

THE Dark Sky Observer

Winter • Spring

A Publication of the North Jersey Astronomical Group

2007



THE DARK SKY OBSERVER

The Dark Sky Observer is a publication of the North Jersey Astronomical Group (NJAG), whose purpose is to promote the study and knowledge of the science of astronomy. The Dark Sky Observer needs your input! Letters, comments, suggestions, book and product reviews, and articles are welcomed and encouraged.

Contact the editor at 973-586-0612, kdconod@optonline.net, or at this address:

Dark Sky Observer
North Jersey Astronomical Group
P.O. Box 1472, Clifton, NJ 07015-1472

Contents © NJAG, 2006.

No articles may be republished or reprinted without express written consent of the author and NJAG.

VISIT OUR WEB PAGE AT

www.njastro.org.

Mary Lou West also maintains a web page at: <http://www.csam.montclair.edu/~west/njag.html>

MEMBERSHIP

Dues are only \$15.00 per year (\$20.00 for family and \$10.00 for student memberships). Benefits of membership include: \$10 discount on subscriptions to "Sky & Telescope" or "Astronomy" magazines ("Sky & Telescope" subscribers also get a 10% discount on all books, maps, and products at Sky Publishing); a subscription to this newsletter; an e-mail list for the latest club and astronomy news; use of our dark sky sites; field trips to local planetariums, science centers, and star parties; a lending library of astronomical books; a Telescope Loan Program; and star parties for special celestial events.

Make checks out to the NJAG and mail to: North Jersey Astronomical Group, P.O. Box 1472, Clifton, NJ 07015-1472. If you have any questions regarding membership, contact our Membership Committee Chair, Jim Coughlin, at woodwrench@aol.com.

UACNJ

The NJAG is a member of the United Astronomy Clubs of New Jersey (UACNJ), a consortium of more than a dozen astronomy clubs, united to better help support, coordinate, and communicate ideas between stargazers in and around the state. The UACNJ operates an observatory at Jenny Jump State Forest near Hope, NJ which serves as the NJAG's dark sky site.

UPCOMING MEETINGS

MARCH 14: **Bicycling on Other Worlds**

Our guest speaker will be Lonny Buinis from Raritan Valley Community College. Lonny is an astronomical artist and an avid bicyclist. During this presentation we follow Lonny and his wife Jan on a fictional visit to the International Space Station and from there take a month-and-a-half-long journey to the most fascinating cycling locations in the Solar System. Jan documented Lonny's adventures as he:

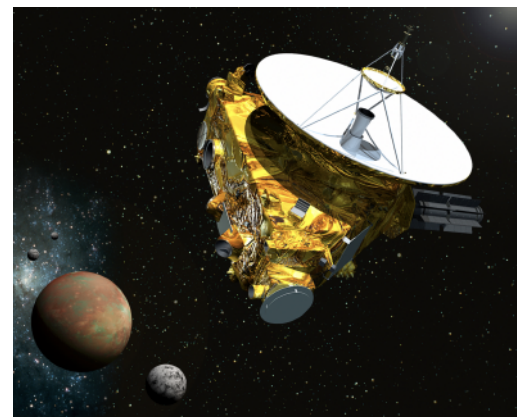
- saw a volcano the size of Texas
 - rode in sand storms in a canyon as long as the entire United States
 - followed ice cracks hundreds of miles long as they formed
 - dodged ice geysers
 - got his wheels stuck in frozen nitrogen
- Join us and find out how Lonny got his reputation as the first human being to suffer an extraterrestrial bicycling mishap while he was... "Bicycling on Other Worlds"!



April 11: **First Space Mission to Pluto: New Horizons**

Michael Dean Lewis, a NASA Solar System Ambassador, will give a presentation on New Horizons. New Horizons was launched a little more than a year ago, recently flew past Jupiter and is headed for a 2015 rendezvous with distant Pluto. Mr. Lewis will discuss the spacecraft's exciting mission to the edge of the Solar System. He will also talk about the latest from NASA's Mars, Mercury and Saturn missions.

Wednesday monthly meetings are held on the second Wednesday of every month (except August). They are free and open to the public - all are welcomed; light refreshments will be served. Meetings are held at 8:00 p.m. in Richardson Hall, Room 232 at Montclair State University.



