

December  
2007



HAC Web Page: [hacastronomy.com](http://hacastronomy.com)

**HAC MEETING: Friday, December 21, 2007**

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

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

**Speaker: Ken Graun**

**Topic: Building and using a telescope similar to that used by Galileo**

**Star Party Corner**

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

***Participation is the Lifeblood of the Club!***

November saw 50+ at the Member/Public Star Party at JBO. We had promised a variety of scopes and we delivered a Refractor (2), a couple Reflectors along with Big Blue and even some Bino's. Dave was thrilling them by the dozen that night; again this is what participation by members can lead to.

Hans hosted the Member Bino Extravaganza at AO and while the turnout was good, the skies weren't. We finally got in some time on comet Holmes while it was at about its brightest. Hans and Joanie are always the ultimate hosts fixing a crock of hot chili and other goodies too. We ate and talked and talked some more while waiting for a clearing in the sky. The No More NO GO policy scored major points that night; it works if given a chance, so let's get out to these events even if observing isn't guaranteed because some good conversation is!

**December Star Party Schedule**

Saturday, Dec. 1st Lands us back at JBO for the Member/Public Star Party. It's getting about that time to start bundling up and thinking warm and staying comfortable out there while we show our wares to the general public.

Saturday, Dec. 8th Glen and Deanna Sanner will host the Member Star Party at DOW and you all know that means the most in hospitality, dark skies and good camaraderie, don't be left out by missing this year end closer on the Star Party circuit.

Friday, Dec. 14th While not an official Star Party, this night is the Geminids Meteor shower and Bob and Barb Kepple have offered to host a meteor watch at their home in Palominas. Bob says "bring a sleeping blanket and lawn chair" and come out to see this proven performer of a meteor shower. Of course there will be Barb's famous cookies waiting and maybe some other snacks if you bring them, I'll see you there!

Saturday, Dec. 22nd What a perfect time to take a break from all the holiday hustle and enjoy the season with other members at the HAC Christmas Party. Teresa and I will be hosting this year's party at our home in Palominas for the second time and are looking forward to another houseful like last year. A potluck dinner with all the fixings followed by a White Elephant gift exchange (\$10.00 limit) rounding out the evening's events. We had a great party last year with over 1/2 of the membership attending and look forward to another great turnout. We are asking for an RSVP to Keith or Teresa at 366-0049.

## President's Perspective

Wayne Johnson

The winter holidays are upon us once again. It seems like I'm never quite ready for them, but the weather sure indicates winter is here! At the beginning of the next meeting I hope to have a short discussion about dressing properly for night time observing during the winter. It's a shame to miss out on some of the sights available only at this time of the year because it's cold outside. Most people, if dressed properly, would then be able to enjoy the Orion Nebula and Mars (this year) to name a couple objects that are just now becoming visible in our evening skies. Unfortunately, Comet Holmes, which has been putting on a spectacular show for the past few weeks while the weather was comfortable, seems to be fading and may be gone by our December meeting.

I just wanted to take this opportunity to thank all the HAC members who were able to make it to the General Meeting the day after Thanksgiving and voted for our new officers. The meeting was well attended despite many people being busy with their holiday business. Please join me in congratulating the returning 2008 Board of Directors (BOD) and especially our new officers and members at large, Bob Kepple, Teresa Mullen, and Rich Swanson, on their election. All of us thank retiring Directors, Judy Sukol, Helen Patterson and Tim Doyle, for their great service to the HAC BOD this past year. Here's to a successful 2008! I hope to see all of you at our last meeting of the year, which promises to be a good one with our speaker, Ken Graun, talking about Galileo's telescopes, and please try to attend the remaining star parties and holiday celebration at the Mullens' house (described in Keith's article).

*Editors note...*

*If you would like to post an article in the HAC Newsletter, send it to [edugazer1@yahoo.com](mailto:edugazer1@yahoo.com)*

**Merry Christmas Everyone!**



**Huachuca Astronomy Club** P.O. Box 922 Sierra Vista, AZ 85636 <http://hacastronomy.com> , email: [mrgalaxy@juno.com](mailto:mrgalaxy@juno.com)  
 Yearly Membership: Individual: \$25; Family: \$35; Military: \$20; student:\$10 (with restrictions)  
**President:** Wayne Johnson, [mrgalaxy@juno.com](mailto:mrgalaxy@juno.com) ; **Vice President:** Keith Mullen, 520.366.0049 or [repogazer@msn.com](mailto:repogazer@msn.com)  
**Treasurer:** Bob Kepple: 366-0490 or [astrocards@aol.com](mailto:astrocards@aol.com); **Secretary:** Jeanne Herbert, 366-5690  
 Star Party Coordinator: Keith Mullen, [repogazer@msn.com](mailto:repogazer@msn.com)  
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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) .

