



THE STAR

THE NEWSLETTER OF THE
MOUNT CUBA ASTRONOMICAL GROUP
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OUR PROGRAMS ARE HELD THE SECOND TUESDAY OF EACH
MONTH AT 7:30 P.M.

MOUNT CUBA ASTRONOMICAL OBSERVATORY
1610 HILLSIDE MILL ROAD
GREENVILLE DE.

UNLESS INDICATED OTHERWISE

PLEASE SEND ALL PHOTOS AND ARTICLES TO
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302-368-8990

PUBLIC OUTREACH

SCHOOLS:

The MCAG held its last Creamery Star Party on September 14th. As usual, we had a good turnout of members. The Scopes and Binoculars were set up and customers of the Creamery came over to view several Night Sky objects. Most were quite impressed with a first time up close view of the Moon. A few Scopes were turned to Double Stars as well as the Andromeda Galaxy. It was quite interesting to hear what the new Star Watchers were saying. However, the most interest thing was to watch the picture of joy as it appeared on the face of a six year old when he first saw the moon up close and personal. Some students from the A. I. DuPont High School Astronomy Club attended. They got a real kick out of Lynn's Google Night Sky Program which she had loaded on her Android. What a wonderful sight it is to see these youngsters exploring their passions. Are there a few budding Astronomers in this Club?

This past Thursday night, Sept. 26th, eight students from the A.I. DuPont High School Astronomy Club as well as Mr. Vic Leonard, their Club Advisor and Teacher, attended our Telescope Workshop. Scott Jackson led an excellent presentation of the Night Sky using the Mount Cuba Planetarium. All in attendance heard an excellent talk on Galaxy's, White Dwarfs, Constellations, and Planets. Well done Scott.

Mr. Jay Hill also attended the Workshop. Mr. Hill teaches at the A.I. DuPont Middle School. Through the efforts of Mr. Hill, some students, as well as several donated hours from Dave and Hank, the Planetarium at the school has been restored. The unit is a Spitz A3P and dates back to 1962. The last time the Planetarium was used was most likely in the mid 80's. As best as Jay can determine, the room has been used as a collect all area for junk. Many hours and several dumpsters later ... We extended a well earned thank you to all involved in such an important project. For those interested in seeing the Planetarium, please contact Mr. Hill at jryhill@yahoo.com.

LIBRARIES:

Hank has been in touch with some local libraries about additional outreach to the public. (As of press time, no firm commitments, but feel assured this is an outreach that will occur.) Keep your scope pointed our way.

OBSERVATIONS FROM THE CONFORTABLE CHAIR

Hank Bouchelle Co-Chair

Phenomena:

Satellites Over Mt. Cuba Astronomical Observatory.

Satellites usually move across the sky from west to east, opposite to the path of most objects in the sky. This causes satellites, for casual observers, to stand out in a sky full of apparently motionless stars. The missions of some satellites require a polar or geostationary orbit. Several factors

determine the orbital path of a satellite, but west to east is the direction of choice and near the Equator is the place to launch. It just makes sense, and also dollars.

It is useful to note that Cape Kennedy is just about as close to the Equator as is possible within the continental U.S. permits. Europeans launch satellites northern South America and near the Equator.

A person standing on the Equator is about 4,000 miles from Earth's axis. Thus, painting the Equator all the way around would require paint for more than 24,000 miles. In Delaware, we are closer to the axis, and painting around Earth at our latitude (approx. 40 degrees north) would require paint for perhaps a little less than 20,000 miles.

Both Delaware and Ecuador complete orbits in 24 hours. A person standing on the Equator is, as far as Newton was concerned, moving 24,000 miles in 24 hours – a thousand miles/hour (viewed from space). Delaware, describing a smaller circle, covers much less distance, and has a velocity of about 700 travels than does Ecuador, about 700 miles/hour. If we toss a rock into the sky on the Equator, as far as the Universe is concerned, at its apex its velocity is 1,000 miles per hour. In Delaware, it is much less, about 700 miles/ hour.

Given the cost and the vast quantities of fuel needed to accelerate a satellite into orbit, one can easily see that launching near the Equator - and heading east - offers a 1,000 miles per hour head start on achieving orbital velocity! Unfortunately, there is no shortcut to orbital velocity for a north to south polar orbit.

For an observer, satellites appear to move eastward against a background of apparently motionless stars, Many satellites have a 90-minute orbit, so their motion is easy observed. However, since it is desirable for a satellite to cover more than just the equatorial region, the path of a satellite drifts north and south. Sometimes a satellite's path places it too far south to observe every clear evening.

Various websites and other sources provide a wealth of information about when and in what direction to look for satellites. <http://www.space.com/6870-spot-satellites.html> can provide a good start.

The International Space Station is a particularly interesting satellite. After all, people live there, and spacecraft, some of them civilian, arrive from time to time. It is also fascinating to account for the unexpected consequences of the immense size and mass of the ISS. Such factors create difficulty with holding an attitude suitable for its solar panels to work properly, and further compounds the maneuvering difficulties encountered in occasionally lowering the ISS orbit to reduce the danger of solar outburst for people and machines.

People who can understand these things, and make them work, should be on postage stamps.

SEPTEMBER'S MEETING REVIEW

An informative talk on the 10" Hartnet House Turret Telescope was given by Dave Groski. There was a discussion period about observing the Sun with a Solar Filter. We did some Star Gazing as well as observed an Iridium Flash. Well worth attending the meeting.

OCTOBER'S MEETING

TUESDAY THE 8TH

Introduction to Astronomical Photography

Chris Meyers, University of Delaware

Most of us are quite aware of the photos Chris has taken. It will be quite interesting to learn just how he does it.