MEMBERSHIP RENEWALS

All NJAG members should have received a renewal notice. NJAG Membership dues run from January to December and must be renewed every year. Please renew your dues if you have not done so already. If you do not renew your membership you will be dropped from the mailing and e-mail lists.

Make check or money order out to the NJAG. Mail your payment to: North Jersey Astronomical Group, P.O. Box 1472, Clifton, NJ 07015-1472

If you have any questions contact Treasurer Neil Goldstein (ngoldstein@pobox.com) or Membership Chair Joe Marzullo (marzullo@saturn.montclair.edu).

TELESCOPE NIGHTS

Our Thursday night Telescope Nights at Montclair State will run through May 3 (except March 15).

Telescopes will be set up on Thursday nights, weather permitting, from 8:00 - 9:00 p.m. All are welcome; bring the whole family!

On the nights when the Moon is about first quarter or full we begin at 7:30, early enough so that small children can come and still get to bed by 8 PM.

KIDS' TELESCOPE NIGHTS

Telescope Night will begin early at 7:30 p.m. on March 1, March 29 and April 26.

Please note:

Our telescope can't see through clouds! Telescope Night will be cancelled if the weather is cloudy, very cold or very windy. (It is considered clear if you can see the Moon or ten stars clearly.)



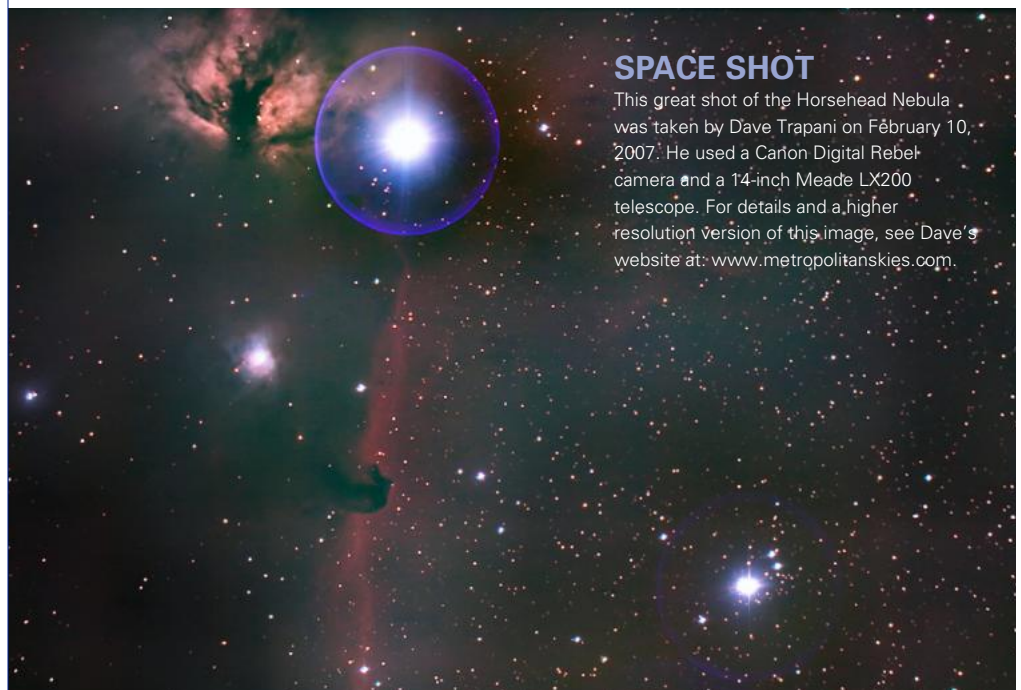
© 2004 Dave Trapani

LUNAR ECLIPSE

By Kevin Conod

Saturday March 3, we will be treated to a Lunar Eclipse. It is a Total Lunar Eclipse – the Moon is passing directly through the Earth's shadow. Unfortunately we will not be able to see the entire event because it begins before moonrise here in New Jersey. Still it should be interesting to watch the eclipsed Moon rising, emerging slowly from the Earth's umbra as it ascends into the eastern sky.

