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# Desert Sky Observer

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Volume 22 Issue 12

December 2002

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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

**December 4:** New Moon

**December 11:** First Quarter Moon

**December 14:** Christmas [Party\\*](#), Greenhouse Café, Lancaster

**December 19:** Full Moon

**December 26:** Last Quarter Moon

**Anytime:** *Observe*

\* In lieu of our regular monthly meeting.

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## President's Report

*Terry Pedroza*

It is the end of another year and we only have one event left, the Holiday Party at the Greenhouse Café in Lancaster. Don't be left out of this event, last year was a blast! We still need donations toward the raffles and drawing, so if you have something to donate contact Tom Koonce or myself.

This has been a good year for the AVAC. We have done so many events that it boggles the mind. We have had a great amount of exposure in the community with great results. Let's keep up the good work in 2003. Thanks to all of you for making this such a great year! To add to this, High Desert Broadcasting will be running PSA's for us on all of our events in the future. Their stations include 93.5 "the Quake", 106.3 "K-mix", 100.1 "the Breeze", 1380 AM "K-Jewel", and 1470 AM "Radio Unica". We need a Spanish-speaking member to do an interview for the club on the Mexican station. If you are interested please call me.

For those of you who would like to have the "Observers Handbook" at your side, we have been given a great opportunity to purchase this reference at a reduced price. The Astronomical Society of Canada is offering this at \$24.95 per single copy, \$15.00 each for 5-9 copies, \$14.00 each for 10-24 copies, and \$13.50 each for 25-99 copies. The suggested retail is \$22.95 per copy. These prices include shipping and handling. If any of you are interested, please contact me and I will send in an order.

We will have envelopes at the table when you enter the Planetarium for speaker donations in the future. We are hoping to make it easier for our members to donate towards our speakers in an anonymous way. Speaker donations are what gets our club the caliber of speaker that we are used to. The club pays an honorarium of \$25.00 to our speakers and speaker donations are added to that. Our speakers have been averaging about \$90.00 or so per talk. Some speakers do not wish to be paid and donate the money back to the club. For those people we will start offering an honorary membership for the year. Thank you to those that have helped with speaker donations and keeping our speakers at the highest level.

I hope everyone had the best Thanksgiving ever, and I'll see you at the Holiday Party.

**Dir. of Community Development***Debora Pedroza*

Hello everyone. I hope you all had a joyous Thanksgiving holiday with your families and friends. There is SO much to be grateful for. Christmas is just around the corner and we will once again be holding our annual holiday party at the Greenhouse Café in Lancaster. The date and time is Saturday, December 14, from 6pm- 9pm. The address is 1169 Commerce Center Drive and is located behind the Target center off of Avenue K. We will be holding a raffle and silent auction, and door prizes will be included too. Oh! Before I forget, we can still use more donated items for these two activities. The items do not have to be just astronomy-related. Anything goes...ornaments, crafts, candles, whatever! If you wish to donate items, contact Tom Koonce.

We will be served a traditional holiday dinner, which also includes coffee and dessert. This meal was scrumptious last year; in fact, I just had to find out the secret recipe for their dressing. It is the best I have ever had! The cost is \$20.00 per person and if you still need to purchase your ticket, send a check to Mary Andrus using the club's P.O. Box. We had so much fun last year and your presence this year will make it even better. See you there!

Our 3<sup>rd</sup> Annual Youth Exploring Astronomy Essay Contest is coming up soon and a committee meeting was held on Wednesday, November 20, to begin the creative process of choosing topic titles and to select writing and judging standards criteria. It was an extremely successful meeting and I would like to extend a warm THANK YOU to club members Wes Thomas, Karen and Sara Prestel and to two of Joe Walker Middle School's teachers, Jennifer Hulseley and Kathleen Seargeant.

Your time, ideas and participation are invaluable. Thanks again!

