



June, 2000

Volume 1, Issue 1

The Spectrogram

S*T*A*R Joint Astrophotography Exhibit

Date: Saturday October 7, 2000

Place: Monmouth County Library 125 Symmes Drive Freehold NJ (just off Rt. 9 north of the Freehold Raceway Mall)

Time: 10 AM to 3 PM.

Individual presentations by the participants will start at 11 AM.

Exhibit guidelines: Entrants must be members of either the Amateur Astronomy Association of Princeton, or The Society of Telescopy, Astronomy, and Radio of Holmdel.

Each exhibiting member will be given a table for the entire exhibit and a 30 minute time slot for a talk about their images (the 30 minute presentation is optional but highly encouraged. Also, You are not obligated to use up a whole 30 minutes).

Image guidelines: All of the following guidelines are optional. We have formulated them to guide participants and to give the exhibition a common theme and focus. Images should have been taken during the 4 months immediately preceding the exhibit date. Images should be from a New Jersey site. Each image should be identified with at least the following information:

- Object name
- Date taken
- Equipment used
- Exposure details
- Processing performed

Suggested targets: *This list is still tentative - It will be finalized after discussions with both clubs.* We would like to focus the exhibit on the following objects:

- Planets: The Clavius area of the moon , Saturn
- Constellation: Cygnus
- Double stars: Albireo and Epsilon Lyrae
- Deep sky objects: M92, M56, M22, M16, M17, M20, NGC6946, NGC7013, and M51.

Members who wish to participate and exhibit must register with the coordinators (Mark Jaworsky from AAAP or Andy Zangle (azangle@netlabs.net) from STAR) by July 30, 2000.

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Important Announcements



- **Our next meeting** will be on Thursday, June 1st, at 8:00 PM at the Colts Neck Fire Company #2 on Conover Rd. in Colts Neck. This is the Annual Business Meeting. No speaker is planned. Please make sure to attend as we will be doing elections for the new year. Coffee and other refreshments as well as cookies will be served. Directions: From Rt. 520, turn south onto Rt. 34. Conover Rd. is on the right, one light south of Rt. 520. From Rt. 537, turn north onto Rt. 34. Conover Rd. is on the left, two lights north of Rt. 537. The fire house is on the right, just a couple of blocks off of Rt. 34.
- **The Spectrogram has a new look and a new editor!** (As if you couldn't tell already!) My name is Fred Block and I will be taking over the duties as Editor of the newsletter. (This should be fun!) First, I think that we all owe some thanks to Mike Lindner for doing the newsletter as long as he did! Great Job Mike! Thanks! If you would like to contribute an article, or news item, or if you have questions or suggestions, please contact me via email at fblock@monmouth.com.
- **The ATM SIG made about 10 red flashlights** for observing while at Andy Zangle's house on 5/18/2000. If you are interested, they will be available for sale for \$5 each at the coming meeting.

