From the President...

Tom Pomponio

Happy New Year! Our Club is moving on to our 15th year as an organization supporting the Delmarva area. I have noticed an increase in membership and attendance at our monthly meetings. There have been quite a few new members just starting out in astronomy that have joined our group this year. I would like to start gearing some of our next meetings towards helping them get ready for the Spring observing season. Towards this goal our meetings have been presenting a Constellation a month and have been introducing a Messier object or other astronomical object. I am hoping to cover some of the observing basics, such as hardware, software and observing techniques in the next few months.

In December’s meeting we covered Comet Holmes with a presentation by Jerry Truitt. Mike Borgia gave an excellent history of the unmanned lunar missions, Ranger and Surveyor. I gave a roundup of some free and shareware astronomy software available on the internet. There is a follow up article in this issue with links for downloading programs.

For January’s meeting, which is on Jan. 8th, we have a special guest speaker, Dr. Robert Mentzer of the Delaware Astronomical Society. He will be presenting "Tycho and Kepler - Two Astronomers who helped found modern science" which fits in nicely with our past presentations on The Astronomers.

Our 2008 schedule has an update. We have locked in our start party dates with the Tuckahoe Equestrian Center. Our 2008 StarGaze XIV party will be held Wednesday April 2nd thru Sunday April 6th. Our 2008 No-Frill star party will be September 24th thru the 28th. The registration forms will be posted shortly. There is a new pricing schedule this year with discounts for paid members.

Hope to see you at our January meeting. By the way the last four meetings at the Mallard Lodge have been clear and dark. We’ve been doing some observing from the parking lot.

Our Newest Star Gazer

Rebecca Kathryn Young

saw “First Light” on November 10, 2007
She was 8 lbs. 4.6 oz and 19 3/4 inches long.
She was born at 2:36 am that morning.

Proud parents are Mike and Teri Young
How to Join the Delmarva Stargazers:
Anyone with an interest in any aspect of astronomy is welcome

NAME________________________________________________________________________________________

ADDRESS_____________________________________________________________________________________

CITY, STATE & ZIP______________________________________________________________________________

E-MAIL ADDRESS (If any)_________________________________________________________________________

Do you need the newsletter snail mailed to you (Y/N)?___________________________________________________

Please attach a check for $15 made payable to Delmarva Stargazers and mail to Kathy Sheldon, 20985 Fleatown Rd, Lincoln, DE 19960. Call club President Tom Pomponio at 302-736-0157 for more information.

The Delmarva Stargazers Announces a Writing Contest.
The DMSG will raffle away astronomy gifts to members who submit articles to the Star Gazer News.

How to enter:
1. Open to DMSG members.
2. Members may submit original articles at least 500 words (1/2 page) for publication in the Star Gazer News.
3. Articles must be authored by the member.
4. Pictures can be included, but they do not count towards word count (1 picture = 1000 words).
5. Must be astronomy related. Each article = one chance in the raffle. The drawing will be made at the star parties based on the previous 6 issues – need not attend to win (but it would be nice to see you there). The editor of the Star Gazer News qualifies articles submitted.

Astronomy Software Round-Up
Tom Pomponio

This article is a follow up to a demonstration I gave at the December Club meeting. If you received this news letter in the mail, it would be worth downloading the PDF copy from www.delmarvastargazers.org so you can click on the hypertext links.

Some free or shareware programs I found.

Cartes du Ciel “Sky Charts” - Windows – stable version 2 – works on older computers
http://www.stargazing.net/astropc/

Cartes du Ciel – new beta version 3 for Window / Linux
http://www.ap-i.net/skychart/index.php

Stellarium – a new photo realistic planetarium program
– Windows / OS X / Linux
http://www.stellarium.org/

Celestia – innovative spaceship tours thru the universe
– Window /OS X / Linux
http://www.shatters.net/celestia/

C2A – a more polished version of Cartes du Ciel – Windows – works on older laptops

WinStars 2.0 – specializes in solar system planets and satellites
http://www.winstars.net/english/index.html

Where is M13? – Gives a unique 3D perspective of where deepsky objects are in relationship to the Milky way – Window / OS X / Linux
http://www.thinkastronomy.com/M13/index.html

Free Web based planetarium and sky charts.