The Moon is already in eclipse when it rises at 5:44 p.m. on March 3. At about 7:00 p.m. the Moon will begin to emerge from the Earth's shadow. By 7:30 p.m., the Moon will be approximately halfway out of the shadow – the large crater Tycho should be visible shortly after this. The main part of the eclipse comes to an end just after 8:00 p.m. as the Moon emerges from the Earth's umbra.



SPACE SHOT

This great shot of the Horsehead Nebula was taken by Dave Trapani on February 10, 2007. He used a Canon Digital Rebel camera and a 14-inch Meade LX200 telescope. For details and a higher resolution version of this image, see Dave's website at: www.metropolitanskies.com.

ECLIPSE WATCH

Saturday March 3

7:00 - 9:00 p.m.

Riker Hill Park, Livingston

Weather permitting, telescopes will be set up for the public to see a Total Lunar Eclipse. All NJAG members are encouraged to attend and bring a telescope.

Although the eclipse begins at moonrise at 5:44 p.m., it will take

about an hour for the Moon to rise above the treetops. From 7:00 to 8:00 p.m. will be devoted

to the eclipse. After the eclipse is over, the second half of the event will be devoted to the Saturn and other wonders of the night sky. Riker Hill Park is located on Beaufort Avenue off of Eisenhower Parkway in Livingston. Directions to Riker Hill are on the web site.

If the event needs to be canceled due to the weather, a message will be left at 973-596-6529 after 5:00 p.m. on the day of the event. Unfortunately, once an event has been canceled, it cannot be rescheduled due to the permits and arrangements required to present them.

Cosponsored by The Newark Museum and Essex County Department of Parks, Recreation, and Cultural Affairs.

A GREAT BIG WRECK

By Dr. Tony Phillips

People worry about asteroids. Being hit by a space rock can really ruin your day. But that's nothing. How would you like to be hit by a whole galaxy?

It could happen. Astronomers have long known that the Andromeda Galaxy is on a collision course with the Milky Way. In about 3 billion years, the two great star systems will crash together. Earth will be in the middle of the biggest wreck in our part of the Universe.

Astronomer John Hibbard isn't worried. "Galaxy collisions aren't so bad," he says. A typical spiral galaxy contains a hundred billion stars, yet when two such behemoths run into each other "very few stars collide. The stars are like pinpricks with lots of space between them. The chance of a direct hit, star vs. star, is very low."

Hibbard knows because he studies colliding galaxies, particularly a nearby pair called the Antennae. "The two galaxies of the Antennae system are about the same size and type as Andromeda and the Milky Way." He believes that the Antennae are giving us a preview of what's going to happen to our own galaxy.

The Antennae get their name from two vast streamers of stars that resemble the feelers on top of an insect's head. These streamers, called "tidal tails," are created by gravitational forces - one galaxy pulling stars from the other. The tails appear to be scenes of incredible violence.

But looks can be deceiving: "Actually, the tails are quiet places," says Hibbard. "They're the peaceful suburbs of the Antennae." He came to this conclusion using data from GALEX, an ultraviolet space telescope launched by NASA in 2003.

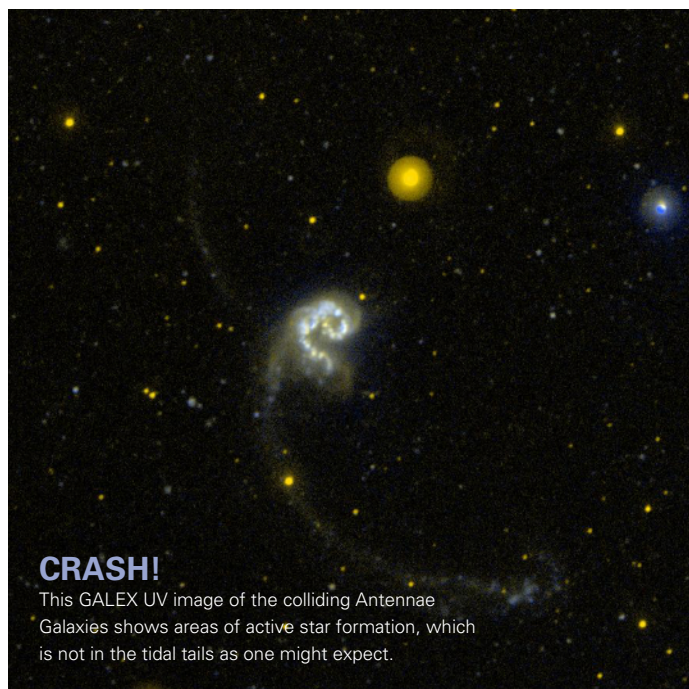
The true violence of colliding galaxies is star formation. While individual stars rarely collide, vast interstellar clouds of gas do smash together. These clouds collapse. Gravity pulls the infalling gas into denser knots until, finally, new stars are born. Young stars are difficult to be around. They emit intensely unpleasant radiation and tend to "go supernova."

