

# Harford County Astronomical Society

Bel Air, Maryland  
[www.harfordastro.org](http://www.harfordastro.org)



*Volume 35 Issue 4*

*April 2009*

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## **Public Star Party (Open House):**

**Saturday, May 2, 2009, at Dusk  
At the HCAS Observatory**

**Activity: A Universe of Galaxies  
Featured Object: The Whirlpool Galaxy (M51)**

## **General Meeting:**

**Thursday, May 7, 2009, at 7:00pm  
Board Meeting at 6:30pm  
In the Observatory Classroom**

Please check the website for possible schedule updates and changes:

<http://www.harfordastro.org>





<http://astroleague.org/>



<http://nightsky.jpl.nasa.gov/>

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## HCAS Business Meeting

### Minutes of April 2, 2009

The meeting was called to order by Vice President Grace Wyatt at 7:05 pm.

Minutes published in the last issue of the newsletter were approved as published.

Ballots for Officers received were given to Joe Manning for counting during the meeting.

**Treasurer's Report:** We have \$3,977.74. We now have 50 members paid to June and 10 renewals for next year.

**Newsletter Issues:** This month's newsletter's deadline is April 12, and the issue will be emailed out on the 13th. Roy will be making another trek to the Southwest to visit family and dark sky sites for about a month.

**Outreach:** March 28th's Open House brought 40 guests to the Observatory, including a Boy Scout troop working on their Space Loops/badges. There were 2 tours up to the Observatory. Unfortunately, there was nothing to observe, as the sky was completely clouded over.

There is interest from another Boy Scout troop for the Open House on May 2 or May 30. Grace will have the troop come a little early for an indoor presentation before it gets dark enough to observe. March 17, Grace had an impromptu outreach session at her complex which had 8 people looking for the ISS and constellations.

The Carrol Manor Outreach needed to be canceled due to bad weather, but Grace says there is interest in rescheduling for the Fall. Tom will give an indoor presentation at the St. Joan of Arc School.

We have received an invitation from Susquehanna State Park to do another Campfire Program. We were given our choice of dates, the group chose July 18th for the program. Mark Kregel will do the presentation and other members will support using telescopes and other observing devices. The HCC Faculty Start Party/Open house scheduled for April 25 looks a little doubtful. Grace will get in contact with Sal Rodano to see if the May 23 date may work better for planning

purposes. April 18 is Earth Day in Aberdeen's Festival Park. The rain date is April 19. Grace asks for volunteers to help out. Darlington Elementary School has asked us to come on April 17 to bring telescopes for the kids to view through. Approximately 34 people will be in attendance. Swanfest in Havre de Grace is October 11.

**Night Sky Network:** Grace was on the NSN Teleconference about the "100 Hours of Astronomy" event and the *400 Years of the Telescope*. Grace won a book for the club by participating in the Teleconference. We have also received a preview DVD copy of the PBS Special, *400 Years of the Telescope*. We have received a new toolkit, this one titled "Glass and Mirrors". The next Teleconference will be on April 21 and will be entitled "Our Sun".

**Observatory Operations:** There was much discussion about moving the safe to the Mirror room. This debate is being deferred to the Board of Directors for further discussion. Grace will email Sal about issues at the observatory, including the Hawk in residence and issues with the driveway.

**Observing Reports:** Three trips have been made to Broad Creek/Astronomy Hill since the last newsletter. Details will be given in the newsletter.

**New Business:** During a trip to Goddard Space Center, Grace announced that there are many programs in place until May 5 in honor of the IYA2009. She brought information regarding "borrowing a moon rock" from NASA. Grace and Gary are going to a training class on April 24 to receive detailed information and training for this venture for the Observatory.

The Raffle has raised \$158 so far, and the drawing will be held at the Open House on May 2.

Karen mentioned that the Original Galileo Telescope will be at the Franklin Institute in Philadelphia from April to September. Tony Mullen announced that the DelMarVa Stargazers will have a Star Party the Weekend of April 24 - 26 at Tuckahoe State Park. Grace is purchasing a Galileo Telescope for \$15, and thinks that perhaps one should be purchased for Observatory use.

Larry Hubble spoke about some accessories needed to run the Orion CCD - a focal reducer and a power adaptor. This has been turned over to the Board of Directors for further decision.

Finally, Joe Manning announced that all nominees were elected to their Officer Positions:

Tom Rusek - President  
Grace Wyatt - Vice President  
Karen Carey - Secretary  
Tim Kamel - Treasurer  
Larry Hubble - Director  
Roy Troxel - Director  
Jimi Hajek - Director  
Tony Mullen - Director

Congratulations to all those elected or re-elected!

