

# Observer Newsletter

EVANSVILLE ASTRONOMICAL SOCIETY, INC.

May  
2011



## Local Events and Information

**Astronomy Day 2011** was a huge success. Mitch Luman, Science Director, coordinated the event in conjunction with fellow members of E.A.S. After early morning showers moved out of the area, visitors were greeted by a number of displays and activities in the Old Gallery on the 2nd floor of the Evansville Museum. A fine display of surprisingly large **meteorites** were made available by Ron Keller. For hands on interaction, visitors could try controlling the yaw of a mock Shuttle **Orbiter**, using air powered thrusters, as well as several other of the Museum's space exhibits. Nearby, a projector displayed **astrophotography** obtained by Mike Borman.

Scott Conner, Museum Docent Prabha Ganesh, and others worked at one of two **Make-It Take-It** tables where children made bracelets that changed color when exposed to sunlight. Linda Ebinger Yancy and others helped students prepare star charts to take home.

Tony Bryan kept the enthusiastic chaos organized during the **Egg Drop** event. Parents and children fabricated balloon cradles for their precious egg cargo that were later dropped off the side of the Museum in the landing style of the Martian rovers *Spirit* and *Opportunity*.

Jim and Carol Havens helped out with nearly continuous **Portable Dome** shows in the

Museum's Old Gallery. Museum Docent Jim Price conducted shows in the Museum's spacious fixed dome **Planetarium**, which included two presentations of a show on light pollution and one on the current night sky.

In the afternoon, a **Trivia Contest**, devised by Mitch Luman and conducted by Debby Vannater and Charleen Kaelin, was held for adults and students.

Outside the Museum, Mike Borman and Dave Kube set up their **Solar telescopes** just as the skies cleared in the late morning. A constant flow of children and adults were amazed when observing sunspots and prominences close up. A number of visitors brought by their own telescopes to ask for assistance in operating or repairing them.

The skies remained clear through the early evening where Mitch Luman, Mark Miller, Glen Bye, Dave Kube, and Mike Borman entertained audiences with views of the **Moon** and **Saturn** from the Museum's parking lot. An estimated 100 people stopped by from 8 to 10 pm.

Organizer Mitch Luman reported that a total of **520** people participated in both the day and night time events, making this one of the most successful Astronomy Days ever.

Astronomy Day 2011 article prepared by Mitch Luman and George Neireiter.



Reese Maddox and his father Jared at the Make-It Take-It table.



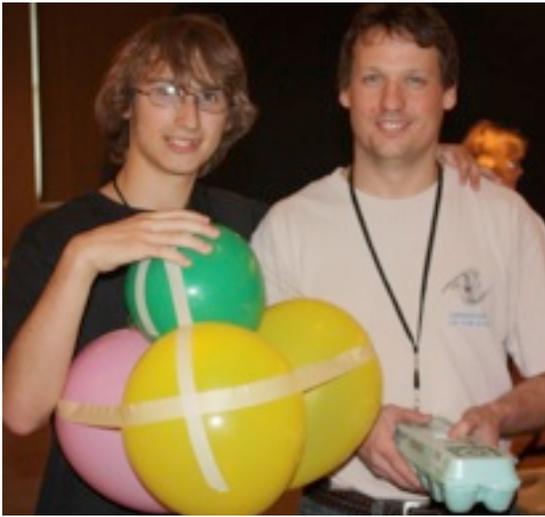
Twins Danielle and Gabriella Beier enjoyed the interactive displays. Perhaps they will study double stars one day.

Astronomy Day 2011 photos by George Neireiter.



Famed astronomer and historian, Birk Fisher, prepping for a photo-op.

More pictures from Astronomy Day 2011.



E.A.S. president Scott Conner with his son Wesley at the Egg Drop event.



Linda Ebinger Yancy helping a student prepare a star chart at the Make-It Take-It table.



A solar-powered spinning disc provided some novel entertainment for both children and adults at Mike Borman's solar telescope.



After constructing a colorful balloon cradle, she's ready for an egg.



Out on the Museum veranda, the line is long for the Egg Drop.



Looking good.... 3, ... 2, ...1  
Another successful landing.



Watch out Mitch.  
Here it comes !



Some last minute instructions from Tony Bryan at the Egg Drop.

Splat... and just a bit off target, too. Better luck in 2012 !



