Observer

EVANSVILLE ASTRONOMICAL SOCIETY, INC.

September 2011

Inside this Issue...

M8, the **Lagoon Nebula**... Image by Kent Brenton was acquired recently. Kent used an 8" f/4.8 homemade Newtonian reflector with Lumicon coma corrector, fitted with an ST8300C SBIG CCD camera. His telescope was guided with a 3" f/5 Jaegers refractor and Orion StarShoot autoguider using PHD guiding software. Kent stacked four 8-minute exposures. All image capturing and post-processing was done using Nebulosity v2.0.

Local Events and Information

The **Public Sky Watch** on August 20 was clouded out early. Several members brought scopes, and we just observed from outside. In order to take advantage of the rapidly setting Saturn, the program was not presented. Despite the weather, there were a half dozen people that came to visit us. ... Scott Conner

The **Moon Watch** on September 3 at the Evansville Museum was attended by well over a hundred eager visitors despite the partially cloudy skies, high temperatures and humidity. Mitch Luman and Glen Bye provided viewing with their reflector telescopes. In addition, Glen also set up his binocular stand. While the clouds obscured the view, Mitch discussed his telescope, provided information about the Moon, and described how the image would appear in the scope's lens. Both he and Glen answered many questions from interested visitors. A number of visitors thanked the EAS members for the viewing opportunity and mentioned seeing the newspaper article about the upcoming event. At least one visitor learned about it via Facebook. See photos on pages 2 - 3 ... George Neireiter

On September 17, EAS will be present at the 18th Street Park for the second annual **Ferdinand Folk Festival** in Ferdinand, IN. The club will be providing solar viewing and manning booth #68. Please use 20th Street for accessing our location. For more details about the folk festival, go to their web page here.

Solar image by Mike Borman, Sep. 3, 2011
http://www.mborman.org/

Moon Watch photos by George Neireiter

More photos from the Moon Watch at the Evansville Museum

Mitch assisting visitors at his 20” Obsession.

Glen aligning his 6” homemade reflector.

October 2011

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

September Events (reminder)...

Regular Meeting	Sept. 16 (Friday) 7:30 pm	Wahnsiedler Observatory	
Ferdinand Folk Fest.	Sept. 17 (Saturday) noon to 8 pm	Ferdinand, IN	
Public Star Watch	Sept. 24 (Saturday) 7:30 pm	Wahnsiedler Observatory	
Okie-Tex Star Party	Sept. 24 - Oct. 2	28th annual	http://www.okie-tex.com
Twin Lakes Star Party	Sept. 24 - Oct. 2	22nd annual	http://www.wkaa.net

October Events...

Fall /winter Clean Up	Oct. 15 (Saturday) 9:30 am	Wahnsiedler Observatory
Regular Meeting	Oct. 21 (Friday) 7:30 pm	Wahnsiedler Observatory
Public Star Watch	Oct. 22 (Saturday) 7:30 pm	Wahnsiedler Observatory

Moon rise - set times (CDT)

new	06:57 a - 5:41 p
first quarter	02:24 p - 00:40 a
full	06:20 p - 07:28 a
last quarter	00:59 a - 02:08 p

courtesy of U.S. Naval Observatory

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

October 21	07:04 a - 06:03 p
October 22	07:05 a - 06:02 p

courtesy of U.S. Naval Observatory

Solar System Size Surprise

by Dr. Tony Phillips

News flash: You may be closer to interstellar space than you previously thought.

A team of researchers led by Tom Krimigis of the Johns Hopkins University Applied Physics Laboratory announced the finding in the June 2011 issue of *Nature*. The complicated title of their article, "Zero outward flow velocity for plasma in a heliosheath transition layer," belies a simple conclusion: The solar system appears to be a billion or more kilometers smaller than earlier estimates.

The recalculation is prompted by data from NASA's Voyager 1 probe, now 18 billion kilometers from Earth. Voyagers 1 and 2 were designed and built and are managed by NASA's Jet Propulsion Laboratory. Aging but active, the spacecraft have been traveling toward the stars since 1977 on a heroic mission to leave the solar system and find out what lies beyond.