The meeting was ended at 8:10pm.

- Karen Carey, Secretary Elect

## Board Meeting

May 7

6:30pm

The board will hold a meeting before the next general meeting, Items to be discussed are as follows:

1- A focal reducer for telescope and CCD camera approx. cost \$60.00 plus tax

2- A AC/DC power pack this powers the camera, the second cord that we have received does not work, so this will be bought as a backup. approx. cost \$30.00 plus tax

3- A Galileo telescope, (not an original) these run for approx. \$ 15.00 to \$ 80.00 dollars. there was a motion on the floor to purchase one so we can display it at all open houses.

- Gary George

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## Outreach Programs

### Opportunities to Assist with Outreach

**Friday, April 17, 2009** from 8 to 10 PM at Darlington Elementary School. Darlington has a science program for their students and we have been invited the last 3 years to assist with their astronomy program. We set up telescopes and binoculars for the children to participate in a viewing session. If you don't have a telescope or binoculars, you can come and assist with identifying objects the children are to find that evening. We are expecting 34 children (4th and 5th grade) as well as some parents and siblings. Location: Darlington Elementary School, 2119 Shuresville Road, Darlington, MD 21034. When you pull into the school parking lot, drive to the end of the school and turn right. That will take you to a small parking lot close to where we set up for viewing.

**Saturday, April 18, 2009** from 11 AM to 4 PM Earth Day We set up a table and give out information about light pollution, astronomy and our club. If possible we set up telescopes for solar viewing. If no one brings a telescope for solar viewing, we use eclipse glasses. Come to help distribute handouts, help visitors with the eclipse glasses, answer questions and just tell people about our club. We have had 400 visitors to our table in past years so any help is greatly appreciated. Rain date is April 19. If the weather is questionable on April 18, you can call 410-297-4215 after 7 AM for cancellation instructions. Please bring your own chair if you plan to stay a while at this event. You can bring food or buy food at the event. You can come for the entire time or a part of the day. I start setting up at 10 AM. If you can come early and help set up, that would be appreciated too. Earth Day takes place at Aberdeen Festival Park located at the corner of Franklin Street and Parke Street in Aberdeen.

If you are able to help at either of these events, please let me know. When an event is canceled I send out a mass email. If you let me know you are planning to come to an event, I will call you if it is canceled as well as send you an email.

I am looking forward to seeing the usual volunteers at these two events and hope to see some new ones too. If you are a new member and not sure what to do, come and just watch if you want to get a feel for what we do at outreach. You will be amazed how much fun the events are and how much you can learn from other club members.

Other events scheduled are Susquehanna State Park Campfire program on July 18 at 8 PM and Swanfest on October 11 from 11 AM to 4 PM. More information will be provided closer to those dates.

Contact Grace Wyatt if you have any questions. [dgracew@comcast.net](mailto:dgracew@comcast.net)

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## **Open House March 28, 2009**

Great! We had another completely overcast open house. What is this? Like, the third one in a row? We missed showing off Venus and Saturn has already passed opposition.

Well, we still had a good turnout by members and guests. We had about 40 guests, mostly Scout Troop 238 from Hickory, along with the parents and siblings of the scouts. We also had students from Mr. McLeod's Science class who came to get extra credit. We did an indoor program, with Mark Kregel, Karen Carey and Phil Schmitz each doing a presentation. We then did a tour of the dome and spent some time with the guests explaining about our little observatory and our C-14 scope.

Also participating for the club were Tom Rusek, Roy Troxel, Gary George, Larry Hubble, Grace Wyatt, Karen Carey, Maggie Carey and new member Colleen Carrion.

I guess we shut down at about 9 PM, hoping for a better night next month.

- *Tim Kamel*

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## **HCAS RAFFLE FUND RAISER Drawing: May 2, 2009**

HCAS is running a raffle fund raiser. The raffle prizes were generously donated by Garry Lang of Chesapeake Optics. There will be one winner who will receive the following:

- Orion Large Aluminum Clad Accessory Case
- Celestron Green Laser Optical Kit (includes 10x50 binoculars, green laser pointer and red LED flashlight)
- Vortex Optics Fog Free Lens Cleaning System
- Orion RockStable Tripod Anti-Vibration Pads
- Orion 1.25" Color Filter Set
- StarQuest-A Beginner's Guide to Digital Astrophotography by Timothy E. Kent
- Sky & Telescope's Pocket Sky Atlas
- Celestron Sky Maps and Glow-in-the-Dark Star Finder
- The Astronomical Companion

*HCAS is also including a one-year club membership.*

Please help to make this event a success and raise some money for club activities. The tickets are \$2 each or 3 for \$5. If you would like to buy some tickets or would like to take some to sell, please stop by a club event or contact Grace Wyatt at [dgracew@comcast.net](mailto:dgracew@comcast.net) or 410-836-7285. The drawing will take place at the end of our May 2 open house which is also Astronomy Day.

