

# Observer Newsletter

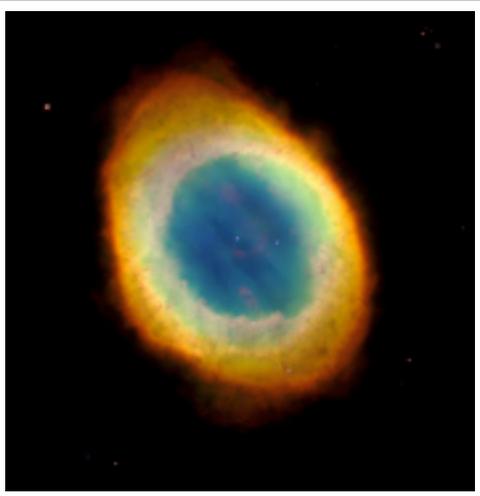
EVANSVILLE ASTRONOMICAL SOCIETY, INC.

July  
2011

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



Above: Resembling the fury of a raging sea, this image actually shows a bubbly ocean of glowing hydrogen gas and small amounts of other elements such as oxygen and sulfur. The photograph, taken by NASA's Hubble Space Telescope, captures a small region within **M17**, a hotbed of star formation. M17, also known as the **Omega or Swan Nebula**, is located about 5,500 light-years away in the constellation Sagittarius. The image was released to commemorate the thirteenth anniversary of Hubble's launch on April 24, 1990. The image, roughly 3 light-years across, was taken May 29-30, 1999, with the Wide Field Planetary Camera 2. The colors in the image represent various gases. Red represents sulfur; green, hydrogen; and blue, oxygen. credit: <http://hubblesite.org/newscenter/archive/releases/2003/13/image/a/>

Above: In this October 1998 image, the Hubble Space telescope has looked down a barrel of gas cast off by a dying star thousands of years ago. This photo of the **Ring Nebula (M57)** reveals elongated dark clumps of material embedded in the gas at the edge of the nebula; the dying central star floating in a blue haze of hot gas. The nebula is about a light-year in diameter and is located some 2,000 light-years from Earth in the direction of the constellation Lyra. The colors are approximately true colors. credit: <http://hubblesite.org/newscenter/archive/releases/1999/01/image/a/>

**Reminder ...** Per Scott Bishop (Treasurer), annual **Membership Dues** are due July 1. Single membership is \$35.00 and Family is \$40.00. Mail check to EAS, PO Box 3474, Evansville, IN 47733. Optionally, but recommended, members may purchase a subscription to **Sky and Telescope** and/or **Astronomy** magazines. Special rates are available through the club.

## Local Events and Information

**Reminder:** The Society will host a **Saturn Watch** from the parking lot of the Evansville Museum on Saturday, July 23 from **8:30 pm to 10:00 pm**. The event is weather permitting. To learn of cancellations, call 812-425-2406, extension 227 after 4 pm the day of the event. .. Mitch Luman



The **Annual EAS Picnic** this year was successful, but was not very well attended. The weather was good during the day, but despite our efforts to have it in early June to avoid the hot temperatures, it was one of the hottest weekends of the year with temperatures well into the 90's. Ken Harris brought his grill and did the excellent cooking that he does each year. There was plenty of food, and we all had a good time with our conversations. As the day came to an end, storms approached from the west, so the observation in Illinois was cancelled. Hopefully next year we will have better luck with the observation, and a better turnout from the members. ... Scott Conner

**The 21<sup>st</sup> annual Patoka Lake "Stars on the Beach"** ... It's hard to believe it has been 21 years since Chuck Allen and I came up with the idea to have a large public event that would bring together many astronomy clubs from the area. When we came up with the idea we had no idea it would become a success, and would still be going 21 years later. This year we were greeted with decent weather to start out the day. We setup our new tent for doing programs at the beach. The tent looks like it will be a great asset to the club at any event we host off site. Dave Kube set his tent up at the entry way, which allowed us to have a little more shade and to leave one end of our tent open. The programs this year were never actually presented, because we had no visitors come up for the programs. This is for two reasons, first no one actually knows there are programs going on, and second they are really there for the beach. The solar observing and kids activities did have attendance.

As the afternoon progressed, the skies became more and more cloudy, and eventually the storms started to move in on the area. Around 5:30pm we officially called off the night time observing. The observing at Patoka has only actually been rained out 3 times in 21 years, so we still have had a pretty good record. The turnout from the club for daytime activities was pretty weak this year, and the nighttime looked as if it would be weak as well.

