

This image from NASA's Solar Dynamics Observatory shows Venus as it nears the disk of the sun on June 5, 2012. Venus's 2012 transit will be the last such event until 2117. Credit: [NASA/SDO, AIA](#)

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

The **Transit of Venus** on June 5th proved to be a spectacular event on Evansville's river front near the Museum of Arts, History, & Science. Hosted by Mitch Luman and assisted by members of EAS, a very large crowd, estimated at well over 500, were treated to fantastic viewing. The low humidity and pleasant temperatures made for near perfect conditions. An occasional cloud blocked the sunlight, but only briefly.

A variety of equipment was used for safe viewing of the transit: solar telescopes and binoculars, protective glasses with mylar film or dark plates, and optical devices for projecting the Sun's image onto a reflective surface. During the three hours of viewing from 5 pm to sunset, a steady flow of visitors were lined up behind each of the half dozen or so viewing stations. The crowds consisted of all ages (young children, teenagers, and adults), but all expressed similar "wow" enthusiasm when first seeing the Sun's image and the small black silhouette called Venus.

Upon closer inspection, they noticed the smaller groupings of sunspots.

EAS members who provided solar telescopes were Bruce Blake, Mike Borman (two different platforms with one using a sun funnel), Tony Bryan, Joe Caruso, and Ted Ubelhor. Mitch set up his binoculars and provided the Museum's solar telescope, which was manned by Scott Conner. In addition, the Museum's Sunspotter was supervised by Ken Harris while also keeping track of his limited collection of low tech solar glasses. Also, Victor Lopez helped with crowds at Mike's two solar viewing stations. Many thanks to all who made this a special event.

While ground-based telescopes and cameras, including those in cell phones, were abundant for capturing the transit on the river front, I thought the image at the top of this page was especially unique as Venus was about to begin its transit. Pictures from the Evansville event can be found on pages 3 and 4.

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

Local Events and Information

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 812.604.7164
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

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



DOME REPAIR DAY - May 12 (update)... The dome repair day was a successful work event. Ken Harris, Ted Ubelhor, Tony Bryan, and Wayne Donohoo helped out. The first coat of Drylock paint was applied to the concrete block walls, however another coat of Drylock paint is still needed to help seal out moisture. During removal of the red carpet, it was discovered (to much surprise) that there was another blue-tone carpet beneath the red one.

Notes from President Scott Conner...

We have a couple of big events coming up over the next few months. The first one is our annual **EAS picnic**. It is Saturday June 23rd. The picnic is held at the Observatory. It will begin at 5:30 pm with meat and buns being provided by the club. There is a small fee of \$2 per person over 12 years of age to cover the cost of most of the food. Drinks are available from the club for \$0.50. Each family is asked to bring a **SMALL** side dish or dessert. This year we plan to observe at the Observatory instead of at Dolan's Lake, so bring your telescopes with you to setup in the field for Evening time. I plan to spray the fields one week prior to the event in an effort to reduce the ticks. Bring bug repellent for the evening. Friends and Family are welcome to this event.

The second event is the 21st annual **Patoka Lake "Stars at the Beach"** event. Unlike years past the event will not start until 6:00 pm local time (5:00 pm Evansville Time). We plan to have a short time with kids activities from 6:00 - 8:30 pm. During this time we will have some astronomy related multimedia presentations. After dark, we will have telescopes on the beach for observing, and possibly an indoor (tents) tour of the night sky by Ken Alderson. It should be a great event at Patoka Lake. I hope everyone can attend these two events.

... Scott Conner.