## Astrophotography

April 4, 2009



*M3 in Boötes, photographed at HCAS Observatory.*

The results from the Saturday night photo shoot did not turn out well. Sorry to all who were looking forward to these images. The M13 shot was totally out of focus and the M104 was washed out by the moon being too full and college sky glow for the object was very low in the sky. We did get an image of 104, but the raw images look better than the final. The consensus was, "Oh well, we'll just have to try again." This is a wonderful attitude. As we know, it is impossible to get in a good night of viewing at times, and that much harder to do astrophotography. That said, we (Tim, Gary and I) went up the following night (this past Sunday) and turned out a few good pictures of the moon at high power. We also got a pretty outstanding image of M3 globular cluster. It was shot at f11 (yes, Tim and Gary: f11). Focus was awesome as you can see by the pinpoint stars.

Please send Grace, Tim, Gary and myself names of any persons who would like to join in on any session. We would love to have you and would notify you of any future outings. I also need everyone to pick a date for a club get-together to demonstrate the camera in use to all interested club members. Our calendar is

jammed, but we need to try to set a date for this to happen. We are ready. Just let me know how much pizza to buy!

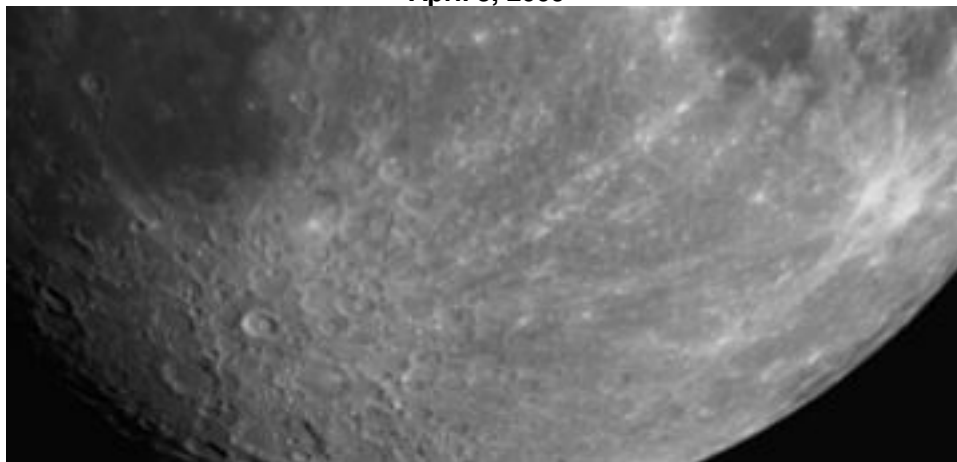
I would like to say again how great the camera has been in generating use of the observatory. I have heard club members comment (including Mark) that they haven't seen the observatory being used this much in the past five years.

*Remember:* Emailed images are low-resolution and not suited for printing, wallpaper, etc. If you are interested in a CD of the full-resolution, uncompressed .tif files of our results so far, just ask or email me and I will bring it to the next club meeting. Thanks again for all of your support!

- Larry Hubble  
[lhubble@comcast.net](mailto:lhubble@comcast.net)

## Astrophotography Session

April 5, 2009



*Area near Tycho, using the club's 14" Celestron.*

On April 5, Gary, Larry and I (or should I say the GaLaTi Team) went to the Observatory to take some shots with the Club's new Orion Starshoot Pro Deep Space Color Imager (SSPDSCI). It was a Sunday, with some thin

clouds drifting by and a bright 10 day old moon to spoil any faint object shooting. Nonetheless, I was itchy and envious that Gary, Larry and Grace had gone up the night before, when it was perfectly clear, and I was not able to go.

We arrived a little before 8pm and proceeded immediately up to the dome. It was still a little bright so we decided that we would take some shots of the moon. We got set up and synchronized on Sirius and Larry spent some time getting the optical finder and the Telrad dead centered. We then tried to move to the moon but no good, the scope was on the wrong side of the mount. We started again, this time synchronizing on Regulus and then using it to do a rough focus. Larry then used The Sky to find a dimmer star to fine tune the focus.

