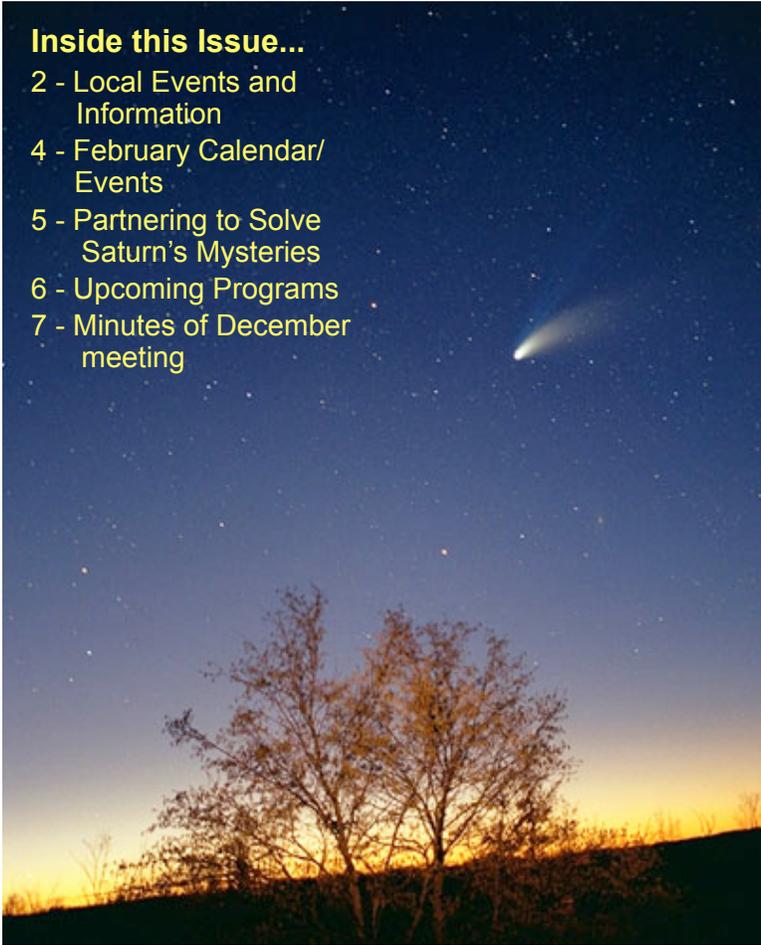


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Comet Hale-Bopp. Comets may have played an important role in the origin of life on Earth. Image Credit: Philipp Salzgeber <http://www.astrobio.net/pressrelease/3522/our-comets-celestial-wanderers>

“Comets are like cats,” the great amateur astronomer and comet hunter David Levy has said. “They have tails, and they do precisely what they want.” [credit](#)

We have two possible bright comets coming this year: one in March to April 2013 and the other from November 2013 to February 2014.

First up is comet **C/2011 L4 (PANSTARRS)**, a new comet discovered in June 2011 at the observatory on Mt. Haleakala, Hawaii. It will reach perihelion on March 9 at a distance of 28 million miles (0.30 AU) from the Sun, close enough for cometary ice to vaporize and form a bright coma and tail, states Nancy Atkinson at UniverseToday.com. But, just how bright will it be ?

Comets are unpredictable in this matter; however, the potential is there for it to be visible with the naked eye in the evening March sky. As recently reported by [Astro Bob](#) on Jan. 2, this comet is being observed at 8th mag. from the southern latitudes (Australia) and predicted to reach mag. 0 to -1.

Also interesting is the nearly parabolic path the comet was taking, which means it could be the only time it passes this way, ever. However, the gravitational affects of Jupiter and Saturn might be sufficient to change it into a very long elliptical orbit with a period of greater than 100,000 years.

Even if comet C/2011 L4 (PANSTARRS) doesn't live up to the fullest of expectations, it may still be useful for photographers

wanting to polish and improve their image capturing techniques in preparation for comet **C/2012 S1 (ISON)**. It is due to reach perihelion around Thanksgiving this year at a distance of less than 1 million miles from the Sun, and closest approach to Earth (40 million miles) in December.