Pictures of the Venus transit

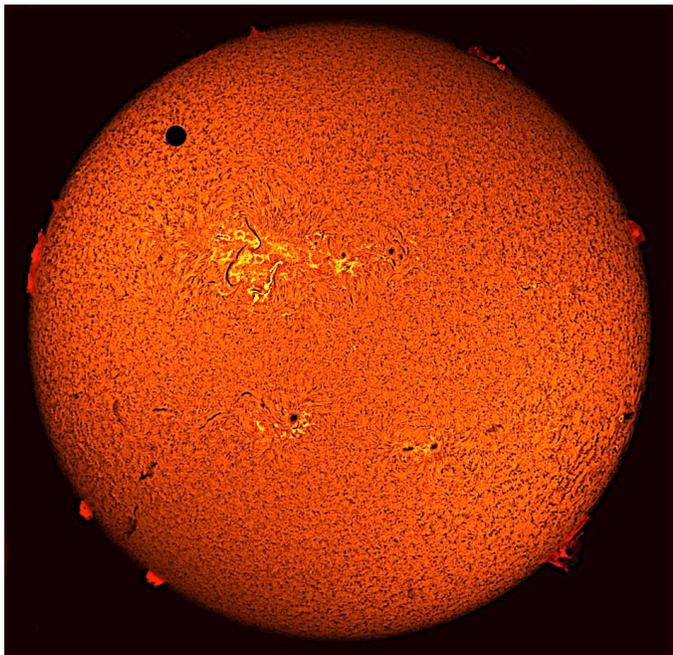


Image by Mike Borman in H-alpha. See his [web site](#) for details on equipment used. If you go to his web site and enlarge the photo, you can see atmospheric distortion around Venus' edge.



Image of the setting sun with Venus transit still in progress. Mike Borman used his Canon DSLR and 18-270mm zoom lens.



Image by Bob Colvin using an Orion full aperture glass solar filter triple coated with an advanced nickel-chromium stainless steel alloy on a 10-inch Orion intelliscope. Panasonic Lumix camera was in Intelligent Automatic mode (f 3.3, 1/60 at ISO 100).

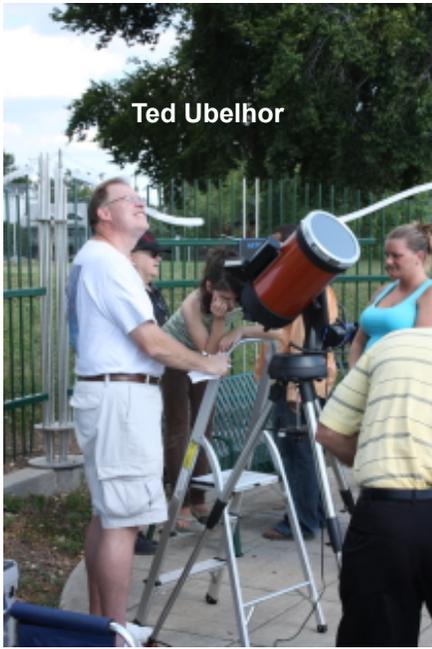


Image by Tony Bryan. He used his new Canon Rebel T3i to acquire the image from his ETX-90 equipped with a Thousands Oaks solar filter.



Projection from Joe Caruso's refractor

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Ted Ubelhor



briefly waiting...



Mitch Luman



Bruce Blake



Joe Caruso



Tony Bryan



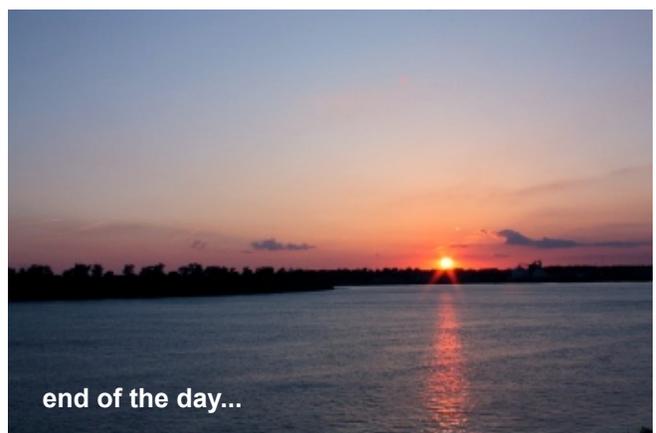
Scott Conner



Mike Borman's sun funnel

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Visitors experiencing the Venus transit of 2012



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July 2012

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

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

June Events (reminder)....

Venus transit Jun. 5 (Tuesday) 5 pm Evansville Museum
EAS Annual Picnic **Jun. 23 (Saturday) 5:30 pm** **Wahnsiedler Observatory**
(observing at Wahnsiedler Observatory after picnic)
Note: no Regular meeting on the third Friday (June 15)

July Events...