OK, we are now ready and off to the moon we go. We find the part of the moon we would like to shoot and realize that the view is "soft", which I now understand means "out of focus". Still. We spend the next 20-25 minutes nudging the focus just a touch and taking a shot till we feel that we can not improve the focus any more. We then took four shots of different parts of the moon that we though looked really nice. I have enclosed one of them with this article.

Next was Saturn. We took two shots at different durations but both were poor. Basically, the image was too small and was just a blotch of light. We could have tried for higher power using a Barlow but this would have only made the image twice as large, which would have still been too small. We did not want to lose the good focus we had so we decided against shooting more of the moon.

It has now gotten dark enough that we move off to a DSO and try to shoot a globular. We pick M3 and start shooting, keeping the same focus. We experiment with different exposures and settle on 10 seconds, and take 5 shots. Each is good by itself and Larry has tweaked the one included here.

We tried for a galaxy but it was completely washed out by the moon. We try for M97, a little further away. This one is a fairly bright planetary, but no luck. Not even a hint. And it was in the field of view because all other targets were dead on.

By this time, some serious clouds had moved in and we lost our window of opportunity. We packed up and were gone by 10:30 or so.

- Tim Kamel

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## 2009 Astro-imaging Contest

*Astronomy Magazine* has announced its 2009 Astroimaging Contest.

**Photos will be accepted until April 15.**

If you think you might want to enter one of your photos, check out the rules at this website:

<http://astronomy.com/asy/default.aspx?c=a&id=7819>

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## Observation Reports

**Broad Creek**  
**Friday, March 20, 2009**  
8pm to 11:30pm

This was one of the best nights so far this year. No clouds. Transparency rating was 4 out of 5 points and seeing was 3 out of 5, though possibly lower in some areas in the southern sky.

I had brought my 12.5" Obsession and used mostly the 35mm Panoptic eyepiece(45x), but in areas where the sky was unusually dark, I used the 13mm Nagler (121x)

Larry Hubble, Jeremy Kirkendall and Cathy Tingler were also observing. Larry brought his new 80mm ED refractor, plus a green laser.



M46, open cluster in Puppis. Red spot is planetary nebula, NGC2438. Photo by Larry Hubble.

We all (almost by instinct) went to Orion first, the constellation now being in the southwestern sky just after sunset. The nebulae M42 and M43 were very clear and bright. I tried to view NGC2024 (Flame Nebula) and IC434, just below Orion's belt, but the skies weren't clear enough for that.

While viewing the nebula M78, a meteor with a long trail blazed along the eastern side of Orion, down past Betelgeuse and the Belt stars. The entire constellation looked especially good through Cathy's 10x50 binos.

Moving toward the many clusters in Canis Major and Puppis, I observed M41, as

well as M46, with its accompanying planetary nebula in the foreground. Nearby was the much brighter M47 cluster and nearer the horizon was another open cluster, M93. To finish the "winter triangle" area of clusters, I observed M50 in Monoceros.

Next was the southeast area below Cancer and Leo, where the constellations of Hydra and Corvus could be seen, but only through the haze which too often exists in the southern sky at Broad Creek. The seeing was probably about 1 out of 5 in that area on this particular night, but the open cluster M48 could still be glimpsed in the haze.

We all obtained very clear views of Saturn, still in Leo, as it approached the zenith, the clearest part of the sky. Four of its satellites were easily visible, although the rings were less spectacular – now appearing almost edge-on, from earth's viewpoint. Just underneath Leo were the two galaxy "triplet" areas around M95 and M65, as well as NGC 2309 in the "sickle" area.

M84, M86 and some other galaxies in Virgo were now above the eastern haze. These galaxies lie near the center of the Virgo Galaxy Cluster. Viewed edge-on from earth, this vast cluster extends across the sky from Ursa Major to the Scorpius region. Our own Milky Way, along with M31, 32 and 110 (the Andromeda group), is part of this "Supercluster", as it's called sometimes. Gravity being what it is, there are many galaxies at the



supercluster's core, with that number diminishing as you go outward toward the edge, where we are. The galaxies at the core can be observed in the region between the "bowl" of Virgo and the constellation of Coma Berenices. About 65 to 70 million light years away, they will be visible throughout the summer.

Also in Virgo is M104, the Sombrero Galaxy. That night, the black cloud across its equator was dimly visible, but it took some patience to see.

Moving to the very dark and clear area in the northeast sky, we observed the constellation of Coma Berenices, which is also one of the star clusters nearest to earth. As mentioned above, this region also contains a large number of galaxies belonging to the Virgo supercluster. Of special note on this night was the very long edge-on galaxy, NGC4565.

