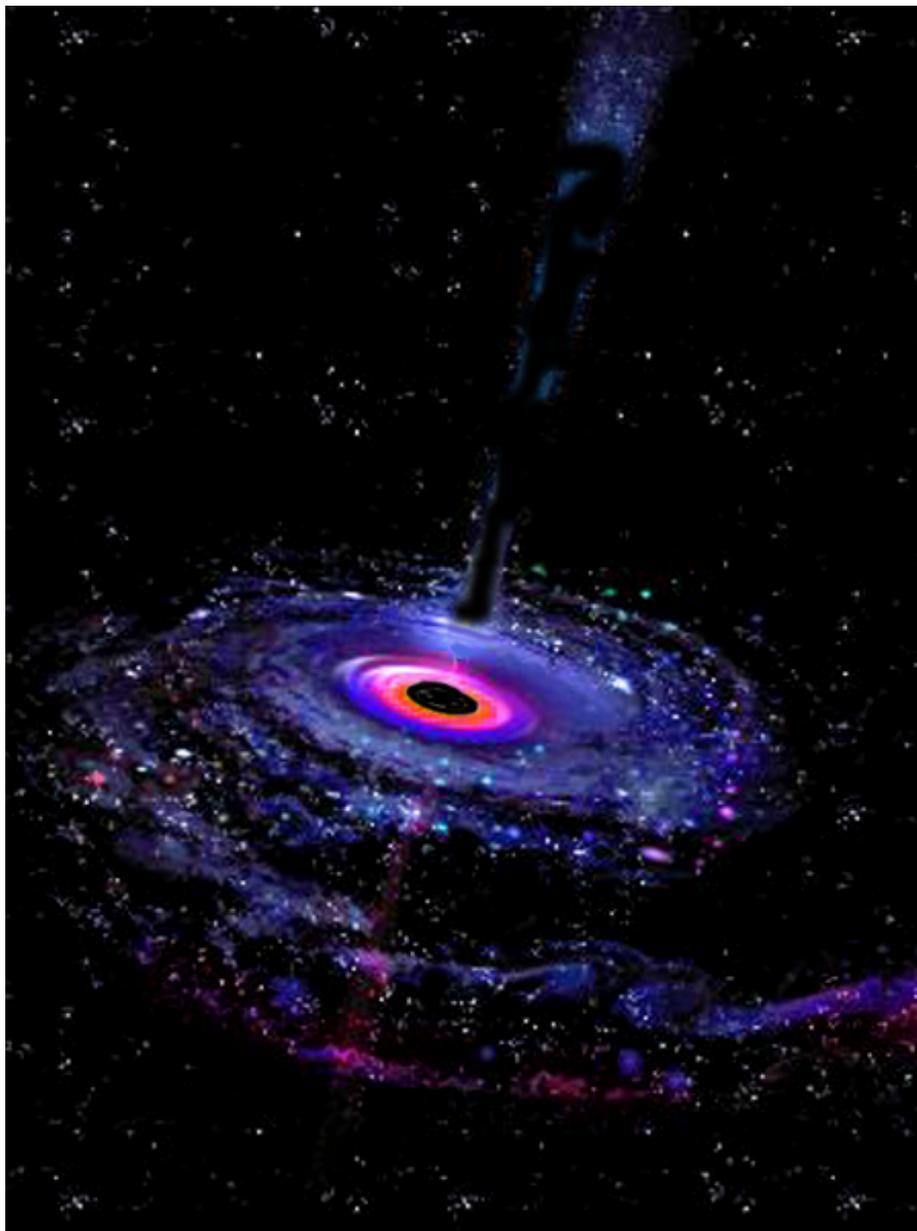


# Observer

EVANSVILLE ASTRONOMICAL SOCIETY, INC.

April  
2012

**National Astronomy Day** will be held on Saturday, April 28 from 11:00 am - 9:00 pm. Once again, the Evansville Museum and the EAS will be partnering for what promises to be another excellent celebration. We'll be at the Museum all day for this event, break for a group dinner somewhere near downtown, and if it's clear, reconvene in the Museum's parking lot for a Star Watch. The Museum will provide lunch for all volunteers. Please see RSVP contact information below.



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## What is Astronomy Day ?