This comet was discovered in Sep. 2012 by two amateur astronomers using a telescope owned by < continued on p.3 >

The EAS newsletter, **Observer**, is published monthly. Anyone wishing to contribute articles or photos may mail them to the club's PO box: EAS, PO box 3474, Evansville, IN 47733, or e-mail them to the editor at: gneireiter@wowway.com

Local Events and Information

The **Evansville Astronomical Society** (EAS) is a non-profit organization fully incorporated in the state of Indiana. It has, as its primary goal, the advancement of amateur astronomy. Founded in 1952, the society seeks to:

- 1... maintain adequate facilities for its members and for the public in order to extensively study the skies, and
- 2... promote an educational program for those who wish to learn more about the science of Astronomy.

Meetings are held the third Friday of each month, except June, when the annual EAS picnic is held. The society also sponsors monthly Open House events during the warmer seasons that afford the public an opportunity to tour the observatory.

EAS 2012 Officers and Contacts

President - Scott Conner 812.604.7164
ssconner24@gmail.com

Vice President - Tony Bryan

Secretary - Charleen Kaelin 812.303.1711

Treasurer - Scott Bishop

Counselors - Michael Borman, Kent Brenton,
and Ed Erickson

Webmaster - Michael Borman

Program Director - open

Newsletter Editor - George Neireiter
812.629.7822 gneireiter@wowway.com

For more information about EAS or directions
to the Observatory, visit the club's web page:
<http://www.evansvilleastro.org/>



I hope everyone had a Merry Christmas, and a joyous beginning to the New Year ! This year in the EAS will be an exciting time. We have plans to purchase a new mount for the observatory that will give us the ability to do just about anything members want to do from observing with accurate pointing to CCD and astrophotography. We will hopefully be adding a new 4 - 5" refractor telescope for pinpoint views of objects.

The funds for the mount are partially secured, but we would like to purchase a more expensive mount with more capabilities and a much heavier load capacity. To achieve that goal, we need to raise more funds.

Anyone who is interested in donating towards the goal is encouraged to do that over the next 8 weeks so we can get this exciting project underway. Remember donations are tax deductible. Any extra money over and above what is needed to purchase the more advanced mount will go toward the telescope upgrade fund. Please consider making a donation.

Donations should be sent to: EAS, PO Box 3474, Evansville, IN 47733, or brought to the meeting and given to the treasurer, Scott Bishop.

I look forward to a great year in the EAS !

Submitted by Scott Conner, President

Earlier this past fall, I was contacted by Erin Boland, an Indiana University senior from central Indiana majoring in journalism. She is also managing editor of a digital magazine published by IU called **812 Magazine**. This magazine celebrates Southern Indiana "its cities, its small towns, its natural beauty, its rich history, its local food and its creative, friendly people." In particular, Erin was co-writing an article with Joey Simmons about the night skies of southern Indiana and while searching the internet, she found our EAS newsletter. Erin then sent me a list of questions and scheduled a phone interview for followup discussion. < continued p. 3 >

812 Magazine < continued from p. 2 >

Among the questions were:

- What places are recommended for camping and seeing the stars ?
- What to see ?
- What to look for in buying a telescope ?
- How to build a telescope ?

I provided her with several pages including information about where to observe in state parks and recreation areas, when to go (time of year), comfort items to bring along, and the various night sky objects that can be seen both with and without the aid of telescope or binoculars. In addition, I provided a list of helpful websites for night sky information, purchasing or building a telescope, and some basics on the types of telescopes and mounts. I suggested that binoculars was a simpler and cheaper way to get into

observing the night sky, before jumping into purchasing a telescope. Lastly, I gave her a list of other astronomy groups in southern Indiana.

The article recently appeared in the winter edition (December 10, 2012) and is called ***Under Our Night Skies***. You can search for it in the tab for Our Features.

While reading the article, I noticed that **Kyle Devine** was also contacted for an interview. Kyle is a member of EAS and is an astronomy major at USI. You can check out his interview comments. Also, the Evansville Museum was cited for its **Koch Planetarium**.

The article is well worth your time. And be sure to check out the segment Erin wrote about her hiking adventure with the **Brown County Moonwalkers** ! Well done Erin.

