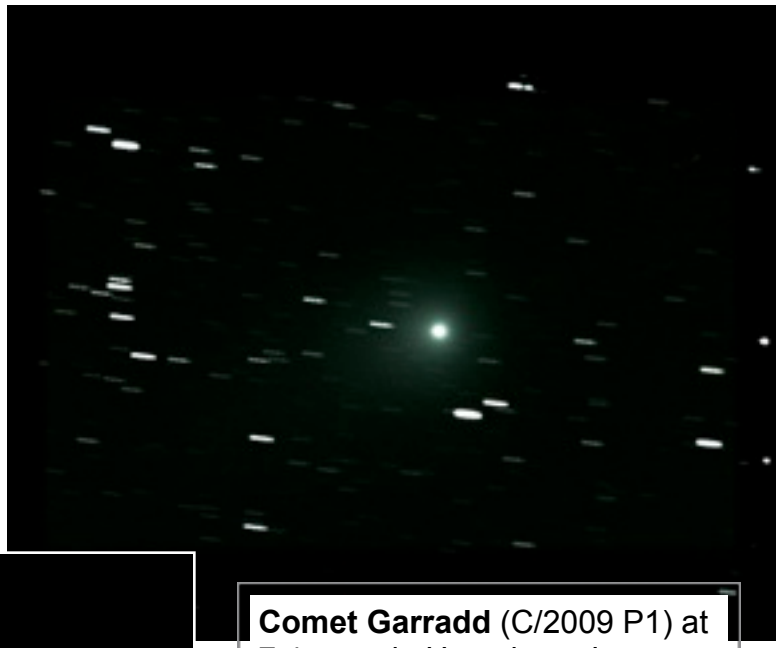
Observer

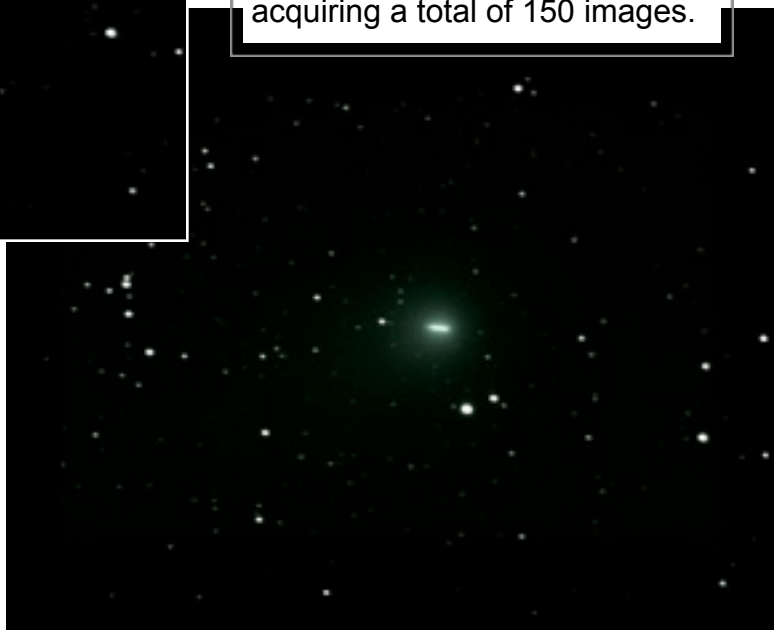
EVANSVILLE ASTRONOMICAL SOCIETY, INC.

October 2011

Inside this Issue...



Comet Garradd (C/2009 P1) at 7.4 mag. in Hercules -- Images by Glen Bye on 9.27.11 with Meade 10", Nebulosity, and Adobe Photoshop. Above -- with star trails; Below -- with comet trail; At Left is a combination of the two. It was a breezy night, so acquisition time was held to 5 sec. each while acquiring a total of 150 images.



