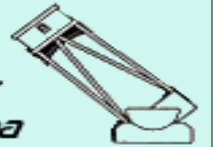


# NIGHTFALL

Huachuca Astronomy Club of Southeastern Arizona



## **HAC MEETING: Friday, December 19, 2008**

7 pm, Cochise College, Sierra Vista, Rm. 305A/B

**PLUS our monthly Show-N-Tells, upcoming event details, refreshments & NEW Exciting Door Prizes!**

**Speaker: Steve Coe Topic: 5 Favorite Observing Events**

### STAR PARTY CORNER

Keith Mullen, Star Party Coordinator (520) 366-0049 email: [repogazer@msn.com](mailto:repogazer@msn.com)

#### *Participation is the Lifblood of the Club!*

We hit freezing temperatures early in the month here in Palominas. But the observing couldn't have been better except for the night of the Public Star Party when it clouded over and we had to cancel it. With the elections now behind us we can concentrate on mapping out next year's calendar of events. Speaking of the elections, let me pause to congratulate our newly elected members: Bob Gent as Secretary and Glenn Minuth as a new Director. Aside from these new additions the board looks a lot like it did last year. I would like to thank Jeanne Herbert and Hans Clahsen for their years of service.

HAC President Wayne Johnson held the monthly star party at his home and unveiled the almost finished Mr. Galaxy Observatory, MGO. Get used to the name because everyone that attended (27 members and guests) said when it's finished it will be an ideal Star Party location with its huge warming room adjacent to the observatory. Bob Kepple, Glen Sanner and I provided the optics for the evening. All in all, a good event.

#### Star Party Schedule for December:

Saturday, Dec. 13<sup>th</sup> is the HAC Christmas Party at the Mullen residence (RGO) starting at 5:00 p.m. with dinner at 5:30. We are asking those who wish to attend to RSVP to Keith or Teresa at 366-0049 or [repogazer@msn.com](mailto:repogazer@msn.com) with the number in your party and the dish you intend to bring. The Gift Exchange (give or take) this year has a \$20.00 limit in the hopes of starting a few give or TAKE battles in the crowd.

(Continued on page 3)

**STARIZONA**  
ADVENTURES IN ASTRONOMY & NATURE

Official Donor of the Huachuca Astronomy Club Door Prizes!!!

## President's Perspective

Wayne Johnson

Thanks again to those who had the confidence in me to vote for me as your president one more time. Congratulations to our new and returning board members. We look forward to another good year participating in the Huachuca Astronomy Club.

Remember that the upcoming year of 2009 is a very special year, the International Year of Astronomy, and we hope to have several activities in which club members can participate in bringing our fascinating hobby to the public. This is an excellent time for us to grow as a club. Watch for announcements as they occur in the newsletter and on HACList. I would strongly encourage members to sign up for the HACList on Yahoogroups so that everyone can stay aware of continuing and last minute astronomical activities that might occur both in the club and at the University of Arizona and Kitt Peak and other local observatories. This promises to be an exciting year of activities as the astronomical community, professional and amateur, come together to show the world what astronomy is all about!

Please participate as much as you can.

I hope everyone's Thanksgiving celebrations were as pleasant as ours. We capped off the turkey day weekend with an excellent member star party at our Dome-icile, now known as the Mr. Galaxy Observatory (MGO). Preparation activities were frantic. The observatory earlier in the day had just been stuccoed and I was stringing red Christmas lights to provide enough safe lighting for people walking in and out of the warming room, but not too much to bother the observers; a delicate balance which seemed to work well, at least I haven't received reports of any accidents! We had about two dozen people in attendance to enjoy tasty left-

*(Continued on page 3)*

## SKY CALENDAR EXCERPT

courtesy of Doug Snyder,  
"Palominas Observatory"

### December 08

- 05 Fr ☽ First Quarter Moon 1426 hrs.
- 12 Fr ○ Full Moon 0937 hrs.
- 13 Sa Geminid Meteors Pk.; 1600hrs.  
Not Favorable Due to Moon
- 19 Fr ☾ Third Quarter Moon 1431hrs
- HAC Meeting 1900hrs.**
- 20 Sa **HAC Public Star Party**
- 21 Su Solstice (winter) 0504 hrs.
- 22 Mo Ursid Meteors Pk.; 0030 hrs.  
Favorable; faint, not to fast
- 27 Sa ● **New Moon 0522 hrs.**  
HAC Member Star Party

## Club Resources

The Club has iron on HAC Patches available for \$2.00 ea. Contact Bob Kepple at 366-0490/ astro-cards@aol.com or Jeanne Herbert at 366-5690.

