b, 4b, 5a, 6a, 7b, 8c, 9a, 10c