The galaxy NGC2403 in Camelopardalis was easily visible. Its irregular shape made it look more like a nebula than a galaxy. It usually appears to sparkle, but not tonight. This circumpolar object is visible year-around, along with NGC1501, 1502 and the "Kemble's Cascade" asterism – a beautiful section of the sky for binoculars or wide-field eyepieces.

Low in the northeast, near Arcturus, is the small constellation of Canes Venatici, representing the two "hunting dogs" of Boötes, the mythological herdsman. There are some remarkable objects in this small region, including M3 - a tight, beautifully symmetrical globular cluster. At 121x, this cluster appeared dim, but its spherical symmetry and faintly-resolved outlying stars could be seen.

The best-known object in Canes is the M51 "Whirlpool" galaxy. It appeared brightly, along with its smaller companion galaxy, NGC5195. Some of M51's spiral arms became visible after about 30 seconds at the eyepiece. I finished with this constellation by viewing another edge-on galaxy, NGC4244 sometimes called "The Spindle".

These objects were viewed in Ursa Major:

M97, the Owl Nebula. The eyes of the owl "flickered", due to the atmosphere, and were best seen using the UltraBlock filter.

M81 and M282. Excellent views of these galaxies! Both were unusually bright and could be seen together, using the 35mm Panoptic eyepiece. The vertical lines (gas clouds) were apparent in M82. However, M101 appeared very dim, partly due to the galaxy's low surface brightness. Couldn't detect the spiral arms.

I ended the session by viewing some clusters very near the zenith: M44 and M67 in Cancer, as well M37 in Auriga.

- Roy Troxel

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**Broad Creek**  
**March 23, 2009**

"They call the wind Maria" (Lerner and Loewe) but I have a few other choice descriptions. What a way to ruin an observing session.

This was my first session at Broad Creek since January 22<sup>nd</sup>, what with the cloudy moonless nights and all those perfectly clear and moonlit nights since then. Forecast as of Sunday night was for clearing after midnight and staying clear till Wednesday morning. We decided on Monday night, following a prediction for no clouds, excellent transparency and, as usual, poor seeing (thank you, jet stream). Temperature was in the high 30's, cooling but not dropping below freezing till after midnight. It was a little breezy but the wind was supposed to die down by 8 PM.

Participating that night were Phil Schmitz with his 16" Dob, Roy Troxel with his 12.5" Obsession Dob, Jeremy Kirkendall with an APO refractor he was using for astrophotography and new member Greg O'Brien brought

along a 12" Celestron Dob. I brought an 8" F/8 Dynascope reflector on an equatorial mount, hoping to get some high power views of the Trapezium and Saturn. I had also brought along my DSI camera but decided while driving that I was not going to take any pictures tonight, opting instead for just plain old viewing.

I got to Broad Creek by about 7:00pm and Roy was already there. I set up my equipment and waited for dark. Phil arrived, followed by Greg and Jeremy. By 8:00pm, stars started popping out, first Sirius, then Betelgeuse, Rigel, Aldebaran, etc. By 8:10, Polaris was up and I did my alignment and started viewing. I started off with the Orion Nebula and the Trapezium. I had done a good alignment and the scope slewed from north to south and put M42 in the 25mm reticle eyepiece I use for centering. I started viewing with a 40mm eye piece and increased magnification to get better views of the Trapezium and hopefully to see stars E & F.

The problem was the wind. It did not abate and actually grew stronger as the night went on, blowing the tarps and other light weight stuff around. My scope was shaking with the wind. Not much for a low-power eyepiece but any object I observed was bouncing completely out of the field of view of the 12.7mm eyepiece. The wind was fairly steady with some gusts that whistled through the scope. Periods of calm were infrequent and of short duration, getting worse as the night went on.

The good news is that I did see the six stars in the Trapezium with an 18mm ASP and a 16.3mm Konig. In moments of calm, I first saw star E fading in and out, and then more definitively visible as it got darker and our night vision improved. I then saw star F fading in and out but definitely there. It is pretty amazing how much dimmer they are compared to the 4 brighter stars. I then moved to the Double Cluster, and got a fairly good view with a 32MM Plossl that could show both clusters in the same field of view. Next I tried for M52 in Cassiopeia but could not see it, probably because it was too low to the horizon, in the murk. I next tried for M103 and could also not see that one either. I am not sure why.

I moved on to M81 and M82 in Ursa Major and was able to place both in the field of a 32 mm eyepiece. I then tried for M97, the Owl Nebula, and saw it as a faint puff with no detail. M51 was not visible. I gave up on looking for objects around the Dipper because on a GEM, the eyepiece of my scope is about as high as it can get when pointed north. It is difficult for me to reach.

