Star Gazer News

Newsletter of the Delmarva Stargazers
www.delmarvastargazers.org

My 1st Editorial

Pj Riley

Well, this edition makes an even 2 dozen newsletters issued under my control.

Not having done this type of task before, I was not too eager taking over as the third editor on record. (By the way, Doug Miller was the first, with Frank Sheldon batting second).

I view issuing the newsletter as a compiler. Members submit articles, pictures, ads, etc., and I try to fill in 8 pages with the contributions. Sometimes, there aren't enough contributions to fill 4 or 6, let alone 8 pages. I now understand Frank's occasional frustration.

I have had many compliments on the newsletter, which I have thanked on the behalf of the writers. There really hasn't been any negative feedback. I guess I'm doing 👌.

So, what have I learned in the past two years? Some members love to write, some will write with a little prodding, others write at every blue moon (the 2nd full moon in the month), and the rest just like to read.

I'll continue as editor, if y'all want. I just want to remind you of a couple of things:

- **This is <u>your</u> newsletter**. Submit something about what you are up to in astronomy. Without submissions, the newsletter may shrink smaller than a black hole.
- To quote Tony Codella on why he ran for Secretary last year, "You get out of a club what you put into it" Try running for a club office, it really won't hurt. You might have fun, and **<u>you</u>** AND the club will benefit.
- Some of you write prolifically for our Yahoogroups ! site, but do not write for the newsletter. May I suggest that you think of the following: "Would it be best for this to be in the newsletter?"
- Think about writing a review of your new Astro toy, or write up a blurb 'bout the telescope you are making.
- In case I didn't mention it, if you submit your own article for the newsletter, you'll feel better.
- Now, put this newsletter down or turn off the PC, (depending on which version of the newsletter you get), grab your telescope, binos, or whatever, go outside, and look up. You'll feel better, I promise! GO, NOW!, I mean it!

Upcoming Events:

- **Meeting May 1st**
- **Field observing May 18th**

From the Prez…

Jerry Truitt

This is the time of year for elections of new officers. Tom Pompanio is set to take over the role as President and we have at least one candidate for President Elect, Tim Milligan. Current Treasurer Kathy Sheldon has agreed to run again but these positions are open for anyone who has an interest in serving. Please speak up if you think you would like to serve in the president elect or treasurer positions.

For me I still have some time left but it has been an honor to serve the Delmarva Stargazers and a treat to work with the many people who make this club work. Plus being the president is a real fun job. That may sound funny but it's true, you get to see things come together and watch how it all happens.

I've had some health issues this year but it never slowed the club down from putting on successful events. I expect the coming year to be much better for me and hope that I can be of great assistance to Tom in his reign as president and to the club in general.

Please remember this is your club, you make it a success and your participation is needed for that success to continue. It can be helping at an event, writing an article for the newsletter, giving a presentation at a meeting or running for an office. It all helps us continue the great tradition the Delmarva Stargazers' are known for in the amateur astronomy community.

Almost Heaven Star Party

August 9–12, 2007

Mark your calendars now for the 2007 Almost Heaven Star party at beautiful Spruce Knob, West Virginia. Held at the darkest site in the East, the AHSP has amenities—hot showers, meal service, and internet access—you won't find at any other star party. Plus you'll enjoy daytime programs for the whole family—like hiking, birding, canoeing, caving, and mountain biking.

Dark skies, new friends, outdoor adventure–don't wait to reserve your spot at the Almost Heaven Star Party!

Registration is open, there is no site registration

For more complete details visit:

www.ahsp.org

StarGaze XIII

photos by Pj Riley, Cj Wood, Don Surles

June Meeting Location Change

Tony Codella

Our June 5, 2007 meeting will be in Room 427 at the Corporate Training Center building on the Terry Campus of DelTech in north Dover.

From Rte 1, take Exit 104 (Scarborough Rd.) west ½ mile to the 2nd light, turn right and take the first right after that. From Rte 13, take Scarborough Rd. west ¼ mile to first light, turn right, then right again. From west of Dover, take Rte 8 then Rte 15 for direct access. Maps are available at www.dtcc.edu or plug Rte 13 and Scarborough Rd. in your GPS.

This meeting is a "test-drive" of these facilities as a possible long-term location for our monthly meetings, so please try to make the June meeting and share your reaction to the location and facilities. This location is 8 miles south of our regular meeting place.

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 Jerry Truitt at 410-885-3327 for more information.

The Spitzer Space Telescope

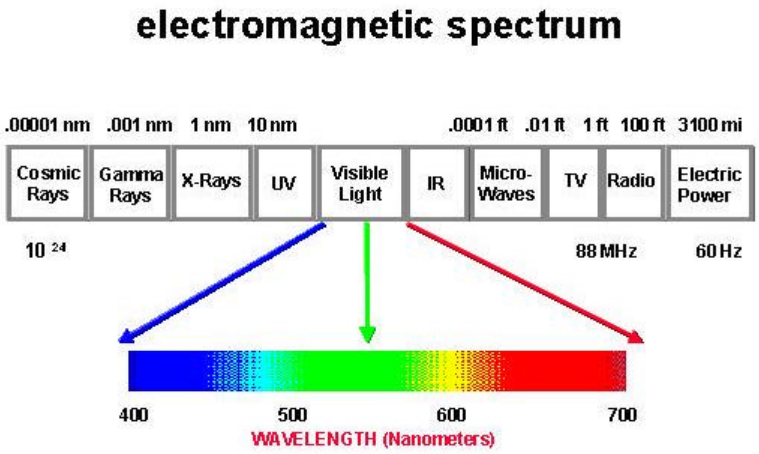
Don Surles—Presented at the April meeting

