



# 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/](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

**December 13:** Holiday Party - 6:00 PM in The Antelope Valley Inn Spring Room

**December 15:** Board Meeting @ [the Pedroza's](#) (6:30)

\* 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*

Hi Everyone! This will be my last hurrah, my last article, and my last month as your President. I am very grateful for having had the privilege that all of you have given me by letting me serve as your President. Thank you each and every one for the support and guidance, which you have given me on this adventure. This is YOUR club and it is always an honor to serve on YOUR board.

Coming up this month is the annual Christmas party and it is going to be a hoot. If you have not RSVP'd by now you had better hurry. I hope and expect to see most of you there. The party begins at 6:00 Saturday December 13 at the Antelope Valley Inn in the Spring room. We will be having a very special door prize giveaway, a silent auction and a raffle as well as a great time. If you would like to donate an item for the raffle or silent auction bring it with you to the party.

2009 is the International Year of Astronomy and the Antelope Valley Astronomy Club is starting to line up events. If you have ideas for one let the Executive board know. We are working on an event for the 100 hours of astronomy and I am hoping we can sponsor many others throughout the year. Let's be a large part of this great event and show the world who we are.

Once again, thank you and may every one of you have a great Holiday season.

Clear Skies,  
Terry

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

As I sit down to write my final newsletter article as the Vice President for the year, I reflect back on this opportunity to serve as one of the club's executive board members. It has been both refreshing and rewarding as I review our monthly meetings' speaker programs. Club members have enjoyed return visits from Chris Butler and Bob Redman. New to our line-up this year were: Dr. Laura Danly from Griffith Observatory, Mike Simmons from Astronomy Without Borders and Dr. D from Woodland Hills Camera. Our club members added their expertise as well with the "Night Sky Network Program", the "RTMC Show and Tell", "The Moon" and "Things That Fall From the Sky". In November we launched a public recognition program with the "Getting to Know the AVAC Faire" and partnered it with the official Youth Exploring Astronomy Essay Contest kick-off. Our own Jeremy Amarant performed an amazing encore to the evening when he gave us his first public peek at the newly remodeled planetarium. Wow!!!

One of the vice president's jobs is to organize the club picnic and annual holiday party. I truly look forward to both events and this year's party is going to be one of the best ever with a fabulous large seating room and an amazing holiday dinner.

In closing, I would like to thank the club members for giving me the opportunity to serve you this past year. I would like to congratulate Rose Moore as the incoming Vice President for 2009. She always puts in so much in everything that she does.

See you all at the holiday party!

Until then...take good care.

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

We had a great turn out for the Prime Desert Woodlands on Saturday, October 25th we had 140 people, which included club members. We do have an upcoming event at Prime Desert Woodlands on Saturday November 22nd, at 6:00 p.m., and we still need volunteers to bring out scopes that night. Please let me know if you can make it at PDW. In addition, the next Prime Desert Woodlands event will be in February.

We had a great turn out for Super Science Saturday at Joe Walker Middle School on November 15th. We had fun watching the water bottle rockets that were being set off not too far from where we were set up. In addition, the kids, parents and teachers really enjoyed looking through the sun scopes and Dick Hague's solar glasses. Mostly everyone kept saying "How Cool!", but we had to advise them it was "Hot."

We have our Annual Christmas Party coming up on Saturday, December 13th. If you have any items for the silent auction or raffle, please feel free to contact me or Debora Pedroza. If you have any question, please give me a call at 661-940-3312 or e-mail me directly.