# EAS OBSERVER NEWSLETTER

**June 2011**

Sun	Mon	Tues	Wed	Thur	Fri	Sat
			1 New Moon 	2	3	4 EAS Picnic 4:00 pm Wahnsiedler
5	6	7	8 First quarter 	9	10	11
12	13	14	15 Full Moon 	16	17	18
19	20	21	22	23 Last quarter 	24	25 20th Patoka Lake 1:00 pm
26	27	28	29	30		

**Events...**

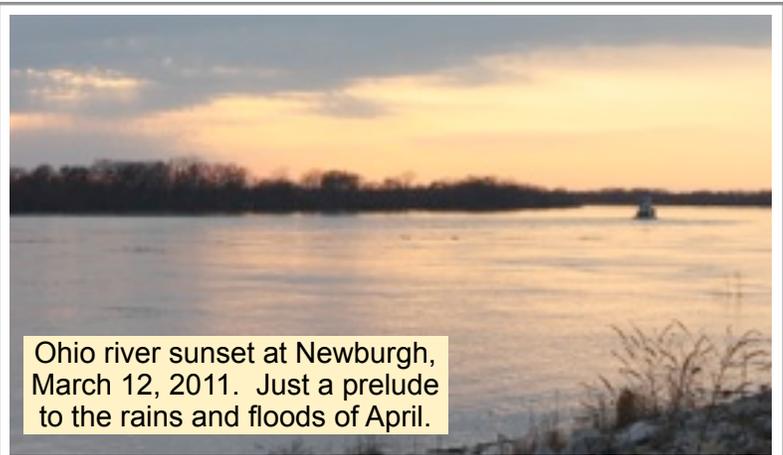
<p>Texas Star Party EAS Picnic Patoka Lake (20th)</p>	<p>May 29-June 5th June 4 (Saturday) 4:00 pm June 25 (Saturday) 1:00 pm</p>	<p>(not an EAS event) Wahnsiedler Observatory Observing in Illinois after picnic Patoka Lake</p>
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**Moon rise - set times (CDT)**

new 05:08 a - 08:14 p  
 first quarter 12:26 p - 00:53 a  
 full 08:21 p - 05:07 a  
 last quarter 00:46 a - 01:14 p  
 courtesy of U.S. Naval Observatory

**Sun rise - set times (CDT)**

Jun 4 05:29 a - 08:09 p  
 Jun 25 05:29 a - 08:17 p  
 courtesy of U.S. Naval Observatory



Ohio river sunset at Newburgh, March 12, 2011. Just a prelude to the rains and floods of April.

## Cosmic Recount

by Dr. Tony Phillips

News flash: The Census Bureau has found a way to save time and money. Just count the biggest people. For every NBA star like Shaquille O’Neal or Yao Ming, there are about a million ordinary citizens far below the rim. So count the Shaqs, multiply by a million, and the census is done.

Could the Bureau really get away with a scheme like that? Not likely. Yet this is just what astronomers have been doing for decades.

Astronomers are census-takers, too. They often have to estimate the number and type of stars in a distant galaxy. The problem is, when you look into the distant reaches of the cosmos, the only stars you can see are the biggest and brightest. There’s no alternative. To figure out the total population, you count the supermassive Shaqs and multiply by some correction factor to estimate the number of little guys.

The correction factor astronomers use comes from a function called the “IMF”—short for “initial mass function.” The initial mass function tells us the relative number of stars of different masses. For example, for every 20-solar-mass giant born in an interstellar cloud, there ought to be about 100 ordinary sun-like stars. This kind of ratio allows astronomers to conduct a census of



all stars even when they can see only the behemoths.

Now for the *real* news flash: The initial mass function astronomers have been using for years might be wrong.

NASA’s Galaxy Evolution Explorer, an ultraviolet space telescope dedicated to the study of galaxies, has found proof that small stars are more numerous than previously believed.

“Some of the standard assumptions that we’ve had—that the brightest stars tell you about the whole population—don’t seem to work, at least not in a constant way,” says Gerhardt R. Meurer who led the study as a research scientist at Johns Hopkins University, Baltimore, Md. (Meurer is now at the University of Western Australia.)

Meurer says that the discrepancy could be as high as a factor of four. In other words, the total mass of small stars in some galaxies could be four times greater than astronomers thought. Take that, Shaq!