The Spitzer Space Telescope is the fourth and final entry of NASA's Four Great Orbiting Observatories. The Four Great Orbiting Observatories are:

1. Hubble – launched in 1990 and observing in the UV – Visible – near Infrared spectrum – expected to continue until 2012
2. Compton Gamma Ray – launched in 1991; mission ended in 1999 - observing in the Gamma Ray portion of the spectrum
3. Chandra X-Ray observatory – launched in 1999 and expected to continue to 2009 – observes in the X-ray portion of the spectrum
4. Spitzer Space Telescope – launched in 2003 and expected to continue until 2008 – observes in the infrared portion of the spectrum.

So, with these observatories our scientists are able to observe the Electromagnetic Spectrum (EMS) from IR thru Gamma without interference from our atmosphere. See the EMS example below. Just for information…our atmosphere does not filter the microwave thru electric power end of the spectrum.

NASA placed these observatories in space – outside our atmosphere – because our atmosphere is a wonderful protector of life on Earth and filters out the Gamma, X-ray, and most of the Ultra Violet radiation. The natural heat of Earth makes Infrared observing from Earth very difficult.



Infrared observing has been tried from Earth via earth-based scopes, balloons, and from airplanes. Neither was very successful but did whet the appetite of scientists for more and better methods to observe in the infrared.

Spitzer was originally envisioned as a Shuttle Infrared Telescope Facility (SIRTF)…the Shuttle was supposed to make a hundred flights per year and some of those would be dedicated to infrared science. But, as we know the Shuttle did not become the frequent-flyer envisioned and it was proven to be a source of heat that degraded infrared observing via the IRT (an 8" infrared R&D scope) that flew on the Shuttle in the early 1990's. So, the "Shuttle" was traded for "Space"…and the Infrared Scope became a free-flying observatory. Recently the "Space" was changed to "Spitzer" to honor Lyman Spitzer, the man who first proposed a space observatory in 1946 and lobbied for it fifty years.

Target Name:	8492690-7387
RA:	5:39:42.46
Declination:	-7:23:16.48
Program Name:	DMW2 3
Principal Investigator:	Houck
AOT:	irsstare
Start Time:	2007-04-16 18:18:23
Duration of Observation:	13.04 minutes

Infrared astronomy looks for the OLD, the COLD, and the DIRTY. Targets for the Spitzer will be proto-planetary discs, brown dwarfs, infrared galaxies, and the early/distant universe…all are old, cold and dirty.

For more information on what Spitzer is currently doing just check the following link:

http://www.spitzer.caltech.edu/about/now.shtml

Here you can see a chart similar to this showing what is being viewed and who is responsible for the project.

Check out the Spitzer…I think you will be surprised at what is being learned.

Don…

Your 2006-2007 Officers

Office	Officer	Phone	e-mail
President	**Jerry Truitt**	**410-885-3327**	**truittjs@atlanticbb.net**
Vice President	**Tom Pomponio**	**302-736-0157**	**pomponio@lycos.com**
Secretary	**Tony Codella**	**302-559-0297**	**tonytowels@yahoo.com**
Treasurer	**Kathy Sheldon**	**302-422-4695**	**f.a.sheldon@att.net**
Editor	**Pj Riley**	**302-738-5366**	**pjr127@yahoo.com**
Past President	**Lyle Jones**	**302-736-9842**	**lyjones@state.de.us**

Clouds from Top to Bottom

By Patrick L. Barry

During the summer and fall of 2006, U.S. Coast Guard planes flew over the North Pacific in search of illegal, unlicensed, and unregulated fishing boats. It was a tricky operation—in part because low clouds often block the pilots' view of anything floating on the ocean surface below.

To assist in these efforts, they got a little help from the stars.