From Chris: I am going to focus on how to take starscapes with a Digital SLR Camera and a tripod. I will also talk about using a zoom lens to get pictures of bright clusters, nebulae and planets. I will talk about the different settings to use and how to take the best pictures possible with limited equipment.

PHOTOS OF INTEREST

Have an astronomy related image you would like to share? Perhaps images of a group get together? Maybe a scope you made? It doesn't matter when it was taken as long as it was taken by you or a friend. Please send the photographer's name and the specifics of the image.



As most of you are aware, some members of the MCAG went to the Creamery located at 1310 Little Baltimore Road, just off of Rt. 7, three times during the summer months for a Star Gazing party. It was a joy to watch the people view various objects and a real joy to see the expressions on the kids faces. Did you guys help develop some future Astronomers? I think so.



These photos's were submitted by Chris Meyers. The first is of our Milky Way. The second is a great cluster in Hercules M13. What terrific shots. Chris will be our guest speaker for the October meeting. Perhaps he will share some information on both shots. I hope both can be seen clearly for I still have some learning to do.



What we have here is a restored 1957 Celestar Feckerscope. Dave Groski showed the Scope at the 2010 Springfield Telescope Makers Convention. Up close you can see the attention to detail and craftsmanship. Back away some and it becomes a work of art. I will ask Dave if he could bring it to one of our meetings so we can all get a close up view.

PUBLIC NIGHTS AT MCAO

<u>Date</u>	<u>Host</u>	<u>Topic</u>
28 Oct 2013	James Delessio	TBD
11 Nov 2013	Bill Hanagan	I want a Telescope - How do I pick one?
2 Dec 2013	Scott Jackson	TBD
16 Dec 2013	Stan Owocki	When Giant Stars Collide.

Please refer to mountcuba.org for additional information. Due to limited space, reservations are required.

TELESCOPE WORKSHOP

For those who have attended, it is always a rewarding experience. Besides doing some Star gazing, you can learn a good bit about the inner workings of a telescope as well as telescope repair, mirror grinding, and several other interesting tips on making your Scope perform better. If you are interested in building your own Scope, I'm sure you can come away with the correct information on how to do so.

WEB SITES OF INTEREST

This section is for those who have recently started their search of the night sky. I shall list at least one web site each month that will help them on their journey.

www.nightsky.jpl.nasa.gov

FROM THE U OF D

October 17th 2013 7:30 p.m.

Clayton Hall Conference Center

A new look at the Comets presented by David Jewitt, Professor of Astronomy, University of California Los Angeles

Free and Open to the Public. Please register online at mountcuba.org

FROM THE EDITOR:

We have started our second year as the MCAG. From where I sit, this group has a golden opportunity to accomplish a much needed outreach to the community at large. From what I have seen take place in the past year I am certain that we are well on our way. May I extend, to all those involved with the success we have had to date, a hardy thank you. For all the new members we are gaining, you can be assured your efforts will be recognized as well as greatly appreciated. Please understand that the MCAG will reach out to anyone with an interest in Astronomy. From.....What's this, a telescope?.... cool. I always wanted to look through one of these to members who are well known experts in the field of Astronomy. All are welcome.

What you can expect to see in the Newsletter in the future is the accomplishments and efforts of MCAG as an outreach to the public in general. I will include a section on past meetings and events as well as upcoming meetings and events. We will also have a section to display photos or information on Astronomy related experiences our membership offers. I would like to continue a section for *THROUGH THE TELESCOPE - THIS MONTHS SKY*. What observers can look for during the upcoming month as well as where it can be located. It is a very worthwhile effort so any volunteers? From time to time, I will include interesting web sites and on occasion a reference to an article our membership may find of interest. Any suggestions are appreciated.

Thank you.

Editor

REVIEW OF MCAG MISSION STATEMENT

The Mission of the Mt. Cuba Astronomy Group is to increase knowledge and expand awareness of the science of astronomy and related technologies.

To provide MCAG members and the general public with monthly educational programs in astronomy and astronomy-related topics

To engage in outreach to the public as well as MCAG members to provide engaging and informational activities of astronomical interest, including public lectures and observing.

To support a responsive, informative, and useful newsletter for its members and the general public.

To support educational institutions, including schools and their teachers, in their efforts to engage and inform their stakeholders in the area of astronomy, formally and informally, and as appropriate its relationship to mathematics.

To hold formal and informal courses, work-shops, and retreats that support its members' interests, and engage and inform the general public.

To offer publications and materials of astronomical interest to its members at a discount as they may be available, and to the general public when possible.

To develop and support affiliations with like-minded institutions.

If you know of anyone who is interested in Astronomy or someone who would like to learn more, please do not hesitate to extend and invitation to them to attend our meetings. If they have an interest in joining, our application is below.

Mt. Cuba Astronomy Group

Membership Form

The Mt. Cuba Astronomy Group is a tax-exempt organization dedicated to astronomy education and public outreach. Benefits of membership include:

- Monthly newsletter that includes details about the Group's activities and much astronomical information
- Monthly programs on subjects and topics of astronomical interest
- Free or discounted subscriptions to astronomy-related publications
- Free registration for MCAG workshops and classes
- Mention Mt. Cuba Astronomy Group and receive a 5% discount at Manor Books in New Castle (<http://www.yelp.com/biz/manor-used-books-New Castle>)



Mail to:

Ms. Carolyn Stankiewicz
1001 Woodstream Dr.
Wilmington, DE 19810

Name _____

Name(s) (children, if any, and age): _____

E-mail address: _____

Home address: _____

Phone (optional): _____