**Huachuca Astronomy Club  
Sky Calendar, December, 2007**

- 01 Sa Last Quarter Moon 0544 hrs.
- 01 Sa HAC Public Star Party**
- 08 Sa HAC Member Star Party**
- 09 Su NEW MOON 1040 hrs.
- 14 Fr Geminid Meteors peak; 0717 hrs.
- 19 We Mars closest approach
- 21 Fr HAC Meeting 7 pm**  
Solstice 2308 hours
- 22 Sa Ursid Meteors peak; 1800 hrs.
- 23 Su Full Moon 1816 hrs.
- 24 Mo Mars at opposition 1300 hrs.

**Dollar\$ & Cent\$**

Tim Doyle

The Club has a Checkbook balance (mid November) of \$3556.11. With \$104.24 in petty cash.

**Dues 2008**

We are now accepting Dues for 2008. You will be past due as of January 31<sup>st</sup>. Dues will be the same as last year: \$25 single, \$35 family, \$20 Military, \$10 student. You can send a check made out to HAC to: Huachuca Astronomy Club PO Box 922, Sierra Vista, AZ 85636. By sending in your dues you will help lessen the confusion at meetings.

**2008 Calendars & Observers Handbooks**  
WE NOW HAVE THE 2008 CALENDARS (from the Astronomical Society of the Pacific) AND OBSERVERS HANDBOOKS (The Royal Astronomical Society of Canada)!!! They will cost \$15 for the Calendars and \$23 for the handbooks. Quantities are limited. If you missed the November 23<sup>rd</sup> meeting e-mail me at [tedoyle@cox.net](mailto:tedoyle@cox.net) to reserve one.

**Outreach Biz**  
Jeanne Herbert

Beginning December 1st Rich Swanson will be taking over the duties of Outreach Coordinator. It has been a pleasure serving the Club in this capacity the last few years. I would like to take this opportunity to thank all of the members that came to my rescue and helped out at the various outreach events. I'm sure Rich will appreciate your continued support!

**Sierra Vista  
Outdoor Lighting Code Update**

Bob Gent

*"The City of Sierra Vista is now revising its outdoor lighting code. Among the changes to the code, this revision adds maximum lumen levels. The code already required shielding and set curfew requirements. In November, the planning commission unanimously approved the revised code, and they have forwarded it to the city council. As it now stands, this revision will be presented to the city council on December 13. Shielding, curfews, and lumen caps will reduce glare, improve safety, conserve energy, and preserve the beauty of our night skies. We encourage everyone to actively support this improved code."*

## Backyard Astronomer

Neal Galt

### What's UP...

Mars is now the dominant bright planet in the evening sky. It now rises just after sunset and is coming in for a relatively close approach. Mars will not be this close again until the year 2016. The bigger the scope... the better to see the surface markings of this tiny planet.

Saturn is now rising in the east by 10 PM. The rings are nearly closed to our line of sight... about a tilt of 6.6 degrees. Now is a good time to catch a few small moons that never get too far from the planet. The brightness is certainly decreased.

Venus is the most prominent object in the morning sky but it will now start to get lower in the sky and lose some of its brightness.

Jupiter is now setting in the west shortly after sunset. In January it will become an early morning object.

Lot's of shooting stars in December from many minor showers. The Geminid shower on the 14th of December will be the best with medium speed BRIGHT members.

Please report any unusual sightings in December to Keith Mullen....especially if you think the object is being pulled by reindeer and the leader is one with a bright red Mars type nose.