Skymaps.com – free PDF sky charts each month
http://www.skymaps.com/

Sky and Telescope magazine – interactive chart – free but requires a logon
http://www.skyandtelescope.com/observing/skychart/

Sky View Café – a free Java based planetarium applet
http://www.skyviewcafe.com/

Google Earth Sky – free download with embedded photographs – requires a live high speed internet connection to use
– Windows / OS X / Linux
http://earth.google.com/sky

Dome of the Sky.com – free online star charts and other features
http://domeofthesky.com/foyer.html

Astronomy Tidbits for January
Tim Milligan

Karl Jansky (1905-1950) – American radio engineer who was the first to detect radio waves from the Milky Way (1931) during research into “static” for Bell Telephone Labs. In 1973 the IAU assigned the name “jansky” to the unit of strength of a radio wave emission.

Jewel Box – Nickname for the open star cluster NGC 4755.

Janus – Small satellite of Saturn discovered in 1978. It is 137x 124x99 miles and is co-orbital with the moon Epimetheus. The two may have been one body in the past.
**Shallow Sky Sorties – January 2008**

_Jim Tomney_

A lot of eyes were on Gemini last month, not just for the annual meteor shower it hosts but also with Mars’ apparition. While neither of those wonders are fair game for my 60mm scope, there are a couple of great targets in the Twins for owners of a small refractor.

Off of Castor’s foot is the splendid open cluster M35. While catalogued by Messier in 1764 the famous comet hunter acknowledged that he was not the first to notice it. Philippe Loys de Cheseaux, Swiss astronomer whose list of some 20 objects includes “one above the northern feet of Gemini”, as well as English astronomer John Bevis had clearly seen this open cluster in advance of Charles Messier.

When checking out suitable objects for my refractor in suburban skies I always prefer items that are within a reasonable star hop of a visible star. Fortunately due to Gemini’s height at our latitude it is possible to see Mu Gemini naked eye, and from there arc out to the last star of Castor’s foot (1 Gem) and upwards a bit for M35. The 7 x 50 binoculars pick it up readily, and it’s only a few minutes to get the cluster into the low power field of view. The cluster, about the size of the full moon, has about a dozen stars of varying brightness taking up most of the field. Doubling the magnification reels in a few more stars, making the ones which flicker in and out at low magnification hold steadier. If you have better aperture you’ll not only see more stars but also likely notice that M35 does have a few yellowish colored stars. If your skies are dark you may also see a misty patch on the southwest border of the cluster – open cluster NGC 2158. The combination of the brighter, coarser M35 with this more distant and tight open cluster makes for a beautiful sight, especially in a scope of 10” or more.

Whenever I’m gazing at M35 I think back to a view several years ago when Jupiter approached the cluster making for an amazing pairing. In fact M35 is less than a degree north of the ecliptic so it is not unusual for it to be visited by one of the wanderers (can you name two other open clusters whose proximity to the ecliptic allow for planetary pairings?). The other interesting piece of trivia is that M35 more or less marks the northern limit of the ecliptic – if you have planetarium type software key in the summer solstice and see where the Sun lies.

On a good night I can also make out Delta Gemini, a 3.5 magnitude star, and lying about two and a quarter degrees southeast of it is NGC 2392, a planetary nebula better known as the Eskimo nebula. South from Delta there’s a triangle of stars (56, 61, 63 Gem) that one can hop to, and then the planetary quarry lies midway and a little east of a line between 61 and 63. At roughly 45” (similar to Jupiter) in size it should be non-stellar even in my low power field. It takes a few minutes to locate the triangle and then as I swing east I come across it, a double star whose southern member is puffy. Stepping up to the 10mm eyepiece makes it clear – this is a circular puff of light, even in illumination and without a central star. The magnitude of the Eskimo nebula is listed at about 8.5, so I’m pretty pleased at snagging this given that the limiting magnitude of the scope is probably around 9.5 to 10. The star north of the nebula is a bit brighter at magnitude 8.3, so this provides a great example of how spreading the light from a point source to a disk makes it fainter than you might expect. In a larger scope you should also be able to locate its central star, and possibly begin the make out a fainter halo, the “parka” of the Eskimo.

It’s a new year – may it be full of clear skies and observing opportunities for us all!