For more background on comet Garradd, such as discovery, historical and upcoming highlights, and additional images, click here. Also, NASA's APOD page has a nice picture from July 11. Finally, check out the article in Sky and Telescope from Sep. 1, especially the graphic of the projected path for the next 6 months as it appears to cut through Hercules.

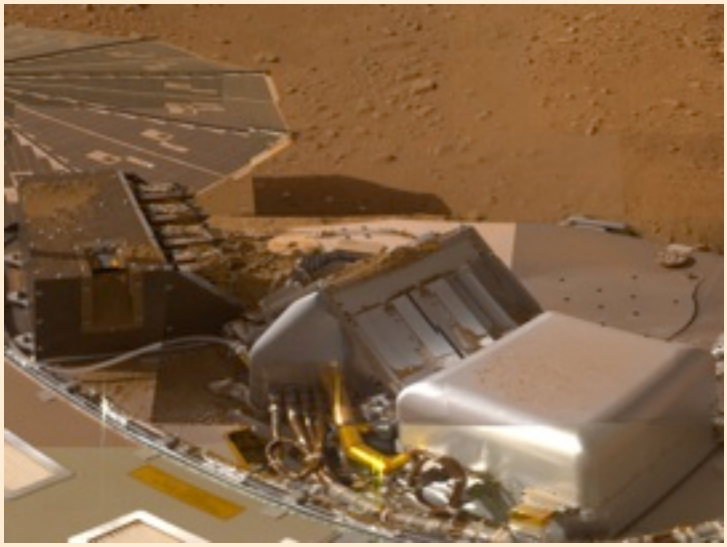
Local Events and Information

New Planetarium Show at Museum Updates Mars Missions

By Mitch Luman

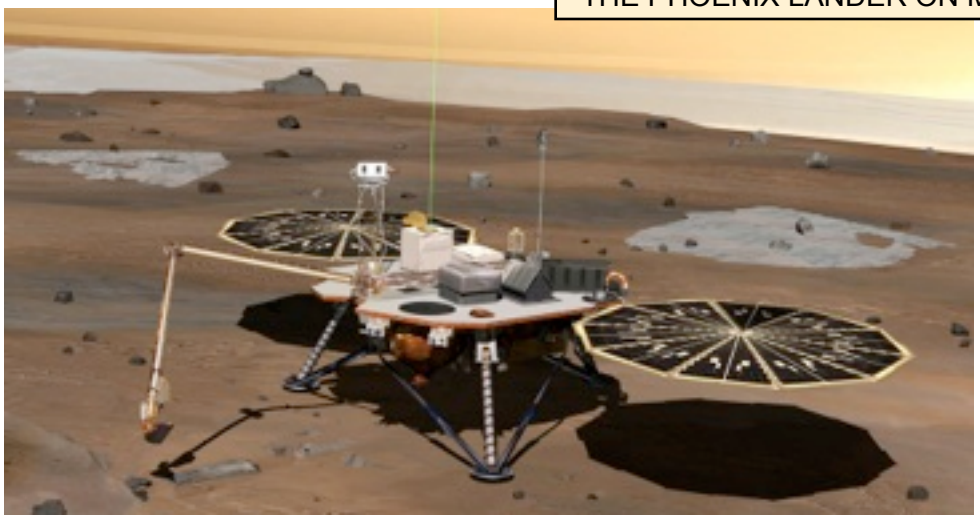
A timely new planetarium show, ***MARS UPDATE,*** is now showing at the Evansville Museum's Koch Planetarium. New for 2011, this program provides an update on the latest news from the small armada of spacecraft now in orbit and on the surface of the planet Mars.

The show begins with a fifteen minute segment describing how our views on Mars have changed over the years -- from H.G. Wells and Percival Lowell to the 2004 Mars Exploration Rovers. The second portion of the program will bring you up to date, providing such details as where to find Mars in the current night sky, the current status and discoveries of the long-lasting rovers Spirit and Opportunity. Other mission updates provided include the Phoenix Polar Lander, Odyssey, and the Mars Reconnaissance Orbiter. Information about the next new rover mission, the Mars Science Laboratory, is also given.