To accomplish their task, the Voyagers must penetrate the outer walls of the heliosphere, a great bubble of plasma and magnetism blown in space by the solar wind. The heliosphere is so big, it contains all the planets, comets, and asteroids that orbit the sun. Indeed many astronomers hold that the heliosphere defines the boundaries of the solar system. Inside it is "home." Outside lies the Milky Way. For 30+ years, the spacecraft have been hurtling toward the transition zone. Voyager 1 is closing in.

Much of Voyager 1's long journey has been uneventful. Last year, however, things began to change. In June 2010, Voyager 1 beamed back a startling number: zero. That's the outward velocity of the solar wind where the probe is now.

"This is the first sign that the frontier is upon us," says Krimigis.

Previously, researchers thought the crossing was still years and billions of kilometers away, but a new analysis gave them second thoughts. Krimigis and colleagues combined Voyager data with previously unpublished measurements from the Cassini spacecraft. Cassini, on a mission to study Saturn, is nowhere near the edge of the solar system, but one of its instruments can detect atoms streaming into our solar system from the outside. Comparing data from the two locations, the team concluded that the edge of the heliosphere lies somewhere between16 to 23 billion kilometers from the sun, with a best estimate of approximately 18 billion kilometers.

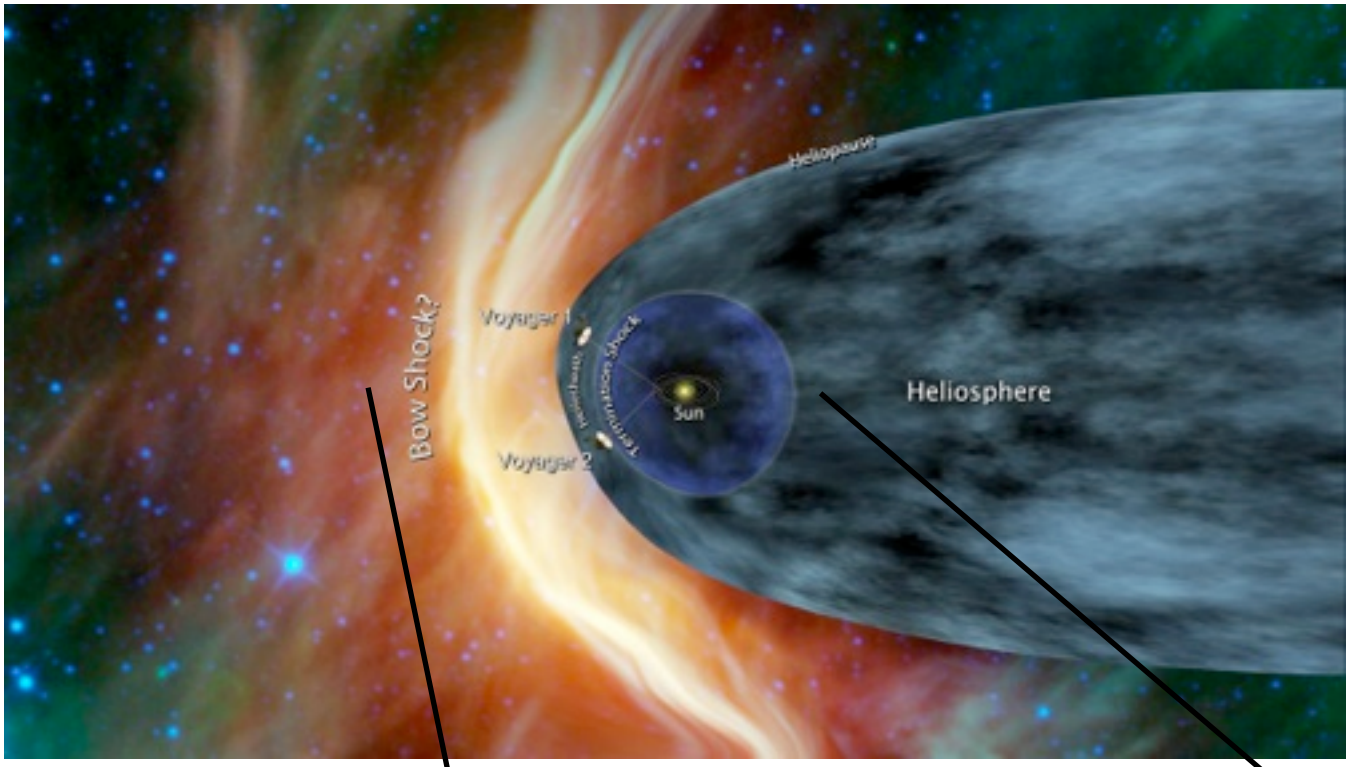
Because Voyager 1 is already nearly 18 billion kilometers out, it could cross into