Clear skies,  
 Karole



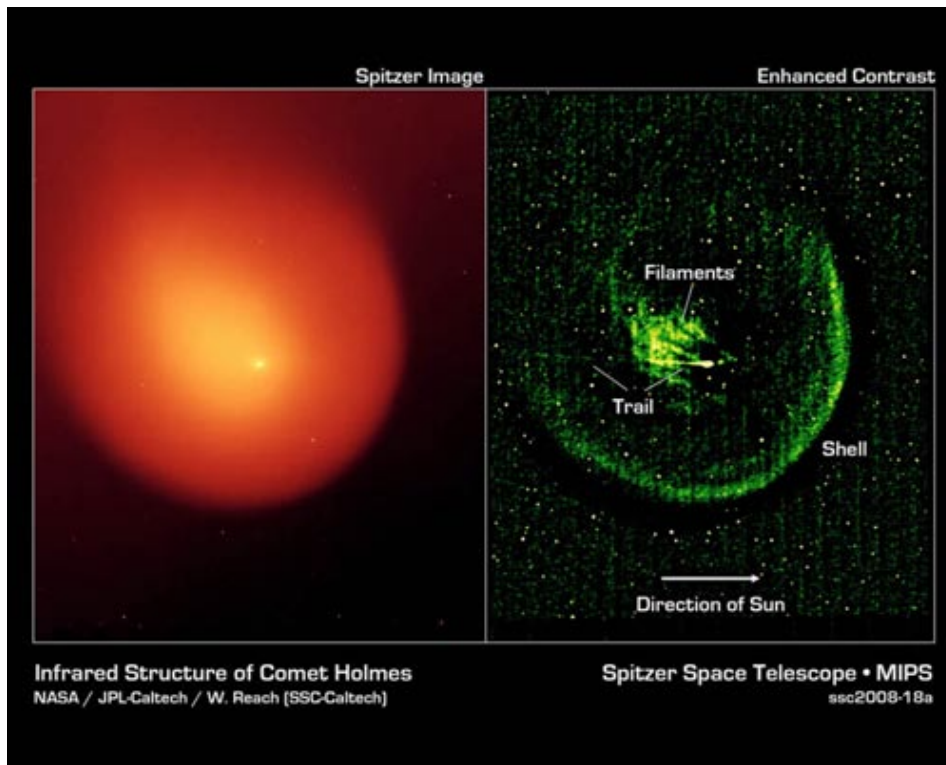
## What Happened to Comet Holmes?

by Dr. Tony Phillips

One year after Comet 17P/Holmes shocked onlookers by exploding in the night sky, researchers are beginning to understand what happened.

“We believe that a cavern full of ice, located as much as 100 meters beneath the crust of the comet’s nucleus, underwent a change of phase,” says Bill Reach of NASA’s Spitzer Science Center at the California Institute of Technology. “Amorphous ice turned into crystalline ice” and, in the transition, released enough heat to cause Holmes to blow its top.

Anyone watching the sky in October 2007 will remember how the comet brightened a million-fold to naked-eye visibility. It looked more like a planet than a comet—strangely spherical and utterly lacking a tail. By November 2007, the expanding dust cloud was larger than Jupiter itself, and people were noticing it from brightly-lit cities.



*Comet Holmes as imaged by the multiband imaging photometer (MIPS) on the Spitzer Space Telescope. The enhanced contrast image at the right shows the comet’s outer shell and mysterious filaments of dust.*

Knowing that infrared telescopes are particularly sensitive to the warm glow of comet dust, Reach and colleague Jeremie Vaubaillon, also of Caltech, applied for observing time on the Spitzer Space Telescope—and they got it. “We used Spitzer to observe Comet Holmes in November and again in February and March 2008,” says Reach.

The infrared glow of the expanding dust cloud told the investigators how much mass was involved and how fast the material was moving. “The energy of the blast was about 10<sup>14</sup> joules and the total mass was of order 10<sup>10</sup> kg.” In other words, Holmes exploded like 24 kilotons of TNT and ejected 10 million metric tons of dust and gas into space.

These astonishing numbers are best explained by a subterranean cavern of phase-changing ice, Reach believes. “The mass and energy are in the right ballpark,” he says, and it also explains why Comet Holmes is a “repeat exploder.”

Another explosion was observed in 1892. It was a lesser blast than the 2007 event, but enough to attract the attention of American astronomer Edwin Holmes, who discovered the comet when it suddenly brightened. Two explosions (1892, 2007) would require two caverns. That’s no problem because comets are notoriously porous and lumpy. In fact, there are probably more than two caverns, which would mean Comet Holmes is poised to explode again.

When?

“The astronomer who can answer that question will be famous!” laughs Vaubaillon.

“No one knows what triggered the phase change,” says Reach. He speculates that maybe a comet-quake sent seismic waves echoing through the comet’s caverns, compressing the ice and changing its form. Or a meteoroid might have penetrated the comet’s crust and set events in motion that way. “It’s still a mystery.”

But not as much as it used to be.