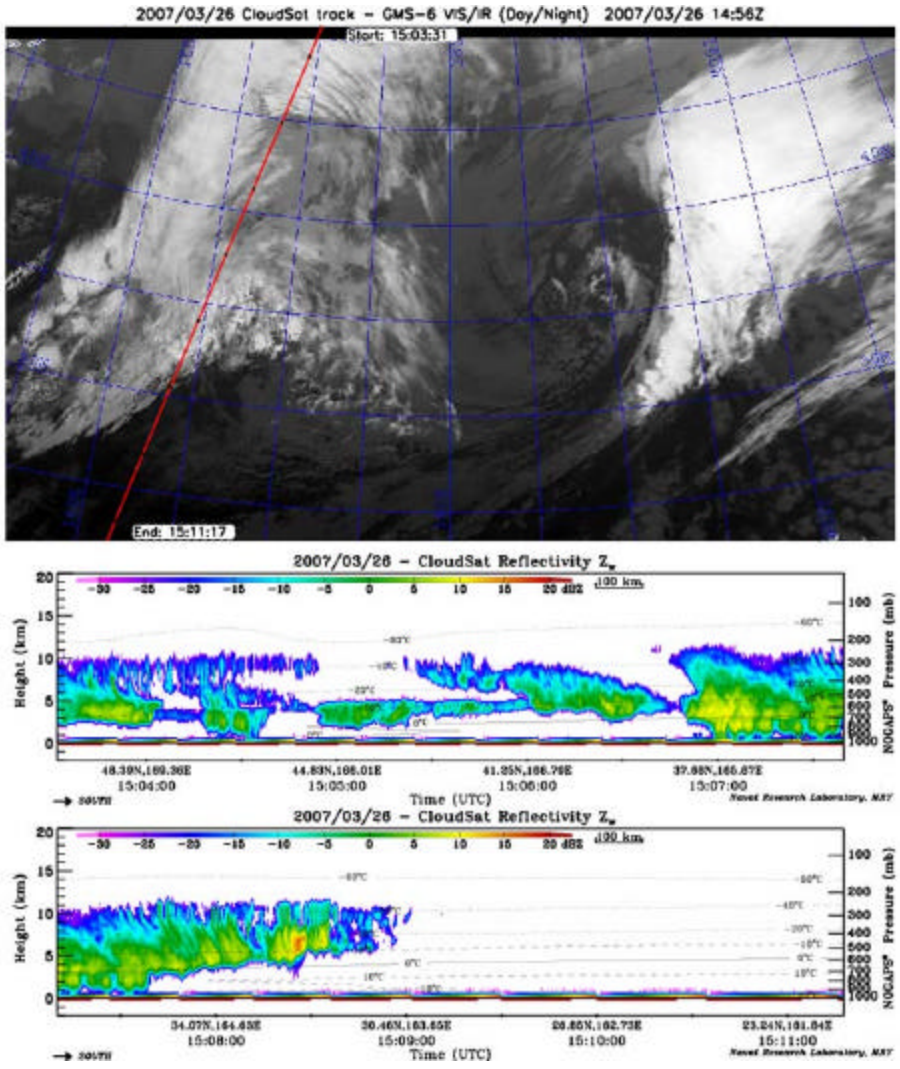
Actually, it was a satellite—CloudSat, an experimental NASA mission to study Earth's clouds in an entirely new way. While ordinary weather satellites see only the tops of clouds, CloudSat's radar penetrates clouds from top to bottom, measuring their vertical structure and extent. By tapping into CloudSat data processed at the Naval Research Laboratory (NRL) in Monterey, CA, Coast Guard pilots were better able to contend with low-lying clouds that might have otherwise hindered their search for illegal fishing activity.

In the past, Coast Guard pilots would fly out over the ocean not knowing what visibility to expect. Now they can find out quickly. Data from research satellites usually takes days to weeks to process into a usable form, but NASA makes CloudSat's data publicly available on its QuickLook website and to users such as NRL in only a matter of hours—making the data useful for practical applications.

"Before CloudSat, there was no way to measure cloud base from space worldwide," says Deborah Vane, project manager for CloudSat at NASA's Jet Propulsion Laboratory.

CloudSat's primary purpose is to better understand the critical role that clouds play in Earth's climate. But knowledge about the structure of clouds is useful not only for scientific research, but also to operational users such as Coast Guard patrol aircraft and Navy and commercial ships at sea.

"Especially when it's dark, there's limited information about storms at sea," says Vane. "With CloudSat, we can sort out towering thunderclouds from blankets of calmer clouds. And we have the ability to distinguish between light rain and rain that is falling from severe storms."



CloudSat's radar is much more sensitive to cloud structure than are radar systems operating at airports, and from its vantage point in space, Cloudsat builds up a view of almost the entire planet, not just one local area. "That gives you weather information that you don't have in any other way."

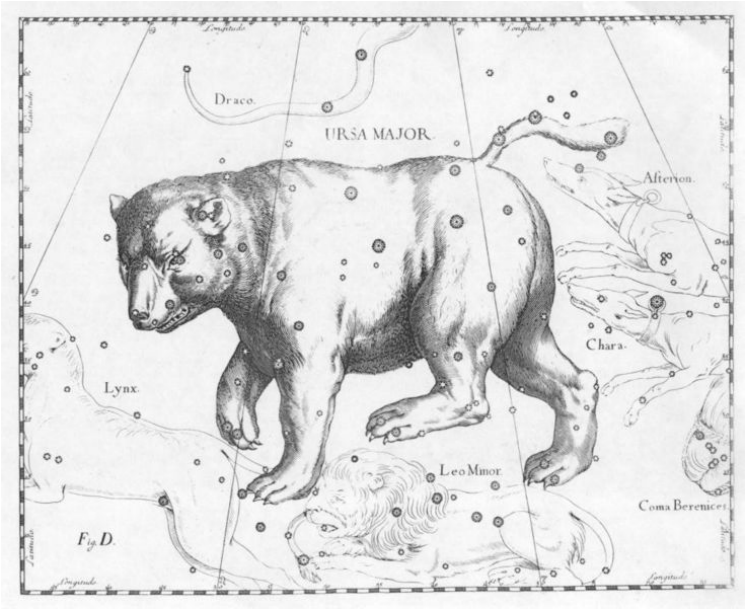
There is an archive of all data collected since the start of the mission in May 2006 on the CloudSat QuickLook website at cloudsat.atmos.colostate.edu. And to introduce kids to the fun of observing the clouds, go to spaceplace.nasa.gov/en/kids/cloudsat_puz.shtml.