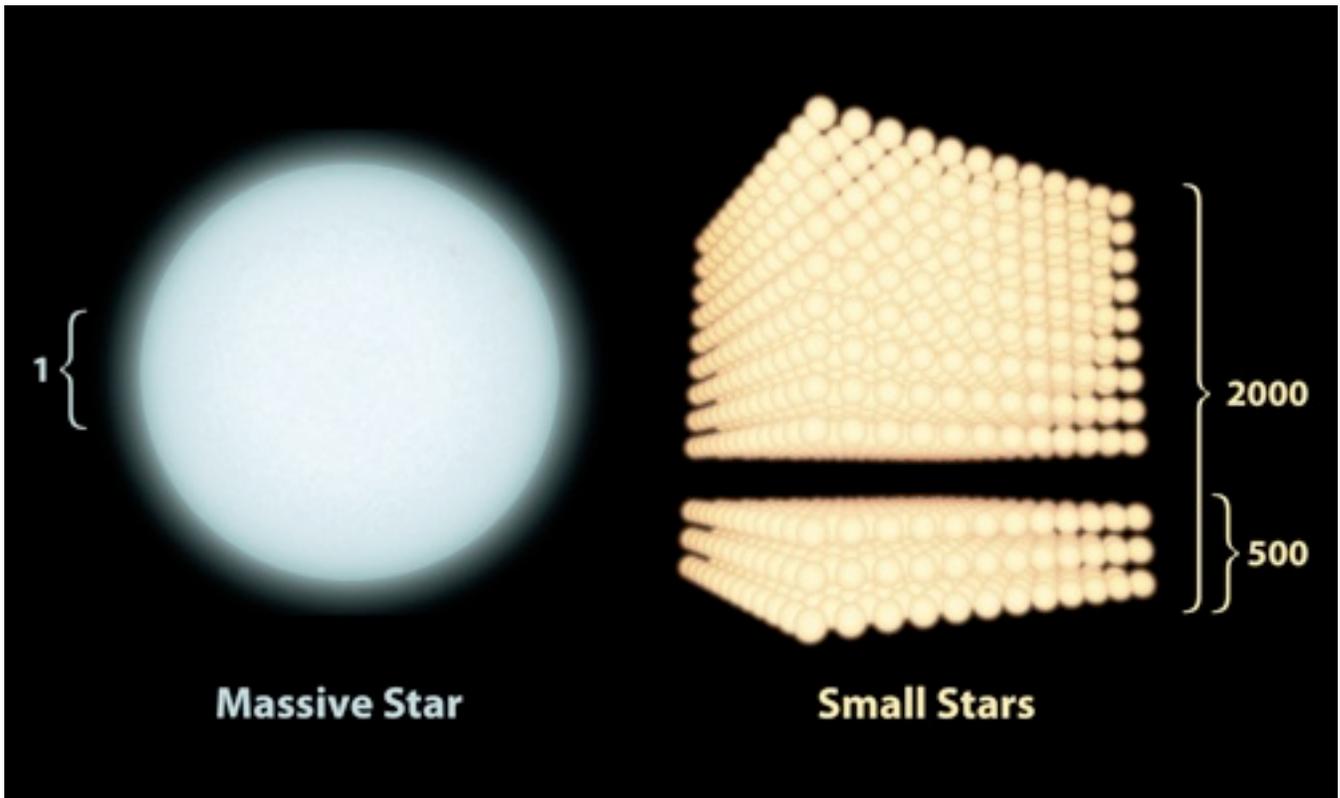
The study relied on data from Galaxy Evolution Explorer to sense UV radiation from the smaller stars in distant galaxies, and data from telescopes at the Cerro Tololo Inter-American Observatory to sense the “H-alpha” (red light) signature of larger stars. Results apply mainly to galaxies where stars are newly forming, cautions Meurer.

“I think this is one of the more important results to come out of the Galaxy Evolution Explorer mission,” he says. Indeed, astronomers might never count stars the same way again.

Find out about some of the other important discoveries of the Galaxy Evolution Explorer at <http://www.galex.caltech.edu/>. For an

easy-to-understand answer for kids to “How many solar systems are in our galaxy?” go to The Space Place at: <http://tiny.cc/l2KMa>

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



Caption:

*Astronomers have recently found that some galaxies have as many as 2000 small stars for every 1 massive star. They used to think all galaxies had only about 500 small stars for every 1 massive star.*

## Constellation feature: *Bootes and Corona Borealis*

**Bootes, the Herdsman**, is a kite-shaped constellation appearing overhead about 10 pm and features Arcturus, 4th brightest star in the skies. Arcturus is a red giant which gives the star its noticeable orange color. Bootes contains few interesting deep sky objects (galaxies and clusters) other than the globular cluster NGC 5466, which forms one corner of a parallelogram with Rho, Alpha, and Eta.