Next year we are going to have some major changes for Patoka Lake event. It is still a very popular event for the public, and I think it is an event that can continue for another 20 years, but it needs some changes. The public programs have always been poorly attended, but they are still a good idea. The biggest problems with Patoka is that it is a very long day for those who attend the whole event, and during the day most people are just interested in the beach, however, when we are setting up in the evening, we tend to get crowds that come down and spend a great deal of time sitting around waiting for it to get dark. Here are some of the changes for next year.

We will not start until evening. The exact time has not been decided, but we are leaning toward 6:00 pm Eastern time. If we want to meet for supper before setting up we can. By setting up at 6:00 pm, we can still do solar observing, and kids activities. We can start doing programs around 7:00 pm, at that time the sun will be lower, and will not be as hot. People who are there for the event can take advantage of the programs as a way to pass the time. After it gets dark Ken Alderson from the LAS has agreed to do an in-the-tent presentation of stellarium to show people what they will see outside. I think this is a good idea. We just need to make sure we can get the tent dark enough so the projector doesn't interfere with observing. The main thing is it will reduce the amount of time people need to allot to the event. Now it can be done during about 6-7 hours. I will have more info on this event later this year. I hope to have a great attendance next year. ...Scott Conner

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**August 2011**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6 First 
7	8	9	10	11	12	13 Full 
14	15	16	17	18	19 Regular Meeting 7:30 pm	20 PSW 8:00 pm
21 Last 	22	23	24	25	26	27
28	29 New 	30	31			

## July Events (reminder)...

Saturn Watch July 23 (Saturday) 8:30 -10:00 pm Evansville Museum  
Nebraska Star Party July 31 - August 5 (not an EAS event)

## August Events...

Regular Meeting Aug. 19 (Friday) 7:30 pm Wahnsiedler Observatory  
Public Sky Watch Aug. 20 (Sat.) 8:00 pm Wahnsiedler Observatory  
(Moon about 10 pm)

## Moon rise - set times (CDT)

new 06:54 a - 07:27 p  
first quarter 01:56 p - 12:00 a  
full 07:29 p - 05:55 a  
last quarter 11:32 p - 01:38 p  
courtesy of U.S. Naval Observatory

## Sun rise - set times (CDT) -- for key events

August 19 06:07 a - 07:38 p  
August 20 06:08 a - 07:36 p  
courtesy of U.S. Naval Observatory

## Finding Planets among the Stars

by Dr. Tony Phillips



Strange but true: When it comes to finding new extra-solar planets, or exoplanets, stars can be an incredible nuisance.

It's a matter of luminosity. Stars are bright, but their planets are not. Indeed, when an astronomer peers across light years to find a distant Earth-like world, what he often finds instead is an annoying glare. The light of the star itself makes the star's dim planetary system nearly impossible to see.

Talk about frustration! How would *you* like to be an astronomer who's constantly vexed by stars?

Fortunately, there may be a solution. It comes from NASA's Galaxy Evolution Explorer, an ultraviolet space telescope orbiting Earth since 2003. In a new study, researchers say the Galaxy Evolution Explorer is able to pinpoint dim stars that might not badly outshine their own planets.

"We've discovered a new technique of using ultraviolet light to search for young, low-mass stars near the Earth," said David Rodriguez, a graduate student of astronomy at UCLA, and the study's lead author. "These M-class stars, also known as red dwarfs, make excellent targets for future direct imaging of exoplanets."

Young red dwarfs produce a telltale glow in the ultraviolet part of the electromagnetic

spectrum that Galaxy Evolution Explorer can sense. Because dwarf stars are so numerous—as a class, they account for more than two-thirds of the stars in the galaxy—astronomers could reap a rich bounty of targets.

In many ways, these stars represent a best-case scenario for planet hunting. They are close and in clear lines-of-sight, which generally makes viewing easier. Their low mass means they are dimmer than heavier stars, so their light is less likely to mask the feeble light of a planet. And because they are young, their planets are freshly formed, and thus warmer and brighter than older planetary bodies.

Astronomers know of more than five hundred distant planets, but very few have actually been seen. Many exoplanets are detected indirectly by means of their "wobbles"—the gravitational tugs they exert on their central stars. Some are found when they transit the parent star, momentarily dimming the glare, but not dimming it enough to reveal the planet itself.