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

A CloudSat ground track appears as a red line overlaid upon a GMS-6 (a Japanese weather satellite) infrared image. CloudSat is crossing the north-central Pacific Ocean on a descending orbit (from upper-right to lower-left) near a storm front. The radar data corresponding to this ground track (beginning in the center panel and continuing into the lower panel) shows a vertical cloud profile far more complex than the two-dimensional GMS-6 imagery would suggest. Thicker clouds and larger droplets are shown in yellow/red tones, while thinner clouds are shown in blue.

Ursa Major

Jerry Truitt



Ursa Major may be the most famous constellation. While we as astronomers might say Orion is more famous for the general public just about everyone knows Ursa Major or at least its asterism The Big Dipper.

Zeus, King of the Gods, fell in love with the beautiful Callisto, a young woman who was a hunter. Zeus tricked Callisto by posing as an elf and made love to her. A son Arcas was born by Callisto as a result.

When Hera, Zeus' wife, heard of the shenanigans she was furious and set out after Callisto. On finding her, Hera said, "Your beauty, of which my husband speaks so tenderly, is no more!" Hera changes Callisto into a bear but left her with human feelings.

The story goes that Arcas was hunting and came across Callisto in the woods. Not recognizing his mother as a bear he went to slew her. Zeus seeing this from Mt. Olympus intervened instantly turning Arcas into a bear also. The mighty Zeus grabbed each bear by the tail and flung them into the sky. The result was Callisto as Ursa Major and her son Arcas as Ursa Minor. The force of the tug to throw them in the sky made their tails so long and Arcas continued to grow as he is spun around by his tail on Polaris.

You may have guessed that Hera was again mad because they had honored places in the sky. Hera went to Oceanus god of the ocean and made him pledge that they would never enter the water. Thus Ursa Major and Ursa Minor never dip below the horizon.

The moral to the story is if you're going to cheat on your wife don't dress up as an elf? OK, maybe that's not it after all; it's just something I wouldn't recommend.

The Native American's saw the bowl of the Big Dipper as a great bear while the stars of the handle were warriors in the bear's pursuit. In the autumn when the constellation is low it was believed that the warriors had injured the great bear and his blood turned the trees to the reddish color of fall.

The constellation has also been known as a wagon, a plough, a bull's thigh and the Chinese thought it represented the government.

I'll be doing training for Delmarva Search and Rescue in May, one of the things I'll teach them is if you can see the Big Dipper you'll know which way North is from your position.

This guide was used by the slaves in the Underground Railroad to escape from the South before the Civil War. They sang songs which made reference to "Drinking Gourd" to find a better life.

Named Stars

DUBHE (Alpha UMa)
PHAD (Gamma UMa)
ALIOTH (Epsilon UMa)
ALKAID (Eta UMa)
Tania Borealis (Lambda UMa)
Alula Borealis (Nu UMa)
Muscida (Omicron UMa)
Muscida (Pi 2 UMa)
MERAK (Beta UMa)
MEGREZ (Delta UMa)
MIZAR (Zeta UMa)
Talitha (Iota UMa)
Tania Australis (Mu UMa)
Alula Australis (Xi UMa)
Muscida (Pi 1 UMa)
ALCOR (80 UMa)

The most famous double star system is of course zeta UMa or Mizar at 2.4 mag and its 4th mag companion 80 UMa better known as Alcor. A little help will reveal another 4th mag star.

A Few of the Objects of Interest in Ursa Major:

M-81: This is a large and beautiful spiral galaxy, 10' long and 4' wide, oriented NNW-SSE. It has a bright core with a stellar nucleus, and spiral arms can be seen, especially with averted vision.

M-82: One of my favorite objects! This peculiar galaxy is 10'x2-3', oriented NE-SW. It has slightly tapering ends, and a great amount of mottling across its length can be seen. The southern edge appears flatter, and it seems to be "pinched" near the center on this side. M81 and M82 can both be seen in one eye piece.