**Huachuca Astronomy Club** P.O. Box 922 Sierra Vista, AZ 85636 <http://hacastronomy.com> email: mrgalaxy@juno.com

Yearly Membership: Individual: \$25; Family: \$35; Military: \$20; Student:\$10 (with restrictions)

**President:** Wayne Johnson, mrgalaxy@juno.com ; **Vice President:** Keith Mullen, 520.366.0049/ repogazer@msn.com

**Treasurer:** Bob Kepple: 366-0490/ astrocards@aol.com; **Secretary:** Bob Gent 378-2915

Star Party Coordinator: Keith Mullen, repogazer@msn.com;

Outreach Events Coordinator: Rich Swanson, 803-7298 or telegeek-64@cox.net

Loaner Scopes: Gary Myers 432-4433; Newsletter Editor: Teresa Mullen, edugazer1@yahoo.com / 366-0049

This issue of Nightfall can also be found on-line at [hacastronomy.com](http://hacastronomy.com). Click 'Newsletter' link. There is much more information about astronomy and our HAC activities on our club web site. \*To join the HAC-LIST, send an email to [haclist-subscribe@yahoogroups.com](mailto:haclist-subscribe@yahoogroups.com).

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overs and desserts. For observing we had four telescopes in operation, all showing off the wonders of the night-time sky. The weather even cooperated with clear, steady skies, though there was some residual humidity later in the evening as the temperature reached dewpoint from the Thanksgiving Day rains. This star party was advertised as a pre-first light dedication, meaning that the observatory is nearing completion, but still needs to be populated with a few functional telescopes. Hosting a star party was a lot of fun and I encourage others to volunteer to host one throughout the year. I hope to have some operating telescopes in the observatory next time we have the group over again.

Clear skies, Wayne (aka Mr. Galaxy)

## 3rd Annual HAC Christmas Party Potluck

Saturday, December 13 , 2008 • 5:00 PM - ??????

At the home of Keith & Teresa Mullen

Bring a favorite dish to share!

Gift Exchange - \$20 limit

Please Rsvp: 366-0049 with your attendance and potluck dish you plan to bring.

*(Continued from page 1)*

Saturday, Dec. 20<sup>th</sup> is the Public Star Party again at JBO. We clouded out in November so we are hoping for clear skies in December. Dave has Big Blue ready for some galaxies and nebulae which are so prevalent this time of year. So get out there and give a helping hand.

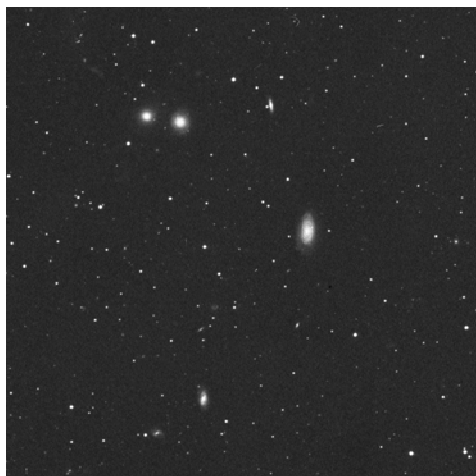
Saturday, Dec. 27<sup>th</sup> finds us back at SOLO. Paul and Dorothy Dybvig invite us out to explore the local clusters and planets through that magnificent Mac-Newt of Paul's. If you haven't had a chance to observe through it, don't miss it, because it's a planet killer of the first magnitude. Just a reminder that late December gets a bit chilly out there so dress warmly for all outside HAC events this winter.

## Travels on the Celestial Sphere

By Glen Sanner and Bob Kepple

# Gatherings of Galaxies

### *NGC 7782 Galaxy Group*



Spring is usually considered galaxy season by amateur astronomers but autumn and winter also offers many galaxies worthy of attention. There are many groups in Pisces well placed for viewing the next couple of months and many are relatively tight groups of fairly bright galaxies, a good reason to get out and observe. The constellation Pisces, the Fishes, is very large and spans almost 900 square degrees. It is surrounded by Andromeda, Pegasus, Triangulum, Aries, and Cetus.

Our first group is the **NGC 7782 Galaxy Group** (RA  $23^{\text{h}}53.9^{\text{m}}$ , Dec  $+07^{\circ}58'$ ) which contains five galaxies forming a distorted semicircle. NGCs 7780, 7782, 7781, 7779 and 7778 all lie within a  $17'$  field of view. NGC 7780, at the northern edge of the group, is a very faint magnitude 14.5 spot of light. Lying  $10'$  NW of 7780 is NGC 7782, the brightest galaxy of the group, glows at magnitude 12.2. It is elongated  $2' \times .75'$  N-S with an even halo and brighter nucleus. Lying another  $7'$  NNE is NGC 7781 which is positioned next to a 14th magnitude star. This faint galaxy shines at magnitude 14.8 and appears only as a very faint small spot of light. NGC 7779 at magnitude 13.3 is located  $9'$  SW of 7782 and about  $6'$  west of 7781. It appears as a round spot of light  $0.5'$  in diameter. NGC 7778, lying at the west edge of the group  $2'$  from 7779, is a  $0.5'$  round spot of light glowing at magnitude 13.5.