However, there are several double stars of note, especially Epsilon. The star appears only slightly colored in binoculars, but separates into yellowish orange and bluish green components when viewed with a telescope -- making it one of the most attractive doubles in the sky.

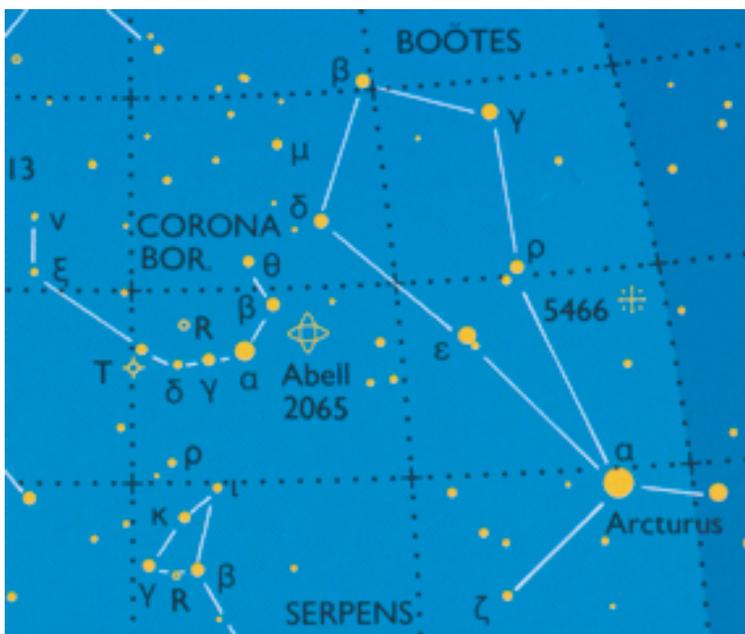
Xi is another colorful double which even small telescopes can separate into a yellow and orange pair. Mu is the third double of interest. With binoculars, it will separate into two yellow stars. A telescope will split the fainter of the two stars into a further yellow pair.

**Corona Borealis, the Northern Crown**, is a small but recognizable constellation with a semi-circle shape and follows Bootes across the night sky. Alpha, a 2nd magnitude star, sits in the middle of the crown. It contains a number of double stars, including Zeta and Nu, but is particularly notable for two variable stars.

One is R and is located north of Delta. Most of the time it is a mag. 6 star, readily visible with binoculars. From time to time, it dramatically dims to mag. 12 or lower, recovering to normal brightness in a matter of months or even a years. One explanation for this behavior is the ejection of sooty material clouds which block the visible light.

The other variable of note is T, located south of Epsilon. Normally only about mag. 10, it sometimes flares in a matter of hours to brighter than mag. 6, visible to the naked eye. Twice (1866 and 1946), it blazed to mag. 2, earning the name Blaze Star.

Between these two constellations, large telescopes will show one of the densest clusters of galaxies known, called Abell 2065. Over 400 galaxies are found (approx. mag. 15.5 or lower), albeit at least one billion light years away.



Credit: Text and photo from *The Star Guide*, by Robin Kerrod, 1993 MacMillan, pages 52 and 54

# EAS OBSERVER NEWSLETTER

## *EAS Meeting Minutes -- April 15, 2011* ... by Scott Conner

The meeting was called to order at 7:37 pm by President Scott Conner. There were 25 members in attendance.

Vice President Tony Bryan told us about the following **UPCOMING EVENTS**...

Girl Scout Space Night	April 30 (Sat.) @ Museum
Astronomy Day	May 7 (Sat.) @ Museum 11 am – 9 pm
Regular Meeting	May 20 (Fri.) 7:30 pm
EAS Picnic	June 4 (Sat.) Eat at 4 pm
Annual Patoka Lake	June 25 (Sat.) @ Newton-Stewart Beach

There were several visitors present from Ken Harris's Astronomy class.