Upcoming Events and Star Parties



- **June 2-4, New Jersey. Jersey StarQuest 2000**, sponsored by the Amateur Astronomers Association of Princeton (AAAP), will be held at the Hope Conference and Renewal Center in Hope. The event features lectures, video shows, observing sessions, telescope exhibits, an astrophotography workshop, commercial vendors, swap tables, day tours, and door prizes. Camp facilities, catered meals, and a swimming pool are available. The registration deadline is on May 17th. For more information contact Greg Mauro, AAAP Registrar, 915 Princess Dr., Yardley, PA 19067, or send e-mail to k3ea@arrl.net.
- **June 16-18, New York.** The second **Minor Planet Amateur/Professional Workshop** will be held at Alfred University in Alfred. The workshop aims to provide an outlet for discussion and collaboration between amateur and professional communities in this field of research. Topics include astrometric techniques and follow-up strategies, ways on how best to organize amateur efforts, photometry and photometric techniques, and the latest software and instrumentation used for asteroid and comet research. Contact Richard Kowalski, 7630 Conrad St., Zephyrhills, FL 33544; mpapw2k@bitnik.com; <http://www.bitnik.com/mp/MPW2000/mpw2000.html>.
- **June 23-25, Pennsylvania.** The 11th annual **Mason-Dixon Star Party**, sponsored by York County Astronomical Society and the York County Parks, will be held at Spring Valley County Park near York. Keynote speaker Lawrence Marshall (Gettysburg College) will talk on "Looking for Asteroids." Contact Jeri Jones at 717-840-7226; JLJ276@aol.com; <http://home1.gte.net/dmdewey/mdsp.html>.
- **June 23, July 21, and August 25, New York.** The Mid-Hudson Astronomy Association will be hosting its 1st annual **Hudson Valley Star Party** series this summer, at Wilcox Park in Milan, NY - a fine dark sky site about 2 hours north of New York City, and 1.5 hours south of Albany. There is a nominal park admission fee prior to 8PM. For those wishing to spend the night, campsites are available. Reservations must be made in advance, by calling Wilcox Park at 914-298-4600, or by mail to Wilcox Park, 85 Sheafe Rd. Wappingers Falls, NY 12590. The observing site is well away from the campsites. Alcohol is not permitted in the open park areas. Rain dates are the following Saturdays. The club hotline can be called for status, at 914-485-5669. For more information about the club or the actual events, call 914-758-6305. email: mhaa@geocities.com or [www: http://www.jump.to/mhaa](http://www.jump.to/mhaa).
- **September 1-4, Pennsylvania** The Central Pennsylvania Observers will be hosting the **Black Forest Star Party** in Cherry Springs State Park, north central Pennsylvania. Contact Central Pennsylvania Observers, PO Box 947, State College, PA 16801. URL: <http://www.starparty.homepad.com>.

What's Happening at STAR?



Cub Scout Pack 88 from Port Monmouth has requested STAR to come to their pack meeting on June 23 at the Spy House, in the picnic area between 7:30 and 8:00pm. The moon will be about first quarter. Joe Cascella has done presentations at the Port Monmouth School, for Annual Science Day, and some of the kids have been to Poricy Park events. If anyone can attend, please email John Gasparini at gasparini@att.net so that he can contact the Den Mother.

Holy Cross Star Party Report – *By Dan Pontone*



I have three children that attend Holy Cross school, and every year I do an introduction to astronomy. This year I decided to do astronomy day for the whole school, grades 1 through 8, over 300 students. I chose 6th through 8th grade to fabricate a comet out of dry ice. The school purchased 60 pounds of dry ice. Not much was left. The students had more fun learning and interacting with their new astronomy skills, and they actually learned something. The 4th through 5th grades built the peppercorn universe on the Sea Bright public beach. This has to be my all-time favorite because of distance and time. 25 years ago S*T*A*R did this at a Thompson Park day. Luckily, Joe Cascella resurrected the stakes and sizes of the planets. The sun resided in Sea Bright and Pluto lived in Sandy Hook. That was a lot of hiking, but the children got the concept of how far the sun is from the distant planets. Thank you Joe and Barlow Bob. Last, but not least, I spoke to 1st through 3rd grade. There were over 125 kids in the general assembly. One must remember to "keep it simple stupid" which is quite easy for me! We discussed old stars versus new stars and the Big Bang. Of course, every child wants to see Pluto. Luckily I told them that Pluto is not a planet according to the Hayden Planetarium; that got me off the hook.

After an exhausting day of having fun with the children, twelve S*T*A*R members set up their telescopes and showed 225 people the stars and moon, and went mud diving with Saturn and Jupiter. There were many younger children much to my surprise and three S*T*A*R newbies! It was a blast! The children got something and the S*T*A*R members got something. One parent brought star cookies that were dynamite. Coffee and soda were served in the gym. I could get used to this! A great time was had by all! This is what a public star party is all about. I urge all S*T*A*R members that have grade school children to volunteer their time to introduce their children's class to astronomy, because if you don't, who will?!