Written by: George Neireiter, editor

Comets < continued from p. 1 >

the International Scientific Optical Network (ISON) based in Russia.

There's a legitimate possibility this comet might indeed be the real deal states Michael Lemonick at [Time magazine](#). Being first observed well beyond Jupiter indicates comet ISON may be reasonably large, perhaps a couple miles across. It will need that size in order to survive such a close approach to the Sun and avoid the common break up of smaller comets. If so, the bright show could go on into January.

We should have a good idea of its potential to dazzle by August when it will be over 200 million miles from the Sun, close enough to start forming its halo. How bright it is then should be a good indicator of things to come.

As chance would have it, NASA's Mars **Curiosity rover** may be able to provide a preview. In September, comet ISON is due

to pass by the red planet and could be a target for the rover from its vantage point inside Gale Crater, states Reuters' Irene Klotz at [MercuryNews.com](#).

Comet ISON will be well placed for viewing in both the morning and evening December sky for the Northern Hemisphere. Some suggest it will be bright enough to be visible in broad daylight, hence all the anticipation and hype.

As Joe Rao of [Space.com](#) noted, the few days surrounding the comet's closest approach to the sun on Nov. 28, 2013, are likely to be most interesting. And, with that being Thanksgiving Day in the U.S., he then asks "Will Comet ISON be a dazzler, or a turkey?".

Comet-lovers would be wise to stay calm and heed the wisdom of David Levy.

For more on the night sky objects, play the Movie of Tonight's Sky for January at [Amazing Space](#).

EAS OBSERVER NEWSLETTER

February 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3 Last 	4	5	6	7	8	9
10 New 	11	12	13	14	15 Regular Mtg.	16
17 First 	18	19	20	21	22	23
24	25 Full 	26	27	28		

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January Events (reminder)....

Regular Meeting Jan. 18 (Friday) 7:30 pm Wahnsiedler Observatory
 Board Meeting Jan. 27 (Sunday) ?? pm location TBD

February Events...

Regular Meeting Feb. 15 (Friday) 7:30 pm Wahnsiedler Observatory

Moon phase times (Evansville local time)

third quarter	7:57 a	Feb 3	new	1:20 a	Feb 10
first quarter	2:31 p	Feb 17	full	2:26 p	Feb 25

courtesy of [Time and Date](#)

Partnering to Solve Saturn's Mysteries

By Diane K. Fisher

From December 2010 through mid-summer 2011, a giant storm raged in Saturn's northern hemisphere. It was clearly visible not only to NASA's Cassini spacecraft orbiting Saturn, but also astronomers here on Earth — even those watching from their back yards. The storm came as a surprise, since it was about 10 years earlier in Saturn's seasonal cycle than expected from observations of similar storms in the past. Saturn's year is about 30 Earth years. Saturn is tilted on its axis (about 27° to Earth's 23°), causing it to have seasons as Earth does.

But even more surprising than the unseasonal storm was the related event that followed.

First, a giant bubble of very warm material broke through the clouds in the region of the now-abated storm, suddenly raising the temperature of Saturn's stratosphere over 150 °F. Accompanying this enormous "burp" was a sudden increase in ethylene gas. It took Cassini's Composite Infrared Spectrometer instrument to detect it.

According to Dr. Scott Edgington, Deputy Project Scientist for Cassini, "Ethylene [C₂H₄] is normally present in only very low concentrations in Saturn's atmosphere and has been very difficult to detect. Although it is a transitional product of the thermochemical processes that normally occur in Saturn's atmosphere, the concentrations detected concurrent with the big 'burp' were 100 times what we would expect."

So what was going on?



Chemical reaction rates vary greatly with the energy available for the process. Saturn's seasonal changes are exaggerated due to the effect of the rings acting as venetian blinds, throwing the northern hemisphere into shade during winter. So, when the Sun again reaches the northern hemisphere, the photochemical reactions that take place in the atmosphere can speed up quickly. If not for its rings, Saturn's seasons would vary as predictably as Earth's.

But there may be another cycle going on besides the seasonal one. Computer models are based on expected reaction rates for the temperatures and pressures in Saturn's atmosphere, explains Edgington. However, it is very difficult to validate those models here on Earth. Setting up a lab to replicate conditions on Saturn is not easy!