Our Treasurer Scott Bishop told us about the status of our bills and accounts. He mentioned that our insurance bill this year was \$1410 up from \$900 in the past 4 or 5 years. We are exploring raising our deductible. He also finally after several years of trying got the NP20 to be filed and accepted.

The fence project is nearly complete, but no date has been set to complete it. We will also be looking at doing some landscaping and dome work later this year.

### **OLD BUSINESS**

We helped out with an observation for the Girl Scouts at the Evansville Museum on Saturday April 3<sup>rd</sup>. We had a good turnout from the girls, unfortunately the weather did not cooperate, but we did see a couple stars. Thanks to Ted Ubelhor, Glen Bye, and Scott Conner for helping out.

We had a PSW on Saturday April 9<sup>th</sup> here at the observatory. We had 18 people attend. Thanks to Ken Harris and Ted Ubelhor for handling this PSW

We had a Family astronomy Night at West Terrace School on Wednesday April 13<sup>th</sup>. We had clear skies for once, but the turnout was only about 70. They all had a good time. They got to see the Moon and Saturn.

Thanks to Ted Ubelhor, Scott Bishop, and Scott Conner for participating.

### **NEW BUSINESS**

Astronomy Day will take place at the Evansville Museum on May 7<sup>th</sup> this year. We are going to need volunteers to help out during the day and the evening. Try to keep that date open to help out. More information is available in the April Newsletter.

This year's annual Patoka Lake Event will take place on Saturday June 25. We will have daytime programs on the beach in our new tent from 1-4 pm Eastern time (EDT), followed by a break with supper. We will have kids activities from 1-4 at the beach as well. When we return from supper around 6 pm we will setup telescopes on the beach to prepare for the night time observing. I am looking for three programs for the daytime lectures.

If you have not noticed, the newsletter is now taken on a great new format that is not limited to 6 half pages. It is being done by George Neireiter. He is doing an awesome job. The newsletter is also now available on the website. We are not sure at this point how to provide a printed copy for those without internet.

The Meeting was adjourned at 8:05 pm.

The Program was given by Ron Keller from the Indiana Meteor Lab.

Respectfully Submitted,

Scott Conner  
President



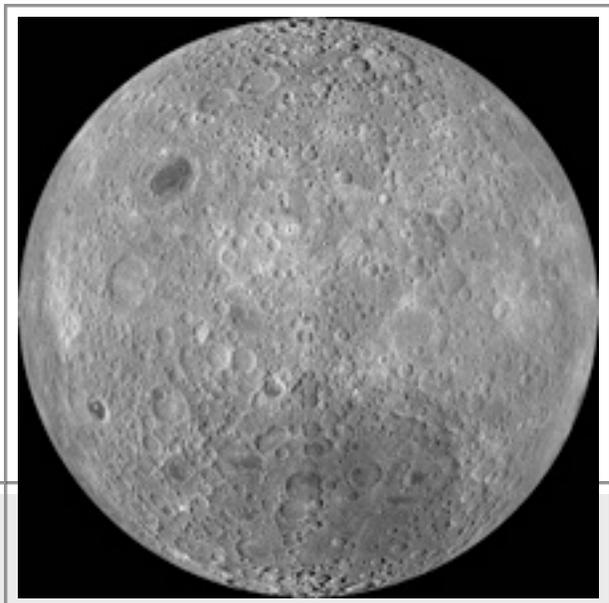
**Upcoming programs at the Regular Meeting of EAS ... by Mitch Luman**



**May Program**  
"Geologic History of the Earth's Moon"

by Joe Caruso

by Joe Caruso



EAS member, astronomy educator and past Astronomy day speaker **Joe Caruso** will present a program on the geologic history of the Moon.

**Farside of the Moon:** This sharp picture, a mosaic from the Lunar Reconnaissance Orbiter's wide angle camera, is centered on the lunar farside. Part of a global mosaic of over 15,000 images acquired between November 2009 and February 2011. Surprisingly, the rough and battered surface of the farside looks very different from the nearside covered with smooth dark lunar maria. The likely explanation is that the [farside](#) crust is thicker, making it harder for molten material from the interior to flow to the surface and form the smooth maria. *Credit:* <http://apod.nasa.gov/apod/ap110409.html>

Note: Since the EAS Picnic will take the place of the regular monthly meeting (see calendar on page 2), there will be no June program.