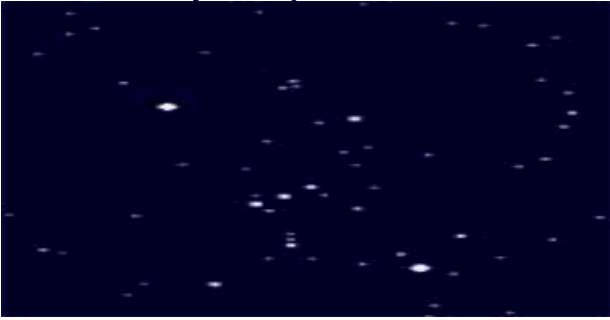
That is it for now. See you all on December 14 at the holiday party. Until then, take good care.

**Doug Drake's *Planet Watch***

Saturn is above the Orion constellation and will be at opposition on Tuesday, December 17. This opposition means that Saturn will be the closest to us until next year; however, we will be able to get good views for the next three to four months. Saturn will be highest at midnight and you will have the least amount of atmosphere to look through. Use powers between 100X and 200X for the most pleasing views, but you can try higher powers if the sky is very steady. You will also see Saturn's rings at their greatest tilt, the most they ever get, which means you shall be able to see the greatest detail ever. You should be able to see rings A, B and C; that is, A (the most outer and the darkest), B (lighter and separated from ring A with Cassini's gap) and C (you must look for a very light band crossing the globe and attached to the B ring. You most likely will not see ring C other than where the ring crosses over the globe).

Venus is now our morning star, rising in the east just before sunrise. Look for her, she is a beautiful spectacle to see and shining as the brightest object in the sky except for the Sun and Moon.

## Star Party Report



by Tom Koonce

Our Dark Sky Star Party on Saturday, November 2, 2002, was advertised in *Astronomy* magazine. It came off as a complete success. Despite clouds threatening all day long to force a cancellation of the event, the hotline number that we set up was answering calls from as far away as Palm Springs, Redondo Beach and San Jose letting people know that our event was a "GO!" I got out to Saddleback at 1:00 pm after doing a series of astronomy presentations for a local 4H event. I was soon joined by Doug Drake and Darrell Bennett. We set up the area, talked with the Campground Host, Judy, and the Ranger, Park Supervisor (and long time supporter) Bob McKnight to let them know that unfortunately we had little idea of how many people would be attending the event.

Luckily, the clouds cleared out entirely for four hours and we were treated to a sky rating of "7". Transparency was good, but contrast was low. As the evening went on, contrast continued to drop as clouds increasingly moved into the area. Even with the drop in contrast, the Veil Nebula looked beautifully intertwined, with a hint of pale green. Even though this object is not typically a Star Party object, a few dozen people stood in line for a nice long gaze at the west Veil. We also checked out "standards" like the Ring Nebula, Saturn Planetary Nebula, Albireo, Hercules Cluster, Coathanger Cluster, Double Cluster and a spectacular view of the Andromeda galaxy and its companions. With help from Doug, we observed Uranus, Neptune, and Saturn.

I was nearly tied to my scope by a steady line of star party attendees and didn't even realize the magnitude of the event until I had to walk over to get the hot cocoa going and I saw people set up way out into the Joshua trees. I estimate we had up to 150 at the event. My physical count was 110 at 8:00, but cars were discharging loads of people until 9:30, so I know it was much higher. Cars were parked all the way down the road to the turn-in gate.

Temperatures started out mild and then it got a little cold by 10 pm. By 12:00, there were only four or five of us left, and the clouds had moved all the way in. We called it a very successful evening, packed up, checked the site for lost items and Doug Drake, Terry Babineaux and I were the last to leave around 12:30 am. The Leones and the Fountains stayed in their RVs. Please come out to our [next event](#). We always have a great time, and meet new, interesting people.



Doug Drake marks the spot of our star party.



Darrell Bennett assists Holland Fountain with his monstrous 'scope as Joyce Fountain looks on.