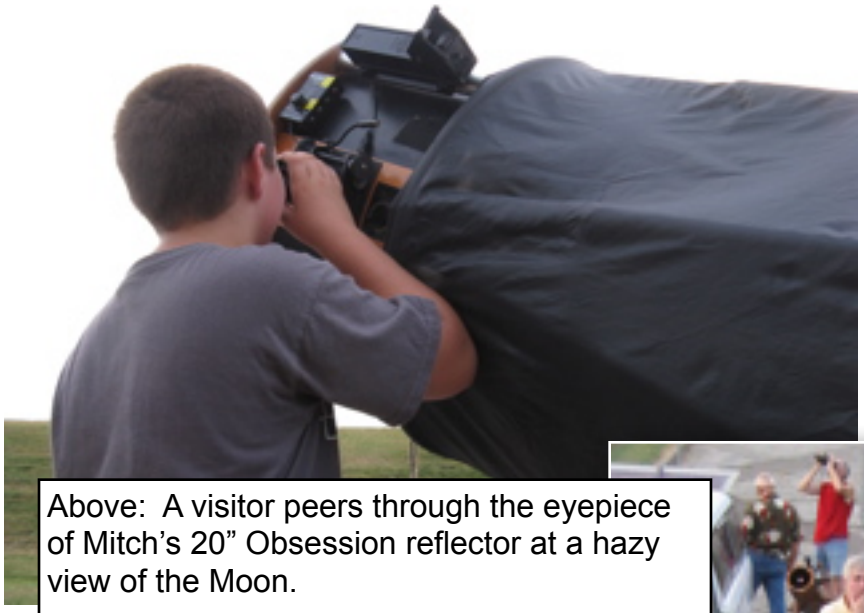


Showtimes for ***Mars Update*** are Saturday and Sunday at 1 p.m. through November 27. Planetarium admission is $3 for Adults. The Museum is free, but asks guests to consider a donation of $4 /person.

THE PHOENIX LANDER ON MARS (NASA)



In the September issue of the Observer, the Moon Watch at the Evansville Museum -- Sep. 3, 2011 -- was described. Here are two more pictures. Images courtesy of Mitch Luman.



Above: A visitor peers through the eyepiece of Mitch's 20" Obsession reflector at a hazy view of the Moon.

Right: Meanwhile a small crowd stands in awe as Mitch suddenly defies gravity and hovers 15 feet off the ground to capture this "low aerial" shot.

Moon image courtesy of Science on a Sphere.

For more on the night sky objects of October, play the Movie of Tonight's Sky at Amazing Space

November 2011

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

October Events (reminder)....

Fall / Winter Clean Up	Oct. 15 (Saturday)	10:00 am	Wahnsiedler Observatory
Girl Scouts	Oct. 15 (Saturday)	at dusk	Evanville Museum
Regular Meeting	Oct. 21 (Friday)	7:30 pm	Wahnsiedler Observatory
Public Star Watch	Oct. 22 (Saturday)	7:00 pm	Wahnsiedler Observatory
Girl Scouts	Oct. 29 (Saturday)	at dusk	Evanville Museum

November Events...

Regular Meeting	Nov. 18 (Friday)	7:30 pm	Wahnsiedler Observatory
Public Star Watch	Nov. 19 (Saturday)	6:30 pm	Wahnsiedler Observatory

Dark Clues to the Universe

By Dr. Marc Rayman

Urban astronomers are always wishing for darker skies. But that complaint is due to light from Earth. What about the light coming from the night sky itself ? When you think about it, why is the sky dark at all ?

Of course, space appears dark at night because that is when our side of Earth faces away from the Sun. But what about all those other suns ? Our own Milky Way galaxy contains over 200 billion stars, and the entire universe probably contains over 100 billion galaxies. You might suppose that that many stars would light up the night like daytime !