Patoka Lake (21st) Jul. 14 (Saturday) 5:00 pm CDT Patoka Lake beach
Regular Meeting **Jul. 20 (Friday) 7:30 pm** **Wahnsiedler Observatory**
Nebraska Star Party *Jul. 15 - 20*

Moon phase times (CST)					
full	1:52 p	Jul 3	new	11:25 p	Jul 18
third quarter	8:48 p	Jul 10	first quarter	3:57 a	Jul 26
courtesy of Time and Date					

Thank Goodness for Magnetism

By Dr. Tony Phillips



Only 93 million miles from Earth, a certain G-type star is beginning to act up.

Every 11 years or so, the solar cycle brings a period of high solar activity. Giant islands of magnetism — "sunspots" — break through the stellar surface in increasing numbers. Sometimes they erupt like a billion atomic bombs going off at once, producing intense flares of X-rays and UV radiation, and hurling massive clouds of plasma toward Earth.

This is happening right now. Only a few years ago, the Sun was in a state of deep quiet, but as 2012 unfolds, the pendulum is swinging. Strong flares are becoming commonplace as sunspots once again pepper the solar disk. Fortunately, Earth is defended from solar storms by a strong, global magnetic field.

In March 2012, those defenses were tested.

At the very beginning of the month, a remarkable sunspot appeared on the Sun's eastern limb. AR1429, as experts called it, was an angry-looking region almost as wide as the planet Jupiter. Almost as soon as it appeared, it began to erupt. During the period March 2nd to 15th, it rotated across the solar disk and fired off more than 50 flares. Three of those eruptions were X-class flares, the most powerful kind.

As the eruptions continued almost non-stop, Earth's magnetic field was buffeted by coronal mass ejections or "CMEs." One of those clouds hit Earth's magnetosphere so hard, our planet's magnetic field was sharply compressed, leaving geosynchronous satellites on the outside looking in. For a while, the spacecraft were directly

exposed to solar wind plasma.

Charged particles propelled by the blasts swirled around Earth, producing the strongest radiation storm in almost 10 years. When those particles rained down on the upper atmosphere, they dumped enough energy in three days alone (March 7-10) to power every residence in New York City for two years. Bright auroras circled both poles, and Northern Lights spilled across the Canadian border into the lower 48 states. Luminous sheets of red and green were sighted as far south as Nebraska.

When all was said and done, the defenses held — no harm done.

This wasn't the strongest solar storm in recorded history — not by a long shot. That distinction goes to the Carrington Event of September 1859 when geomagnetic activity set telegraph offices on fire and sparked auroras over Mexico, Florida, and Tahiti. Even with that in mind, however, March 2012 was remarkable

It makes you wonder, what if? What if Earth didn't have a magnetic field to fend off CMEs and deflect the most energetic particles from the Sun.

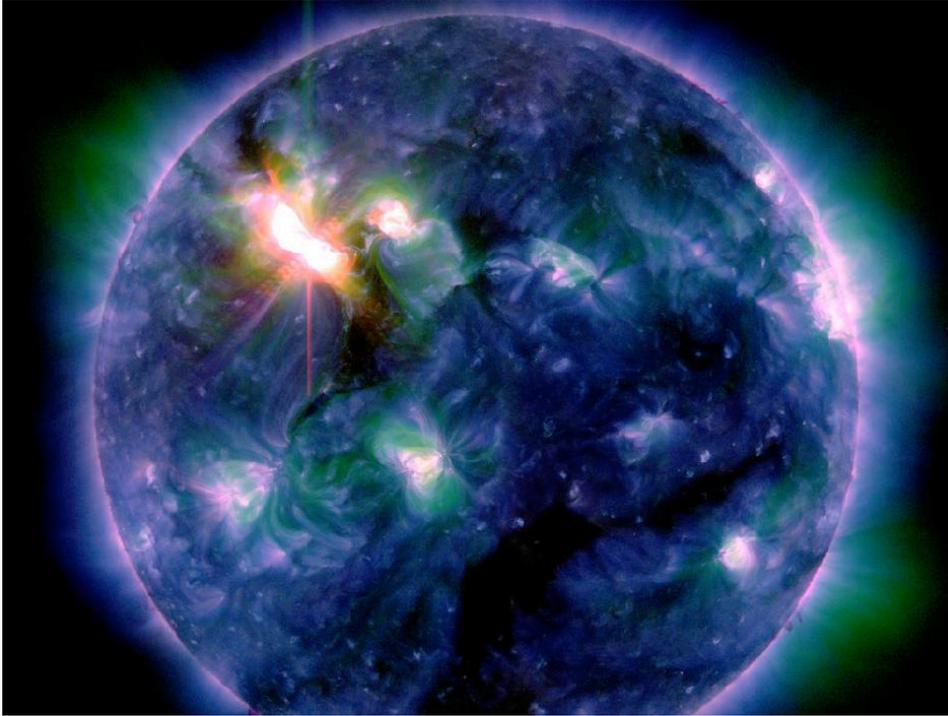
The answer might lie on Mars. The red planet has no global magnetic field and as a result its atmosphere has been stripped away over time by CMEs and other gusts of solar wind. At least that's what many researchers believe. Today, Mars is a desiccated and apparently lifeless wasteland.