Our second galaxy group in Pisces is the **NGC 194 Group** which also includes NGCs 200, 198 and 199. NGC 194 (RA  $00^{\text{h}}39.3^{\text{m}}$ , Dec  $+03^{\circ}02'$ ) the brightest of the group shines at magnitude 12.2 with a round  $1.25'$  halo of light  $5'$  S of a 7.5 magnitude star. NGC 200 at magnitude 13.0 appears as a small spot of light  $10'$  SSE of 194. NGC 198 is another small spot of light  $6'$  SSW of NGC 200. The last is NGC 199 at magnitude 14 appears as a faint spot of light  $6'$  NNE of 194. Several other galaxies appear north of NGC 194 within a  $25'$  span. They include NGCs 193, 186, 204 and 203. This whole

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group is a nice sprinkling of wispy stellar islands.

Our next galaxy group in Pisces is the **NGC 383 Galaxy Group** (RA 01<sup>h</sup>07.4<sup>m</sup>, Dec +32° 25'), a gathering that includes NGCs 379, 380, 382, 383, 384 and 385. This group spans 16' and contains several pairs of galaxies. NGCs 383 and 382 are the first pair. 383 at magnitude 13.0 is a fairly conspicuous spot of light having a 1.5' round halo with a brighter center. NGC 382 at magnitude 13.6 is a tiny spot of light immediately SSW of 383. NGCs 385 and 384 are 13th magnitude galaxies 5' and 6.5' respectively south of 383. They appear as round halos of light having slightly brighter cores. The next pair of galaxies includes NGCs 380 and 379 lying 4' and 7' respectively north of 383. NGC 380 is a round circle of light with a conspicuous core and stellar center. NGC 379 is elongated 1' x 0.75' N-S and is a diffuse halo of light. Another pair of very faint galaxies lying nearby presents a challenge for large Dob users. NGCs 386 and 387 at magnitudes 15.5 and 16.8 respectively found slightly to the east of a line drawn between NGC 383 and NGC 385. There you have four pairs of galaxies all within one eyepiece view.

Our final galaxy group is the **NGC 507 Galaxy Cluster** (RA 01<sup>h</sup>23.7<sup>m</sup>, Dec +33°15') a gathering of NGCs 494, 504, 507, 508, 503, 501, 499, 495 (listed from south to north). NGC 507 is the brightest of the group and appears as a round halo of light with a 1.5' diameter halo and a brighter core. It is located 6' ESE of a wide double star having a bright 7<sup>th</sup> magnitude gold star and a blue 10<sup>th</sup> magnitude companion. NGC 508 at magnitude 13.1 is 2' N of 507 and is a small round spot of light. NGC 503, 4' NW of 508, is magnitude 14.1 and appears as a very faint spot of light. NGC 501, at magnitude 14.8, appears as a faint stellar spot of light 5' N of 503. NGC 499, at magnitude 12.1, has a bright 2' x 1.5' ENE-WSW halo with a brighter core. NGC 495, at magnitude 13, lies 3' WNW of 499 and appears oval shaped and elongated NNW-SSE 1.5' x 1'. Going 4' SW of 507 we find NGC 504 a smudge glowing magnitude 14 and elongated NE-SW. NGC 494, found 6' WSW of 504, has a 12.1 magnitude halo elongated 2' x 0.75' E-W with a brighter core. A 14th magnitude star appears to touch its southern edge.

These galactic gatherings are fun to observe and we strongly urge everyone to get out and observe these nice groups in Pisces, the Fishes.

Space Place Partner Column

## 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.

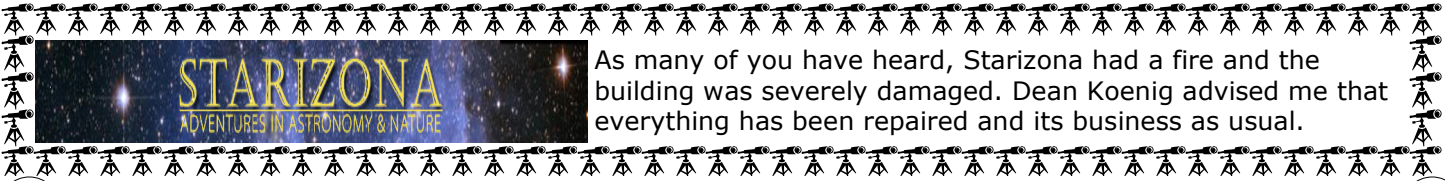
Knowing that infrared telescopes are particularly sensitive to the warm glow of comet dust, Reach and colleague Jeremie Vaubaillon, also of Caltech, applied for observing time on the Spitzer Space Telescope—and they got it. “We used Spitzer to observe Comet Holmes in November and again in February and 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  $10^{14}$  joules and the total mass was of order  $10^{10}$  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,

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As many of you have heard, Starizona had a fire and the building was severely damaged. Dean Koenig advised me that everything has been repaired and its business as usual.