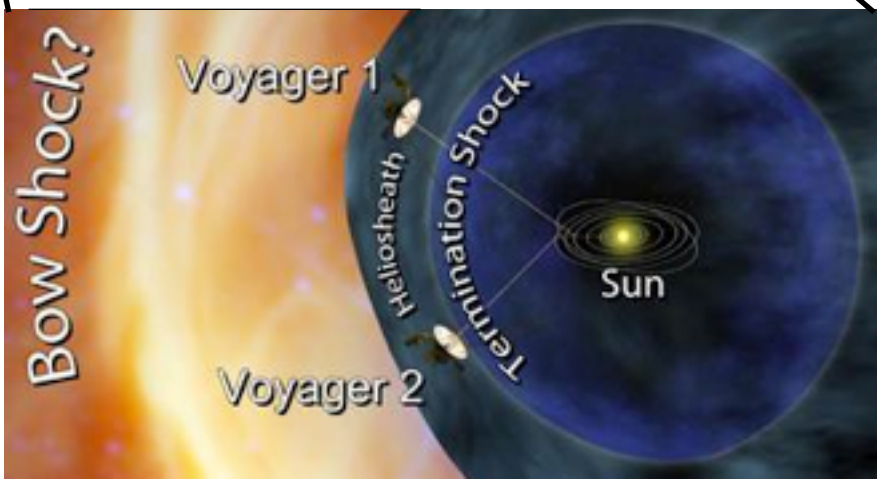
interstellar space at any time—maybe even as you are reading this article.

“How close are we?” wonders Ed Stone, Caltech professor and principal investigator of the Voyager project since the beginning. “We don't know, but Voyager 1 speeds outward a billion miles every three years, so we may not have long to wait.”

Stay tuned for the crossing.

For more about the missions of Voyager 1 and 2, see http://voyager.jpl.nasa.gov/. Another Voyager project scientist, Merav Opher, is the guest on the newest Space Place Live cartoon interview show for kids at http://spaceplace.nasa.gov/space-place-live.





Caption: *This artist's concept shows NASA's two Voyager spacecraft exploring a turbulent region of space known as the heliosheath, the outer shell of the bubble of charged particles around our sun. Image credit: NASA/JPL-Caltech.*