Until the 20th century, astronomers didn't think it was even possible to count all the stars in the universe. They thought the universe was infinite and unchanging.

Besides being very hard to imagine, the trouble with an infinite universe is that no matter where you look in the night sky, you should see a star. Stars should overlap each other in the sky like tree trunks in the middle of a very thick forest. But, if this were the case, the sky would be blazing with light. This problem greatly troubled astronomers and became known as “Olbers’ Paradox” after the 19th century astronomer Heinrich Olbers who wrote about it, although he was not the first to raise this astronomical mystery.

To try to explain the paradox, some 19th century scientists thought that dust clouds between the stars must be absorbing a lot of the starlight so it wouldn’t shine through to us. But later scientists realized that the dust itself would absorb so much energy from the starlight that eventually it would glow as hot and bright as the stars themselves.

Astronomers now realize that the universe is not infinite. A finite universe—that is, a universe of limited size—even one with trillions of stars, just wouldn't have enough stars to light up all of space.

Although the idea of a finite universe explains why Earth's sky is dark at night, other factors work to make it even darker.

The universe is expanding. As a result, the light that leaves a distant galaxy today will have much farther to travel to our eyes than the light that left it a million years ago or even one year ago. That means the amount of light energy reaching us from distant stars dwindles all the time. And the farther away the star, the less bright it will look to us.

Also, because space is expanding, the wavelengths of the light passing through it are expanding. Thus, the farther the light has traveled, the more red-shifted (and lower in energy) it becomes, perhaps red-shifting right out of the visible range. So, even darker skies prevail.

The universe, both finite in size and finite in age, is full of wonderful sights. See some bright, beautiful images of faraway galaxies against the blackness of space at the Space Place image galleries. Visit http://spaceplace.nasa.gov/search/?q=gallery.

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

Caption:

This Hubble Space Telescope image of Galaxy NGC 4414 was used to help calculate the expansion rate of the universe. The galaxy is about 60 million light-years away. Credit: NASA and The Hubble Heritage Team (STScI/AURA)

The Almost Heaven Star Party -- Not Really a Review

By Mitch Luman

Some of us in the EAS that regularly attend star parties have been talking for years about heading east instead of west for one of our annual star fabs. Let's face it, you can't beat the western US for its ubër dark skies. Or can you? Can a person get a "fix" of dark somewhere closer? This past summer, Donna Emmons, Ted Ubelhor, Bill Bernauer (formerly with the EAS), his wife Susan and I intended to find out as we made our way to West Virginia for the Almost Heaven Star Party (AHSP).

This year's AHSP was held during five days in late August on the meadows on the west flank of Spruce Knob, the tallest mountain in West Virginia. Held on the grounds of the non-profit Mountain Institute, this site is 570 miles from Evansville and considerably closer than the major star parties in the west. While the drive is doable in a day, everyone from the Evansville area allowed one long and one short day to get there. This was Ted's first star party.

This report will not take the form of a review for the straightforward reason that you can't properly review a star party that takes place during a hurricane. You see, unfortunately for those attending, the AHSP took place the weekend when Hurricane Irene did its worst to the eastern seaboard. I will merely share some images and attempt to give you a feel for what you missed by not being there this year!

The Mountain Institute owns several hundred acres on the flanks of the mountain where the star party is held. The Northern Virginia Astronomical Society (Washington, D.C.) has operated the event on a break-even basis for several years. This year 300 people were registered which, given the limited amount of level space, amounts to a sold-out event. The grounds included several nearby buildings (a yurt clubhouse, yurt meeting room, yurt kitchen, showers, meal deck). All these amenities are located about a 5-minute walk from the three color-coded

observing fields. Porta-potties were somewhat closer. Some fields were for RV's; some fields were for cars and tents; some were just for tents. We were on the Tents-R-Us site. Make no mistake, it's a lovely place in all kinds of weather and at 4,700 feet altitude you're pretty high up.