I then moved to Saturn, which by then had risen well above the murk at the horizon. I tried some different eyepieces and saw the planet as a sharply defined disk and a very thin ring system. Titan was also visible in the same plane as the rings. I tried higher power and my 16.3 Konig gave me about 100X and showed two more moons just outside of the rings and in the same plane. This is kind of neat. We can only see the moons in the same plane as the rings once every 15 years. It is sort of reminiscent of Jupiter though Saturn has more moons that are visible, though dimmer. I believe there are six.

By now it was coming up on 10:30 and the wind was fairly steady. The temperature had dropped to about 32 degrees. I was well-dressed, having rediscovered a pair of boots that were working really well that night. However, exposed skin, hands and face, were suffering with the breeze and resulting wind chill. Under other circumstances, I would have carried on as I had done on other cold nights. But tonight, what was the point? I had only observed probably no more than 30 minutes in the 2.5 hours that we were there, and had only seen less than 10 objects all night (I did manage M41 and the Alpha Perseus Association in my binoculars). The wind was now fairly steady and blowing hard enough to make Roy's and Phil's scopes rotate on their pivots.

We packed up and were gone by 11:00 PM, vowing to return and reclaim the hill another day.

- *Tim Kamel*

**Broad Creek  
March 23, 2009**

All observations were done with a 16-inch Dobsonian telescope. I only used the 12mm, 2-inch TeleVue eyepiece. The temperature was 44 degrees upon arrival at 7:15pm.

The sky was crystal clear, so the transparency was a five. The seeing, however, was very bad due to the windy conditions. I gave it a one.

Started out in Orion with Iota Orionis, a nice triple star, although I only saw two of the components. Sigma Orionis was seen next. The detail of M42 was excellent, along with M43. M44 in Cancer was nice, especially through the 9 X 60 viewfinder. The "S" shape of M1, the only supernova on Messier's list, in Taurus, was rather obvious. This is a supernova remnant that exploded in 1054 AD. M45 was seen naked eye as well as through the viewfinder. M47 in Puppis, a bright open star cluster was seen. M65 and M66, two 9th magnitude spiral galaxies in Leo were not as nice as usual due to the unrelenting wind. M109 was a rather easy galaxy to see, considering 2.4 magnitude Gamma Ursae Majoris is in the field of view.

Saturn, with its almost edge-on rings, was nice in the eyepiece field. It was accompanied with at least two satellites: Titan, and I believe the other one was Iapetus.

The double stars Cor Caroli in Canes Venatici and Mizar in Ursa Major were seen. The globular cluster M3 in Canes Venatici was the last object seen tonight.

All five of us (Tim, Roy, Greg, Jeremy and me) packed up and left around 11 PM. The temperature was 35 degrees (not counting the wind chill).

- *Phil Schmitz*

### **Broad Creek March 24, 2009**

All observations were done with a 16-inch Dobsonian telescope. Again, I only used the 12mm, 2-inch Nagler/TeleVue eyepiece. The temperature was 42 degrees upon arrival at 7:10pm. There were some light clouds that mostly disappeared at sunset - but not for long. Although the transparency was about a three at the beginning of the session, clouds started to move in from all directions. Late in the observing session, the clouds finally dispersed and the transparency went to a four. The seeing was steady all night long at a four (we had no wind tonight).

Started out in Orion looking at M42, the Orion Nebula, which looked better the previous night. M43, along with the multiple stars; Mintaka, Sigma and Iota Orionis were also seen. M41 in Canis Major, has looked better. M47, a very bright open star cluster was easy in the finder and excellent through the 12mm eyepiece, M46, a much fainter open cluster near M47 was seen including the planetary nebula NGC2438, which is a foreground object in front of M46.

Two open star clusters were seen in Monoceros; NGC 2301, a bright large, open star cluster, and M50, smaller and fainter than NGC2301. Beta Monocertis, probably the best triple star, showed all three components, which are about the same magnitude.

Saturn and three satellites were seen. I think it looked better the previous night. In Leo, M65 and M66 (both looked much better tonight) along with NGC3628, a 9.5 magnitude, elongated spiral galaxy were visible.

In Canes Venatici, I viewed M51, a nice spiral galaxy that showed some spiral structure and its companion galaxy NGC5194. M3, one of the finest globular clusters, did not disappoint, either. Many stars were seen around the periphery of the cluster. The double star Cor Caroli was seen, along with Mizar in Ursa Major and Polaris, the north star in Ursa Minor.

