Mid-Hudson Astronomical Association

September, 2014

Website: www.midhudsonastro.org

Yahoo Group: MHAstro

President : Willie Yee
Vice President: Joe Macagne
Secretary: Jim Rockrohr
Treasurer: Ken Bailey
Newsletter Editor: Rick Versace
Membership Coordinator: Caryn Sobel
Publicity: Paul Chauvet
Webmaster: Paul Chauvet
Parks Liaison:
College Liaison: Dr. Amy Forestell

Directors: Steve Carey, Dave Lindemann, Karl Loatman, & Tom Rankin

Meeting Minutes

Minutes of the monthly meeting of the Mid Hudson Astronomical Association, August 18, 2014

The order was reversed this month with the program first followed by the business meeting. Eric Myers gave us a walking tour of the "Peppercorn Solar System" from the Planetarium to the Smolen Observatory and Willie and Joe showed us the observatory. We went back to the lecture center for the business meeting.

The meeting was called to order at 8:29 PM by President Willie Yee in Lecture Center Room 102 at SUNY, New Paltz, NY.

It was moved and seconded that the minutes of the last meeting as published in the newsletter be approved. The motion passed.

Officer's Reports:

Membership: Caryn Sobel was not present.

Treasurer: Ken Bailey not present. See his report in the newsletter.

Treasurer's Report for the month of August

Date: 13 September, 2014

Bank Balance:	$1129.60
Outstanding Checks:	$ 73.80
Outstanding Deposits:	$ 71.91
Ending Bank Balance:	$1127.71
Checkbook Balance:	$1127.71
Balance with Bank: Yes	
Ending balance total:	$1127.71

Notes: Outstanding deposit is from memberships paid via PayPal. Outstanding check is a reimbursement.

Respectfully submitted: Ken Bailey
Treasurer

Outreach: Candace Wall not present.

Upcoming events include:

- **August Star Party:** August 22.
- **Olana events (Willie organizing)**:
  - Sunday, September 21, 7-9 PM "Cosmic Quest" (no weather date)
- **Rosendale Bridge** (Tom Rankin coordinating) Dates TBD.
- **Globe at Night:** 8/15-21. Please participate!
- **International Observe the Moon Night:** 9/6 (9/7 cloud date) at Smolen Observatory, New Paltz
- **Walkway Event:** 9/26 "Starry Night" gala
- **Saugerties High School:** 10/10 (rain date 10/17) Ken Bailey coordinating.
- **Fishkill Plains Elementary School:** 10/24. Ellie Lopatinskey coordinating.

Publicity: Paul Chauvet not present. Reminder to send him an email with complete information if you want your event publicized.

Webmaster: Paul Chauvet not present.

Upcoming programs: Joe Macagne

- We need speakers. If you have any ideas or leads, let Joe or Willie know.

Old Business:

- Club Library – Ken has the library if any paid member wants to check out a video. A listing of all of the videos in the library will be posted on the Meetup Page under "More – Files"
- Club Inventory – Willie reviewed what he has with the group. He will post this on the meetup site when complete. Don Persac is donating a pair of diopter glasses to the club to be used to test if additional eyeglass correction is helpful at the telescope.
- Club telescopes:
  - **13.1" Dobsonian Club Telescope:** Jack Chastain has it and will bring it to club events.
  - **8" Dynamax SCT:** Joe Macagne has it and it is available to paid members.

- **6" Bausch & Lomb SCT:** Tom Crepet has it and it is available to paid members.
- **4" Tasco Newtonian:** Paul Chauvet has it and is using it.
- **8" Newtonian on EQ mount:** Karl Loatman is looking for a motor drive for it.

New Business:

- An 8" Coulter Dobsonian is available. Alan French is willing to donate it to the club or to someone who will use it.
- Need someone to make the weather call for the August Star Party as Willie is not available.

Visitors/New Members:

No visitors introduced themselves. There were a total of about 8 people present for the meeting.

Observing Reports:

- Tivoli Library – Clouded out. About 12 people stopped by and got a telescope demo.
- Olana Sun tour – About 8 people. Hazy so could not use H-alpha although white light was OK. Excited audience.

The meeting was adjourned at 8:47 PM. Next meeting is on September 16.

Submitted by James Rockrohr, September 10, 2014.