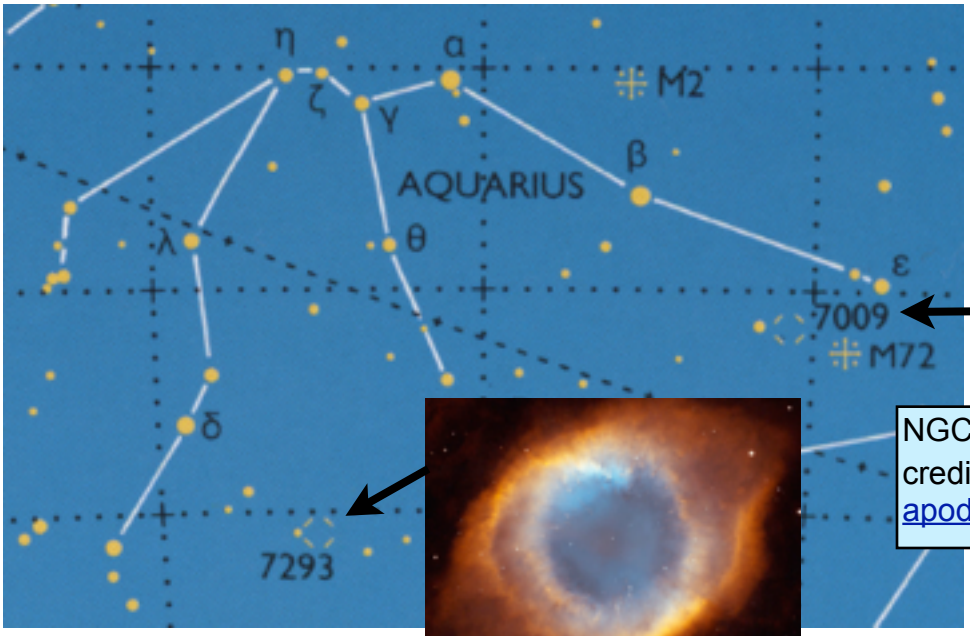
Constellation feature: Aquarius

Aquarius, the water-bearer, is a sprawling but faint constellation from about 0° to -20° declination. Leading stars are only about 3rd magnitude. The brightest star, Alpha, can be found by extending a diagonal of the square of Pegasus. Once located, the adjacent stars Gamma, Zeta, and Eta are more easily spotted. The pattern of these four stars represents the mouth of the water jar.

Beta is found just off the extended diagonal through Pegasus. Due north of Beta is **M2**, a globular cluster, which is one of the brightest in the heavens. Visible as a misty patch in binoculars, it is resolved into stars in larger telescopes.

There are two fine planetary nebulae worth locating. The brighter of the two is **NGC 7009**. Seen through larger telescopes, NGC 7009 appears to have a ring around it rather like the planet Saturn. As a result, it is called the Saturn Nebula. In the same binocular field of view as the Saturn Nebula is **M72**, another fairly bright globular cluster.

The other planetary nebula is **NGC 7293**. In small telescopes, it looks like a faint smoke ring. However, with long exposure photographs, the nebula has a spiral appearance. Hence, it is called the Helix Nebula. At an estimated 700 light-years, this object is one of the closest to Earth of all the bright planetary nebulae. The observed glow of the remnant central star is so energetic that the expelled gases brightly fluoresce. The Helix Nebula was the first planetary nebula discovered to contain knots. For more information on these knots, click on this Hubble Site Movie Theater.



NGC 7009, the Saturn Nebula
credit: http://apod.nasa.gov/apod/ap971230

NGC 7293, the Helix Nebula
credit: http://hubblesite.org/newscenter/archive/releases/2003/11

For more on the night sky objects of August, 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 60-61. Also, information about the Helix Nebula from: http://en.wikipedia.org/wiki/Helix_Nebula.

EAS Meeting Minutes -- August 19, 2011

The meeting was called to order at 7:36 by President Scott Conner. There were 19 members and 2 guests present.

The minutes were accepted as printed in the July newsletter. Vice President Tony Bryan told us about the following events:

PSW	Sat., Aug. 20	8:00pm Moon around 10pm
Moon Watch	Sat., Sept. 3	6 – 8 pm @ Museum
Regular Meeting	Fri., Sept. 16	7:30pm
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

Our visitors for tonight were exchange students that live with Tony and Donna Bryan. The first visitor was Ana Inauri from Gori, Republic of Georgia. She is back in town for a few months visiting. The other visitor was Anna-Sophia Elm who is staying with the Bryan's this year. She is from Weingarten, Germany.

Our Treasurer, Scott Bishop, informed us about our finances. He reminded members that the dues were due in July. So if you have not paid, please get that in fairly soon.

There is nothing to report on special projects at this time.

Under OLD BUSINESS:
We had a Saturn Watch at the Evansville Museum on Saturday July 23. We set up in the parking lot around 8 pm, and finished up around 10 pm. We had a good turn out from the club, and a decent turn out from the public. The weather was great, giving us good views of Saturn and its moon.

Under New Business:
Our next PSW here will be on August 20th here at the observatory. It will begin at 8:00 pm.

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 one RSVP so far.

The Fall/ Winter cleanup is coming up on Saturday Oct 15th. We will start at 9:30 am. We need plenty of help to get this done quickly. Please 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.

The program "The 2012 Transit of Venus" by Mitch Luman was cancelled due to unforeseen circumstances, and will be rescheduled.

