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Star*Points for March 2013

"Comet PanSTARRS is Coming!"

by Curtis Roelle

In This Issue:

The astronomical star for this month is a hairy star, or comet. The name is C/2011 L4 (PanSTARRS). Will it be visible to the naked eye, and if so where will it appear and when? Will there be public viewing sessions with volunteers to help point it out? Keep reading for answers to these questions, and more.

Modern comet names reflect the time of discovery as well as the names of the discoverers. For example, Comet Hale-Bopp (C/1995 O1), or the great comet of 1997, was named after its co-discoverers, Alan Hale and Thomas Bopp. They were observing independently from New Mexico and Arizona, respectively, when they discovered the comet in the summer of 1995

Comet PanSTARRS was discovered by an automated telescope in Hawaii that is part of the *Panoramic Survey Telescope & Rapid Response System*, or Pan-STARRS. The objective of the survey is "to discover and characterize Earth-approaching objects, both asteroids & comets, that might pose a danger to our planet." The telescope sweeps the sky automatically, taking images and looking for new objects.

The official designation of Comet PanSTARRS is C/2011 L4. The letter C means comet and, in particular, one that is non-periodic. Non-periodic comets are those that have not been previously observed and aren't expected to return. On the other hand, the letter P is used for denoting periodic comets, such as Halley's that returns every 76 years.

The next value is the year of discovery, 2011, and finally the month and order of discover. L4 indicates that PanSTARRS was the fourth comet discovered in the latter half of June.

(*continued on page 3)*

March Meeting: Wednesday, March 13, 2013, 7:30 p.m., at Bear Branch Nature Center

Speakers: **Christian Ready** – "Galaxies and Cosmology"
Pankaj Desai ("Doc") - "Archeastronomy, or what the Ancients Knew!!"
(As always…we will try to meet for dinner, beforehand, at Harry's)

Next WASI Observing Weekend: Saturday, March 2, 2013 – Bear Branch
Saturday, March 30, 2013 – Bear Branch

President's Message

by Vanessa Thomas

As I sit down to write this message, longtime WASI member and WASI board member Brian Eney is making his way cross-country on the start of a grand adventure. As he announced at the February meeting, Brian has accepted a full-time position with NASA's Stratospheric Observatory for Infrared Astronomy, or SOFIA, project. I am elated for him, but I admit, it was tough saying goodbye. When I joined WASI, Brian was one of the first members to reach out to me and make me feel welcome. I will very much miss his presence at our meetings and other events, as well as his infectious love of astronomy. But I am, of course, extremely excited for him and wishing him all the best in the world. I hope he remembers us once in a while and sends us reports from his exciting life working on NASA's airborne infrared observatory.

In the meantime, I've been pretty busy at work lately helping to prepare for a huge outreach event centered around NASA's next space-based infrared observatory, the James Webb Space Telescope (JWST). In March, Northrop Grumman (NASA's prime contractor for JWST) will be setting up its 12,000-pound, full-scale model of the four-story-tall telescope in Austin, Texas, in conjunction with the South by Southwest Interactive Festival in March. If anyone happens to be in or near Austin from March 8 to 10, be sure to check it out. It was set up in front of the Maryland Science Center in Baltimore in 2011, and I can affirm that it's quite a sight. In addition to the model, NASA will be hosting astronomy activities and presentations constantly from noon to midnight each day, including star parties each night and an attempt to break the Guinness World Record for the largest astronomy lesson ever taught. There will even be written reports, photos, videos, and online Google+ Hangouts for those of us who can't be there, all hosted at go.nasa.gov/JWSTSXSW.

JWST model in front of the Maryland Science Center in 2011 (Credit: NASA/Ed Campion)

(continued on page 4)

(Continued from Page 1)

It wasn't the first comet to be discovered by Pan-STARRS. The survey discovered periodic comet P/2010 T2. It has also discovered two supernovas and two asteroids. One of the latter is a Near Earth Asteroid (NEA) that has a slight possibility of colliding with the earth in 2098.

At the time of its discovery, Comet PanSTARRS was 759 million miles from the sun. By comparison Jupiter's average distance from the sun is only 483 million. Based on its orbital characteristics, astronomers believe PanSTARRS is now making its first trip to the inner solar system. Such fresh comets often brighten quickly as fresh ices sublimate, due to the increasing solar radiation as the comet draws nearer, forming a cloud around the nucleus, known as the coma. Sometimes, however, new comets can fade just as quickly as they brighten.