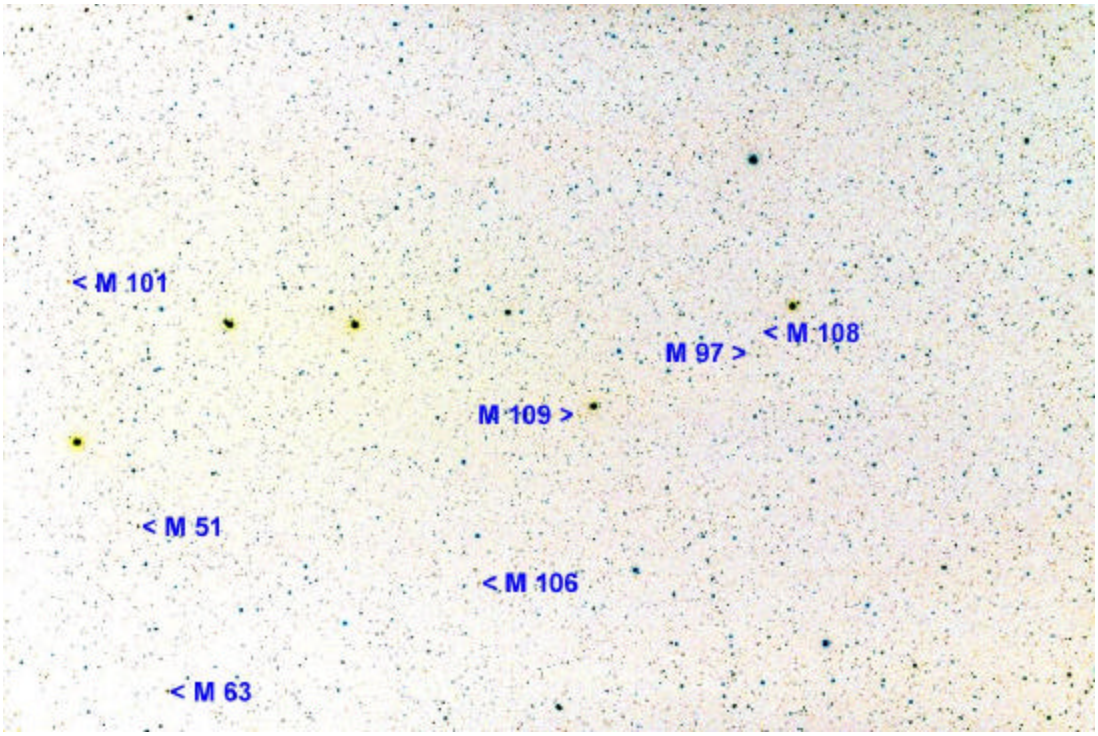
M-97: The Owl Nebula. This large planetary nebula is almost 3' in diameter, and appears as a gray puff of light, slightly brighter in the

(See Ursa on page 6)

Magazine Subscriptions

As a paid member of DMSG, you can sign up -or- renew your S&T or Astronomy magazines through the club for a discount over private rate. S&T, reg. $42.95, is $32.95 thru DMSG, Astronomy, reg. $44, is $34 thru DMSG. See Tony Codella for details.

(*Ursa from page 5*)



center. At times, especially with averted vision, the "eyes" of the owl can be seen as two slightly darker spots.

M-101: A large face-on spiral galaxy with low surface brightness. It is about 7' in diameter, with a brighter core surrounded by an envelope which sometimes can be seen to be spiral arms.

M-108: Large, about 10'x3' extended ENE-WSW. This galaxy has an evident central bulge, a stellar nucleus, and tapering ends. The western end appears to be tapered more than the eastern end, and dark markings are seen along its northern edge.

M-109: 8'x4', oriented ENE-WSW, with a faint stellar nucleus. Spiral arms can be seen leading to the north and south.

NGC 2841 A very pretty galaxy. 7'x2-3', oriented NNE-SSW, with a sharply brighter core and stellar nucleus. Dark markings can be seen, especially east of the nucleus.

NGC 3079: Fascinating. 6'x2' with an obvious central bulge and extended N-S. Broadly concentrated to the center with pointed ends. At times, the ends appear curled: the north end to the west, and the south end to the east. Very pretty.

NGC 3631: Large and impressive, this galaxy is roughly circular and 5' in diameter. The core is about 1' in diameter and has a stellar nucleus. Averted vision shows arms spiraling from the north to the east.

The constellation is also the point of Meteor Showers: *Alpha Ursa-Majoriden*, *Ursiden*, *Leoniden-Ursiden*

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 ¹ 1000 words).

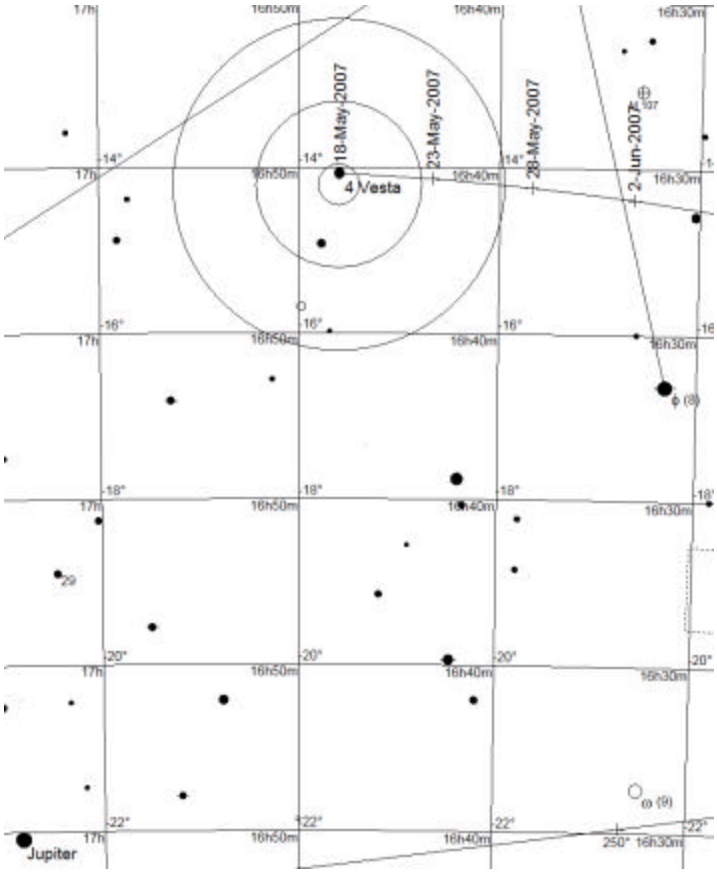
5 Must be astronomy related. Each article = one chance in the raffle. The drawing will be made at the star parties based on the previous 6 issues – need not attend to win (but it would be nice to see you there).