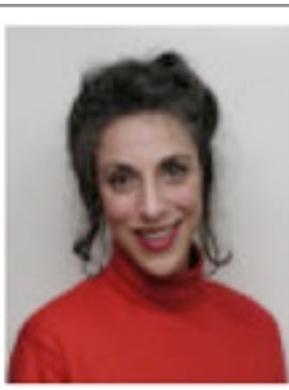
**Scott Conner - President**

An Evansville West-sider and a Mater Dei High School graduate, Scott continued his education at USI and IVY Tech. He is currently employed in the Metal Fabrication Industry as a Manager. Scott actually has a zest for the “trilogy of sister sciences”: Astronomy, Geology and Meteorology. A very valuable asset to the EAS, Scott has served in previous years as the Society’s Secretary, Vice President and Treasurer. 812.449.2721 (cell) [ssconner24@gmail.com](mailto:ssconner24@gmail.com)



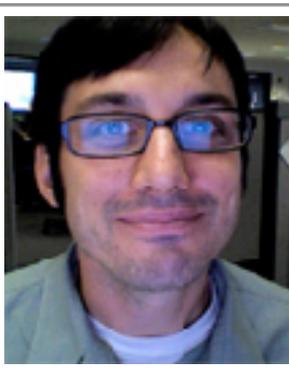
**Tony Bryan - Vice President**

Tony calls Louisville, Ky. His home town but now resides in Jasper, In. with wife Donna. Tony is a senior technician employed by the U.S. Government. Interest in Astronomy began very early but reached a peak when Tony became an active member of the Louisville club. He has an excellent 8” Meade scope but shows no bias when viewing the skies, “He likes them all.” Other interests include woodworking and collecting classic cars. For relaxation, he enjoys hiking.



**Charleen Kaelin - Secretary**

A current resident of Evansville, IN, Charleen was born in Baton Rouge, LA where she received her Bachelor of Science degree in Business. She moved to this area in 1993. She works for a judge and lawyer in the Tribunal Office of the Diocese of Evansville. Charleen’s hobbies include community service, decorating for all holidays and events, and sharing information on astronomy. 812.303.1711 (home)



**Scott Bishop - Treasurer**

A Native of Evansville, Scott lives on the city’s west side with wife Crystal and Daughters Flannery and Piper. Professionally, Scott is a graphic artist. Although his interest in astronomy developed only recently, he has made remarkable progress. He now owns a 6” Dobsonian scope but shows no preference as to which sky objects he views. “The sky’s the limit.” Other hobbies Scott enjoys include bowling, reading and short story writing.

***About the E.A.S. organization...***

The Evansville Astronomical Society (E.A.S.) 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, both for its members and the public, 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 E.A.S. picnic is held. The Society also sponsors Open House events monthly through the warmer seasons) that afford the public an opportunity to tour the observatory.

The accounting year covered by the dues runs from July 1 to June 30 of the next year. Anyone joining the E.A.S. from January to June. Dues are 1/2 of the amount listed in the box, then full dues beginning in July. Optional, but recommended, is the subscription to Sky and Telescope and/or Astronomy Magazines. Special subscription rates are available through the club.

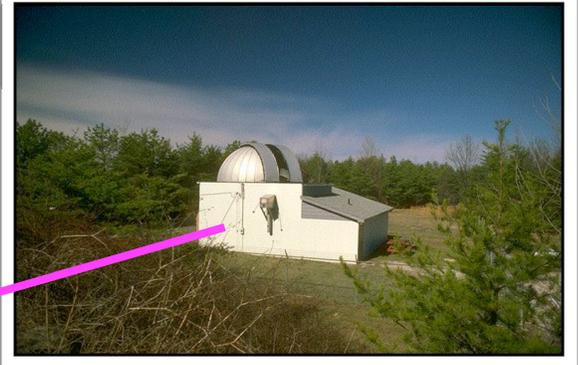
**The Dues schedule for  
membership in the E.A.S. is:**  
**Family ... \$40.00**  
  
**Single ... \$35.00**

The E.A.S. newsletter, OBSERVER, is published monthly. Anyone wishing to contribute articles, should mail them to the Club's PO Box. EAS, at PO Box 3474, Evansville, IN 47733, or email them to the editor at:  
[gneireiter@wowway.com](mailto:gneireiter@wowway.com)