The main yurt was a pretty cool place. It had several levels all fashioned out of wood. There were lots of nooks where you could eat, lounge, read or as we did one evening, watch a DVD on Bill's laptop! The main yurt was where the meals were prepared. You could purchase breakfast, lunch or dinner. The meals were excellent and prepared by Mountain Institute staff who seemed to be used to catering groups like ours.

A definite highlight of the star party was an organized field trip to the National Radio Astronomy Observatory in nearby Green Bank. The huge, 300-foot telescope is the largest steerable radio telescope in the world. It was a great tour. We hopped in a bus to tour the site and see all the radio telescopes. We also toured the control room for the 300-foot telescope, saw labs where they make many of the instruments and toured what turned out to be an excellent hands-on science museum.

Below you can see all of us in gathered in the parking lot of the NRAO. The next image is Bill Bernauer posing in front of a feed horn in one of the labs. Bill is a past EAS member who now lives in Chicago.

We said it would make a good story when we got back and I suppose it did. Hurricane Irene sideswiped us the second night we were there. The conditions were not optimal for radio astronomy, optical astronomy or astronomy of any kind. While our first night was mainly cloudy, our second night added rain and 30 mph winds. We were defiantly hunkered down and trying to stay water-resistant there on the meadow. Donna said she kept waking up during the night as the wind collapsed her tent in on her--rudely whacking her on the head.

The outer bands of the storm were past us the next (third) day, but the conditions proved to be too much for Bill and Susan. They packed up and left. Understandably, a lot of people packed up and left, so much in fact that at times during the weekend the place appeared deserted of humans. First rule of star parties: have a good attitude. Second rule: go with friends. Third rule: have a good backup plan.

My backup plan involved meeting up with my son who lives near Washington, D.C. and doing some hiking. It also involved arranging for a visit from a former co-worker who lived nearby. This part of West Virginia is paradise for anyone who enjoys being outdoors. My son and I found this spot by a mountain stream -- well known to hikers and backpackers in the Dolly Sod

Wilderness, about an hour's drive from Spruce Knob.

Even though the third day after the Hurricane was great for hiking, the third night was also a wash. The next (fourth) day we experienced a thunderstorm around noon. Lightening had not been an issue until then, so we hightailed to the main yurt for protection. Late in the afternoon, on the fourth and final night of the star party, it cleared, only to have fog creep in during twilight. We were deeply shrouded in fog and it looked like the entire star party was going to be a wash. There we were, nearly as high as you can get in West Virginia, dew heaters running, telescopes aligned, Telrads turned on all ready to go. Not many stars, but a lot of fog.

The fog didn't last long and it did eventually clear. Although a lot of moisture remained in the air, we saw plenty of starlight set against an acceptably dark sky. The Milky Way was muted, but bright. Limited magnitude clocked in at around 6.2, which is great for back home, but I would expect more at a major star party. Earlier in the week I noticed that this location was one of the few places where I have seen clouds pass overhead without the glow of any light pollution shining on them. Black clouds at night are a sign of a truly dark sky. This I never thought I'd see east of the Mississippi. It was an epiphany for us all.

Ted Ubelhor contributed several pictures for this report.

EAS Meeting Minutes -- September 16, 2011 ... by Scott Conner,

The meeting was called to order at around 7:36 pm by President Scott Conner.

The minutes from August were accepted as written in the September newsletter.