Early expectations for Comet PanSTARRS were calling for it to achieve brightness similar to naked eye planets. But as the new year opened, its brightening began to slow, and thus expectations were reduced. Lately, it's been observed to be steadily brightening again such that it could reach naked eye brightness similar to the stars of the Big Dipper.

During the inbound trip, PanSTARRS bided its time in the southern sky, never rising above the horizon for Maryland viewers. In March it finally makes its way to northern skies. On May 5 the comet is at its closest point to earth. At that time it will slightly farther away from us than the sun.

Then, on March 10, PanStarrs reaches its closest point to the sun, known as perihelion. By that time it may have begun making nightly appearances very low in our western sky in bright twilight after sunset.

The best time to see Comet PanSTARRS is starting 30 or 45 minutes after sunset. This would be the period approximately between 6:45 and 7:00 p.m EST or, starting when the daylight time begins on March 10, between 7:45 and 8:00 p.m. EDT. Each day the comet will be a little higher, where the sky will be darker, and will hang around longer before quickly setting.

You need a low unobstructed horizon to the west because the comet will be very low. On the night of March 12, the comet will be low in the west just to the left of a crescent moon. Finder charts can easily be found online by Googling Comet C/2011 L4 (PanSTARRS).

Public observing events will be held around the county on the night of Monday, March 11 at each branch of the Carroll County Public Library system. Weather permitting, members of the Westminster Astronomical Society will be on hand at each site to help point out the comet between 7 and 9 p.m. EDT. They are recommending guests to bring their own binoculars and practice so that they can keep following the comet on subsequent nights.

The observing sessions will be held at the Eldersburg, Finksburg, Mt. Airy, North Carroll, Taneytown, and Westminster branches. For more information about the event, check the library calendar site (http://library.carr.org/programs/calendar.asp).

President's Message

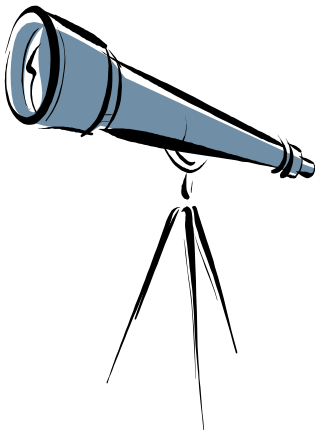
(Continued from Page 2)

The amateur astronomers from Texas helping out with the star parties at the JWST model are hoping to share views of Comet PANSTARRS with the public in Austin. I know many of us up here are looking forward to seeing the comet ourselves and likewise sharing views with the Maryland public. Skip (Bird) is spearheading a big outreach event on March 11th that will feature telescopes set up at every Carroll County public library, in the hopes of providing views of the comet to anyone who shows up before the comet is swallowed by the western horizon. If you are interested in helping out, please contact Skip.

Finally, I hope many of you will be able to gather at Bear Branch for the members observing session that Steve (Conard) and Paul (Henze) have scheduled for March 2nd. I'm disappointed that I won't be able to be there myself (due to travel plans that weekend). The night's theme will be a mini-Messier marathon, and the Messier objects are my favorite objects to pursue with my telescope (or binoculars or naked-eye). But I wish all of you good luck, loads of fun, and crystal-clear skies!

Vanessa

Upcoming WASI Events



Soldiers Delight Public Stargazing March 9th, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills

Monthly Meeting March 13th, 7:30 p.m., at Bear Branch Nature Center (BBNC)

Planetarium Show March 16th, 7:30 p.m., at BBNC

WASI Member Observing March 2nd, BBNC
March 30th, BBNC

WASI Messier Marathon - Late April – More details at the meeting and the April MDA

WASI Snow Policy

For public WASI events, such as the monthly meeting, planetarium programs, and public star parties, our snow policy is to follow the lead of the Carroll County Schools. If school activities for the time of our event — be they evening or on weekends — have been canceled, then so will the WASI event. Check your radio and television stations for school closings

Members Observing Notes

By Steve Conard

I write this a week prior to our first Bear Branch observing session of the year, on Saturday March 2. See the February MDA for information on that event.

Our second will be on Saturday, March 30, again at BBNC. Sunset is around 7:30 pm daylight savings time, and we'll set-up before twilight ends. We'll try to be there until 10:00. If the weather is predicted to be mostly cloudy or worse, we'll cancel--posting the cancellation on the Yahoo message board by mid-afternoon that day. The tentative date for the following session will be Saturday, April 27; the location will be announced in next month's MDA and at the April meeting.