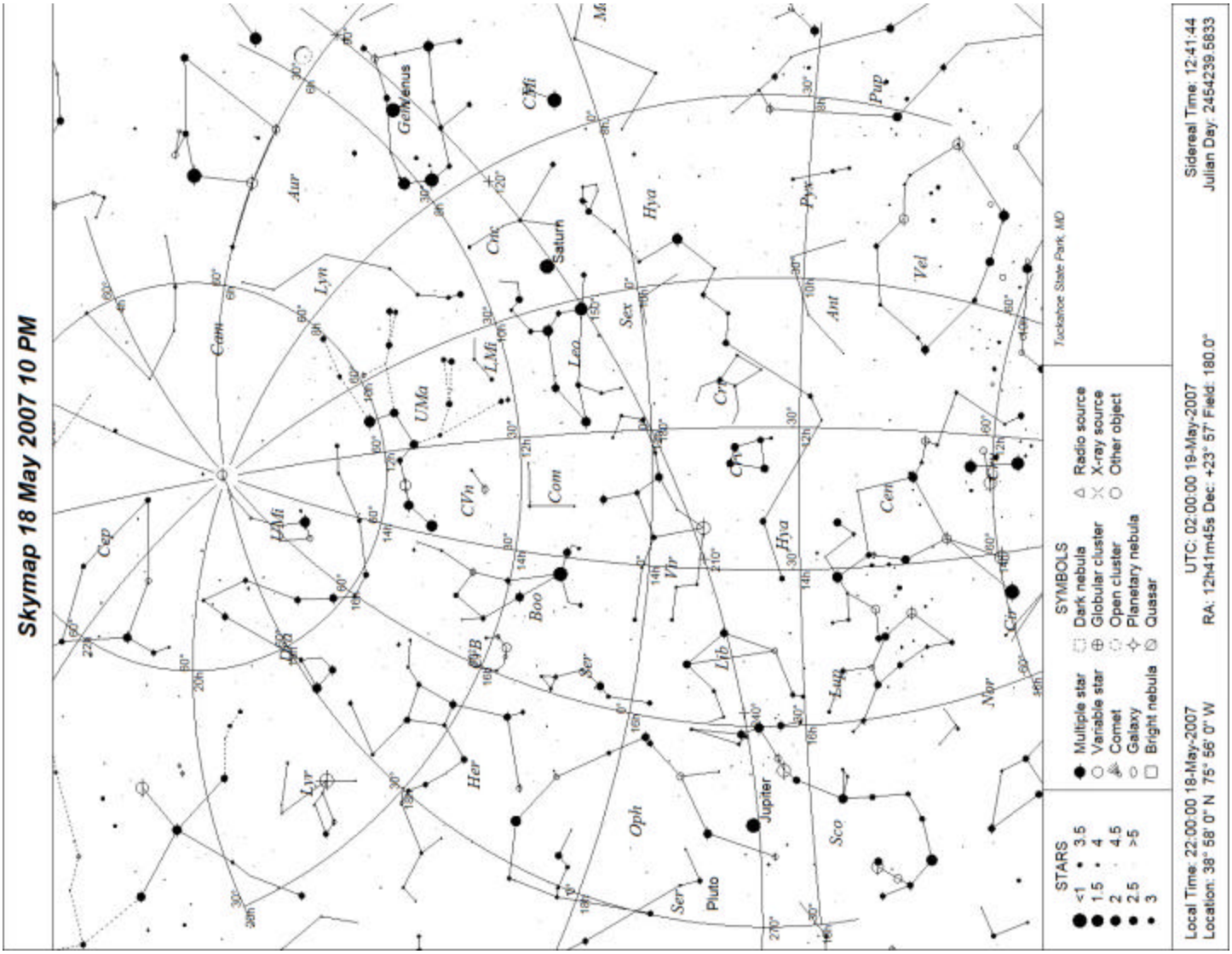
The editor of the Star Gazer News qualifies articles submitted.

The Solar System in May—*Pj Riley*

Hermes ☿ is in superior conjunction on the 3rd, so no viewing until later this month. Aphrodite ♀ remains a nice evening object. Ares ♂ is 3° S of Selene ☽ on the 13th. Zeus ♃ rises mid-evening, transiting after midnight. Cronus ♄ is at quadrature the 2nd week in May, casting a large planetary shadow on the rings, giving a more "3D" effect to your view. Uranus ♅ is still in Aquarius , you can see it just before Helius ☉ pops up. Poseidon ♆ rises in Capricornus after 2AM. You can find the minor planet Pluto ♇ to the right of Scutum. (As always, you can always find Gaea ⊕ by looking down). **Special Events:** The asteroid Vesta is mag. 5.4 on the 30th, in conjunction with Jupiter and M107 (see chart right with telrad circles)