GALEX can pinpoint hot young stars by the UV radiation they emit and, in combination with other data, measure the rate of star birth. "Surprisingly," Hibbard says, "star formation rates are low in the tidal tails, several times lower than what we experience here in the Milky Way." The merging cores of the Antennae, on the other hand, are sizzling with new stars, ready to explode.

So what should you do when your galaxy collides? A tip from GALEX: head for the tails.

To see more GALEX images, visit www.galex.caltech.edu. Kids can read about galaxies and how a telescope can be a time machine at spaceplace.nasa.gov/en/educators/galex_puzzles.pdf.

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



CRASH!

This GALEX UV image of the colliding Antennae Galaxies shows areas of active star formation, which is not in the tidal tails as one might expect.

The Dark Sky Observer

North Jersey Astronomical Group
P.O. Box 1472
Clifton, NJ 07015-1472



THE EDGE OF NIGHT

Seen from the space shuttle, this image is from October 12, 2004

SKY CALENDAR

February


- 18 Chinese New Year
- 19 Moon near Venus
- 23-24 Moon near Pleiades
- 28 Flyby of Jupiter by New Horizons spacecraft

March

- 03 Lunar Eclipse (visible in NJ)
- 09 Jupiter at quadrature (morning sky)
- 11 Daylight Saving Time Begins (Set Clocks Ahead 1 Hour)
- 11 Jupiter near Moon (morning sky)
- 16 Launch of Space Shuttle Atlantis
- 16 Moon near Mars & Mercury (Dawn)
- 18 Partial Solar Eclipse (not visible from NJ)
- 20 Vernal Equinox, 8:07 p.m.
- 21 Mercury at greatest elongation (Dawn)
- 28 Moon near Saturn

April

- 02 Smallest Full Moon of the year
- 08 Moon near Jupiter (morning sky)
- 10-12 Venus near Pleiades star cluster
- 13 Mars near Moon (morning sky)
- 19 Moon near Pleiades & Venus
- 16-22 National Astronomy Week
- 17-24 National Dark Sky Week
- 22/23 Lyrids Meteor Shower Peak
- 24 Saturn near Moon



Make Your Own Personal Pocket SOLAR SYSTEM


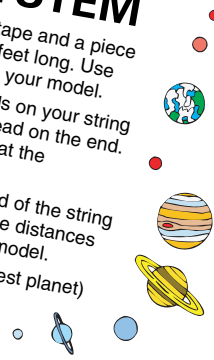
You'll need a measuring tape and a piece of cord or string that's 31 feet long. Use beads or markers to make your model.

Beads: string 9 small beads on your string first, then tie 1 large Sun bead on the end. Glue or tie the small beads at the distances shown at right.

Markers: tie a knot at the end of the string to represent the Sun. Mark the distances shown at right for your scale model.

On this scale Jupiter (the biggest planet) is about the size of the period at the end of this sentence.
1 inch = 10 million miles

PLANET ... FROM SUN	Distance
Mercury	...3.6"
Venus	...6.7"
Earth	...9.3"
Mars	...14.2"
Jupiter	...48.4"
Saturn	...88.7"
Uranus	...178.0"
Neptune	...279.0"
Pluto	...367.0"



BUILD YOUR OWN... An interesting perspective

STUMP THE ASTRONOMERS

Have a question about astronomy?
Send it in to Kevin Conod at the address on page 1
or to kdconod@optonline.net
and we'll try to have an answer in the next newsletter.