For March 30, will continue our quest to have everyone view 10 Messier objects. Paul will be making the list for this session--we'll have a printed version, finder charts, and log sheets (if you want to try for a AL Messier award). We'll provide general handouts again at the March general meeting as well.

We'll also take a shot at looking for Comet PANSTARRS (C/2011 L4). On the 30th, PANSTARRS will be about 12 degrees above the WNW horizon about a half-hour after sunset. It will be about 5 degrees closer to the horizon than M31, in Andromeda--just to the north (right) of Pi Andromeda by less than a degree. Current brightness estimates are from 4 to 6 magnitude for the end of March.

As usual, some form of junk food will be provided. You may want to bring your own snacks, and a thermos of your favorite hot liquid is recommended.

Want to join the Westminster Astronomical Society?
Sign up online at *www.westminsterastro.org/members*
or bring a check for $25 made out to WASI
to our next meeting at Bear Branch Nature Center.

Outreach Opportunities

Comet PanSTARRS at your local library – All Branches of the Carroll County Public Library
Monday, March 11th - 7pm – 9pm. Organizer – Skip Bird.
Purpose – Give the public a glimpse of a comet. Hoping that it puts on a good show.

National Air and Space Musuem Girl Scout Day – Steven F. Udvar-Hazy Center – Chantilly
Saturday, March 23rd - 10am – 3pm. Organizer – Skip Bird.
Purpose – Astonomy outreach with girlscouts and their families. Huge Crowds…very fun!

Minutes of Meeting on February 13, 2013

Bear Branch Nature Center – Reported by Robert L. Clark, Secretary

Called to order at 7:40 by Vanessa Thomas, President.

Bob Clark reported on the contents of his book "Amateur Telescope Making in the Internet Age", Springer Publisher
Fundamental topics covered were:

- Availability of the book
- Use of Internet Sources
  - Manufacturers over runs
  - Ebay
  - Quality considerations
  - Cleaning
  - Re-Coating
  - Tube Construction
  - A cleaned-up compound lens from 1800s was passed around

Observing report was called for and presented by Steve and Paul.

- Considerable plans for Club observing were presented.

Skip and Curt presented awards:
One lunar, many outreach

Curt presented an observatory Report.

- Essentially everything is being re-considered including style of building and location.

Skip announced coming outreach activities including:

- Girl Scouts at Udvar Hazy; 23 March all day
- Comet on the 11th and/or 14th all county libraries early evenings

Adjourned 9:30 PM

Respectively Submitted
Robert L Clark, Sect

Welcome To Our Newest Members!

Jason Silva – Jefferson, MD

Raymond Bosworth – Westminster, MD

Tackling the Really BIG Questions

By Diane K. Fisher

How does NASA get its ideas for new astronomy and astrophysics missions? It starts with a Decadal Survey by the National Research Council, sponsored by NASA, the National Science Foundation, and the Department of Energy. The last one, *New Worlds, New Horizons in Astronomy and Astrophysics was completed* in 2010. It defines the highest-priority research activities in the next decade for astronomy and astrophysics that will "set the nation firmly on the path to answering profound questions about the cosmos." It defines space- and ground-based research activities in the large, midsize, and small budget categories.

The recommended activities are meant to advance three science objectives:

1. Deepening understanding of how the first stars, galaxies, and black holes formed,
2. Locating the closest habitable Earth-like planets beyond the solar system for detailed study, and
3. Using astronomical measurements to unravel the mysteries of gravity and probe fundamental physics.

For the 2012-2021 period, the highest-priority large mission recommended is the Wide-field Infrared Survey Telescope (WFIRST). It would orbit the second Lagrange point and perform wide-field imaging and slitless spectroscopic surveys of the near-infrared sky for the community. It would settle essential questions in both exoplanet and dark energy research and would advance topics ranging from galaxy evolution to the study of objects within the galaxy and within the solar system.

Naturally, NASA's strategic response to the recommendations in the decadal survey must take budget constraints and uncertainties into account.

The goal is to begin building this mission in 2017, after the launch of the James Webb Space Telescope. But this timeframe is not assured. Alternatively, a different, less ambitious mission that also address the Decadal Survey science objectives for WFIRST would remain a high priority.

The Astrophysics Division is also doing studies of moderate-sized missions, including: gravitational wave mission concepts that would advance some or all of the science objectives of the Laser Interferometer Space Antenna (LISA), but at lower cost; X-ray mission concepts to advance the science objectives of the International X-ray Observatory (IXO), but at lower cost; and mission concept studies of probe-class missions to advance the science of a planet characterization and imaging mission.