## Travels on the Celestial Sphere

by Bob Kepple and Glen Sanner

Bob and I are giving you all a challenge to view a group of galaxies which we viewed this past month. That group is the NGC 80 galaxy group in Andromeda. This group is very well placed for the next couple of months and if you enjoy somewhat of a challenge this group is for you. You do not need a large scope to view it but some of the galaxies within the group will require some work with your averted vision. We observed this group about 10:30 PM MST on 10-11-07. We used the 18.5" (Longeyes) at DOW. The right ascension of NGC 80 is 00h21min10.9s and the Dec is +22°21'25". This galaxy is the brightest in the group at magnitude 13.1 and is an elliptical about x 2.2' very slightly elongated NE-SW. Immediately to its NE (1.5') you find, with averted vision, NGC 81 at magnitude 15.8. This was a difficult object and was seen next to a 15th mag. star to its north. PGC 1396 was seen 8' ESE of NGC 80 as a small round smudge at mag. 15. NGC 83 is 5' NNE of NGC 80 and is easily seen at magnitude 13.6 to the NE of three 11<sup>th</sup> magnitude stars found in a tight L shaped asterism. 7' ESE of NGC 83 we find NGC 90, a magnitude 14 spiral galaxy elongated 2' x .8' NW-SE immediately NE of a 12th mag. star. 3' E of NGC 90 we find NGC 93, a 14th magnitude spiral slightly elongated 2' x 1' NE-SW. This galaxy is immediately W. of an L shaped asterism of three 14th mag. stars. 5' N. of this asterism we find NGC 94, a spiral galaxy at magnitude 15, appearing as a round smudge 2' E of a 13th mag. star. Going back to NGC 83 to get our bearings we find two small galaxies 4.5' NNE of 83, one of which is round and has a stellar nucleus, NGC 85 at magnitude 15. The other is immediately ESE of 85 and is elongated slightly 1' x .5' E-W and is designated NGC 85B at magnitude 15.5. Our last galaxy in this field is NGC 86 elongated N-S, a 14th magnitude galaxy found 3' NNE of NGC 85. It is seen immediately N of a 12th mag. star. This was a fine group of nine galaxies spanning a 16 minute field. This group is very well placed for your viewing or imaging pleasure.

**December Speaker, Ken Graun's talk:**

Our December meeting promises to be a good one with our guest speaker, Ken Graun from Tucson, talking about Galileo's telescopes. Ken and Alan Binder (who talked to us about Hevelius' telescopes earlier in the year) built working models of the telescopes Galileo used in his exploration of the skies. Ken gave a well-received talk about a year and a half ago about Messier and his catalog. Mr. Graun returns to tell us about his exploits building and using a telescope similar in quality and light-gathering power to that used by Galileo and to demonstrate what a skilled observer like Galileo could do with the primitive equipment available in 1609.

## Cetus, the Whale

By Bob Kepple & Glen Sanner

Cetus is the Sea Monster of the Andromeda myth turned to stone when Perseus exposed to its sight the severed head of the snake-haired Medusa, but modern sky guides call it the Whale. Its claim to fame is the variable star Omicron Ceti, named Mira "the Wonderful," the prototype of the red giant long-period variables. Mira had faded to 9<sup>th</sup> magnitude late last summer and is now brightening again towards its maximum brightness (mag. 3.4) on Jan. 23, 2008. Watch it from week to week as it slowly brightens.

Cetus lies well away from the Milky Way and therefore contains no open star clusters or diffuse nebulae. Despite its large size, Cetus boasts just one lone Messier object, the Seyfert galaxy M77. However, it does have a fine planetary nebula (NGC 246), a number of fine double stars, and a host of galaxies.

**NGC 246: Planetary Nebula Type 3b, Dia. 225", Mag. 10.9v, Central \* 11.9v, 00<sup>h</sup>47.0<sup>m</sup> - 11<sup>o</sup>53'**

NGC 246 is a nice planetary nebula with a fairly bright, large, round disk as seen in 8-inch scopes. The western and SW edges are more sharply defined than the Northern and eastern sides. The eastern periphery is broken and much fainter than the other sides. Two fairly bright ghostly-looking stars peer like eyes from the center of the nebula. A 3<sup>rd</sup> bright star touches the NW edge and a much fainter star is embedded in the disk near the east side. In 12-inch and larger scopes the disk appears mottled, unevenly bright, and the center is somewhat darker. Don't hesitate to push magnification to the limit, when seeing is fairly steady this object will show a lot of detail.