Victor Lopez gave us a brief introduction to his talk that he will be doing on the 1st Observatory in the Americas. It is located in Bogata, Columbia.

The meeting was Adjourned at 7:54 and was followed by some observing.

Submitted by Scott Conner, President

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

September Program:
Building Planets: A Step-by-Step Guide by Jason Harris

Jason Harris, a graduate student in astronomy from Boston will present the program on Friday, September 16. Mr. Harris, who is an acquaintance of Birk Fischer, will talk about his field work in astronomy.

Understanding how planets and smaller bodies form in and interact with their natal environment is crucial to explaining the architecture of the Solar System as well as that of the extrasolar systems that host the 1000+ currently known planets outside the Solar System. In this presentation, he'll give an overview of what we (think we) know about how planets form and of how we've come to those conclusions along the way. Also, Jason will talk about exciting current results -- like the potential detection of planets caught in the act of forming around a few stars -- as well as the future of the study of planet formation. The latter is bright, not only with the opening of new radio telescope facilities in the US and in Chile, but also (hopefully) with the launch of the James Webb Space Telescope sometime in the not-too-distant future.

ALMA -- Atacama Large Millimeter Array radio telescope, located in the desert of northern Chile, is comprised of 54 dishes with 12-m diameter and 12 dishes with 7-m diameter. The dishes are sensitive to wavelengths between radio and infrared.

Program Note: The postponed August program on the 2012 Transit of Venus by Mitch Luman will be presented later in the year, or early next year.

October Program:
Victor Lopez will present the October program: "The History of the First Permanent Observatory in the New World".

Scott Conner - President

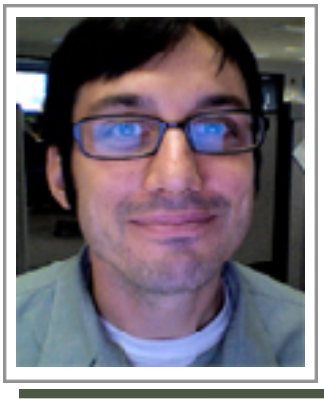
An Evansville West-sider and a Mater Dei High School graduate, Scott continued his education at USI and IVY Tech. He is currently employed in the Metal Fabrication Industry as a Manager. Scott actually has a zest for the "trilogy of sister sciences": Astronomy, Geology and Meteorology. A very valuable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

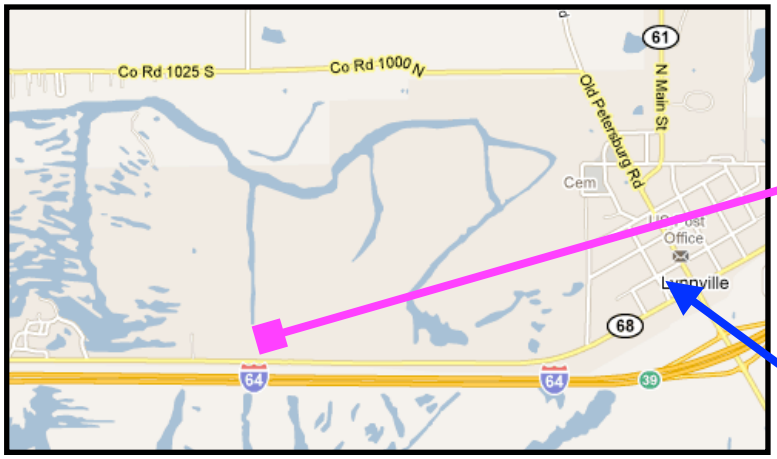
The Dues schedule for membership in the E.A.S. is:
Family ... $40.00