See more Spitzer images of comets and other heavenly objects at <http://www.spitzer.caltech.edu>. Kids and grownups can challenge their spatial reasoning powers by solving Spitzer infrared “Slyder” puzzles at <http://spaceplace.nasa.gov/en/kids/spitzer/slyder>.

## *Astronomy Dude*

Friday, November 14 our Club did a sort of astronomy fair in the Cactus School Gymnasium. It was reasonably well attended and I had a station where I pursued my own particular interest, “exoplanet exploration”. Nearly every day I check the website, [Planetquest.jpl.nasa.gov/index.cfm](http://planetquest.jpl.nasa.gov/index.cfm) to check the current count. As of today (November 20) the count is 326 planets discovered around 278 different stars. Before 1995 astronomers were sure other suns had planets but none had been discovered. Now look! None of these are Earth size, though a few may be in the “habitable zone” or a region around the star where liquid water might exist because the planet is neither too hot nor too cold. One planet found is roughly three times Earth size and estimated to be ‘rocky’ whereas the rest seem to be gas giants, Jupiter size or larger. I’m amazed at the rate of discovery which seems to be accelerating. Several methods are being used or contemplated (Kepler goes up next year) but are a bit long in explanation for inclusion here.

I was surprised that most of the public who came by my station were not aware of the fact that NASA is looking for other planets (Search For Another Earth) and most of them were surprised at the growing number found. Those who stopped by seemed intrigued by this search especially when I explained that in a few years NASA will have instruments in space capable of detecting smaller (Earth size) planets and analyzing their atmospheres (if any) for life signs.

The website listed in the first paragraph has many links, one to a current list of all exoplanets discovered. I also gave other websites to those interested; [spaceweather.com](http://spaceweather.com) and [heavens-above.com](http://heavens-above.com). The first gives current happenings on the sun and other interesting things (meteor showers, etc.) and the second gives the path and time of visibility of the SST and other known satellites for your own location if you interact by telling it where you are.

Incidentally I hope you all enjoyed the planetarium show Jeremy put on and if you missed it be sure to make the next one. He has new instruments and exceptional software

Dick Hague

## *News and Headlines*

### **Hubble Directly Observes a Planet Orbiting Another Star**

NASA's Hubble Space Telescope has taken the first visible-light snapshot of a planet circling another star. Estimated to be no more than three times Jupiter's mass, the planet, called Fomalhaut b, orbits the bright southern star Fomalhaut.

[http://www.astromart.com/news/news.asp?news\\_id=879](http://www.astromart.com/news/news.asp?news_id=879)

### **Saturn Dazzles With Mysterious Light**

An inexplicable new broad region of auroral light has been photographed at Saturn's polar cap. "We've never seen an aurora like this elsewhere," said Tom Stallard, an RCUK Academic Fellow working with Cassini data at the University of Leicester. "It's not just a ring of aurorae like those we've seen at Jupiter or Earth. This one covers an enormous area across the pole.

<http://news.aol.com/article/mysterious-light-show-seen-on-saturn/247048?icid=100214839x1213203267x1200857561>

### **NASA prepares for unprecedented mission to Jupiter**

NASA is officially moving forward on a mission to conduct an in-depth study of Jupiter. Juno will be the first mission in which a spacecraft enters a highly elliptical polar orbit around the giant planet to understand its formation, evolution, and structure.

<http://www.astronomy.com/asy/default.aspx?c=a&id=7692>

### **Spectacular Conjunction**

This story ends with the best sky show of the year--a spectacular three-way conjunction of Venus, Jupiter and the crescent Moon. It begins tonight with a sunset stroll.

[http://science.nasa.gov/headlines/y2008/24nov\\_skyshow.htm](http://science.nasa.gov/headlines/y2008/24nov_skyshow.htm)

### **Mysterious electrons may be sign of dark matter**

Dark matter is proving less shadowy than its name suggests. Its signature may have been detected by a balloon-borne experiment that measured a surprisingly high number of energetic electrons streaming in from space.

<http://www.newscientist.com/article/dn16085-mysterious-electrons-may-be-sign-of-dark-matter.html>

### **Sweet! Galactic Molecule Could Point to Alien Life**

An organic sugar molecule which is directly linked to the origin of life has been detected in a region of our galaxy where habitable planets could exist. Using the IRAM radio telescope in France, an international team of scientists found the molecule in a massive star forming region of space, about 26,000 light years from Earth.