**NGC 247: Galaxy Type SABdm III-IV, Dia. 19.0'x5.5', Mag. 9.2v, SB 14.1, 00<sup>h</sup>47.1<sup>m</sup> - 20<sup>o</sup>46'**

NGC 247 is a faint, extremely long object elongated 12'x3' N-S with a faint extended core in 6 to 12-inch telescopes. A 9<sup>th</sup> magnitude star touches its southern tip. A 16-inch or larger instrument will show a large 19'x5' halo somewhat teardrop-shaped with the southern end brighter and more pointed while the northern end is broader and more diffuse. The central area is mottled and brightens gradually to an irregularly extended core. At least seven faint stars may be

*(Continued on page 7)*



*Space Place Astronomy Club article*

## Going My Way?

Not many endeavors require that you plan the mode of transportation before you even know what it is you are transporting. But weighing the physics and economics of getting any sort of cargo to space is a major part of designing a space mission.

It's one of the first issues that NASA's New Millennium Program (NMP) considers when planning a new mission. NMP has the forward-looking job to identify promising new technologies for space exploration. It then helps to mature the technology so it will be available to space missions of the future. If the technology cannot be tested adequately on Earth, the last part of this process is to actually send the technology into space. With carefully documented test results, future mission planners can confidently incorporate the new technology into their designs.

But where to begin? On call from the start, Linda Herrell is the New Millennium Program Architect. Given a list of proposed technologies, she has the job of figuring out the feasibility of wrapping a mission around them.

"We might be considering anything from solar masts for solar sails to more those, we may choose four. question—can the selected ported to and operated in strains of a low-cost tech-ject?"

Along with the list of possi- (the technologies), Linda craft to put them on, as well cle parameters. *All* she has every possible combination thousands) and see what

"Fortunately, we have a with this analysis," says down to it, her job is primarily to figure out how to get the technologies into space.

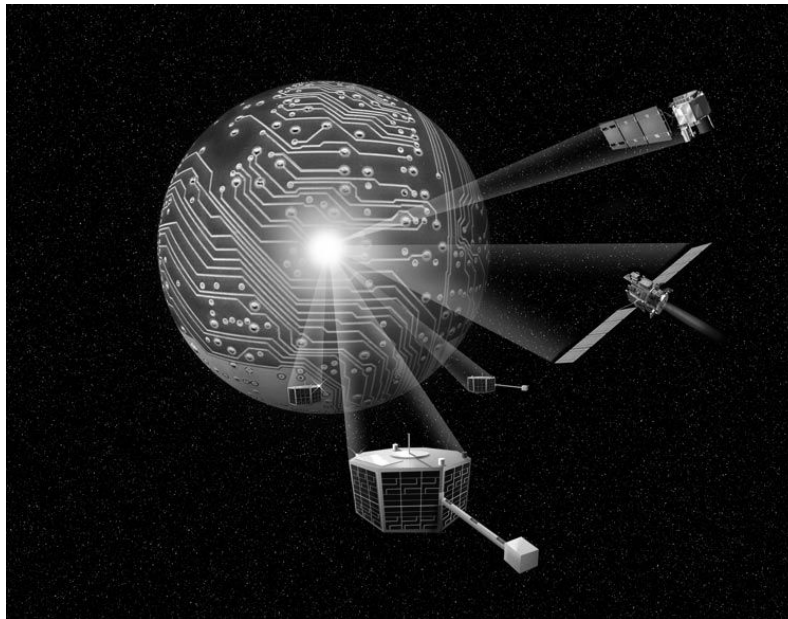
"Sometimes, it's like figuring out how to get across town when you don't have your own car. You have to get creative."

She keeps a database of all possible options, including riding piggyback on another spacecraft, hitching a ride on a launch vehicle as a secondary payload, or sharing a launch vehicle with other NASA, Department of Defense, or even commercial payloads.

Her assessment is but one of a gazillion factors to be considered in planning a mission, but it is indeed one of the very first "details" that forms the foundation for the rest of the mission.

Find out some of the technologies that NMP has already validated or is considering at [nmp.nasa.gov/TECHNOLOGY/innovative-tech.html](http://nmp.nasa.gov/TECHNOLOGY/innovative-tech.html). Kids will enjoy watching Linda's cartoon alter-ego talk about her job at [spaceplace.nasa.gov/en/kids/live](http://spaceplace.nasa.gov/en/kids/live).

*This article was written by Diane K. Fisher and provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*



six or more technolo-panels to imagers to intelligent software. Of My job is to answer the technology be trans-space within the con-nology validation pro-

ble mission payloads also has a list of space-as a list of launch vehi-to do is try them out in (of which there are might work.

software tool to help Linda. When it comes

(Continued from page 5)

seen embedded in the halo.