The new Galaxy Evolution Explorer technique might eventually lead to planets that can be seen directly. That would be good because, as Rodriguez points out, "seeing *is* believing."

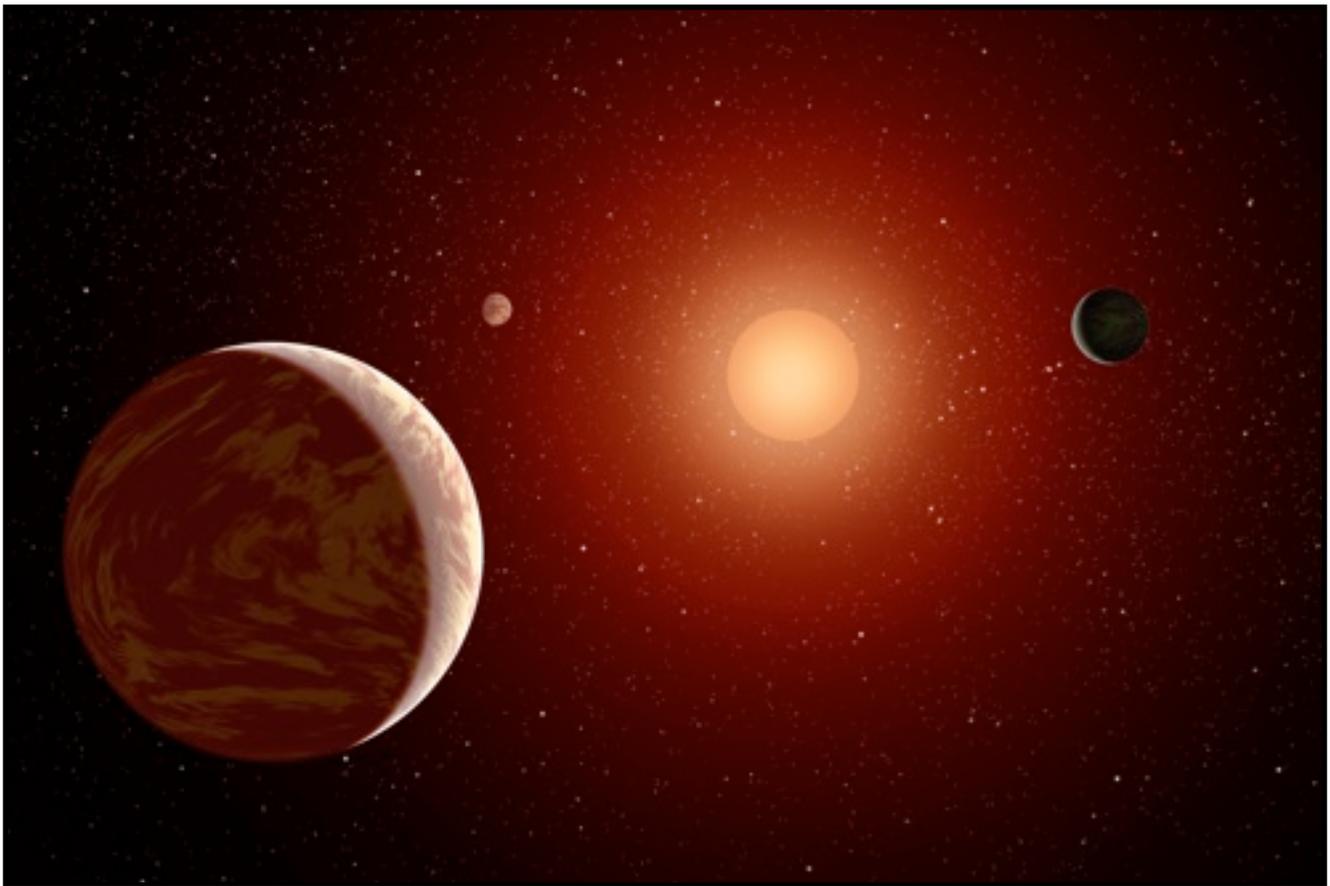
And it just might make astronomers feel a little better about the stars.

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The Galaxy Evolution Explorer Web site at <http://www.galex.caltech.edu> describes many of the other discoveries and accomplishments of this mission. And for kids, how do astronomers know how far away a star or galaxy is? Play “How Old do I Look” on The Space Place at <http://spaceplace.nasa.gov/whats-older> and find out!