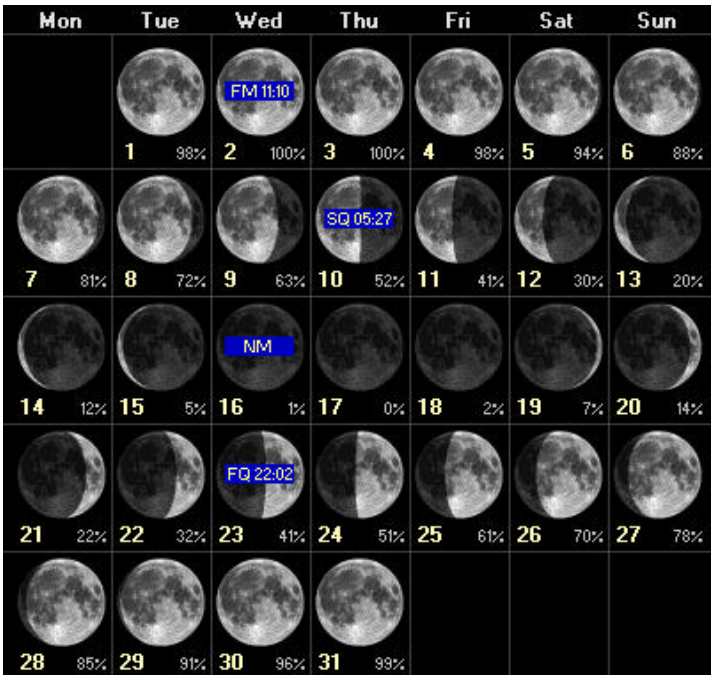
(Except for Pluto and Uranus, I used the Greek names for the planets this month. Can you figure out who's who? Need a hint? See last month's issue and compare the planetary symbols with this issue. Good Luck!))





Sun and Moon Data for May 2007
Tuckahoe MD
38.97°N 75.93°W 5hrW
Daylight Time Civil Twilight

Date	Twilight	Rise	Sun Transit	Set	Twilight	Rise	Moon Transit	Set	%
5/1/2007	5:37a	6:06a	1:01p	7:56p	8:25p	7:36p	12:03a	5:23a	99
5/2/2007	5:36a	6:05a	1:01p	7:57p	8:26p	8:38p	12:46a	5:48a	100
5/3/2007	5:35a	6:04a	1:01p	7:58p	8:27p	9:41p	1:31a	6:18a	98
5/4/2007	5:34a	6:03a	1:01p	7:59p	8:28p	10:42p	2:20a	6:54a	95
5/5/2007	5:32a	6:01a	1:00p	8:00p	8:29p	11:40p	3:12a	7:39a	90
5/6/2007	5:31a	6:00a	1:00p	8:01p	8:30p	*****	4:05a	8:31a	84
5/7/2007	5:30a	5:59a	1:00p	8:02p	8:31p	12:31a	5:00a	9:32a	75
5/8/2007	5:29a	5:58a	1:00p	8:03p	8:32p	1:15a	5:54a	10:39a	66
5/9/2007	5:28a	5:57a	1:00p	8:04p	8:33p	1:52a	6:46a	11:49a	56
5/10/2007	5:27a	5:56a	1:00p	8:05p	8:34p	2:23a	7:37a	12:59p	45
5/11/2007	5:25a	5:55a	1:00p	8:06p	8:35p	2:51a	8:26a	2:11p	34
5/12/2007	5:24a	5:54a	1:00p	8:07p	8:36p	3:17a	9:14a	3:23p	23
5/13/2007	5:23a	5:53a	1:00p	8:08p	8:37p	3:42a	10:03a	4:37p	14
5/14/2007	5:22a	5:52a	1:00p	8:08p	8:38p	4:09a	10:55a	5:54p	7
5/15/2007	5:21a	5:51a	1:00p	8:09p	8:39p	4:39a	11:49a	7:13p	2
5/16/2007	5:20a	5:50a	1:00p	8:10p	8:40p	5:15a	12:49p	8:34p	0
5/17/2007	5:19a	5:50a	1:00p	8:11p	8:41p	6:00a	1:51p	9:51p	1
5/18/2007	5:18a	5:49a	1:00p	8:12p	8:42p	6:54a	2:56p	10:58p	5
5/19/2007	5:18a	5:48a	1:00p	8:13p	8:43p	7:58a	3:59p	11:54p	11
5/20/2007	5:17a	5:47a	1:00p	8:14p	8:44p	9:07a	4:57p	*****	19
5/21/2007	5:16a	5:46a	1:00p	8:15p	8:45p	10:17a	5:50p	12:38a	28
5/22/2007	5:15a	5:46a	1:00p	8:15p	8:46p	11:25a	6:38p	1:12a	38
5/23/2007	5:14a	5:45a	1:00p	8:16p	8:47p	12:29p	7:22p	1:40a	48
5/24/2007	5:14a	5:44a	1:01p	8:17p	8:48p	1:31p	8:03p	2:04a	58
5/25/2007	5:13a	5:44a	1:01p	8:18p	8:49p	2:30p	8:42p	2:25a	67
5/26/2007	5:12a	5:43a	1:01p	8:19p	8:50p	3:28p	9:21p	2:45a	76
5/27/2007	5:12a	5:43a	1:01p	8:20p	8:51p	4:27p	10:01p	3:05a	83
5/28/2007	5:11a	5:42a	1:01p	8:20p	8:52p	5:27p	10:43p	3:27a	90
5/29/2007	5:10a	5:41a	1:01p	8:21p	8:52p	6:29p	11:27p	3:51a	95
5/30/2007	5:10a	5:41a	1:01p	8:22p	8:53p	7:32p	*****	4:20a	98
5/31/2007	5:09a	5:41a	1:01p	8:23p	8:54p	8:35p	12:15a	4:54a	100



Moondark for May: Road Maps for the Planets

Doug Miller

For some, there's nothing more satisfying than poring over a good map. Not fumbling around with a roadmap in traffic when you've just missed the exit, but unfolded and un-creased, with plenty of time to contemplate what's around the next bend or to wonder about that blank spot on the map.