From the President:

ADIRONDACK ASTRONOMY RETREAT 2014

This was my fourth Adirondack Astronomy Retreat, and annual event sponsored by David and Wendee Levy and held near Plattsburgh, NY. The site is an old summer camp, now owned by SUNY Plattsburgh. Registration is very limited (less than 40) because of the size of the site, and because the Levys want to keep it a small, intimate event. Accommodations are included either in a bunkhouse type dorm, or cabins of 3-4 people. Meals are included.

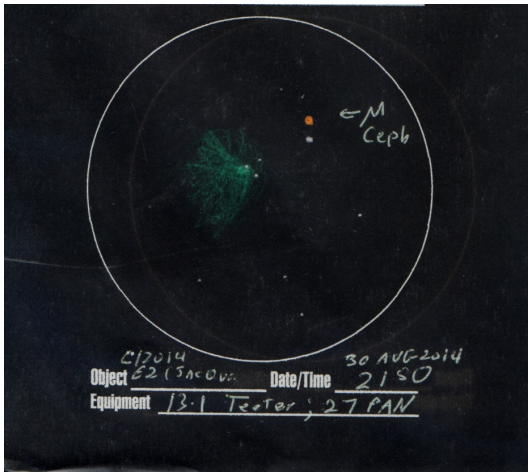
There are talks scheduled most afternoons, but no other daytime activities scheduled. Many folks go hiking on the trails on the site or on nearby trails. I went hiking on my own early in the retreat, and managed to get quite lost, turning a 1 hour hike into a 3 hours trek and rerun by State Police car. Umm, the trails are poorly marked.

The sky is pretty dark, but not perfect as there is a light dome from Plattsburgh in the northeast sky. Viewing however is pretty darn good, with a very prominent Milky Way and all the stars of Ursa Minor very visible. We had two great nights, two partial nights, two clouded out, and one with a one hour window. On the cloudy nights I showed the latest Star Trek Phase II episodes.

Dave and Pam Rosseter were there, along with Fritz the wonder scope. One of the highlights was looking at the Eastern Veil Nebula, which filled three wide field eyepiece fields, and looked *like the pictures* that we see of it.

IMG_0700.JPG ¬

The other observational highlight was following comet C/2014 E2 (Jacques) over a whole week. If one looked at it at the beginning and end of an observing session, you could see its position had changed in a matter of *hours*. The last night had only an hour of clear sky, but that wes good enough to see Jacques in the same field as Mu Cephei (Herschel's Garnet Star), a deep orange carbon star that provided an intense color contrast with the comet.



Most of my other observation time was spent working on the Finest NGC List from the Royal Astronomical Society of Canada. I started out intending to work on the Caldwell list, but I found the first several objects either uninteresting or difficult to find. The RASC list was much mor rewarding, and I did over a dozen objects. The rest of my time was spent sharing views with other retreaters.

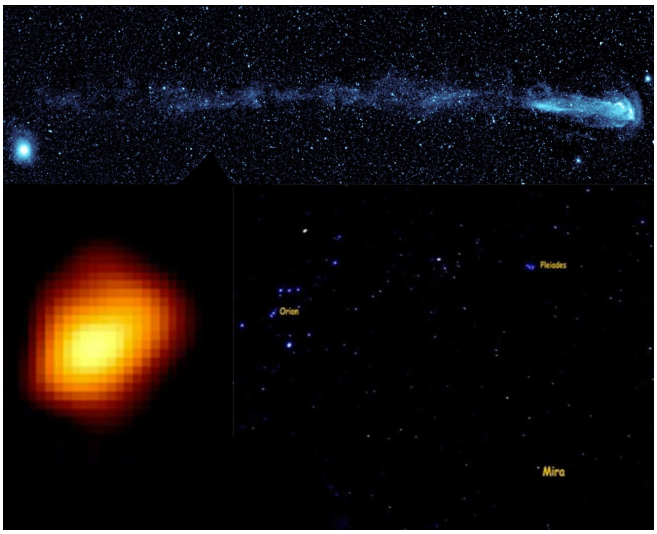
Given the small size of this event, and that repeaters get first choice, it has developed a family feel. Most of the faces are familiar, even though we have come from a long way off, and we look forward to our time together each year.

Twinkle, twinkle, variable star

By Dr. Ethan Siegel

As bright and steady as they appear, the stars in our sky won't shine forever. The steady brilliance of these sources of light is powered by a tumultuous interior, where nuclear processes fuse light elements and isotopes into heavier ones. Because the heavier nuclei up to iron (Fe), have a greater binding energies-per-nucleon, each reaction results in a slight reduction of the star's mass, converting it into energy via Einstein's famous equation relating changes in mass and energy output, $E = mc^2$. Over timescales of tens of thousands of years, that energy migrates to the star's photosphere, where it's emitted out into the universe as starlight.