P.S. I would personally like to thank Frederic "The Great" Block, David Britz, Dave Segelstein, "Dr." Don Odegard, Charles Meehan, Russ Drum, "Captain" Dennis Larzik, John Gasparini, Charles Kirby, Daniel Kirby, Morgan Kavanaugh, and Tom Pontone. Apologies to anyone I may have forgotten, senile dementia setting in.

Lots of Kids – Lots of STAR! - *By David Segelstein*



There were approximately a dozen STAR members and probably 200 kids, parents, and teachers at **Holy Cross School**. We showed them Jupiter, Saturn, the moon, the Pleiades, M42, and a few other things. They were very appreciative, and we had a lot of fun showing them stuff. This is what it's all about. I'd try to name all the S*T*A*R members, but I'm sure I'd leave out one or two. Oh, what the heck. I think we had: Dan Pontone (18" Obsession), John Gasparini (14" Starmaster + 3" refractor), Don Odegard (8" Priebe-Kay), Chris O (8" Club Scope), David Britz (8" Celestron + video equipment), Dennis Larzik (10"? LX-200), Charles Kirby (4.7" AstroPhysics + 3" other refractor), Charles Meehan (13" Coulter), Russ Drum (4.5" Astroscan), me (5" Celestron), Morgan Kavanaugh (10" Meade), Fred Block (10" Discovery). This was a great turnout. The kids had just had a day with Dan Pontone doing things like the Peppercorn Universe, and making comets, and talking about astronomy. It was great to finish it off by actually looking at real things!!!

Editors Note: Photos of the Holy Cross School event are available on our web site.

Compton Gamma Ray Telescope mission to be de-orbited on June 3rd



NASA's extremely productive and long-lived Compton Gamma-Ray Observatory mission -- which exceeded its mission by four years and completely changed ideas on the most important unsolved puzzles in astrophysics -- has come to an end with the failure of one of the satellite's three gyroscopes.

NASA plans to safely direct the satellite back into Earth's atmosphere no earlier than June 1 with the remaining two gyroscopes, which are used to steer the craft. As an extra precaution, Compton engineers are also developing a method to control the satellite without any gyroscopes, for use as backup during the reentry maneuvers in case an anomaly is encountered with the gyroscopes. Compton's four instruments are still in working order.

"Compton has been a workhorse for nine years, far exceeding our expectations for a two- to five-year mission," said Dr. Alan Bunner, director of NASA's Structure and Evolution of the Universe science theme, NASA Headquarters, Washington, DC. "New discoveries made by Compton changed our view of the Universe in fundamental ways."

Compton's lasting legacy will be its impact on gamma ray astronomy. The telescope detected more than 400 gamma ray sources, 10 times more than were previously known. Compton recorded more than 2,500 gamma ray bursts; before Compton, only about 300 had been detected.

"NASA must have a controlled reentry to direct Compton towards an uninhabited area in the Pacific ocean," said Dr. Ed Weiler, Associate Administrator for the Office of Space Science, NASA Headquarters. "NASA decided before Compton was launched that, due to its size, it would be returned to Earth by controlled reentry when the mission was over. This was always NASA's plan."

The propulsion system on Compton lacks sufficient fuel to boost the spacecraft to a higher, longer-lived orbit. Left alone, Compton will eventually fall from orbit due to a minute drag from the Earth's tenuous atmosphere at Compton's orbital height. Unlike most other satellites, Compton is too large to burn up entirely in the atmosphere during reentry. An uncontrolled reentry would expose some area under its orbital path (28.5 degrees north and south latitude) to the risk of falling debris.

The decision to reenter Compton before a second gyroscope fails, even though the satellite is functioning normally, was made at NASA Headquarters on March 23, 2000, after extensive study to consider all options. Research showed it was significantly safer to perform a controlled reentry than any other method of dealing with the satellite. "We actively pursued the option that provided the lowest risk to human lives," said Weiler.