As amateurs, we set aside this day each spring to share our excitement and enthusiasm about astronomy. We hope to share our love for astronomy with many people, including those who may be looking through a telescope for the first time.

## Volunteers Needed

We need volunteers for the afternoon viewing of the sun, indoor activities, and our evening Star Watch. Please contact me if you can help. We need volunteers to assist with the following activities:

- Daytime telescope viewing
- Trivia contest
- Program on telescope basics
- Indoor telescope display
- Egg drop
- Evening telescope viewing

Bring your telescope for the indoor display !

Contact info ... **Mitch Luman**  
days: 812.425.2406  
nights: 812.985.7739  
[mluman@emuseum.org](mailto:mluman@emuseum.org)

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](mailto:gneireiter@wowway.com)

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 812.449.2721  
[ssconner24@gmail.com](mailto: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](mailto:gneireiter@wowway.com)

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



## Local Events and Information

Save the date:

### Transit of Venus 2012

Tuesday June 5, 2012

Contact Mitch Luman at the  
Evansville Museum

[mluman@emuseum.org](mailto:mluman@emuseum.org)



On March 24, a **Public Star Watch** (PSW) was held at the Wahnsiedler Observatory. About fifty visitors attended and enjoyed the astronomy program delivered by Scott Conner. It was well received as noted by the enthusiastic applause. Dave Kube operated the telescope in the dome, while Duane Davis had his 10" reflector set up outside. Visitors gazed at the crescent Moon, Jupiter, Venus to the west, and Mars in the east, along with various deep sky objects. With the assistance of small lasers, several members pointed out constellations and key stars.

Viewing conditions were variable. As the sun was setting and twilight appeared, the crescent Moon and western planets could be seen clearly. An Iridium 63 flare was noted high in the southeast sky at 8:20 along with a satellite (USSR SL-8 rocket body) that was passing at the same time from NNE to south. But, by around 9 pm, high level clouds were increasing and moving across the sky from the north. By about 9:30, conditions deteriorated enough to complete the successful, first PSW event for 2012.

Many thanks to the following members for helping out: Scott Conner, Charleen and Tom Kaelin, Randy Chapman, Duane and Kim Davis, Dave Kube, Mark Miller, George Neireiter, Ted Ubelhor, and Jason Bonnert.

**Dome Repairs...** Two work days have been scheduled for maintenance of the Observatory's dome.

On **April 14**, initial work on the roof begins. This includes prepping the metal sections and applying the first of two coats of roofing tar. (Note: rain date is April 21.)

On **May 12**, interior enhancements will include painting and replacing of carpet. If weather permits, a second coat of roofing material will be applied to the metal roof.

Please contact Scott Conner if you can help. At least 8 volunteers are needed for the May 12 activity.  
[ssconner24@gmail.com](mailto:ssconner24@gmail.com)

# EAS OBSERVER NEWSLETTER

May 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5 Full 
6	7	8	9	10	11	12 Dome Day Last 
13	14	15	16	17	18 Regular Mtg.	19 PSW
20 New 	21	22	23	24	25	26
27	28 First 	29	30	31		

generated by [HTML Calendar Maker 1.1](#). Copyright (C) 2009 John Dalbey.

## April Events (reminder)...

Girl Scout Night	Apr. 7 (Saturday)	Museum (seniors)
Roof Repair Day	Apr. 14 (Saturday) 9 am < rain date is Apr 21 >	Wahnsiedler Observatory
Regular Meeting	Apr. 20 (Friday) 7:30 pm	Wahnsiedler Observatory
Astronomy Day	Apr. 28 (Saturday) 11 am	Evansville Museum
<i>Mid South Star Gaze</i>	<i>Apr. 18 - 21</i>	
<i>Texas Star Party</i>	<i>Apr. 15 - 22</i>	

## May Events...

Dome Repair Day	May 12 (Saturday) 9:00 am	Wahnsiedler Observatory
Regular Meeting	May 18 (Friday) 7:30 pm	Wahnsiedler Observatory
Public Star Watch	May 19 (Saturday) 8:15 pm	Wahnsiedler Observatory

## Moon phase times (CST)

full	10:35 p	May 5	new	6:47 p	May 20
third quarter	4:47 p	May 12	first quarter	3:16 p	May 28

courtesy of [Time and Date](#)



## The Planet in the Machine

By Diane K. Fisher and Tony Phillips

The story goes that a butterfly flapping its wings in Brazil can, over time, cause a tornado in Kansas. The “butterfly effect” is a common term to evoke the complexity of interdependent variables affecting weather around the globe. It alludes to the notion that small changes in initial conditions can cause wildly varying outcomes.