The Vice President Tony bryan told us about the following **Upcoming Events**…

Ferdinand Folk Festival	**Sat. Sept. 17**	**7 am- 9pm -- probably 10-5?**
PSW	**Sat., Sept 24**	**7:30pm**
Fall/winter Cleanup	**Sat., Oct 15**	**9:30am**
Regular Meeting	**Friday, Oct 21**	**7:30pm**
PSW	**Sat., Oct 22**	**7:00pm**
Regular Meeting	**Friday, Nov 18**	**7:30pm**
PSW	**Sat., Nov 19**	**6:30pm**
Regular Meeting	**Sat., Dec 10**	**6:45pm Mitch Luman is Quiz Master**

Note: December meeting is at the Evansville Museum on Saturday

We had several visitors from Ken Harris's astronomy class, as well as our guest speaker Jason Harris, and his family.

Our treasurer Scott Bishop gave us an update on our finances, and also let us know that Birk Fischer has again had EAS calendars made up. Everyone is welcome to take a couple of them home with them.

There was no news on special projects for this year.

Old Business-

We had a PSW here at the observatory on August 20th. As darkness fell, several club members set up their telescopes to prepare for the nighttime viewing. Since the clouds were coming in fast, and Saturn was setting early, we decided to forgo the program, and go straight to observing. We had about 10 guests, but we had three telescopes and 6 members present.

New business-

We have our next PSW here at the observatory next Saturday at 7:30pm. It will be weather permitting.

The Ferdinand Folk Festival is Sat., Sept. 17, from noon until 8:00 pm CDT. We are booth #68 this year. We are to access our site via 20th street. We need people to man the booth, help with solar observing, etc. We need volunteers to help, even if you can just come by for a couple of hours. If you can help out please RSVP with me, I just have 3 RSVPs so far.

The Fall/ Winter cleanup is coming up on Saturday Oct 15th. We will start at 10 am. We need plenty of help to get this done quickly. Bring cleaning supplies with you just in case we don't have it here. There is grass to cut, floors to clean, and lots of other things to do.

I had to set a date for the 21st annual Patoka Lake "Stars on the Beach". I was contacted by the DNR, and they asked that we give them a date quickly so they could submit their calendar to the state. The best dates were June 30, and July 7, but they could not commit to which date would be the 4th of July weekend, so we settled for July 14, 2012 as the date we would use.

Ted, Mitch, Donna, and past member Bill Bernauer, attended the "Almost Heaven Star Party" in West Virginia. The weather was not very good most of the week, but they did get one really good night. The skies were very good for this area of the country. Ted had the biggest blast, with this being his first star party at a good observing site.

Mitch Luman asked for help with the Girl Scout events at the Evansville Museum in October. He needs a couple of volunteers to bring telescopes to the museum to be ready at dusk on Saturday October 15, and again on the 29th. These are weather permitting.

The program was **"Building Planets: A Step-by-Step Guide"** by Jason Harris.

The program for October is **"The History of the First Permanent Observatory in the New World"** by Victor Lopez.

The meeting was adjourned around 8:02 pm and was followed by the program.

Submitted by:

Scott Conner, President

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

October Program:
"The First Permanent Observatory in the New World"
by Victor Lopez

Where was the first permanent observatory in the new world? Harvard? Santiago? Yerkes? Victor Lopez has been there and will report on the history of this historic structure in a program entitled "The First Permanent Observatory in the New World". Widely traveled, Victor's programs have become a staple at EAS meetings. Everyone that will hear his talk will receive a gift related to this observatory whose identity will be a mystery until it is revealed on October 21.

