



On October 18, 2010, the NASA/ESA Hubble Space Telescope team released this stunning, high resolution image of **NGC 6210**, a planetary nebula sometimes called the Turtle nebula. This curious object is located at a distance of 6500 light-years away in the constellation **Hercules**, which is visible in the summer night sky. NGC 6210 was discovered in 1825 by German astronomer Friederich Georg Wilhelm Struve. In small telescopes it appears as a tiny disc, though it is fairly bright.

This 4-color picture was created from images taken with Hubble's Wide Field Planetary Camera 2 through four filters: the broadband filter F555W (assigned as blue) and the narrowband filters F656N (ionised hydrogen - magenta), F658N (doubly ionised nitrogen - red) and F502N (doubly ionised oxygen - green). The exposure times were 80 s, 140 s, 800 s and 700 s, respectively. The field of view is only about 28 arcseconds across.

NGC 6210 is the last gasp of a star slightly less massive than our Sun at the final stage of

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its life cycle. The multiple shells of material ejected by the dying star form a superposition of structures with different degrees of symmetry, giving NGC 6210 its odd shape.

This sharp image shows the inner region of this planetary nebula in unprecedented detail, where the central star is surrounded by a thin, bluish bubble that reveals a delicate filamentary structure. This bubble is superposed onto an asymmetric, reddish gas formation where holes, filaments and pillars are clearly visible.

The life of a star ends when the fuel available to its thermonuclear engine runs out. The estimated lifetime for a Sun-like star is some ten billion years. When the star is about to expire, it becomes unstable and ejects its outer layers, forming a planetary nebula and leaving behind a tiny, but very hot, remnant, known as white dwarf. This compact object, here visible at the centre of the image, cools down and fades very slowly. Stellar evolution theory predicts that our Sun will experience the same fate as NGC 6210 in about five billion years.

Credit: <http://www.spacetelescope.org/images/potw1026a/>

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



Followup to the **Venus transit**... One of Mike Borman's stunning full disk H-alpha images was selected by the French magazine *Astronomie* for inclusion in their July/ August issue (number 147). [Click here](#) for viewing the cover page and the two pages associated with the transit article. Congratulations to Mike on this honor.

The annual **EAS picnic** on June 23 was successful. We had about 20 people come to the picnic. Starting at a later time was a good idea. Perhaps we should start at 6 pm next year in hopes that it will be cooler; plus, it will be closer to dark for observing. Unfortunately, this year it was cloudy, so we did not do any observing afterward. ... Submitted by Scott Conner.

Notice regarding the upcoming **Patoka Lake beach** event... As mentioned recently in the Evansville newspaper and on the [park's website](#), due to low water levels at Patoka Lake, the beach has been closed indefinitely. While this affects swimming and boating at the beach, it does not impact the **Stars on the Beach** event scheduled for July 14. The event starts at 6:00 pm local time (5:00 pm Evv).

Correction... In last month's issue, the paragraph about the Dome Repair Day had an incorrect name listed. **Wayne Donohoo** also participated with Ken, Ted, and Tony. Thanks to all of you for your help.

\$\$ Dues are due **\$\$** ... Its that time of year for annual dues to be paid. Single membership is \$35.00 and Family is \$40.00. Please mail check to EAS, PO Box 3474, Evansville, IN 47733.

Upcoming **Public Star Watch** (PSW)... Be sure to mark your calendar for **August 11** when EAS will be hosting a PSW at 8 pm at Wahnsiedler Observatory. As noted on the calendar on page 5, the Moon will be in its last quarter, which should aid viewing. Mars and Saturn should be visible that night.

In memory...

It was learned that Bill McCarty's wife **Eldonna McCarty** passed away on June 16 at Select Specialty Hospital in Evansville at age 78. Survivors include her husband, Bill McCarty and children: Diane, Linda, Richard, William and Charles. Services were held at Heartland Worship Center at 212 W second St. In Mt. Carmel, Il. A full obituary can be found [here](#).