Now imagine millions of butterflies flapping their wings, and flies and crickets and birds. Now you understand why weather is so complex.

All kidding aside, insects are not in control. The real “butterfly effect” is driven by, for example, global winds and ocean currents, polar ice (melting and freezing), clouds and rain, and blowing desert dust. All these things interact with one another in bewilderingly complicated ways.

And then there’s the human race. If a butterfly can cause a tornado, what can humans cause with their boundlessly reckless disturbances of initial conditions?

Understanding how it all fits together is a relatively new field called Earth system science. Earth system scientists work on building and fine-tuning mathematical models (computer programs) that describe the complex inter-relationships of Earth’s carbon, water, energy, and trace gases as they are exchanged between the terrestrial biosphere and the atmosphere. Ultimately, they hope to understand Earth as an

integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

NASA’s Earth System Science program provides real-world data for these models via a swarm of Earth-observing satellites. The satellites, which go by names like Terra and Aqua, keep an eye on Earth’s land, biosphere, atmosphere, clouds, ice, and oceans. The data they collect are crucial to the modeling efforts.

Some models aim to predict short-term effects — in other words, weather. They may become part of severe weather warning systems and actually save lives. Other models aim to predict long-term effects — or climate. But, long-term predictions are much more difficult and much less likely to be believed by the general population, since only time can actually prove or disprove their validity. After all, small errors become large errors as the model is left to run into the future. However, as the models are further validated with near- and longer-term data, and as different models converge on a common scenario, they become more and more trustworthy to show us the future while we can still do something about it — we hope.

For a listing and more information on each of NASA’s (and their partners’) Earth data-gathering missions, visit <http://science.nasa.gov/earth-science/missions/>.

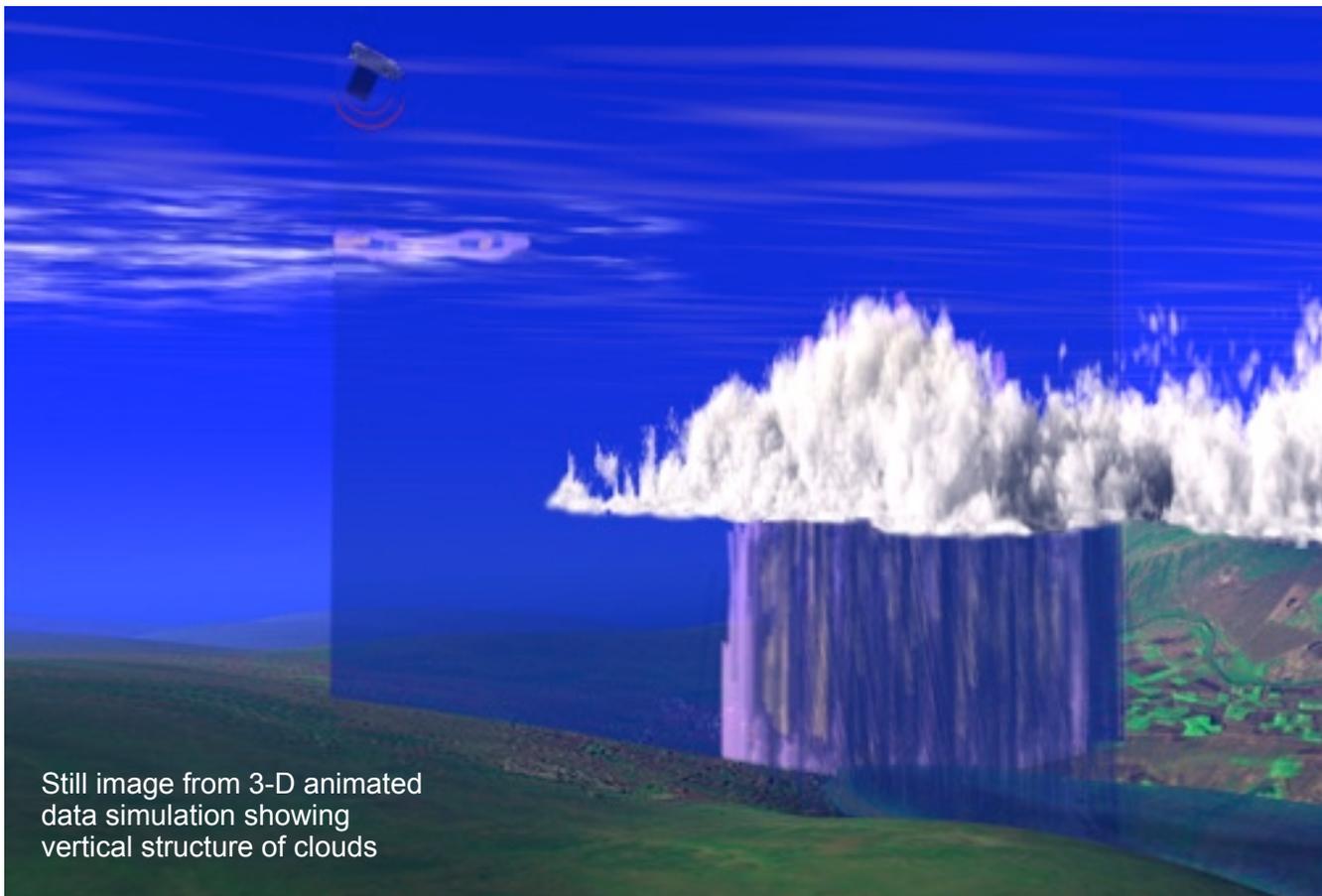
Kids can get an easy introduction to Earth system science and play Earthy word games at <http://spaceplace.nasa.gov/ecosphere> .

