

An Antares rocket, built by Orbital Sciences Corp., sits on the Mid-Atlantic Regional Spaceport's Launch Pad 0A at NASA's Wallops Flight Facility scheduled to loft the company's Cygnus spacecraft into orbit.



Credit: NASA/Bill Ingalls

WALLOPS ISLAND, Va. — After a series of delays, a robotic spacecraft built by the private company Orbital Sciences is counting down to launch today (July 13) on a mission to deliver experiments and supplies to the astronauts living aboard the International Space Station.

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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:

dasiceman@yahoo.com

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 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 2014 Officers and Contacts

President – Scott Conner
812-.604.7164
ssconner24@gmail.com

Vice President – Tony Bryan

Secretary – Charleen Kaelin
812.303.1711

Treasurer – Ted Ubelhor

Counselors
Michael Borman
Kent Brenton
Ken Harris

Webmaster – Michael Borman

Program Director
Tony Bryan

News editor – David Kube
dasiceman@yahoo.com

For more information about the EAS or directions to the Observatory, please visit the club's web page:

www.evansvilleastro.org



Local Events and Information

EAS Schedule Update:

Please remember the regular monthly meeting for July will be held at the Observatory 7:30pm on Friday July 18th, 2014.

EAS Schedule Update:

Please note that the 23rd Stars on the Beach @ Patoka Lake was cancelled due to weather on Saturday, June 28th, 2014 beginning 6pm EDT. The rain makeup day is scheduled for Saturday July 19th, 2014 – same time and place

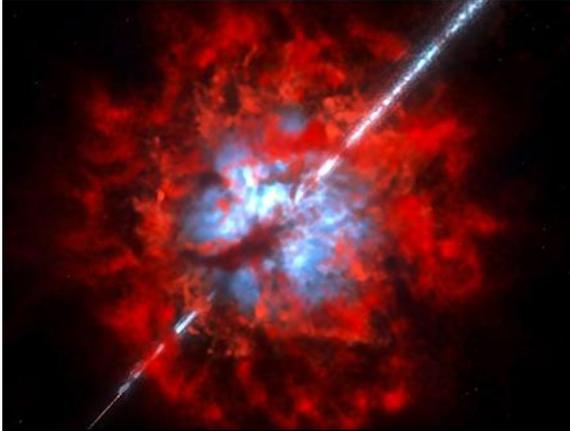
EAS Schedule Update:

Please note there is a PSW scheduled for Saturday, August 2nd, 2014 at the Observatory. Open to the public at 8:00pm.

Telescopes and accessories for sale...

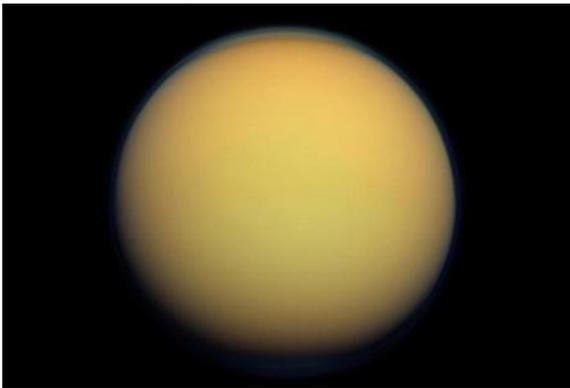
As mentioned in last month's issue, Mike Borman still has some excellent telescope equipment and imaging accessories for sale. Some of the gear has already been sold. If interested, go to Mike's web page. Here is the link: <http://www.mborman.org/forsale.htm>

ALMA probes environment around dark gamma-ray bursts



Observations from the Atacama Large Millimeter/submillimeter Array (ALMA) have for the first time directly mapped out the molecular gas and dust in the host galaxies of gamma-ray bursts (GRBs) -- the biggest explosions in the universe. In a complete surprise, less gas was observed than expected, and correspondingly, much more dust, making some GRBs appear as "dark GRBs." It shows ALMA's potential to help us better understand these objects.

Titan's building blocks might predate Saturn



NASA/JPL-Caltech/Space Science Institute

A combined NASA- and European Space Agency-funded study has found firm evidence that nitrogen in the atmosphere of Saturn's moon Titan originated in conditions similar to the cold birthplace of the most ancient comets from the Oort Cloud. The finding rules out the possibility that Titan's building blocks formed within the warm disk of material thought to have surrounded the infant planet Saturn during its formation. The main implication of this new research is that Titan's building blocks formed early in the solar system's history, in the cold disk of gas and dust that formed the Sun. This was also the birthplace of many comets, which retain a primitive, or largely unchanged, composition today.

Organic conundrum in Large Magellanic Cloud



NASA/JPL-Caltech/STScI

A group of organic chemicals that are considered carcinogens and pollutants today on Earth, but are also thought to be the building blocks for the origins of life, may hold clues to how carbon-rich chemicals created in stars are processed and recycled in space. Scientists have studied how polycyclic aromatic hydrocarbons (PAHs) are created in an aging population of stars in one of the Milky Way's satellite galaxy, the Large Magellanic Cloud. They have found that the types of PAHs found in the atmospheres of these stars are much more varied than the PAHs observed in our galaxy.