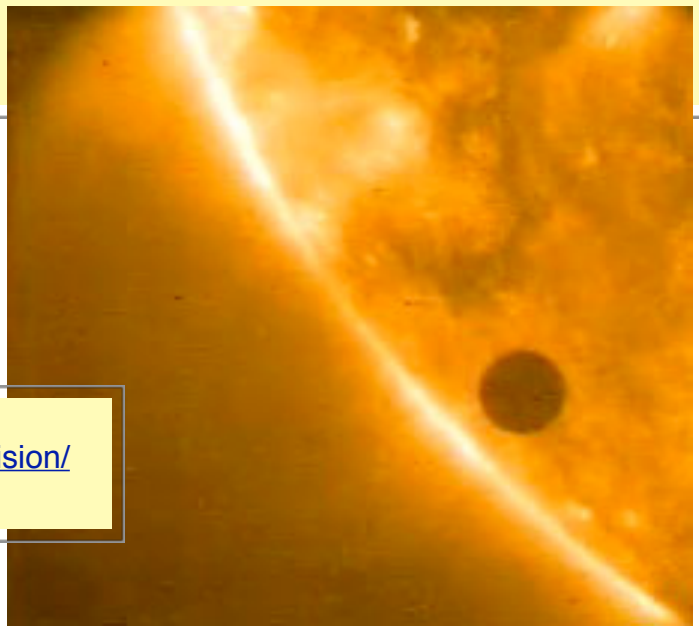
November Program: "The 2012 Transit of Venus" by Mitch Luman

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, November 18, 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. This is the same program that was to have been presented in August, but had to be postponed at the last minute.



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

Scott Conner - President

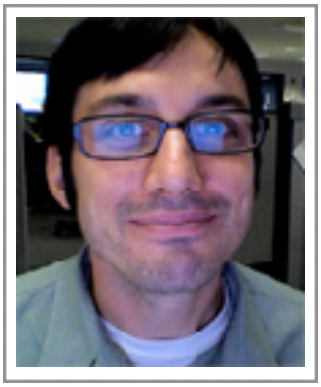
An Evansville West-sider and a Mater Dei High School graduate, Scott continued his education at USI and IVY Tech. He is currently employed in the Metal Fabrication Industry as a Manager. Scott actually has a zest for the "trilogy of sister sciences": Astronomy, Geology and Meteorology. A very valuable 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**

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.

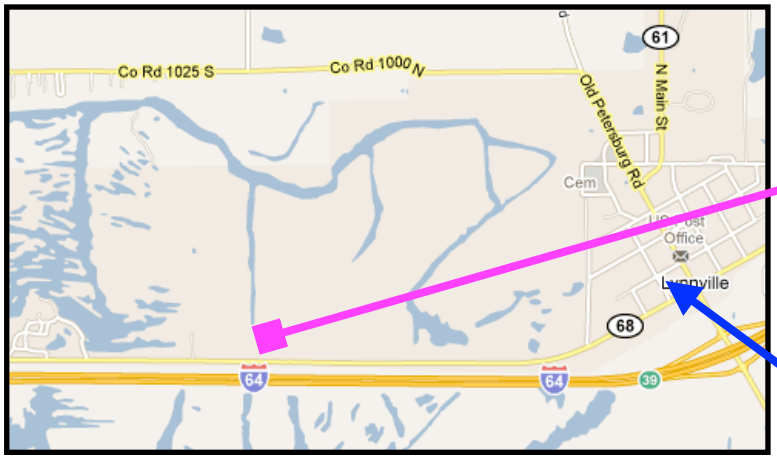
The Dues schedule for membership in the E.A.S. is:
Family ... $40.00