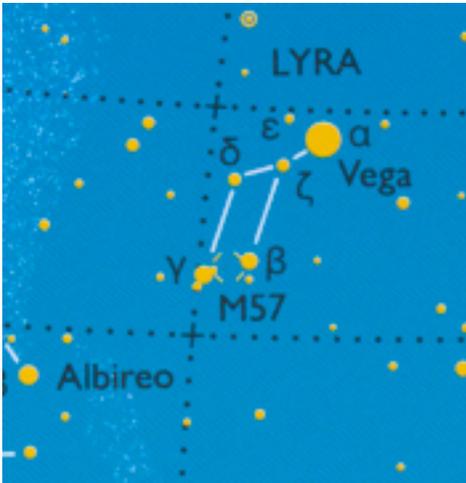
*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*



Exoplanets are easier to see directly when their star is a dim, red dwarf.

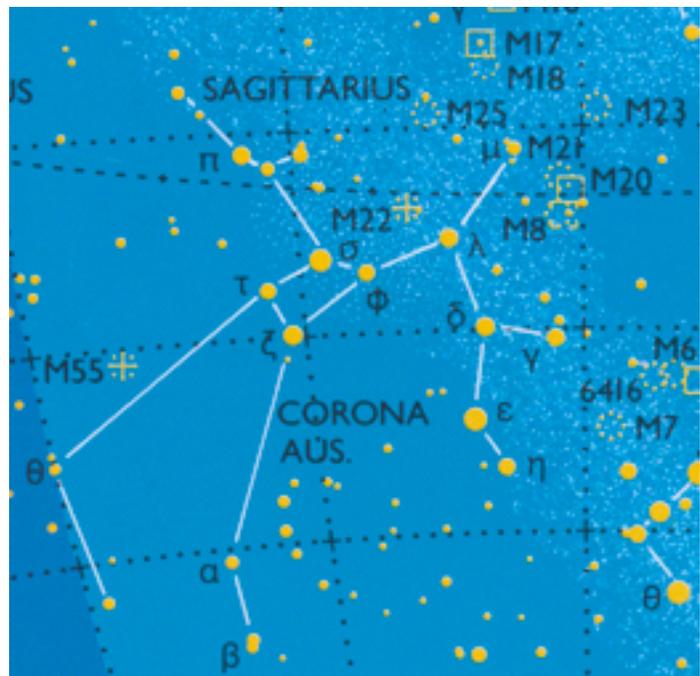
*Constellation feature: Lyra and Sagittarius*

**Lyra**, the Lyre, is a small, but interesting constellation. It is easily found at about 40° declination by its 1st magnitude star **Vega**. Sometimes called the Harp star, it is 5th brightest in the heavens and one of the three summer stars making up the Summer triangle, along with Deneb and Altair. Close to Vega lies **Epsilon**, which is a double star when viewed with binoculars, but each can be resolved into a pair using a small telescope; hence it is a double-double star.



**Beta** is also a double star with yellowish and bluish components. The brighter yellowish star is a binary eclipsing system with its two stars separated by about 22 million miles, close enough for gases to stream between them and be egg-shaped. Beta changes from 3rd to 4th magnitude every 13 days, in contrast to the steady Delta and Zeta stars, both of which are doubles. The **Ring Nebula, M57**, is located between Beta and Gamma. It is a colorful and striking object appearing as a “smoke ring” puffed out of a dying star. While not especially impressive in small telescopes, long exposures in larger instruments will bring out its true splendor (see page 1).

Spanning the Milky Way, **Sagittarius, the Archer**, is one of the richest constellations, filled with clusters, nebulae, and dense star clouds. The densest mark the direction of the center of our galaxy, about 30,000 light-years away. When viewed with binoculars, this part of the night sky is breathtaking.



While the constellation has a number of double and variable stars, its chief attraction lies in the deep-sky objects. There are more Messier objects in this constellation than in any other. **M8, the Lagoon Nebula**, can be glimpsed with the naked eye near the Archer’s bow as it makes a triangle with **Lambda** and **Mu**. With long exposures, pictures contain tiny black condensations called Bok globules. To the north lies **M20, the Trifid nebula**, which is comprised of three dark dust lanes. On the northern border of the constellation is **M17, the Omega Nebula**, also called the Swan or Horseshoe nebula (see page 1).