## EAS OBSERVER NEWSLETTER

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*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the*

*National Aeronautics and Space Administration.*



Still image from 3-D animated data simulation showing vertical structure of clouds

*CloudSat is one of the Earth-observing satellites collecting data that will help develop and refine atmospheric circulation models and other types of weather and climate models. CloudSat's unique radar system reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun's energy in the atmosphere. See animation of this data simulation at [www.nasa.gov/mission\\_pages/calipso/multimedia/](http://www.nasa.gov/mission_pages/calipso/multimedia/)*

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Spiral galaxy NGC 3370 in Leo

Image credit: <http://hubblesite.org/gallery/album/pr2003024a/>

# EAS OBSERVER NEWSLETTER

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## *EAS Meeting Minutes -- March 16, 2012*

E.A.S. meeting was called to order by President Scott Conner around 7:36pm. There were 11 members and 9 guests present, several of whom are now members of the society. Accepting the minutes as published in the February newsletter was voted on and passed unanimously. The Vice President was unable to attend, so acting Vice President Ken Harris mentioned these upcoming events.

PSW	Saturday, March 24	7:30 pm
Girl Scout Space Night	Saturday, March 31	@ Museum
Girl Scout Space Night	Saturday, April 7th	@ Museum (seniors)
Dome Repair Day 1	Saturday, April 14	9:30 am      Rain Date - April 21
Regular Meeting	Friday, April 20	7:30 pm
Astronomy Day	Saturday, April 28	@ Museum 11 am – 9 pm
Dome Repair Day 2	Saturday, May 12	@9:30am

Our Treasurer Scott Bishop informed us that our finances are in decent shape despite paying an outrageous fee for insurance. Several modifications were made to the plan to lower our cost by \$200. At this point, our insurance costs the club the income of more than 30 family memberships each year.

**Under Special Projects:** We have scheduled two Dome repair dates for this year, the 1<sup>st</sup> will be mainly roof related, and will require dry weather. We want to apply a 1<sup>st</sup> coat of tar to the roof. We will need around 4-5 people to complete this task. The Rain date for this is April 21. The second day is for inside work. It will be to do the scraping, painting, repairs inside the dome, and hopefully replacing the carpet as well. We will need 8-10 people for the date. We can use more donations toward the carpet if anyone wants to help with that project.

There was no **Old Business** to discuss.