August 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 PSW 8:00pm
3	4	5	6	7	8	9
10	11	12	13	14	15 Regular Meeting 7:30pm	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

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Up and Coming Events 2014

Regular Meeting – Friday, July 18, 2014 @ 7:30pm @ Observatory

Patoka Lake – Makeup Day – Saturday, July 19, 2014 @ 6:00pm EDT @ Patoka Lake Beach

PSW – Saturday, August 2nd, 2014 @ 8:00pm @ Observatory

Regular Meeting – Friday, August 15, 2014 @ 7:30pm @ Observatory

Moon Phases

First Quarter	Full Moon	Third Quarter	New Moon
August 4th, 2014	August 10th, 2014	August 17th, 2014	August 25th, 2014

[Moon Phases courtesy of Time and Date.com](http://Time and Date.com)

Cygnus Space Launch Continued

The launch will be Orbital's second official resupply mission to the space station after a first flight in January and a demonstration flight that brought Cygnus to the orbiting lab in September 2013. Orbital, which is based in Dulles, Virginia, has a \$1.9-billion contract with NASA to carry out eight cargo missions through 2016. Elon Musk's SpaceX, the only other commercial company with a NASA resupply contract, has been commissioned to fly 12 missions to the station under a \$1.6 billion deal.

"We're real proud to be part of the team that is keeping the station flying and providing the crew with cargo and the research that they need," Frank Culbertson, a former NASA astronaut and Orbital Sciences executive vice president, told reporters in a pre-launch briefing Saturday afternoon (July 12).

The rocket will blast off from a seaside pad operated by the Mid-Atlantic Regional Spaceport, or MARS, at NASA's Wallops Flight Facility on Wallops Island, Virginia.

If all goes according to plan, the Cygnus spacecraft will reach its initial orbit about 10 minutes after launch. Then, the capsule will perform a series of maneuvers to reach the International Space Station by Wednesday morning (July 16). Astronauts living on board the orbiting lab will capture the vessel using a huge robotic arm.

"It's been a little bit of a challenge to get to this point," Culbertson said.

The mission, dubbed Orb-2, was originally scheduled for May. It had been postponed due to conflicts with other launches and technical issues, including the failure of an AJ26 engine — the kind that powers Antares' first stage — during a test at NASA's Stennis Space Center in Mississippi, which prompted an investigation.

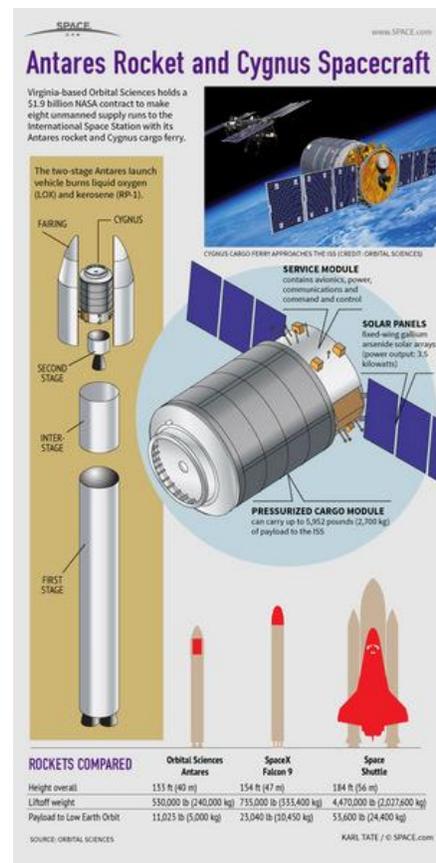
Then this week, the mission was repeatedly delayed because stormy weather prevented Orbital's launch team from conducting normal operations to get the rocket ready on the pad. But by Saturday morning (July 12), the gray clouds and fog that had been hanging over the region dissipated. Launch managers are expecting a 90-percent chance of favorable weather for launch on Sunday, with partly cloudy skies and a slight breeze, said Wallops Flight Facility test director Sarah Daugherty.

Launching a rocket from the Eastern Shore on a Sunday during peak summer tourism season poses an interesting set of challenges: crowds of vacationers and boaters. But Daugherty said Wallops officials have made an extra effort to talk to recreational boaters about staying out of the danger zone around the pad.

"We're confident that we can have a clear range for the first second of that five-minute window," Daugherty said.

Unlike SpaceX's Dragon capsule, which is reusable, Cygnus is disposable. Orbital's vessel will be berthed to the space station for about 30 days before it is filled with trash and cast off toward Earth, where it will eventually meet its fiery demise in the atmosphere over the South Pacific.

Visit Space.com today at 12 p.m. EDT for live coverage of Orbital Sciences' Antares rocket launch.



EAS MEETING for June 2014

We did not have a June Meeting, so there are no minutes to report.

See everyone at the July Meeting.