Debris from the reentry will be scattered over an area estimated to be 16 miles wide and 962 miles long. The center of the reentry area is on the equator approximately 2,500 miles southeast of Hawaii (about 120 degrees west longitude). A large portion of the satellite will vaporize as it transits the atmosphere, and most of the pieces that survive will be tiny, about the size of a pea or a grain of sand. However, Compton contains structures made of titanium, which are expected to fall as larger pieces.

"Enough will survive to present a small but still unacceptable risk to populated areas if Compton were allowed to reenter in an uncontrolled manner," said Preston Burch, Deputy Program Manager for Space Science Operations at NASA's Goddard Space Flight Center, Greenbelt, MD. "NASA will work closely with aviation and maritime authorities to ensure the impact area is free from traffic during reentry."

Compton flight controllers, stationed at Goddard, will fire Compton's propulsion system thrusters in the direction opposite to its orbital motion, which will slow the spacecraft down and cause its orbital height to decrease so that it reenters the atmosphere. There will be four separate firings of the propulsion system thrusters, each about a day apart. After each firing, Compton's new orbit will be determined precisely, and the performance of the thrusters will be evaluated. The thruster performance varies according to the pressure of the propellant, so the thrusters will not perform the same way because each firing consumes propellant, which decreases its pressure.

NASA and international space agencies plan several upcoming missions to continue where Compton left off. The Compton Gamma Ray Observatory was the second of NASA's Great Observatories and the gamma-ray equivalent to the Hubble Space Telescope and the Chandra X-ray Observatory. Compton was launched aboard the Space Shuttle Atlantis in April 1991, and, at 17 tons, was the largest astrophysical payload ever flown at that time.

Astronomical Fact and Fiction – *by Paul J. Nadolny*



In astronomy, as in any hobby or field of study, common misconceptions abound. They are repeated so often that the general public (as well as reputable news organizations) often assume they are facts. Here are some examples:

- The North Star is the brightest star in the sky.
- A light year measures time.
- You can only see the Moon at night.
- Comets flash across the sky and are quickly gone.
- Astronomers use telescopes primarily to magnify objects in the night sky.
- Pluto is so far away that our sun would just be another bright star.

Starting in the next issue of the Spectrogram, I'll be writing a regular column to shed light on these and other misconceptions and sprinkle in some little-known astronomical facts along the way. As amateur astronomers, we sometimes take for granted our knowledge of the night sky. Although we cannot educate the whole country or the mass media, when we hear friends, family members, and co-workers make common, yet sincere, mistakes, we can do our part to educate those around us. Who knows? Maybe a gentle, friendly correction will lead to a conversation about astronomy and hook yet another person on the mysteries of the universe.

Sky Show for June – *Taken from Astronomy.com*



Talk of a naked-eye comet piques everyone's astronomical interests, and it's been three years since Hale-Bopp graced our skies. The new comet, LINEAR (c/1999 S4), won't be as fantastic, but we're still hoping for an enjoyable show. By the end of this month, there's a good chance that it will reach 7th magnitude, approaching naked-eye visibility. Plan on rising in the wee hours to spy this dirty snowball. A great opportunity for astrophotographers will be June 30 to July 1, when the comet lies 1.2° (just over two moonwidths) from the splashy star cluster M34. This is the same cluster that showed up in many images of Comet Hale-Bopp.

Jupiter and Saturn return triumphantly to morning skies as July approaches. It's well worth getting up just after 4 a.m. to witness their closest naked-eye pairing since 1980. The next one will be in 2020. Add the earth-lit crescent moon to the scene on the 28th and 29th and you have a great photographic opportunity.

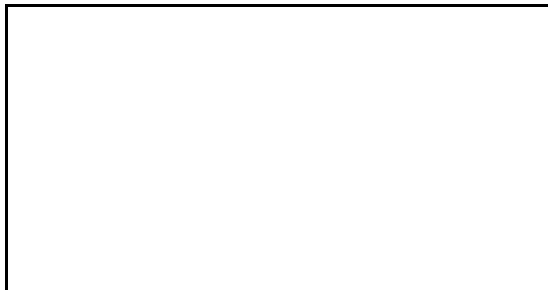
Catch Mercury at its peak while there is still time. The first weeks of June see the fleet-footed planet attempting a high jump from the horizon. But it only clears the bar marked by the dimmer Delta Geminorum before it quickly sinks back into obscurity. Mercury is surprisingly easy to locate when you know how. Just note where the sun sets, extend your arm in that direction and about one fist-width up is where Mercury will be in 50 minutes. By mid-June, Mercury fades by more than a factor of two, so you should notice it getting harder to see in the second week.