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**Your 2007-2008 Officers**

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<td>302-736-0157</td>
<td><a href="mailto:pomponio@lycos.com">pomponio@lycos.com</a></td>
</tr>
<tr>
<td>Vice President</td>
<td>Tim Milligan</td>
<td>410-841-9853</td>
<td><a href="mailto:milligan@integ.com">milligan@integ.com</a></td>
</tr>
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<td>Tony Codella</td>
<td>302-559-0297</td>
<td><a href="mailto:tonytowels@yahoo.com">tonytowels@yahoo.com</a></td>
</tr>
<tr>
<td>Treasurer</td>
<td>Kathy Sheldon</td>
<td>302-422-4695</td>
<td><a href="mailto:f.a.sheldon@att.net">f.a.sheldon@att.net</a></td>
</tr>
<tr>
<td>Editor</td>
<td>Pj Riley</td>
<td>302-738-5366</td>
<td><a href="mailto:pjrl27@yahoo.com">pjrl27@yahoo.com</a></td>
</tr>
<tr>
<td>Past President</td>
<td>Jerry Truitt</td>
<td>410-885-3327</td>
<td><a href="mailto:truittjs@atlanticbb.net">truittjs@atlanticbb.net</a></td>
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The Solar System in January-

- Mercury is visible in evening twilight as it approaches greatest elongation E on the 22nd. Venus shines bright in the early mornin’ sky, pairing up with Jupiter at the end of the month. Mars is visible all night if the sky is clear. Jupiter slowly moves away from Sol this month, finally ending up in dark sky by month’s end. Saturn rises mid evening. The rings are currently tilted at 6.7° increasing to 9.9° by May. Keep your eyes on the rings this year. The tilt will be only 0.8° by year-end. Uranus is still in Aquarius, and can be seen naked eye if you know where to look. Neptune is in Capricornus and sets just after Sol. You can find the minor planet Pluto to the right of Scutum, look for it before dawn. If you’re looking for Terra, check under your feet.

Mars Impact Probability Increases to 4 Percent

Don Yeomans, Paul Chodas and Steve Chesley
NASA/JPL Near-Earth Object Program Office
December 28, 2007

The impact probability for a collision of asteroid 2007 WD5 with Mars on January 30 has increased from 1.3% to 3.9%.

Pre-discovery observations of asteroid 2007 WD5, taken on November 8, 2007 have allowed its orbit to be refined and the uncertainties for the late January Mars encounter have been improved. The impact probability resulting from the recent orbit refinement has increased to a surprising 3.9% (about 1 in 25 odds). The uncertainty region during the Mars encounter now extends over 400,000 km along a very narrow ellipsoid that is only 600 km wide. Since the uncertainty region intersects Mars itself, a Mars impact is still possible. However, the most likely scenario is that additional observations of the asteroid will allow the uncertainty region to shrink so that a Mars impact is ruled out. In the unlikely event of an impact, the time would be 2008 January 30 at 10:56 UT (2:56 a.m. PST) with an uncertainty of a few minutes.

Go to http://neo.jpl.nasa.gov/news/ or Spaceweather.com for updates
Ultraviolet Surprise

Patrick L. Barry and Tony Phillips

How would you like to visit a universe full of exotic stars and weird galaxies the likes of which astronomers on Earth have never seen before?

Now you can. Just point your web browser to galex.stsci.edu and start exploring.

That's the address of the Galaxy Evolution Explorer image archive, a survey of the whole sky at ultraviolet wavelengths that can't be seen from the ground. Earth's atmosphere blocks far-ultraviolet light, so the only way to see the ultraviolet sky is by using a space telescope such as NASA’s Galaxy Evolution Explorer.

About 65% of the images from the all-sky survey haven't been closely examined by astronomers yet, so there are plenty of surprises waiting to be uncovered.

“The Galaxy Evolution Explorer produces so much data that, beyond basic quality control, we just don't have time to look at it all,” says Mark Seibert, an astronomy postdoc at the Observatories of the Carnegie Institution of Washington in Pasadena, California.

This fresh view of the sky has already revealed striking and unexpected features of familiar celestial objects. Mira is a good example. Occasionally visible to the naked eye, Mira is a pulsating star monitored carefully by astronomers for more than 400 years. Yet until Galaxy Evolution Explorer recently examined Mira, no one would have guessed its secret: Mira possesses a comet-like tail 13 light-years long.

“Mira shows us that even well-observed stars can surprise us if we look at them in a different way and at different frequencies,” Seibert says.

Another example: In April, scientists announced that galaxies such as NGC 1512 have giant ultraviolet spiral arms extending three times farther out into space than the arms that can be seen by visible-light telescopes. It would be like looking at your pet dog through an ultraviolet telescope and discovering his ears are really three times longer than you thought!

The images from the ultraviolet space telescope are ideal for hunting new phenomena. The telescope's small, 20-inch primary mirror (not much bigger than a typical backyard telescope) offers a wide field of view. Each image covers 1.2 degrees of sky—lots of territory for the unexpected.

