MHAA

Mid-Hudson Astronomical Association

March, 2014

Website: www.midhudsonastro.org

Yahoo Group: MHAstro

President : Willie Yee
Secretary: Jim Rockrohr
Newsletter Editor: Rick Versace
Publicity: Paul Chauvet
Parks Liaison:

Vice President: Joe Macagne
Treasurer: Ken Bailey
Membership Coordinator: Caryn Sobel
Webmaster: Paul Chauvet
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, February 18, 2014

The meeting was called to order at 7:43 PM by President Willie Yee in the Coykendall Science Auditorium at SUNY, New Paltz, NY.

The minutes of the previous meeting were approved as published in the newsletter.

Officer's Reports:

Membership: Caryn Sobel was not present. Willie reminded the membership that annual dues of $25 are due now. Please pay the membership coordinator, the Treasurer, or use the PayPal option on the website. These funds are used to bring in speakers, pay for our liability insurance, and support our outreach programs.

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

Treasurer's Report for the month of January

Date: 12 March, 2014

Bank Balance:	$2006.93
Outstanding Checks:	$ 0.00
Outstanding Deposits:	$ 369.85
Ending Bank Balance:	$2376.78
Checkbook Balance:	$2376.78
Balance with Bank: Yes	
Ending balance total:	$2376.78

Notes: Outstanding deposits are from memberships.

Respectfully submitted: Ken Bailey
Treasurer

Outreach: Candace Wall
Upcoming events include:

- There will be a large Boy Scout Jamboree at the Dutchess County Fairgrounds May 16-18 and they have asked us if we want to participate. Candace will coordinate through the MHASTRO mail list.
- There is an event with Bob Berman on the Walkway Over the Hudson on May 9. Need scopes.
- Do we want to do anything for International Astronomy Day?
- Olana is asking for another presentation. Tentative dates are 6/14, 8/16, and 9/21. Willie and Joe M. will coordinate.
- Willie plans to set up several solar scopes for Earth Day, 4/27, at the Reformed Church in New Paltz. He could use some help.
- International Sun Day is June 22.

Publicity: Paul Chauvet was not present but is always soliciting input on upcoming activities to publicize.

Webmaster: Paul Chauvet was not present.

Upcoming programs: Joe Macagne

- February will be **Chasing Shadows for Planetary Science:** How to Successfully Observe and Time the Upcoming Occultation of Regulus on March 20, 2014, featuring Ted Blank

Old Business:

- Winter Dinner is this Saturday. 12 reservations, so far. Willie needs a final count by tomorrow.

13.1" Club Telescope: Jack Chastain has it and will bring it to club events.
8" Dynamax SCT: Willie Yee 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.

There is a 10" home built Dobsonian available to be donated to the club if the club is interested. Paul Chauvet expressed interest and will follow up with Willie to make arrangements.

New Business:

- Does anyone know the status of observing from the Rosendale Bridge?

Visitors/New Members:

No visitors introduced themselves. There were a total of about 9 people present for the meeting.

Observing Reports:

Regulus occultation by an asteroid at ~2 AM on May 20. We are within the central track.

The meeting was adjourned at 7:53 PM.

The program that followed was a video called Newton's Dark Secrets.

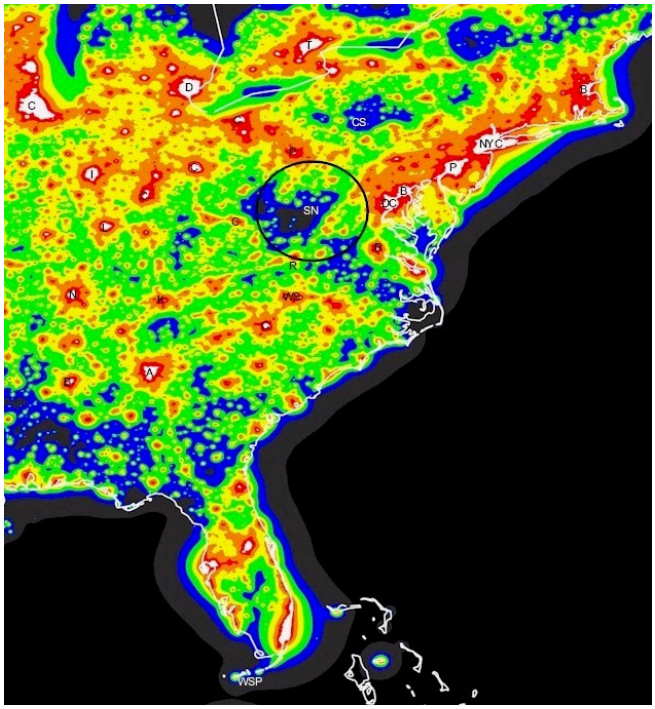
Submitted by James Rockrohr, March 13, 2014.

