The Meteor
The Newsletter of the Astronomical Society of Greenbelt
Feb. 2010

The Meteor is the official publication of the Astronomical Society of Greenbelt, Greenbelt, MD. Articles & other contributions are welcome. Membership in the Astronomical Society of Greenbelt is open to anyone interested in astronomy. The Astronomical Society of Greenbelt is a not-for-profit community- based organization with the goal of encouraging public interest in science & education in general, astronomy in particular. More detailed information on our club's activities & organization can be found elsewhere at our website. The editor of this newsletter, Craig Levin, can be contacted at clevin AT ripco.com. Unless specified otherwise, all items in this newsletter were written by the editor.

Editor's Notes

Greetings!

Starting with this issue. I will post a summary of the minutes of the officers' meeting that takes place at the beginning of every month, in order to keep everyone up to date with what happens, & to act as a permanent public record of what we do.

I would also like to remind everyone that we can all help the Owens Science Center by naming it as a recipient of our A+ BonusBucks funds whenever we make a purchase at a Giant.

Last, but certainly not least, February is when Congress starts to hammer out the Federal budget. If we want to ensure that our nation's observatories & space program receive the funding that they deserve, we should tell our lawmakers that we think that these are national priorities.

Treasurer's Announcement

Time for dues! If you haven't paid for this year, please bring your $20 to the meeting on the 25th!
A Request from Elizabeth Levin

Mrs. Levin is looking for volunteers willing to judge the science fair at the school where she works, **Forest Heights Elementary**. It is scheduled for Feb. 24. Please help her in encouraging these young people to look at science & engineering as potential careers. If interested, please contact her at elizabeth.levin@pgcps.org.

Elected officers for 2009-2010

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<thead>
<tr>
<th>Office</th>
<th>Name</th>
<th>Email Address</th>
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<tbody>
<tr>
<td>President</td>
<td>Ray Stevens</td>
<td>stvns.jacht AT yahoo.com</td>
</tr>
<tr>
<td>Vice-President</td>
<td>Martha Gay</td>
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<tr>
<td>Secretary</td>
<td>Craig Levin</td>
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<tr>
<td>Treasurer</td>
<td>Sue Bassett</td>
<td>wb3enm AT amsat.org</td>
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Notable Events

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<th>Sunday</th>
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<td>5</td>
<td>6</td>
<td>Star Party at Northway Field, 6:30</td>
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<td>Sky Show at the Owens Science Center, 7:15</td>
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<td>20 Star Party at Northway Field, 6:30</td>
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Sidewalk Astronomy at Roosevelt Sq., 6:30

/28

25

ASG business meeting at the Owens at 7:30
Star Party & Business Meeting Reports

Jan. 4: Summary of the Officers' Meeting: We have arranged for a speaker for Jan., but we're still on the lookout for speakers for Feb. & March. (Note: The spots for Feb. & March were filled subsequently.) Mr. Levin has offered to be the speaker for April. The speech will be based on his sky show for the Owens on April 9, based on the Mound Builders. The officers also discussed the idea of public sessions other than the star parties, the business meeting, & sidewalk astronomy, especially given that last summer's weather washed us out of an entire season of public outreach. We currently have a grant application with the town for the purpose of buying an overhead projector for these kinds of activities. Also, the possibility of participating in the Peace & Justice nights at the New Deal, where there's a film & discussion, was raised; one of the group who knows the people there (Steve/Doug/Sue) will try to contact with the people who run it & ask. There were other ideas for place & time (for instance, the weekend of the full moon, during which we generally don't have star parties). We're also thinking of continuing the business meetings into the summer, as yet another opportunity for people to meet us, & there were a couple of ideas for presentations during that period, such as computer programs for amateurs & ways to "sell" astronomy to the local schools.

Jan. 9: Star Party: Elizabeth & I arrived shortly after 6, by which time Ivan, Jeff, & Martha were already there. The dome was stuck, possibly because its grease was frozen. The dome was turned off & we just used the equipment we brought with us to look at Jupiter, M.31, M.42, M.45, & other objects. Later, Alex climbed the hill to join us. In the end, we really couldn't sit in the cold, & walked from one telescope to another, also sharing looks through my 9x60's. After about 90 minutes, we all decided that enough was enough, & packed it in. Elizabeth & I went to the NCA meeting, where, after the lecture, we also had the chance to view Mars, M.42 again, & the Xmas Tree Cluster.

Jan. 23: Star Party & Jan. 24: Sidewalk Astronomy: The weather knocked these out. Ivan set up his refractor at Northway on Saturday night from 5:30 until 6:45. Initially, he was able to get some good viewing of the Moon, but as the weather got worse & time passed without people dropping by, he left. Ivan: Thank you for being there!