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For a summary of NASA's plans for seeking answers to the big astrophysics questions and to read the complete Astrophysics Implementation Plan (dated December 2012), see http://science.nasa.gov/astrophysics/. For kids, find lots of astrophysics fun facts and games on The Space Place, http://spaceplace.nasa.gov/menu/space/.

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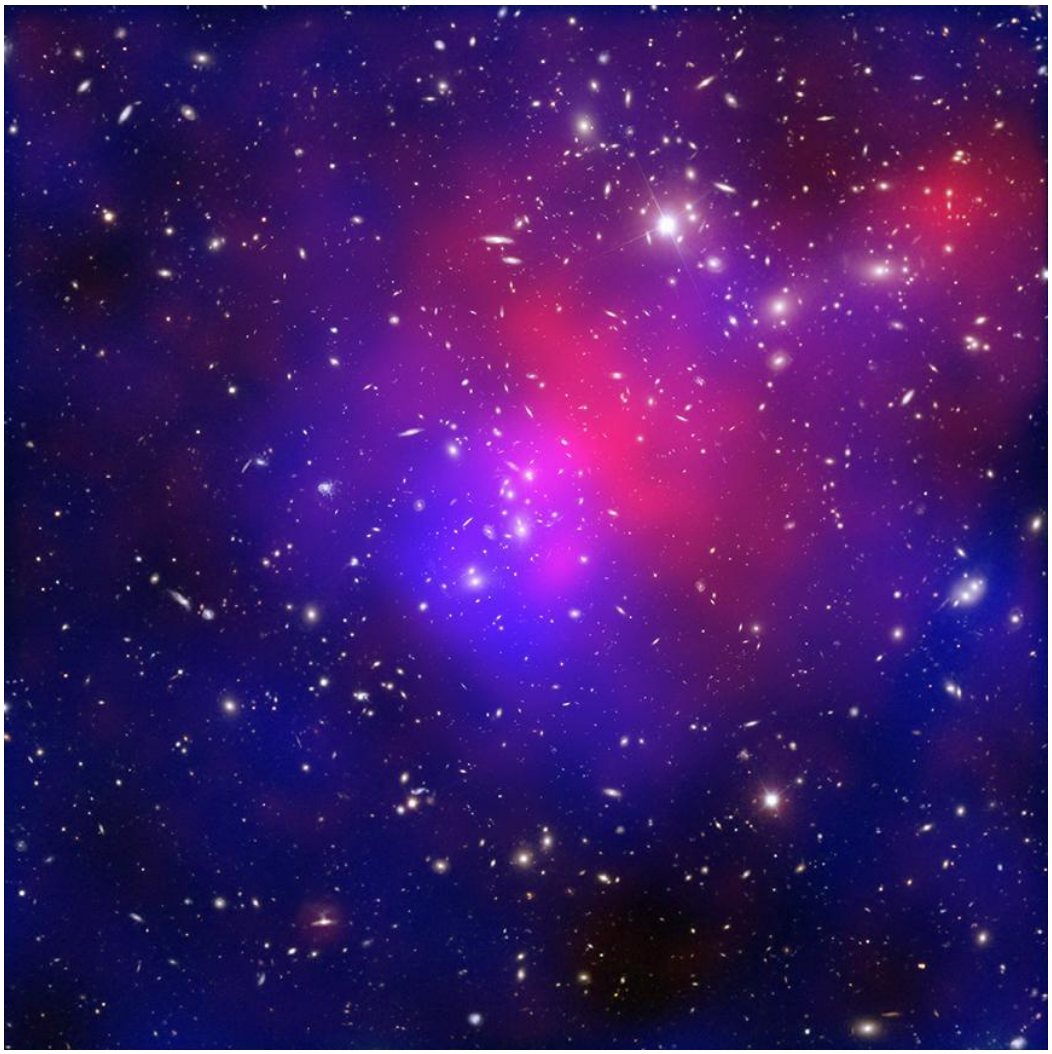

Caption:
Clusters of galaxies collide in this composite image of "Pandora's Cluster." Data (in red) from NASA's Chandra X-ray Observatory show gas with temperatures of millions of degrees. Blue maps the total mass concentration (mostly dark matter) based on data from the Hubble Space Telescope (HST), the European Southern Observatory's Very Large Telescope (VLT), and the Japanese Subaru telescope. Optical data from HST and VLT also show the constituent galaxies of the clusters. Such images begin to reveal the relationship between concentration of dark matter and the overall structure of the universe.