From the President:

The Globe at Night

This month's speaker presents a unique opportunity to do some real science, with little or no equipment, during a once-in-a-lifetime occurrence. There is another project in which one could similarly do some real science, this one ongoing throughout the year, and on a subject dear to all of our hearts—light pollution.

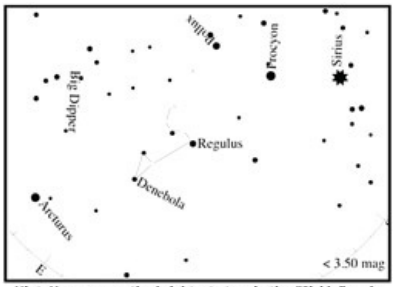
We are all familiar with the maps showing the sad story of light pollution:



Maps such as these, and the data associated with them are valuable resources in campaigns for the preservation of the night sky. Better information means a better case that can be made to governments, businesses, and the public for the necessity of rational lighting.

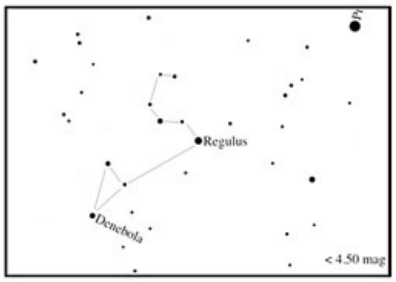
The Globe at Night is a project to obtain data from as many places as possible. The data needed can be gathered by ordinary folk, and no instrumentation is required – just naked eye observation. Each month, we are invited for one week to go outside in the evening, and observe a chose constellation. This month it is Orion, and the next three months it will be Leo.

One then compares what one is seeing with what is on the Globe at Night constellation charts. Choosing the chart that is closest to what one can observe gives the magnitude to which one can see that that time and location. The Globe at Night has a site where the location, time and observation can easily be reported. If one has a Sky Quality Meter, that data can be entered as well.



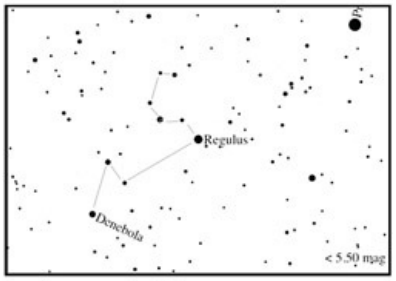
Hint: You can see the brightest stars in the "Sickle" and the 2 brightest stars in Leo's back end.

Multiple observations, both over time, and in a given area, are quite helpful. If there are many observations in one area, not only is the overall map made more accurate, but maps can be generated for a given area, even identifying specific sources of light pollution.



Hint: You can see the brightest 6 stars in the "Sickle" or the mane of Leo plus the triangle of stars representing his back end.

There is a wealth of information available in the Globe at Night website, including beginner's information on how to find the designated constellations, an introduction to light pollution, a map generator (who is it that made an observation from New Paltz Road?), activity guides, and links to apps that can use your smartphone as a sky quality meter. The Dark Sky Meter app has a button to press that automagically sends your reading to Globe at Night. This project can be as easy as pressing buttons 1-2-3!



Hint: You can see more stars between the "Sickle" and Leo's back end.