Sagittarius boasts more than 20 **globular clusters** of which **M22** is at the top of the list. It forms a triangle with Lambda and Phi and contains a dense cluster of millions of stars. It looks great in binoculars, and with small telescopes, the outer stars are resolved. **M54**, which is close to Zeta, and **M55**, which lies between Theta and Tau, are also notable globulars. M55 is a less dense condensation of stars, which are counted in thousands rather than millions like M22.

**Open clusters** of note include **M18, M21, and M23**. Neither nebula nor cluster, **M24** is a general brightening of the Milky Way, known as the Small Sagittarius Star Cloud.

Credit: Text and photo from *The Star Guide*, by Robin Kerrod, 1993 MacMillan, pages 56 and 88.

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

**July Program (reminder): "Remote Observing from New Mexico"  
by Dr. Daniel Johnson**

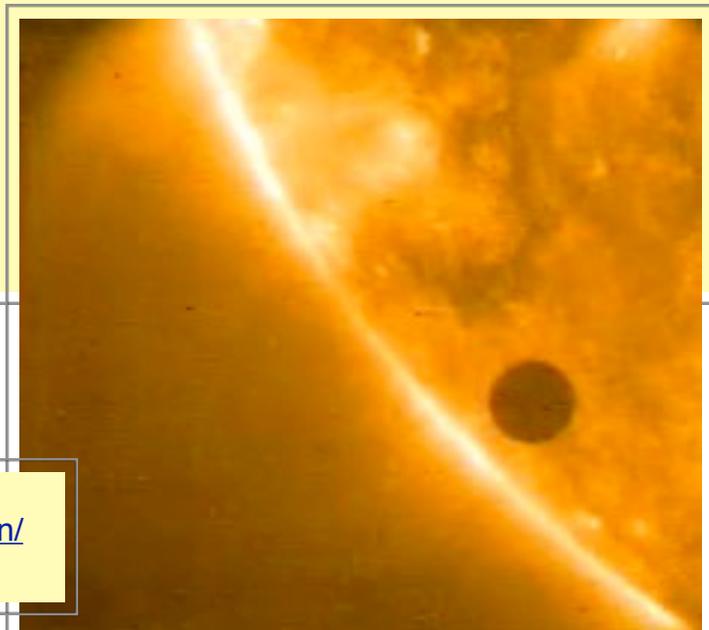
**August Program: "The 2012 Transit of Venus"  
by Mitch Luman**

Do you remember the last Transit of Venus, which occurred in June 2004 ? Do you know when the next two are ? Well, one will take place in 2117. Scratch that one. The other occurs a few hours before sunset one June 5, 2012.

Mark two dates on your calendar: one to attend the program on **Friday, August 19, 2011** when I will present a primer on the Transit of Venus; the other for the date of the transit itself, which occurs during the late afternoon on **Tuesday, June 5, 2012**.

Next year will present an unparalleled opportunity for public outreach as the last transit of Venus of our lifetimes takes place. This rare event has happened only seven times since the telescope was invented ! The last transit of Venus was such a global sensation that Google's Zeitgeist proclaimed it the #1 Most Popular Event in the world for the month of June 2004!

I will deliver an overview of the history of transits involving Venus, the geometry necessary to produce these events, eye safety, and the prospects for viewing in Evansville.



Venus transit - June 10, 2004  
Image: <http://www.nasa.gov/vision/universe/watchtheskies/>



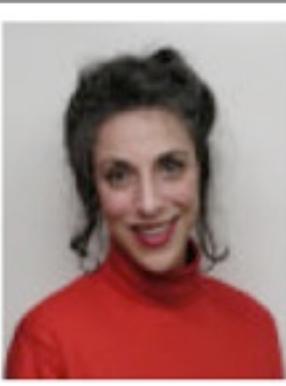
**Scott Conner - President**

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.