<http://www.universetoday.com/2008/11/26/sweet-galactic-molecule-could-point-to-alien-life/>

### **Billions Of Particles Of Anti-matter Created In Laboratory**

Take a gold sample the size of the head of a push pin, shoot a laser through it, and suddenly more than 100 billion particles of anti-matter appear. The anti-matter, also known as positrons, shoots out of the target in a cone-shaped plasma "jet."

<http://www.sciencedaily.com/releases/2008/11/081117193019.htm>

## **'Twas the New Moon on Christmas 2008**

*('cause I was busy the night before)*

*Tom Koonce © 2008*

*'Twas the night of Christmas  
When all through the house  
Not a creature was stirring,  
Not even a mouse;*

*The stockings hung by the chimney were bare  
'Cause the new eyepiece and CCD they once held with care,  
Were cooling down outside,  
In the night's chilly air.*

*The children were nestled all snug in their beds,  
While visions of sugar-plums danced in their heads;  
And mamma in her kerchief, and I in my cap,  
Electric socks, thermal jumpers, gloves and balaclava wraps,  
Readied ourselves for observing, with blankets for our laps.*

*When out on the lawn there arose a mild clatter,  
As I set up my tripod, my scope, and miscellaneous matter.  
Away to the house again I flew like a flash,  
I flicked off the porch light and pulled down the sash.*

*The moon's light on the breast of the new-fallen snow  
Was absent this evening (Way to Go!)  
When, what to my dark adapted eyes should appear?  
My old friend Orion in the 'SouEast, steady and clear.*

*As dry leaves that before the wild hurricane fly,  
The scope was set up, mount to the sky;  
Dew heater on low, new eyepiece on top,  
Telrad aligned on this night's first stop.*

*Polar aligned, we were excited and bold,  
We were feeling too good; we weren't feeling that old;  
We stared through the new eyepiece, (had for a song),  
More rapid than eagles our stellar targets came 'long.*

*We whistled, and shouted, and called them by name,  
The names of Orion flooded our minds like rain;  
In 'seeing' that comes just once per life,  
Betelgeuse, Beatrix, Rigel and Saiph,  
At the bottom of the sword, was Nair al Saif.  
Meissa at the head, the Belt Stars were next,  
Mintaka, Alnilam, and Alnitak were checked.*

*To be sure there were others, named tau, gamma and rho,  
But to the heart of the Trapezium we had to go;  
The scope was pointed, the focus was set,  
The Ethos was in, an OIII attached in a sweat.*

*Centered in the eyepiece, a Nebula so grand,  
My eyes beheld infant stars and swirls, subtly bland,  
Scanning the region slowly, but sure,  
The joy I felt was overwhelmingly pure.*

*And then, in a twinkling, I heard off the roof,  
Icicles falling and a dog's shivering 'Woof'.  
The temperature was dropping, it was 20 degrees!  
It was the end of the night, as Orion set in the trees.*

*As I drew through the door, and was turning around,  
I smiled to myself, murmured with nary a sound,  
"We are so privileged to gaze from the ground,  
At the heavenly wonders of the sky that abound."*

*I turned one last time as I came into the light,  
Now comfortably warm I stared back to the night,  
On black velvet were hung the jewels of Orion,  
Gemini the Twins, then Leo the Lion.*

*I closed the door, heard the teapot whistle,  
The Earl Grey was poured with a sprig of thistle.  
For a moment I reflected on Orion's delights,  
Then thought to myself,  
"Happy Christmas to all, and to all a good-night."*

## ***Did you know ? ? ?***

NGC2264, sometimes called the Christmas Tree Cluster, shines from within the winter constellation Monoceros, the Unicorn. Young stars in the cluster, numbering about 100 or more, were born from the surrounding nebula. The Christmas Tree Cluster was discovered by English astronomer William Herschel in 1783.

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## *For Cloudy Nights.....*

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### **Word Find: Named NGC Objects.**

The Saguaro Astronomy Club has a great observing list for the 110 Best of the NGCs. All those with names are hidden below.

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

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### **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)**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**

*Answers* \_\_\_\_\_

Best of the NGC's Word Find