Only 93 million miles from Earth, a G-type star is acting up. Thank goodness for magnetism.

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With your inner and outer children, read, watch, and listen in to “Super Star Meets the Plucky Planet,” a rhyming and animated conversation between the Sun and Earth, at <http://spaceplace.nasa.gov/story-superstar>.

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



Multiple-wavelength view of X5.4 solar flare on March 6, captured by the Solar Dynamics Observatory (SDO) in multiple wavelengths (94, 193, 335 angstroms). Credit: NASA/SDO/AIA

July Program “Observing the Sun” by Mike Borman

Mike Borman is a long time member of EAS, a former president of the club, and well known for his interest in astronomy, rocketry, weather, and carnivorous plants. He has won awards and drawn national recognition for his spectacular solar system images, especially of the Sun. His web site is rich with astrophotography of galaxies, star clusters, nebula, comets, planets, the Moon, and an aurora observed from his Evansville residence. In addition, he has posted impressive weather pictures of ominous storm clouds, lightening, and a double rainbow. Check out his web site at <http://www.mborman.org/>

For the July program, Mike will discuss the hardware he uses for solar observation, including telescopes, eyepieces, and filters. Although Mike will not focus on the photography aspects, he is willing to answer any questions.

EAS OBSERVER NEWSLETTER

EAS Meeting Minutes -- May 18, 2012

The meeting was CALLED TO ORDER by Vice-President Tony Bryan at 7:41 PM with 15 members in attendance. It was moved and seconded to approve the MINUTES of the previous month as seen on the EAS Internet page.

Vice-President Tony Bryan announced the following UPCOMING EVENTS:

PSW	Saturday, May 19	8:30 pm
Venus Transit	Tuesday, June 5	starting @ 5:00 PM @ Museum
EAS Picnic	Saturday, June 23	5:00 PM Observing @ Observatory
Patoka Lake	Saturday, July 14	5:00 PM Patoka Lake

There were no visitors.

Treasurer Scott Bishop said finances are in the black at this time. He reported a water leak was discovered outside the building that will impact our next water bill. Also, MEMBERSHIPS are due in June.

SPECIAL PROJECTS... DOME REPAIR DAY was successful with Ken Harris, Ted Ubelhor, Tony Bryan, and Duane (?) helping out. The 1st coat of drylock paint was applied, however another coat of drylock paint is needed. After removing the red carpet, it was discovered there was another blue-tone carpet beneath the red one.

OLD BUSINESS... Astronomy Day was held at the Evansville Museum on April 28. This event was an overall success, but the turnout from the club was less than in years past. In the beginning, the weather was okay; but clouds put a damper on the solar observing and the nighttime observing was cancelled.

NEW BUSINESS... PSW is scheduled for May 19 beginning at 8:15 PM. Volunteers are needed.

The TRANSIT OF VENUS will occur on June 5 with viewing to begin at 5:00 and last until sunset. Telescope setups will be on the levee outside the Museum. (This will be the last time to view this event in our lifetime.) Volunteers with solar filters are needed for this event.

The annual EAS PICNIC is scheduled for Saturday, June 23, starting between 5:00 – 5:30 PM with observing at the OBSERVATORY. The fee is \$2.00 per person over the age of 12. Everyone is asked to bring a small side dish or dessert. Meat and buns will be provided.

The annual “Stars on the Beach” at PATOKA LAKE will be on July 14. This year, we will not set up until after 5:00 PM.

Lastly, Charleen Kaelin reported a “What’s Up?” on this month’s astronomy happenings.

The meeting adjourned at 8:10 PM.

A program was presented by Tony Bryan of a podcast on Kepler’s searching for planet transits in our solar system.

Respectfully submitted by:
Charleen Kaelin, Executive Board Secretary