Edward Lewis Erickson
1915 ~ 2012

On July 2, 2012, longtime EAS member **Ed Erickson** passed away at age 96. His [obituary](#) was published in the Evansville Courier and Press newspaper on July 4th and 5th. Ed supported EAS in many ways, the most recent by serving as a Counselor to the club. He had been honored by the club with a lifetime membership status in July 2004.

Upon learning of Ed's passing, Kent Brenton replied that Ed "was a good man" and remembered meeting him for the first time back in the late 70s. Bob Colvin recalled that Ed "used a very heavy and powerful binocular which I could not hold steady."

In fact, he used a 20 x 80 power binocular stated Ed's good friend and neighbor Ray Ubelhor, who was also awarded a lifetime membership at EAS when Ed received his honor. It was Ed that got Ray interested in astronomy. Ray recalled that Ed was one of the early founders of EAS back in the 1950s when the group was meeting at the museum and was involved in helping build the Wahnsiedler observatory in the late 1970s.

Ed was very dedicated to the observatory. Ray remembered that Ed and Larry Dennis (who passed away in 2003) frequently helped with maintenance of the observatory and grass cutting.

Besides the heavy binocular, Ed had just a small telescope for viewing. So, he relied on telescopes at the observatory. He and Ray regularly went to Wahnsiedler observatory on Wednesday nights and opened it for the public to come and learn

about the night sky. There, Ed would share his knowledge through lectures. He was a brilliant man Ray commented.

Personality wise, Ed was somewhat like John Dobson (of the Dobsonian telescope mount fame) said Mike Borman. He would grab someone walking by and ask them if they wanted to see the Moon, or whatever object was in the telescope at the time.

Ed had a deep and distinctive voice. When Ed lectured at the observatory, the lights were often turned down low. Visitors could not see him well, but they heard and remembered Ed's strong voice, recalled Ray. Later on, if one of the visitors happened to encounter Ed in the daytime and heard him talking, they immediately would ask if he was that man at the observatory.

Ed also traveled to schools to share his passion for astronomy. He was really good with the school kids said Ray. He really enjoyed them and often handed out small candies, not only the oft-mentioned Werthers, but Milky Way bars, too. Thank you Ed !

A notice of interest to all EAS members regarding the **International Dark-Sky Association notice (IDA)**... From Scott Kardel, Public Affairs Director of the IDA (via Mike Borman):

Greetings! The International Dark-Sky Association (IDA) is running a membership promotion that we thought that you and the members of your astronomy club might be interested in knowing about.

Enter the International Dark-Sky Association's Darksky Giveaway for an astronomically grand prize—a set of eight TeleVue Ethos eyepieces valued at \$5,665, generously donated by Televue Optics.

To enter the IDA's Darksky Giveaway, you must be an IDA member before the entry closeout date of August 31, 2012. If you are not a member, joining is easy and the cost of a one-year membership is only \$35.00. To join or renew your membership, visit www.darksky.org and select the "Join" tab at the top of the webpage. You can also join by calling the IDA office at (520) 293-3198. Entering to win is also a breeze. Visit darksky.org/giveaway where you can fill out the entry form online and read the official rules.

Individual memberships help IDA perform its mission in stopping light pollution and helps to support its many programs. Through the

International Dark Sky Places program, IDA and its partners certify locations with exceptional nightscapes as International Dark Sky Communities, International Dark Sky Parks, and International Dark Sky Reserves. The Dark Sky Parks and Protected Area Program currently works with national parks to help them utilize quality outdoor lighting. IDA's new Suburban Outreach Sites project partners

with astronomy clubs to establish accessible programs for kids and their parents. These programs help IDA to engage communities and to raise awareness and ultimately "to preserve and protect the nighttime environment and our heritage of dark skies through environmentally responsible outdoor lighting."

IDA members make a big difference in their communities and around the world, which is why IDA is thrilled to offer its

members such a premium giveaway from Televue Optics. Make sure you enter the DarkSky Giveaway by the deadline and good luck!

To learn more, visit www.darksky.org.

The winner will be announced at the Pacific Astronomy and Telescope Show in September 2012, but does not need to attend PATS to win.