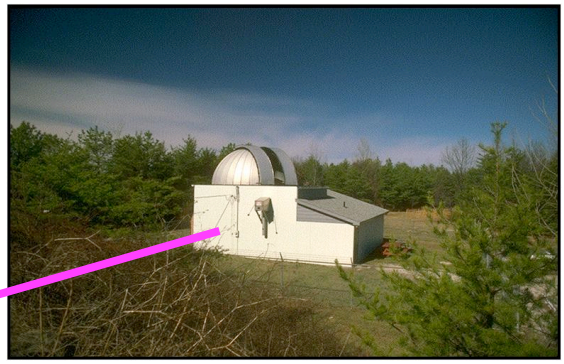
Single ... $35.00

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

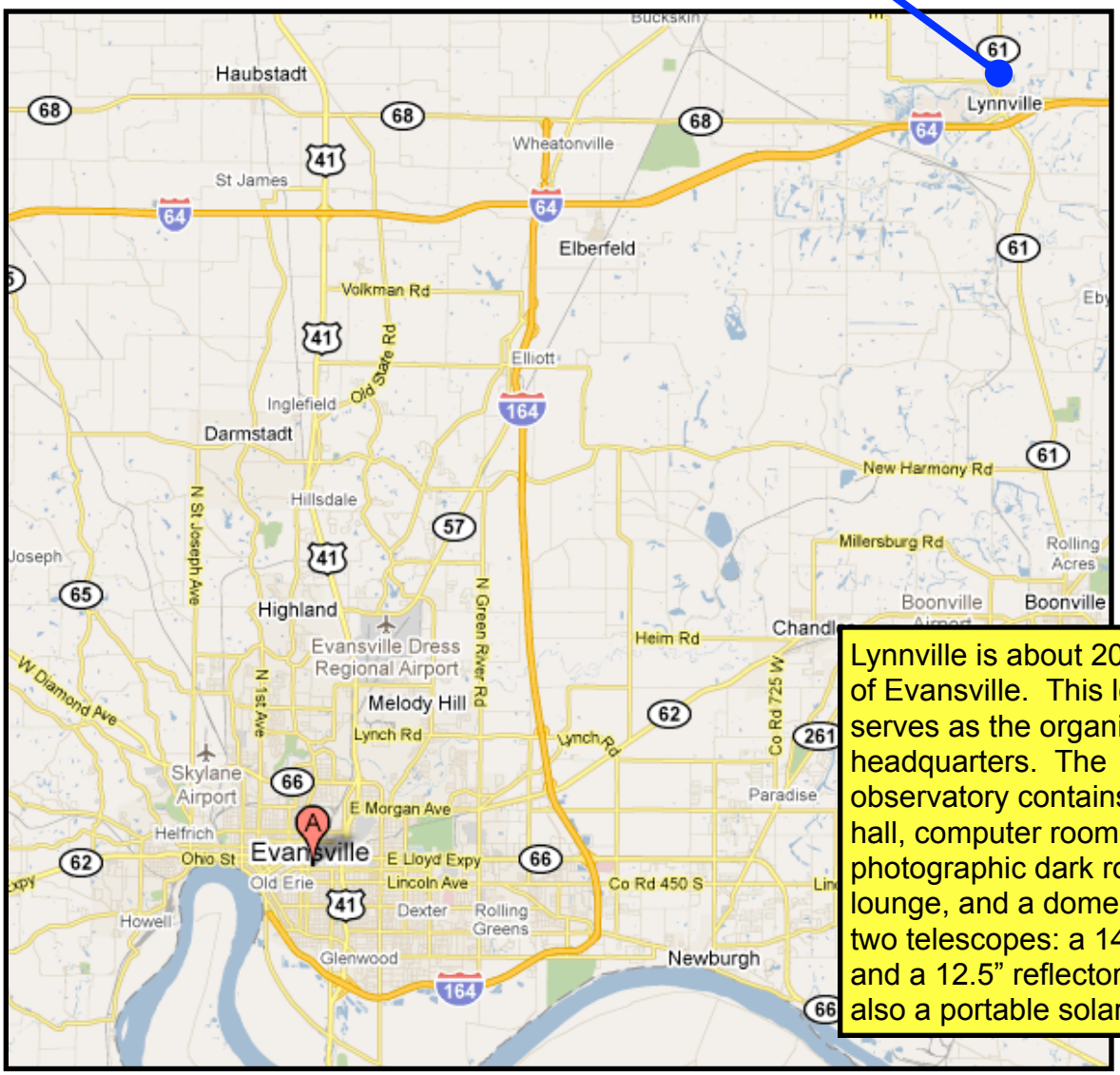
For more information, view the E.A.S. website at:
http://evansvilleastro.org

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.