Utilitarian maps are a mouse click away. MapQuest, for example, provides useful roadmaps and directions. Other maps are designed for exploring: Google Earth is an easy install which puts the whole planet on your screen, "as seen on TV." Zoom in to find your favorite observing site or search for another, darker location. Select the Google Earth Community, and see what others have to say. Fly to your favorite vacation resort or just sight-see from home. Check out the Grand Canyon in life-like relief. Google Earth coverage is world-wide and the resolution is amazing.

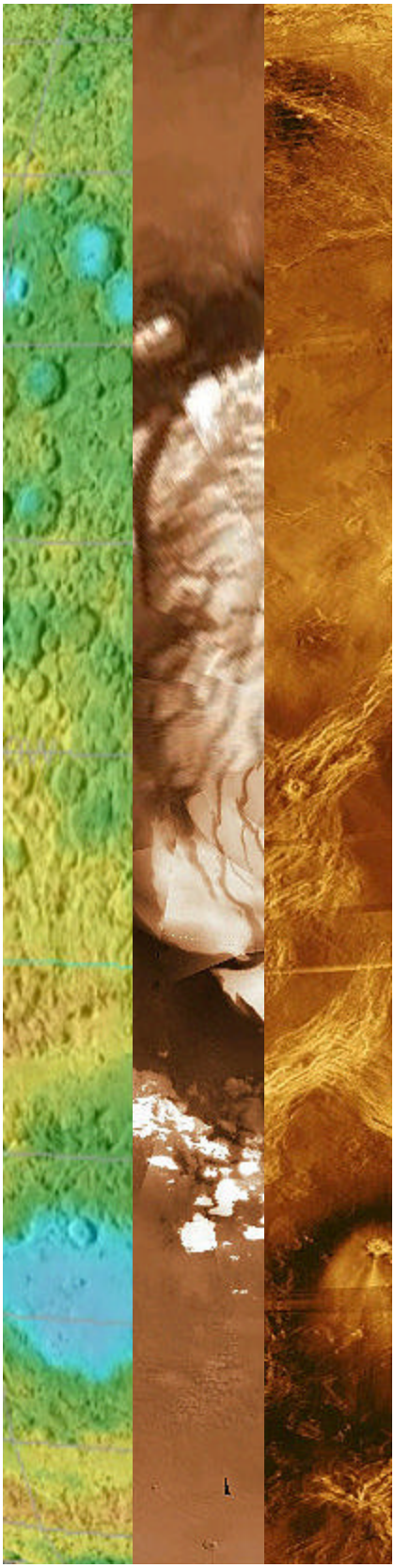
Online mapping is not limited to this planet: Google Moon displays the Apollo landing sites on a zoomable, clickable lunar surface. Google promises to have their local search capability fully extended to the Moon by the 100th anniversary of the first lunar landing. In the meantime, be sure to zoom all the way in to see what the moon's really made of.

NASA's World Wind starts like Google Earth: you can fly around our planet and examine its surface in amazing 3-D relief with time of day shading and atmospheric scattering to add realism. Next, choose another planet or moon from the File pull-down menu. Using an animated Mac-like Dock taskbar, select the sensor or mission data to display. Start with Mars: the full-planet splash screen shows the location of all Mars landers and rovers. Pan around and zoom into the largest canyon in the solar system, Valles Marineris. Compare this fly-through with the Grand Canyon. Very cool.

NASA has long made mission imagery freely available, first by ftp, then gopher, and now, the Web via various JPL sites. But hard-core planetary cartographers go straight to the USGS's Astrogeology Research Program web site. There you'll find a web-based user interface for poring over various maps of Venus, Mars, our Moon, as well as Jupiter's moons.

Flat maps are fine, but planets are round, at least according to current IAU regulations Stitched and mosaicked raw images can be transformed mathematically to a cylindrical projection, then wrapped on a sphere, rotated and studied at leisure. DIY planetary cartography can be accomplished with USGS basemaps (or those from any number of other sites) and a rendering program such as POV-Ray. Geographical Information Systems (GIS) are an indispensable tool for government agencies, land-use and any sort of environmental or spatial data. Their use is not limited to this planet, however, and much more information can be found in *Mapping Hacks* by S. Erle, R. Gibson and J. Walsh, part of the O'Reilly Hacks series.

World Wind, USGS astro cartography or POV-Ray are as close to personal planetary exploration as any of us will likely get. This is your chance be the first human to fly through some unnamed valley or enjoy the breathtaking, air-free view from an isolated volcano's summit. Google Earth plus light pollution maps? How about a Mars mashup? There's plenty of planetary cartography already for your laptop, and even better, with these maps there's no struggling to get them folded back up.



Our Moon, neighboring Mars or the surface planets yet to be discovered?