EAS OBSERVER NEWSLETTER

August 2012

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

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

July Events (reminder)....

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 (19th) Jul. 15 - 20

August Events...

PSW Aug. 11 (Saturday) 8:00 pm Wahnsiedler Observatory
 Regular Meeting Aug. 17 (Friday) 7:30 pm Wahnsiedler Observatory

Moon phase times (CST)

full	10:28 p	Aug 1	new	10:55 a	Aug 17
third quarter	1:55 p	Aug 9	first quarter	8:54 a	Aug 24

courtesy of [Time and Date](#)

How Many Discoveries Can You Make in a Month?

By Dr. Tony Phillips

This year NASA has announced the discovery of 11 planetary systems hosting 26 planets; a gigantic cluster of galaxies known as *El Gordo*; a star exploding 9 billion light years away; alien matter stealing into the solar system; massive bullets of plasma racing out of the galactic center; and hundreds of unknown objects emitting high-energy photons at the edge of the electromagnetic spectrum.

That was just January.

Within NASA's Science Mission Directorate, the Astrophysics Division produces such a list nearly every month. Indeed, at this very moment, data is pouring in from dozens of spacecraft and orbiting observatories.

"The Hubble, Spitzer, Chandra, and Fermi space telescopes continue to make groundbreaking discoveries on an almost daily basis," says NASA Administrator Charlie Bolden¹.

NASA astrophysicists and their colleagues conduct an ambitious research program stretching from the edge of the solar system to the edge of the observable Universe. Their work is guided in large part by the National Research Council's Decadal Survey of Astronomy and Astrophysics, which identified the following priorities:

Finding new planets—and possibly new life—around other stars.

Discovering the nature of dark energy and dark matter.



Understanding how stars and galaxies have evolved since the Big Bang.

Studying exotic physics in extreme places like black holes.

Observing time on Hubble and the other "Great Observatories" is allocated accordingly.

Smaller missions are important, too: The Kepler spacecraft, which is only "medium-sized" by NASA standards, has single-handedly identified more than 2300 planet candidates. Recent finds include planets with double suns, massive "super-Earths" and "hot Jupiters," and a miniature solar system. It seems to be only a matter of time before Kepler locates an Earth-sized world in the Goldilocks zone of its parent star, just right for life.

A future astrophysics mission, the James Webb Space Telescope, will be able to study the atmospheres of many of the worlds Kepler is discovering now. The telescope's spectrometers can reveal the chemistry of distant exoplanets, offering clues to their climate, cloud cover, and possibilities for life.

That's not the telescope's prime mission, though. With a primary mirror almost 3 times as wide as Hubble's, and a special sensitivity to penetrating infrared radiation, Webb is designed to look into the most distant recesses of the universe to see how the first stars and galaxies formed after the Big Bang. It is, in short, a Genesis Machine.

Says Bolden, "We're on track in the construction of the James Webb Space Telescope, the most sophisticated science telescope ever constructed to help us reveal the mysteries of

¹ Bolden made these statements in an April 20th editorial he co-authored with John Holdren, Director of the Office of Science and Technology Policy: http://blogs.nasa.gov/cm/blog/bolden/posts/post_1334967201693.html

the cosmos in ways never before possible.”
Liftoff is currently scheduled for 2018.

How long will the list of discoveries be in
January of that year? Stay tuned for
Astrophysics.

For more on NASA’s astrophysics missions,
check out <http://science.nasa.gov/astrophysics/>.

Kids can get some of their mind-boggling
astrophysics questions answered by resident
Space Place astrophysicist “Dr. Marc” at [http://
spaceplace.nasa.gov/dr-marc-space](http://spaceplace.nasa.gov/dr-marc-space).

*This article was provided by the Jet Propulsion
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and Space Administration.*



*Artist’s concepts such as this
one are based on infrared
spectrometer data from
NASA’s Spitzer Space
Telescope. This rendering
depicts a quadruple-star
system called HD 98800. The
system is approximately 10
million years old and is located
150 light-years away in the
constellation Crater. Credit:
NASA/JPL-Caltech/T. Pyle
(SSC)*

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.