Two meteor showers will give observers a chance to catch a falling star. One of the main radio showers of the year, the Arietids, peaks on June 7, with activity lasting from May 22 through July 2. The radiant for this shower lies a mere 30° from the sun, so visual observing will be tricky. The June Bootids are a shower for which to watch out. Dramatic activity of this typically minor shower occurred in 1998. Rates of more than 50 meteors an hour for a dozen or so hours has startled even veteran meteor observers. Northern Hemisphere observers are well placed to view the radiant almost all night. The radiant lies in the northern part of Bootes the Herdsman.

The summer solstice in June gives us our shortest nights of the year. But it may make the wait for midnight seem shorter, when the brightest asteroid this year, 4 Vesta, is at its best. Vesta reaches 6th magnitude, within reach of the naked eye from a dark site. It makes for a perfect challenge during star parties or camping trips. City dwellers can follow Vesta in binoculars. This space rock is pretty big, some 340 miles (540 km) across. With a 12- to 16-inch telescope and great seeing, you should be able to see Vesta's disk, a little less than half the apparent size of Jupiter's moons.

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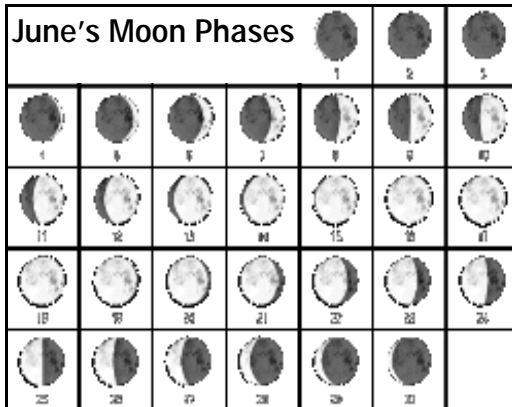
Here it is! This month's issue of...

THE SPECTROGRAM

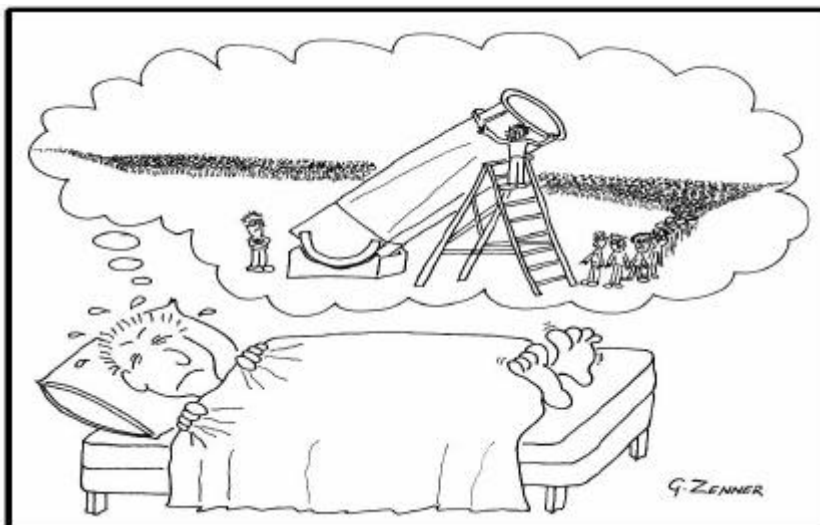
Fact of the Month

Why is the sky blue? Contrary to popular belief, the phenomenon is not due to a reflection of light from the oceans. The sky is blue because it scatters the sun's blue light.

June's Moon Phases



This Month's Comic



Submitted by Michael Lindner