Jan 28: Business Meeting: Our speaker was Dr. Don Haxton, from Howard CC. Dr. Haxton worked at Goddard for many years on several projects, including the HST. His topic tonight was Water in the Solar System. One of the interesting points he made through the lecture is that this water is filled with compounds of carbon, hydrogen, oxygen, & nitrogen that are the basic building blocks of life.

Dr. Haxton began by talking about Mars. Mars had a heavier atmosphere in the first 500 million years of its life, which allowed it to have a warmer surface temperature, to the point that it had lakes & streams. However, Mars' lighter mass led to a couple of problems: It could start tectonic rifting, but it couldn't carry the process through as our Earth did, & it couldn't create its own magnetic field. These lacks, in turn, led to a situation in which Mars' atmosphere was zapped by high energy particles from the Sun & the lighter elements in it weren't replenished by eruptions. Mars' climate cooled & the water became ice. Some of it became permafrost, some of it ended up at the polar caps, but some of it was slowly eroded away by solar activity. At this point in Mars' history, it's so cold that ice really acts more like a kind of rock.

Dr. Haxton briefly covered our Moon & the discovery of an ice/stones mixture at the Moon's poles. He noted the recent flurry of missions to the Moon, like LCROSS & Chandryaan-1. Dr. Haxton pointed out that the impacts weren't as impressive as the PR staff at NASA had claimed they would be, but the discovery of the mixture was a point in favor of lunar colonization: The ice could be extracted from the surface to support the colonists & be electrolyzed into its components to power rocket motors & fuel
cells.

However, Dr. Haxton's interest lay much more in the direction of the moons of the outer worlds, such as Titan, Europa, & Enceladus. Europa & Enceladus both have smooth white surfaces, possibly several miles thick, indicative of active internal processes, & Enceladus has at least one 'hot spot' similar to the one here that created the Hawaiian Islands & active geysers, although the processes that created the hot spot & the geysers are currently a mystery. Enceladus is too small to have retained any of its internal heat from the early days of the Solar System, & the tidal forces acting on it are feeble compared to those acting on Europa. Titan's the only moon to have its own atmosphere, lakes, & streams, but they aren't water-based. Instead, water is in the form of ice, & the atmosphere, lakes, & streams are all made of hydrocarbons like ethane & methane.

Finally, Dr. Haxton assessed the possibilities of life elsewhere in our Solar System, & concluded that Enceladus was probably the most likely candidate. He ended by taking questions from the audience.

(Image dd4k4f3q_130cb8v9wd4_b.jpg has been lost. [CWT, 2018])

Image credit: NASA

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**The SAO/NASA Astrophysics Data System**

The title's pretty intimidating, but the truth of the matter is that this database, often called the ADS, is a fairly user-friendly operation. On the web since the Nineties at [http://www.adsabs.harvard.edu/](http://www.adsabs.harvard.edu/), the ADS is a service provided to the general public & scientists by the [Smithsonian Astrophysical Observatory](http://www.cfa.harvard.edu/), funded by a grant from NASA. The ADS lists millions of articles, reports, conference proceedings, & books. Many of them are available for viewing or printing as GIFs or PDFs.

The ADS allows anyone to register for an account. Once you have an account, you can save entries that you find interesting in your own mini-library, for future reference. Currently, I have an ADS mini-library in which I am saving articles on Native American astronomy for the purpose of writing a sky show on the Mound Builders which will be shown on April 9 at the Owens Science Center.

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**Two Fireballs, Meteors, Stars, & Relatively Minor Troubles**

by G.W. Giba

Lynne and I were able to get to our cabin at Mountain Meadows, Mathias, WV to check on the place & do some star gazing. The heaters were off & most of the pipes & the toilet froze. There was extensive damage, which we will need to get fixed. We had a min-max thermometer there that recorded a low of 9° F. inside a few days before! We had firewood though, & in a few hours we were able to warm the place up. Outside, it was a bit nasty, with frozen icy snow on the ground, but I decided to observe anyway as it was clear & cold. It is good that I did, as I was able to see two fireballs. The second one was the best fireball that I have seen in over eight years, since the 2001 Leonid meteor storm.

I was meteor observing from 1:00 to 3:00 AM EST, and was able to see 39 meteors, 30 of which were sporadic, but 4 or 5 of these may have come from a radiant in the southern part of Hydra. about 15 degrees south of the bright star Alphard (α Hydræ), where Hydra, Antlia, & Pyxis come together. They were swift meteors, & a couple left some nice trains. There were also a few meteors from some other
As I continued to observe with our 25x100 binoculars, I saw M35, M36, M37, M38, M67, M41, M44, & M42 (Orion Nebula). While I was inspecting M35 in Gemini, I could also see the fainter open star cluster NGC 2158. I also just swept the sky at random becoming star lost, which took my mind off all the damage we had to our poor cabin. Later, when Lynne and I heard about the earthquake disaster in Haiti, it made us both feel that our problems were really not so bad after all.