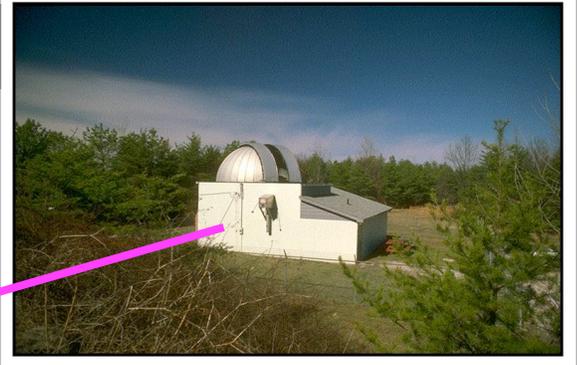
**The Dues schedule for membership in the E.A.S. is:**  
**Family ... \$40.00**  
  
**Single ... \$35.00**

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)

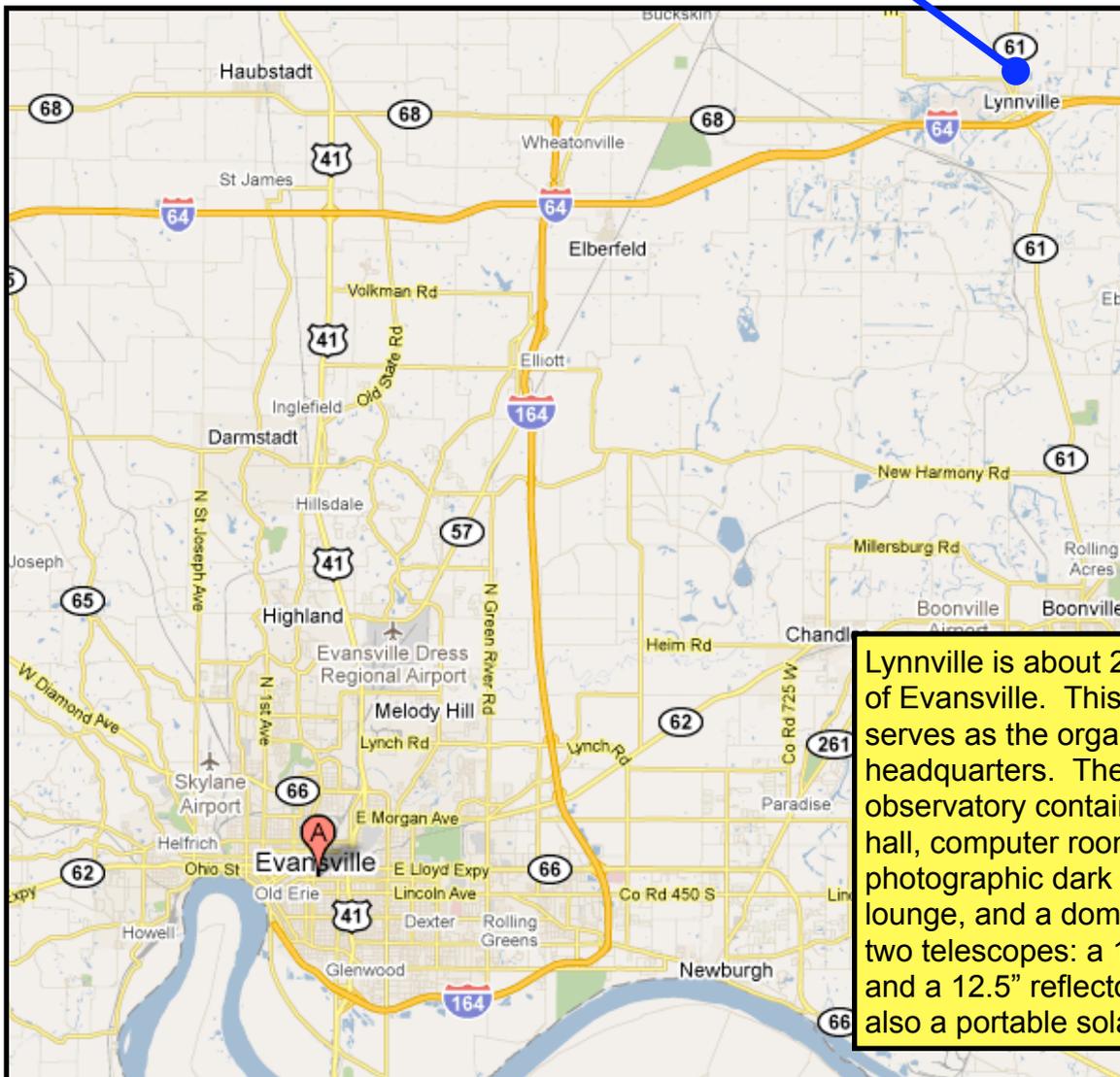
**For more information, view the E.A.S. website at:**  
**<http://evansvilleastro.org>**

# 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.