In Coma Berenices, Melotte 111, a bright, large open star cluster, was visible to the naked eye. This cluster houses eight galaxies and I saw four of them tonight. They included NGC4448, a 12th magnitude spiral galaxy, elongated and very visible. NGC 4251, an 11th magnitude elliptical galaxy was slightly elongated. NGC4494, a 10th magnitude elliptical galaxy is also slightly elongated. NGC4565, a 9th magnitude spiral galaxy was very elongated. This galaxy has a small central core which is easily seen.

The temperature was 29 degrees and it was 11:30pm when we started to shut down. Those in attendance were Roy, Jimi and me.

- *Phil Schmitz*

# Messier's Missed Objects

## Part 2

The following is a list of objects that Messier could have seen but didn't. From my research, it appears that Messier's largest telescope was a crude 8-inch reflector. The criteria I used was that the object had to be brighter than 10<sup>th</sup> magnitude and not too far south. A lot of open clusters did not make the list because they are too sparse. Some planetaries did not make the list since they are too small. I am sure that I missed some objects that could be included on this list.

# OBJECT	CONSTELLATION	TYPE	MAG	NAME / INFORMATION
36 NGC2244	MONOCEROS	OC	4.8	WITH ROSETTE NEBULA
37 NGC6633	OPHIUCHUS	OC	4.6	
38 NGC6572	OPHIUCHUS	PN	8.1	
39 IC4665	OPHIUCHUS	OC	4.2	
40 NGC6293	OPHIUCHUS	GC	8.2	
41 NGC6304	OPHIUCHUS	GC	8.4	
42 NGC1981	ORION	OC	4.6	
43 NGC2175	ORION	OC	6.8	
44 NGC2186	ORION	OC	8.7	
45 NGC7661	PEGASUS	SG	9.5	
46 NGC7331	PEGASUS	SG	9.5	
47 NGC 869	PERSEUS	OC	5.3	DOUBLE CLUSTER
48 NGC884	PERSEUS	OC	6.1	DOUBLE CLUSTER
49 NGC1528	PERSEUS	OC	6.4	
50 NGC1245	PERSEUS	OC	8.4	
51 NGC0957	PERSEUS	OC	7.6	
52 NGC1023	PERSEUS	SG	9.3	
53 NGC2477	PUPPIS	OC	3.3	
54 NGC2451	PUPPIS	OC	2.8	
55 NGC2539	PUPPIS	OC	6.5	
56 MEL71	PUPPIS	OC	7.1	
57 NGC2477	PUPPIS	OC	5.8	
58 NGC6558	SAGITTARIUS	GC	9.8	
59 NGC6569	SAGITTARIUS	GC	8.7	
60 NGC6530	SAGITTARIUS	OC	4.6	
61 NGC6522	SAGITTARIUS	GC	8.6	
62 NGC6528	SAGITTARIUS	GC	9.5	
63 NGC6553	SAGITTARIUS	GC	8.1	
64 NGC6544	SAGITTARIUS	GC	8.1	
65 NGC6231	SCORPIUS	OC	2.6	
66 NGC6712	SCUTUM	GC	8.2	
67 NGC3077	URSA MAJOR	SG	9.8	
68 NGC2841	URSA MAJOR	SG	9.2	
69 NGC4699	VIRGO	SG	9.5	
70 NGC4697	VIRGO	SG	9.2	
71 COL399	VULPECULA	OC	3.6	COATHANGER
72 NGC6940	VULPECULA	OC	6.3	

## HCAS Astronomy Quiz

**This is a quiz on the constellation of Taurus.**

1. The brightest star in this constellation is Aldebaran, what is it considered to be?

*Tail of the Bull   Horn of the Bull   Eye of the Bull   Head of the Bull*

2. M1, the first object in Messier's catalog is what type of object?

*Open cluster   Diffuse nebula   Galaxy   Supernova remnant*

3. What type of star is Aldebaran?

*Blue-white giant   Red giant   Red dwarf   Yellow, sunlike star*

4. Although El Nath is technically in Taurus, what other constellation claims it as well?

*Andromeda   Pisces   Auriga   Perseus*

5. What bright star is M1 located near?

*Aldebaran   Zeta   El Nath   Gamma*

**Answers to last month's quiz:**

### 1. Omega Nebula

M15   M16   **M17**   M46

The Omega nebula is also known as the Swan nebula. This is an emission nebula as well as an open cluster with at least 40 member stars. It lies about 6,800 light years away in the constellation of Sagittarius. It is easily seen in a small telescope, however, larger instruments and an O-III filter enhances the object.

### 2. Blackeye galaxy

M32   **M64**   M101   M82

The Blackeye galaxy is M64 and is situated in the constellation of Coma Berenices. This is a spiral galaxy that shines at about magnitude 8.5 and is about 94 million light years away. It is easily visible in a 6 inch scope in dark skies.