It would be great if MHAA members and the public could put up a lot of data points for the Hudson Valley. It would give use a good picture of light pollution in our area, and it is an easy enough project that the uninitiated can participate. This would get them looking up, and who knows what else they might find interesting up there!

Dr. Willie K. Yee, President MHAA

NASA Space Place

Old Tool, New Use: GPS and the Terrestrial Reference Frame

By Alex H. Kasprak

Flying over 1300 kilometers above Earth, the Jason 2 satellite knows its distance from the ocean down to a matter of centimeters, allowing for the creation of detailed maps of the ocean's surface. This information is invaluable to oceanographers and climate scientists. By understanding the ocean's complex topography—its barely perceptible hills and troughs—these

scientists can monitor the pace of sea level rise, unravel the intricacies of ocean currents, and project the effects of future climate change.

But these measurements would be useless if there were not some frame of reference to put them in context. A terrestrial reference frame, ratified by an international group of scientists, serves that purpose. "It's a lot like air," says JPL scientist Jan Weiss. "It's all around us and is vitally important, but people don't really think about it." Creating such a frame of reference is more of a challenge than you might think, though. No point on the surface of Earth is truly fixed.

To create a terrestrial reference frame, you need to know the distance between as many points as possible. Two methods help achieve that goal. Very-long baseline interferometry uses multiple radio antennas to monitor the signal from something very far away in space, like a quasar. The distance between the antennas can be calculated based on tiny changes in the time it takes the signal to reach them. Satellite laser ranging, the second method, bounces lasers off of satellites and measures the two-way travel time to calculate distance between ground stations.

Weiss and his colleagues would like to add a third method into the mix—GPS. At the moment, GPS measurements are used only to tie together the points created by very long baseline interferometry and satellite laser ranging together, not to directly calculate a terrestrial reference frame.

"There hasn't been a whole lot of serious effort to include GPS directly," says Weiss. His goal is to show that GPS can be used to create a terrestrial reference frame on its own. "The thing about GPS that's different from very-long baseline interferometry and satellite laser ranging is that you don't need complex and expensive infrastructure and can deploy many stations all around the world."

Feeding GPS data directly into the calculation of a terrestrial reference frame could lead to an even more accurate and cost effective way to reference points geospatially. This could be good news for missions like Jason 2. Slight errors in the terrestrial reference frame can create significant errors where precise measurements are required. GPS stations could prove to be a vital and untapped resource in the quest to create the most accurate terrestrial reference frame possible. "The thing about GPS," says Weiss, "is that you are just so data rich when compared to these other techniques."

You can learn more about NASA's efforts to create an accurate terrestrial reference frame here: http://space-geodesy.nasa.gov/.

Kids can learn all about GPS by visiting http://spaceplace.nasa.gov/gps and watching a fun animation about finding pizza here: http://spaceplace.nasa.gov/gps-pizza.

Artist's interpretation of the Jason 2 satellite. To do its job properly, satellites like Jason 2 require as accurate a terrestrial reference frame as possible. Image courtesy: NASA/JPL-Caltech.

Editors: download photo at
http://www.jpl.nasa.gov/missions/web/ostm.jpg

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Images credit: Saturn & the Phoebe Ring (middle) - NASA / JPL-Caltech / Keck; Iapetus (top left) - NASA / JPL / Space Science Institute / Cassini Imaging Team; Phoebe (bottom right) - NASA / ESA / JPL / Space Science Institute / Cassini Imaging Team.

Upcoming Events

March 20 – Regulus Occultation

March 28 – MHAA Star Party: Messier Marathon Weekend

April 11-12 – NorthEast Astronomy Forum

April 15 – Total Lunar Eclipse

April 25 – MHAA Star Party

April 25-27 – Stokes Star Party, New Jersey

April 27 – Earth Day Celebration, New Paltz

May 2 – Rail Trail Star Party

May 7 - "Lithic Alignments" Ancient Astronomy ?, Rosendale Library

May 10 - International Astronomy Day. Walkway event with Bob Berman

May 16 -18 – Boy Scout CamporALL – Rhinebeck Fairgrounds

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.