If someone combing the archives does find something of interest, Seibert advises that she or he should first search astronomy journals to see whether the phenomenon has been observed before. If it hasn't, email a member of the Galaxy Evolution Explorer science team and let them know, Seibert says.

So what are you waiting for? Fire up your web browser and let the discoveries begin!

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

Astronomers looking at new ultraviolet images from the Galaxy Evolution Explorer spacecraft were surprised to discover a 13-light-year long tail on Mira, a star that has been extensively studied for 400 years.
Moondark for January: What’s up for the 366 Nights of 2008?

Doug Miller

As 2008 opens, Mars dominates the night sky as well as the headlines. Visible all night long, this northerly opposition affords great viewing of the Red Planet over the coming months. But what else do the days and nights have in store for star gazers?

January’s New Moon falls on the 8th, the Full Moon on the 22nd. February starts with a close conjunction of Venus and Jupiter in the morning sky plus an Annular Eclipse of the Sun on the 7th, unfortunately only visible from the southern hemisphere. In contrast, much of North America is well placed for the Total Lunar Eclipse on the evening of the 20th (local time). February has an extra, 29th day this leap year. In March, we spring forward to daylight time on the 9th, even before the Equinox on the 20th. The Full Moon (21st) and Easter (23rd) follow soon after. The club’s Star Gaze XIV Star Party runs from April 2nd through the New Moon on the 6th. Star party attendees will enjoy four of the five bright, ancient planets if they stay up all night. Be sure to check out Saturn, its rings are at nearly maximum tilt on the 30th.

May’s New Moon falls on the 5th, the Full Moon on the 20th. June has a Friday the 13th, and a Full Moon on the 18th is actually the fourth of the season, making it a Blue Moon, according to the original definition. The Solstice on the 20th marks the start of our Summer, and Pluto is at opposition on the same date. Jupiter reaches opposition of the 9th of July, while Mars and Saturn have a close conjunction: enjoy the sight of both planetary disks in a single eyepiece field of view. August has two New Moons (the first on the 1st is a Total Solar Eclipse) and fairly favorable conditions for the Perseid meteor shower. Full Moon on the 16th passes into Partial Lunar Eclipse, although neither of August’s eclipses is visible from Delmarva.

Venus, Mars and Mercury dance in the evening twilight at the start of September, but by the No Frills XIII Star Party on the 24th through 28th Venus will still be visible. The Equinox occurs on the 22nd, the next New Moon falls on the 29th. Aside from the Full Harvest Moon on October 14th, nothing much happens in that month. We fall back from daylight time on November 2nd. Viewing the Leonid shower with a past-full (13th) gibbous moon is particularly unfavorable this year. December opens with a dramatic conjunction of Venus and Jupiter joined by the crescent moon on the 1st. Days grow longer after the Solstice on the 21st, and the last New Moon of the year occurs on the 27th. Alas, after a banner start and favorable viewing through much of the year, Mars is now invisibly lost in the glare of the Sun.

Full Moons start the year in the latter half of the month and advance about a day per month throughout year. For deep-sky aficionados, this means that the best observing—without interference from moonlight—falls either in the first week (January through June) or the last week (July–December) of the month. Gazers anticipating the Messier Marathon, attempting to see all M-objects in one night, get two opportunities: around the 8th of March (9.4 h of deep night) or on the last weekend (29th, 6.2 h). June closes on the 30th with the shortest night without a moon, only 5.1 hours, while the longest deep night, 11.4 hours, comes right in time for Christmas, 2008.

The web has many resources and sites for planning this year’s observing: for sky events and planetary phenomena, all about eclipses, and moon phases, rises and sets for your backyard, Tuckahoe, and the rest of the world. Check regularly our club’s Yahoo! discussion group and Spaceweather.com for upcoming events and the latest in celestial news.

Dates for local circumstances are Universal Times (UT) at Tuckahoe State Park, the Delmarva Star Gazers dark sky site. A customized deep night table and a moon phase calendar, usable through 2009 are also available. Additional information can be found in Guy Ottewell’s Astronomical Calendar 2008. Moondark is written by Doug Miller, published at the Moondark web site, and printed in the Delmarva Star Gazers’ Star Gazer News. This document was last revised on 29 December 2007. Text and images on this web page are free for non-commercial use with attribution under a Creative Commons Attribution-Non-commercial 3.0 License. Ask Doug about other uses.