There's only a finite amount of fuel in there, and when stars run out, the interior contracts and heats up, often enabling heavier elements to burn at even higher temperatures, and causing sun-like stars to grow into red giants. Even though the cores of both hydrogen-burning and helium-burning stars have consistent, steady energy outputs, our sun's overall brightness varies by just ~0.1%, while red giants can have their brightness's vary by factors of thousands or more over the course of a single year! In fact, the first periodic or pulsating variable star ever discovered—Mira (omicron Ceti)—behaves exactly in this way.



There are many types of variable stars, including Cepheids, RR Lyrae, cataclysmic variables and more, but it's the Mira-type variables that give us a glimpse into our Sun's likely future. In general, the cores of stars burn through their fuel in a very consistent fashion, but in the case of pulsating variable stars the outer layers of stellar atmospheres vary. Initially heating up and expanding, they overshoot equilibrium, reach a maximum size, cool, then often forming neutral molecules that behave as light-blocking dust, with the dust then falling back to the star, ionizing and starting the whole process over again. This temporarily neutral dust absorbs the visible light from the star and re-emits it, but as infrared radiation, which is invisible to

our eyes. In the case of Mira (and many red giants), it's Titanium Monoxide (TiO) that causes it to dim so severely, from a maximum magnitude of +2 or +3 (clearly visible to the naked eye) to a minimum of +9 or +10, requiring a telescope (and an experienced observer) to find!

Visible in the constellation of Cetus during the fall-and-winter from the Northern Hemisphere, Mira is presently at magnitude +7 and headed towards its minimum, but will reach its maximum brightness again in May of next year and every 332 days thereafter. Shockingly, Mira contains a huge, 13 light-year-long tail -- visible only in the UV -- that it leaves as it rockets through the interstellar medium at 130 km/sec! Look for it in your skies all winter long, and contribute your results to the AAVSO (American Association of Variable Star Observers) International Database to help study its long-term behavior!

Check out some cool images and simulated animations of Mira here:
http://www.nasa.gov/mission_pages/galex/20070815/v.html

Kids can learn all about Mira at NASA's Space Place: http://spaceplace.nasa.gov/mira/en/

Images credit: NASA's Galaxy Evolution Explorer (GALEX) spacecraft, of Mira and its tail in UV light (top); Margarita Karovska (Harvard-Smithsonian CfA) / NASA's Hubble Space Telescope image of Mira, with the distortions revealing the presence of a binary companion (lower left); public domain image of Orion, the Pleiades and Mira (near maximum brightness) by Brocken Inaglory of Wikimedia Commons under CC-BY-SA-3.0 (lower right).

Directions To The Star Party Site—

Lake Taghkanic State Park is in the town Ancram, NY. The park entrance is on the Taconic Parkway 10 minutes north of the exit used for Wilcox park.

Star Parties at Lake Taghanic are held in the West Parking log, next to the beach. The skies are darker than in Wilcox, with less stray light to deal with. The horizon is also much lower, especially to the south and east, making many more targets possible.

IMPORTANT: all events at Lake Taghkanic State Park require an **RSVP** which includes license plate number of the car you are bringing (please do so via Meetup). The park is patrolled by state police, and all non registered cars will be ticketted and risk our use of the park.

General Information:

- For the foreseeable future, all indoor meetings will be held on the 3rd Tuesday of each month in Coykendall Science Bldg., SUNY New Paltz (directions above) at 7:30 PM. All indoor events are FREE! All are welcome. The presentations are generally geared towards teenagers and up. For more information, call the Club Hotline.

- Dates listed for star parties are the primary dates. The rain date is the following night unless otherwise noted. Only one session is held for a given weekend, usually on the primary date, Friday, unless postponed (usually due to inclement weather) to the backup date, Saturday. Exceptions to this are noted in the "Scheduled Events" section above. Call the Club Hotline for updated information. Everyone should meet at the gate at the scheduled time. The gate will be closed after that time.

- All outdoor events are FREE! All are welcome. If you bring small children, it is **your** responsibility to keep a close eye on them. Please do not bring white-light flashlights. Instead, bring a red astronomer's flashlight or an ordinary flashlight covered with several layers of red cellophane. If in doubt about the weather, check the status of the event at www.midhudsonastro.org.