Also contributing to the apparent mystery is the fact that haze on Saturn often obscures the view of storms below. Only once in a while do storms punch through the hazes. Astronomers may have previously missed large storms, thus failing to notice any non-seasonal patterns.

As for atmospheric events that are visible to Earth-bound telescopes, Edgington is particularly grateful for non-professional astronomers. While these astronomers are free to watch a planet continuously over long periods and record their finding in photographs, Cassini and its several science instruments must be shared with other scientists. Observation time on Cassini is planned more than six months in advance, making it difficult to immediately train it on the unexpected. That's where the volunteer astronomers come in, keeping a continuous

watch on the changes taking place on Saturn.

Edgington says, "Astronomy is one of those fields of study where amateurs can contribute as much as professionals."

Go to <http://saturn.jpl.nasa.gov/> to read about the latest Cassini discoveries. For

kids, The Space Place has lots of ways to explore Saturn at <http://spaceplace.nasa.gov/search/cassini/>.

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



This false-colored Cassini image of Saturn was taken in near-infrared light on January 12, 2011. Red and orange show clouds deep in the atmosphere. Yellow and green are intermediate clouds. White and blue are high clouds and haze. The rings appear as a thin, blue horizontal line.

Upcoming Programs...

January

by Scott Conner

"A Tale of Two Comets:
The preview"



Comet C/2002 V1 (NEAT)

Credit: European Space Agency - Jan. 29, 2003

http://solarsystem.nasa.gov/multimedia/display.cfm?Category=Planets&IM_ID=2228



February

by Mitch Luman

The daytime sky looks blue because of how our atmosphere scatters the blue wavelengths of light from the Sun. Fair enough. But that leads directly to a second question — why doesn't the light from all the stars in the Universe scatter in our atmosphere, producing a blue sky, all the time? There are certainly enough stars for this to be true, but it isn't. We'll consider causes such as the absorption by interstellar dust, the Doppler Effect, time and the age of the Universe and answer to a question that has caused scientists and philosophers to ponder for nearly 200 years.

EAS OBSERVER NEWSLETTER

EAS Meeting Minutes -- December 21, 2012

The meeting was CALLED TO ORDER by President Scott Conner at 7:37 pm with seventeen members in attendance.

It was moved and seconded to approve the MINUTES of the previous month as seen on the EAS Internet page. WWW.EVANVILLEASTRO.ORG

Tony Bryan announced there were no UPCOMING EVENTS.

Visiting today was long-time member RANDY CHAPMAN. Welcome back.

There was no treasurer's report, but the President did mention that wall CALENDARS are still available for \$7.00, and there are two desk calendars left for \$12.00. More of desk calendars could be ordered.

SPECIAL PROJECTS, OLD and NEW BUSINESS

Scott stated that there is still a need for a NEW MOUNT. The HAVENS FOUNDATION will generously donate \$6,000 toward this project which would cover a Titan or CGE Pro. An additional \$2,500 would be needed if we wanted to install a bigger one with more weight capacity.

Tony Bryan, Vice President, announced that he is writing a U.S. GOVERNMENT PROPOSAL to obtain an underused 28 inch mirror. Letters of support for this has been received from Mitch Daniels, Ken Harris, and the Evansville Museum.

Tony also mentioned that he WAXED the recently cleaned floors and strongly suggested that members wipe their shoes prior to entry to the building in order to keep the floors looking nice.

Also, Tony stated that there was evidence of "CREEPY CRAWLERS" left in the building. To avoid this in the future, please refrigerate any food items.

A BOARD MEETING will be held some Sunday in January to set next year's schedule. Board members are asked to notify Scott of their available Sundays in that month for this meeting. It will be held at the home of Mike Borman.

It was also mentioned that there is a COMET coming this way in March.

Mitch Luman made mention of a notice in the latest issue of "The Reflector" requesting the HISTORY OF ASTRONOMY GROUPS be compiled and published. Birk Fisher "kind of" volunteered for this project.

The meeting adjourned at 8:11 pm.

Mike Borman was the QUIZ MASTER who presented this year's test. First place went to Scott Conner and second place to Mitch Luman.

Respectfully submitted,

Charleen Kaelin,
Secretary.