**NGC 1068, M77: Galaxy Type SABab, Dia. 8.2'x7.3', Mag. 8.9v, SB 13.2, 02<sup>h</sup>42.7<sup>m</sup> - 00°01'**

Messier 77 is the prototype of the peculiar Seyfert galaxies, systems with bright, starlike nuclei, emission-line spectra, and moderately-strong radio output. Apparently, Seyferts are suffering serious explosions in their nuclei. M77 lies some 65 million light years away and is four times as luminous as our Milky Way galaxy.

Small scopes will reveal a bright, round 3' diameter halo next to a 10<sup>th</sup> magnitude star. Its center contains a large luminous core covering nearly half its halo. 12-inch and larger telescopes will show a large 6'x5' halo containing a very bright, exceptionally large core. In 16-inch and larger instruments the halo becomes mottled with dark lanes and fragments of spiral arms visible. Higher powers reveal a stellar nucleus.

**NGC 1055: Galaxy Type Sb: sp II-III, Dia. 7.3'x3.3', Mag. 10.6v, SB 13.9, 02<sup>h</sup>41.7<sup>m</sup> - 00°26'**

If you sweep NW of M77 you will find the bright galaxy NGC 1055 forming a triangle with two bright 7<sup>th</sup> magnitude stars. Small scopes will see a fairly faint E-W streak with a thin, faint core. 12-inch telescopes show a 4.5'x1.5' spindle with a tiny triangle of 12-13<sup>th</sup> magnitude stars, closer than the 7<sup>th</sup> magnitude stars, almost touching the galaxy's northern edge. 16-inch and larger telescopes will reveal a dark lane running along the northern flank just visible with averted vision.

**NGC 1052: Galaxy Type SA?(r?)0-, Dia. 2.5'x2.0', Mag. 10.5v, SB 12.1, 02<sup>h</sup>41.1<sup>m</sup> -08°15'**

NGC 1052 is the brightest galaxy in a nice field of galaxies. Although small telescopes may show some "faint, fuzzy" patches, at least a 12-inch scope at medium power is needed for a good view of the objects. A 12-inch scope shows NGC 1052 as fairly bright with an oval 2.5'x2' halo having diffuse edges. Its surface brightness increases inward to a prominent core having a stellar nucleus at center. If you own a copy of *The Night Sky Observer's Guide* use the photo on page 166, volume 1 as a guide.

**NGC1042** lies 14' SW of NGC1052 in the same field of view at 200x. It is a much fainter, diffuse galaxy with a more circular halo elongated 4'x3' E-W having only a slightly brighter center. A 12<sup>th</sup> magnitude star touches the SE edge.

**NGC 1047**, lying 10' NW of NGC1052, is a faint, small 1.5' galaxy with a diffuse halo having a slightly brighter center.

**NGC 1035** lies beyond NGC 1047 about 25' WNW from NGC 1052. It is a nice, fairly bright streak with pointed tips and diffuse edges. The halo is elongated 2'x0.7' NNE-SSW with a slightly brighter extended core. A 12<sup>th</sup> magnitude star touches the SSE tip.

We hope you enjoy viewing our list - it is only a starting point to the many deep-sky objects in Cetus. To find them use *Sky Atlas 2000*, *Uranometria 2000*, or *The Night Sky Observer's Guide*. Some of this material was taken from *The Night Sky Observer's Guide* by the authors with permission from the publisher Willmann-Bell, Inc.



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

Volume 8 Issue 12, page 8 Teresa Mullen, Editor



Huachuca Astronomy Club  
Christmas Party  
Potluck and Gift Exchange



When: December 22nd starting at 6 pm

Where: The Mullen's in Palominas.

A map can be found on the website, click on the resources tab and go to RepoGazer Observatory.

What a perfect time to take a break from all the holiday hustle and enjoy the season with other members at the HAC Christmas Party. Teresa and I will be hosting this year's party at our home in Palominas for the second time and are looking forward to another houseful like last year. A pot-luck dinner with all the fixings followed by a White Elephant gift exchange (\$10.00 limit) rounding out the evening's events. We had a great party last year with over 1/2 of the membership attending and look forward to another great turnout.

We are asking for an RSVP to Keith or Teresa at 366-0049