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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.

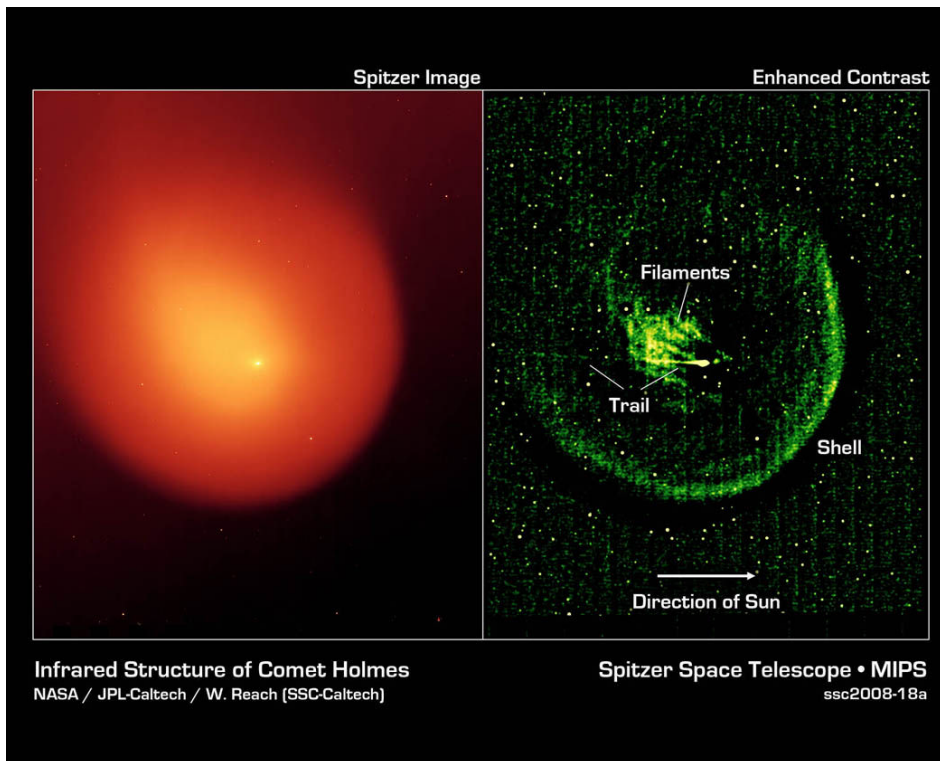
When? “The astronomer who can answer that question will be famous!” laughs Vaubaillon.

“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 [www.spitzer.caltech.edu](http://www.spitzer.caltech.edu). Kids and grownups can challenge their spatial reasoning

powers by solving “*Slyder*” puzzles at <http://spaceplace.nasa.gov/en/kids/spitzer/slyder>.



Infrared Structure of Comet Holmes  
NASA / JPL-Caltech / W. Reach (SSC-Caltech)

Spitzer Space Telescope • MIPS  
ssc2008-18a


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Visit us on the web at [hacastronomy.com](http://hacastronomy.com)

### Newsletter goes Cyberspace...

 As of January 2009 the Newsletter is moving into the 21<sup>st</sup> Century! The club newsletter is posted and available to you on our website at [hacastronomy.com](http://hacastronomy.com) and in living color for your reading pleasure. Should you desire a hard copy it can easily be downloaded. If you want to continue mail delivery of the newsletter, contact the editor by email at [edugazer1@yahoo.com](mailto:edugazer1@yahoo.com) or by phone at (520) 366-0049. The funds saved will be designated for Club Outreach and Light Pollution.

Huachuca Astronomy Club of  
Southeastern Arizona Inc.

Election Results  
2008/2009

Officers:

Wayne Johnson	President
Keith Mullen	Vice President
Bob Gent	Secretary
Bob Kepple	Treasurer
Doug Snyder	Past President

Directors:

Del Gordon	Webmaster
Glen Minuth	Publicity
Teresa Mullen	Newsletter Editor
Rich Swanson	Outreach Coordinator



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