### 3. Butterfly Cluster

M4   **M6**   M7   M80

Ptolemy saw this cluster, as well as M7 in the 2nd century. This conspicuous cluster is a mere 1500 light years away in the constellation of Scorpius and is 15 light years in diameter. In a dark sky, it is easily seen with the naked eye.



#### 4. Whirlpool Galaxy

M33    **M51**    M83    M106

M51 is a spiral galaxy in Canes Venatici. This galaxy has a smaller companion next to it. Charles Messier discovered M51 in October 1773. This galaxy is about 35 million light years distant. It can be seen in smaller telescopes, but its spiral pattern requires larger instruments.

#### 5. Pinwheel Galaxy

M31    **M33**    M51    M63

The Pinwheel galaxy is M33. Only M31 and our galaxy are larger than M33 in the local group of galaxies. Charles Messier discovered this galaxy in August of 1764. M33 is a loose spiral galaxy seen face on. It is located in the constellation of Triangulum. M63, in Canes Venatici, is the Sunflower Galaxy.

- *Phil Schmitz*

### Miscellaneous Announcements

**Earth Day**  
**April 18**  
11 AM to 4 PM

Earth Day takes place at Festival Park in Aberdeen, Maryland. We set up a table and give out information about astronomy in general, our club and light pollution. We need people to set up at least one telescope to let visitors view the sun. If you would like to help, you don't have to stay the whole time, come for part of the day to help out. Contact Grace Wyatt [dgracew@comcast.net](mailto:dgracew@comcast.net) if you are interested in helping out, or stop by to visit sometime during the day.

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#### Galileo Exhibit at The Franklin Institute Philadelphia

**April 4 to Sept. 7, 2009**

I would like to know whether people are interested in group tickets for the Galileo Exhibit, saving over \$6 (\$14 as opposed to \$20.75) per ticket. Groups are 15 or more. I know that my mom, Maggie and I want to go. Please contact me whether you are interested in a weekday or weekend trip to Philly. It's at the Franklin Institute, and tickets for the feature exhibit are good for the entire science center, including the planetarium show. I am sure that one would need to pay extra to see the related IMAX films there, but the tickets are easy to get the day of the event.

For more details, see: <http://www2.fi.edu/exhibits/traveling/galileo/index.html>

- *Karen Carey*  
[karebear1012@verizon.net](mailto:karebear1012@verizon.net)

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## Cherry Springs Star Party

**June 18 through 21, 2009**  
(Thursday through Sunday)

<http://www.astrohbg.org/CSSP/Information.html>

Online registration is open until June 2, 2009

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## ALCON EXPO 2009

**Sunday August 2nd through Saturday August 8th, 2009**

*Place:* Hofstra University on Long Island, New York

**Sponsored by Amateur Observers' Society of NY, Inc.**

[For more details visit: www.alcon2009.org](http://www.alcon2009.org)

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## What's New in the HCAS Library

As I am sure you are all aware, HCAS has been a member of the Night Sky Network since August 2007. As a member of the NSN, we receive many teaching materials and toolkits. These materials are used at our outreach events.

Did you also know the materials can be used by individuals as learning resources? There is a wealth of information in each of the toolkits.

To make the materials more accessible for individual use, notebooks have been put together from each toolkit. The toolkits each contain a manual (about 120 to 150 pages each), a training DVD and a CD with scripts and resources. The manual has been cut down to about 12 to 15 pages for the notebooks. These pages can be used by anyone who is thinking about making a presentation using one of the kits. They describe what you need, where it could be used, the audience level, etc.

However, if you are not interested in teaching but would like to learn about the subject of the toolkit, you should borrow one of the books for personal enrichment. The training DVD demonstrates how to use the materials in the kit. They supply simple demonstrations and explanations of sometimes complex and difficult astronomical ideas and material. Then there is the CD. The CD contains the script for the teaching materials and it also includes links to numerous websites with additional information about the subject matter.

### **The subjects available in the HCAS Library notebooks are:**

Exploring the Solar System  
Shadows & Silhouettes  
Our Galaxy-Our Universe  
Black Hole Survival  
SUPERNOVA!  
PlanetQuest  
Telescopes: Eyes on the Universe

Whatever your skill level, the information in these notebooks will supply you with considerable

information about the specific topic. Stop by and borrow one of the notebooks and expand your knowledge about one or all of the topics.

- Grace Wyatt



*The display case at the Bel Air library has an HCAS display.  
If you get an opportunity, stop by to see it.*

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**And be sure to visit our Web Site:**

**<http://www.harfordastro.org>  
Webmaster: Charles Jones**