**New Business:** Family Astronomy Day at VUJC. Friday April 13, 2012. We could setup at 6pm, and do some solar, then remain there for Evening Observing. We are looking for volunteers for this event. Dave, do you have any more details ?

We have our 1<sup>st</sup> PSW of the year Saturday March 24, here at the observatory. We always need volunteers to come help out.

We need volunteers for the Girl Scout Space Nights. The one for Saturday March 31, is a go. We will setup at dusk. If you can help out let me know. This is weather permitting.

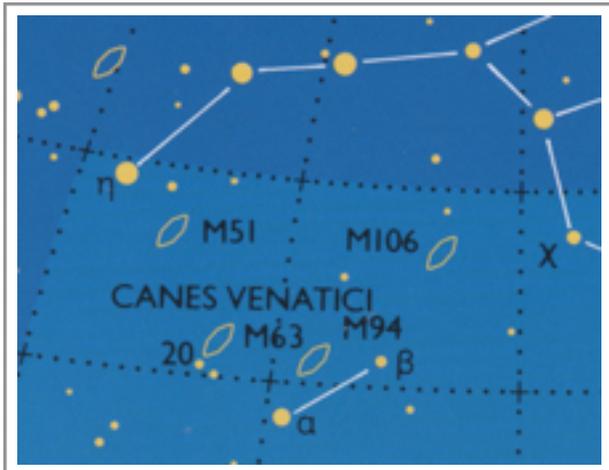
Mitch is looking for volunteers to help out with Astronomy Day on April 28. If you can help out, let Mitch or myself know. The schedule will be the same as last year. Observing will take place at the Museum that evening.

Looking for two more programs to fill all meetings this year. The program for April fell through, so it will likely be a movie or something, unless someone has something. Speakers this year include... Mike Borman, Mitch Luman, George Neireiter, Tom Pickett, Victor Lopez, and Tony Bryan. If you have an idea for Tom's Program, he is interested in what we want to hear about. If you want to volunteer to do one, get in contact with me.

The meeting was adjourned around 8:00 pm and was followed by a program: "**Catching the Northern Lights**" by Scott Conner.

Minutes prepared by: Scott Conner, President.

## Constellation Feature: Canes Venatici



**Canes Venatici**, the Hunting Dogs, is a small constellation just south of the handle of the Big Dipper. It contains two main stars, Alpha and Beta, plus a collection of about 20 fainter stars. Alpha, also called [Cor Caroli](#), is about 2.9 magnitude and is a double star resolvable with a small telescope. The brighter star of the pair (alpha 2) is a variable star with a strong magnetic field (5000x that of Earth) which is believed to produce starspots of such enormous extent that the brightness of the star varies during rotation.

The region of sky between the constellation and the handle is rich in galaxies including 4 Messier objects: M51, M63, M94, and M106. A highlight is [M51](#), the Whirlpool galaxy. It was the first to have its spiral structure resolved. Larger telescopes are required to bring out its classic face-on spiral shape. The image shown here was taken in 2005 by the Hubble Space Telescope using optical and IR wavelengths. [M63](#), the Sunflower galaxy, has a spiral shape with many short arm segments. In 1971, a supernova with magnitude 11.8 appeared in one of the arms. The image provided is from the Spitzer Space Telescope using IR wavelengths which are sensitive to the dust lanes that would otherwise appear dark in visible light.

M94, also known as NGC 4736, is a spiral galaxy. For a gorgeous panchromatic perspective that combines IR, UV and optical images go to [R. Jay GaBany's website](#). The last galaxy in this constellation group is [M106](#), also known as NGC4258. It is a spiral

type that contains anomalous arms when using radio or x-ray wavelengths. It is suspected that part of the galaxy is falling into a supermassive black hole in the center.



Above: M51, the Whirlpool galaxy  
Below: M63, the Sunflower galaxy  
At right: M106



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

Credits: Text and constellation diagram from The Star Guide, by Robin Kerrod, 1993 MacMillan, pages 50-51.  
[http://en.wikipedia.org/wiki/Canes\\_Venatici](http://en.wikipedia.org/wiki/Canes_Venatici), [http://en.wikipedia.org/wiki/Messier\\_106](http://en.wikipedia.org/wiki/Messier_106)