## Black Holes: Feeling the Ripples

Astronomers have finally confirmed something they had long suspected: there *is* a super-massive black hole in the center of our Milky Way galaxy. The evidence? A star near the galactic center orbits something unseen at a top speed of 5000 km/s. Only a black hole 2 million times more massive than our Sun could cause the star to move so fast. (See the Oct. 17, 2002, issue of *Nature* for more information.)

Still, a key mystery remains. Where did the black hole come from? For that matter, where do *any* super-massive black holes come from? There is mounting evidence that such "monsters" lurk in the middles of most galaxies, yet their origin is unknown. Do they start out as tiny black holes that grow slowly, attracting material piecemeal from passing stars and clouds? Or are they born big, their mass increasing in large gulps when their host galaxy collides with another galaxy?

A new space telescope called LISA (short for "Laser Interferometer Space Antenna") aims to find out.

Designed by scientists at NASA and the European Space Agency, LISA doesn't detect ordinary forms of electromagnetic radiation such as light or radio waves. It senses ripples in the fabric of space-time itself—gravitational waves.

Albert Einstein first realized in 1916 that gravitational waves might exist. His equations of general relativity, which describe gravity, had solutions that reminded him of ripples on a pond. These "gravity ripples" travel at the speed of light and, ironically, do not interact much with matter. As a result, they can cross the cosmos quickly and intact.

Gravitational waves are created any time big masses spin, collide or explode. Matter crashing into a black hole, for example, would do it. So would two black holes colliding. If astronomers could monitor gravitational waves coming from a super-massive black hole, they could learn how it grows and evolves.

Unfortunately, these waves are hard to measure. If a gravitational wave traveled from the black hole at the center of our galaxy and passed through your body, it would stretch and compress you by an amount far less than the width of an atom. LISA, however, will be able to detect such tiny compressions.

LISA consists of three spacecraft flying in formation- a giant triangle 5 million km on each side. One of the spacecraft will shoot laser beams at the other two. Those two will echo the laser signal right back. By comparing the echoes to the original signal, onboard instruments can sense changes in the size of the triangle as small as 0.0000000002 meters (20 picometers).

With such sensitivity, astronomers might detect gravitational waves from all kinds of cosmic sources. The first, however, will probably be the weightiest: super-massive black holes. Will "feeling" the ripples from such objects finally solve their mystery, or lead to more questions? Only time will tell. Scientists hope to launch the LISA mission in 2011.

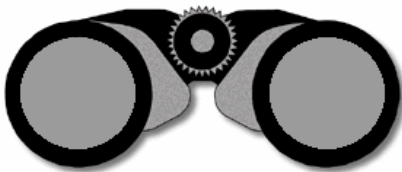
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### ***A Look Ahead...***



### **January '03 Calendar**

**January 4:** Dark Star Party, [Saddleback Butte](#)

**January 10:** Club Meeting at S.A.G.E. Planetarium

**Astronomy Links on the Web**

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

(Steve Trotta's website)

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

(Tom Koonce's website)

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

(Hey, that's us! So go there!)

**Palmdale Fall Festival Photos**

And the winner is... two young ladies assist President Terry Pedroza draw the winning ticket in the "Opportunity Drawing" at the Palmdale Fall Festival.



It's a bird, it's a plane. Wait, there's a canopy over their heads. What are they looking at?



Matt Leone looks on as a little boy gets left out of the fun.



Terry and Debora Pedroza, Ron Coleman, and Mary Andrus take a break for the camera.

**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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**Our Sponsors**

**Al's Vacuum and Sewing:** 904 West Lancaster Blvd. (661) 948-1521. Stop by and say "hey" to Matthew and Suzanne.

**King Photo:** 749 W. Lancaster Blvd. (661) 948-8441. As a telescope dealer, they always support the AVAC.

**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.

**Darkrooms Plus:** 20th St. W. near Pep Boys in Lancaster. (661) 945-1444. They offer all club members a 10% discount on all purchases.

***Thanks for your generous support!***