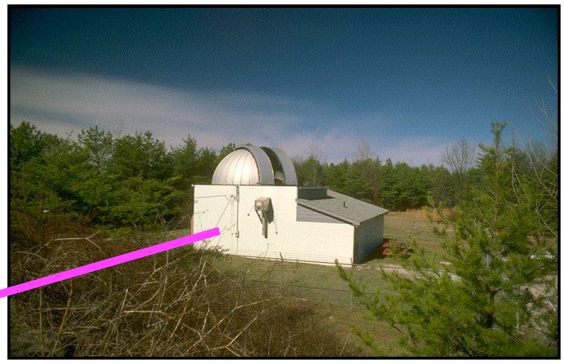
Single ... $35.00

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

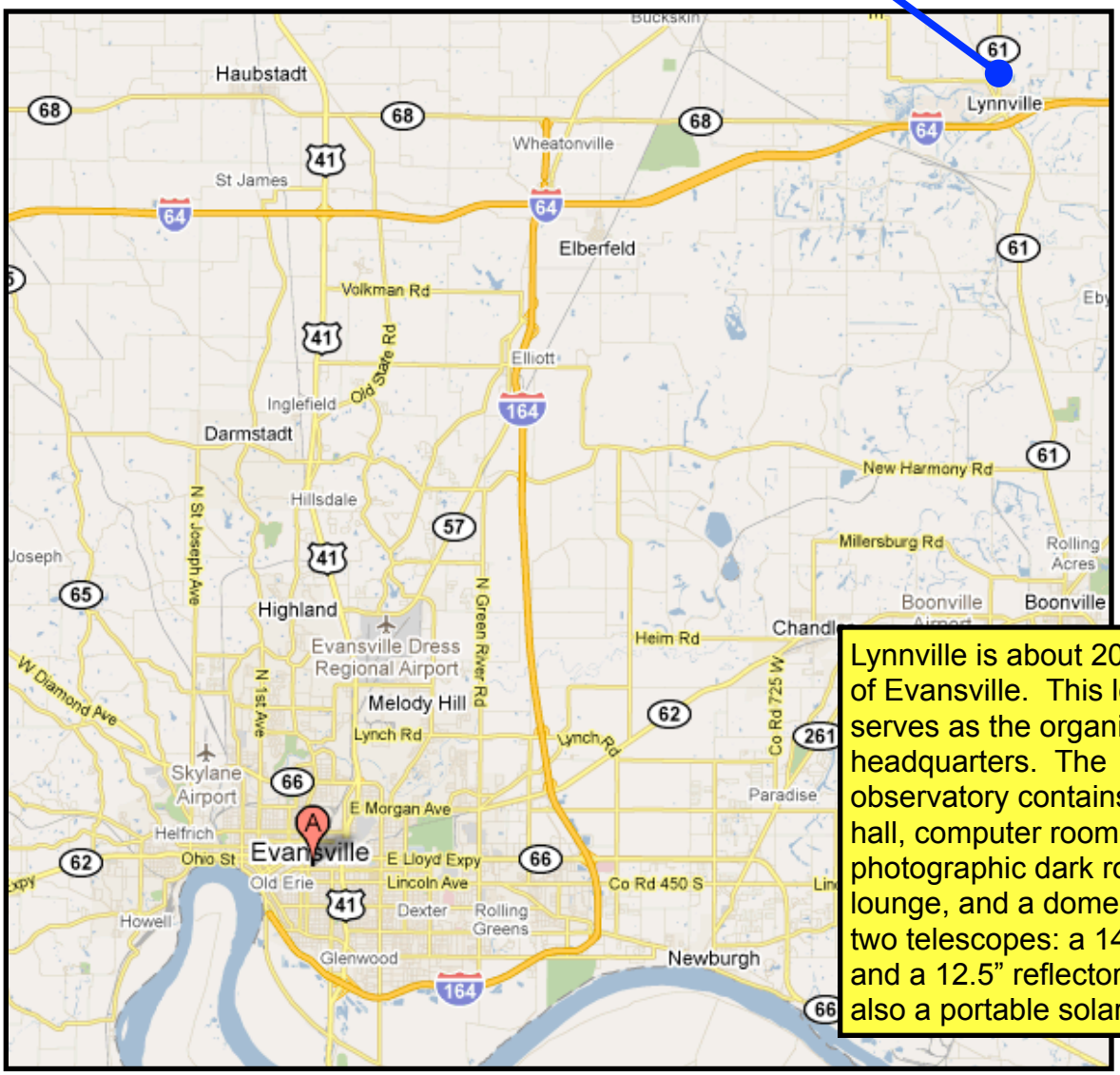
For more information, view the E.A.S. website at:
http://evansvilleastro.org

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.