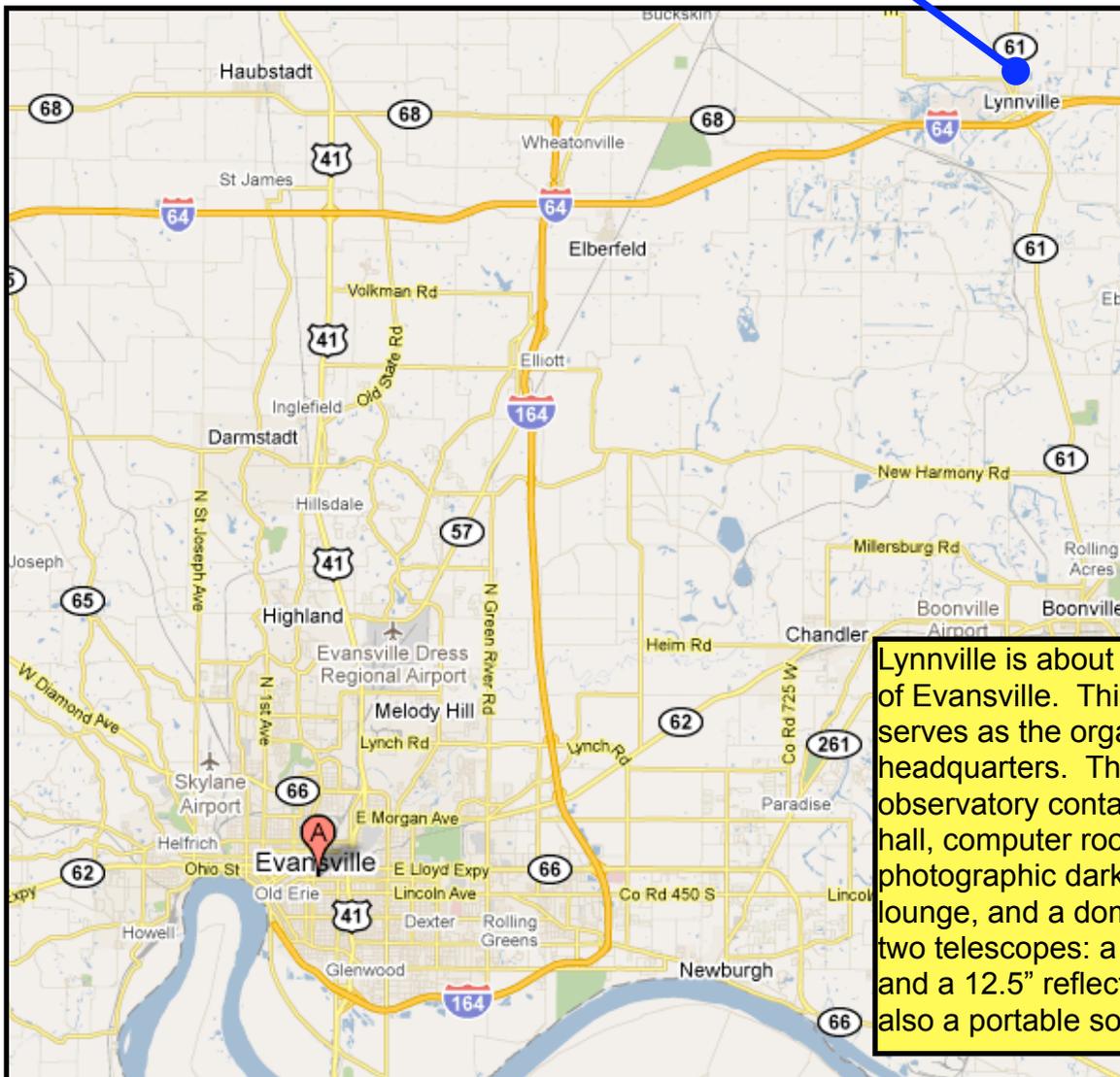
**For more information, view the E.A.S. website at:**  
**<http://evansvilleastro.org>**

# EAS OBSERVER NEWSLETTER

How to find E.A.S. and the observatory...



The E.A.S. facility is located in Wahnsiedler Observatory at Lynnville Park near the town of Lynnville, IN.



Lynnville is about 20 miles NE of Evansville. This location serves as the organization's headquarters. The observatory contains a lecture hall, computer room, photographic dark room, lounge, and a dome housing two telescopes: a 14" reflector and a 12.5" reflector. There is also a portable solar scope.