

# UNA Planetarium Newsletter

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2009

NASA's LCROSS mission did something fairly unusual. Rather than attempt to peacefully land a probe on the Moon, it smashed a spacecraft into it in an attempt to determine if water is present on the permanently shadowed craters near its south pole. Thousands of people flocked to museums and planetariums to watch the event. NASA did its best to ride the line between trying to get people excited about the event and presenting a realistic prediction of what would be seen. When a large plume of material was not seen, many walked away disappointed. I planned no big even at UNA Planetarium because I attempted to contribute observations to the effort to study the impact. Alas, clouds prevented me from getting any data.

All this effort was in support of future plans by NASA to return to the moon; identifying resources, particularly one as valuable as water would be a boost to the overall viability of the plans to go to the Moon again. Under a new NASA chief, NASA programs are under review, including the Ares rocket development and the lunar program. This is an opportunity to be bold and change course. We should examine the possibility of astronauts visiting a near earth asteroid – asteroids that could hit us – and return samples. Seismic stations could be set up to probe the interiors of such bodies for greater understanding of the threat we face. Such a project is technically challenging and would make use to the investments in Ares. More exciting, we would become interplanetary explorers for the first time. While I am not the first to suggest this, I can't imagine a more exciting mission on the way landing on Mars.

Mel Blake.

## Image of the Month



This image is a composite image consisting of an optical image of the galaxy NGC6240 and data from the Chandra X-ray observatory. The blue light comes from stars in two merging galaxies while the central red and yellow are the X-ray light, which ordinarily your eye could not see. The giant X-ray plume is thought to be coming from the merger of two black holes at the center of the merger. The black holes are about 3000 light years apart. The gas in the two galaxies lies mainly in gas clouds that collide during mergers and fall towards the centers of the galaxies and into the black holes. Disks of material spiraling into the black holes can get flung out into jets and plumes of gas. The merger of these two galaxies started about 30 million years ago. We think most large galaxies, including the Milky Way form at least in part from mergers. The Milky Way will collide with the galaxy M31 billions of years from now. NGC 6240 is about 330 million light years away in the constellation of Ophiuchus. **Image courtesy NASA.**

Astro Quote: *"Mortal as I am, I know that I am born for a day. But when I follow at my pleasure the serried multitude of the stars in their circular course, my feet no longer touch the earth."*

— Ptolemy, c.150 AD

## Calendar for October. 2009

- Oct 17<sup>st</sup>.** Earth Science Day.
- Oct 20<sup>th</sup>.** Planetarium Public Night.
- Oct 27<sup>th</sup>.** Planetarium Public Night
- Nov. 3<sup>rd</sup>** Planetarium Public Night
- Nov. 7<sup>th</sup>** Planetarium Public Night
- Nov. 10<sup>th</sup>.** NASA Image Unveiling

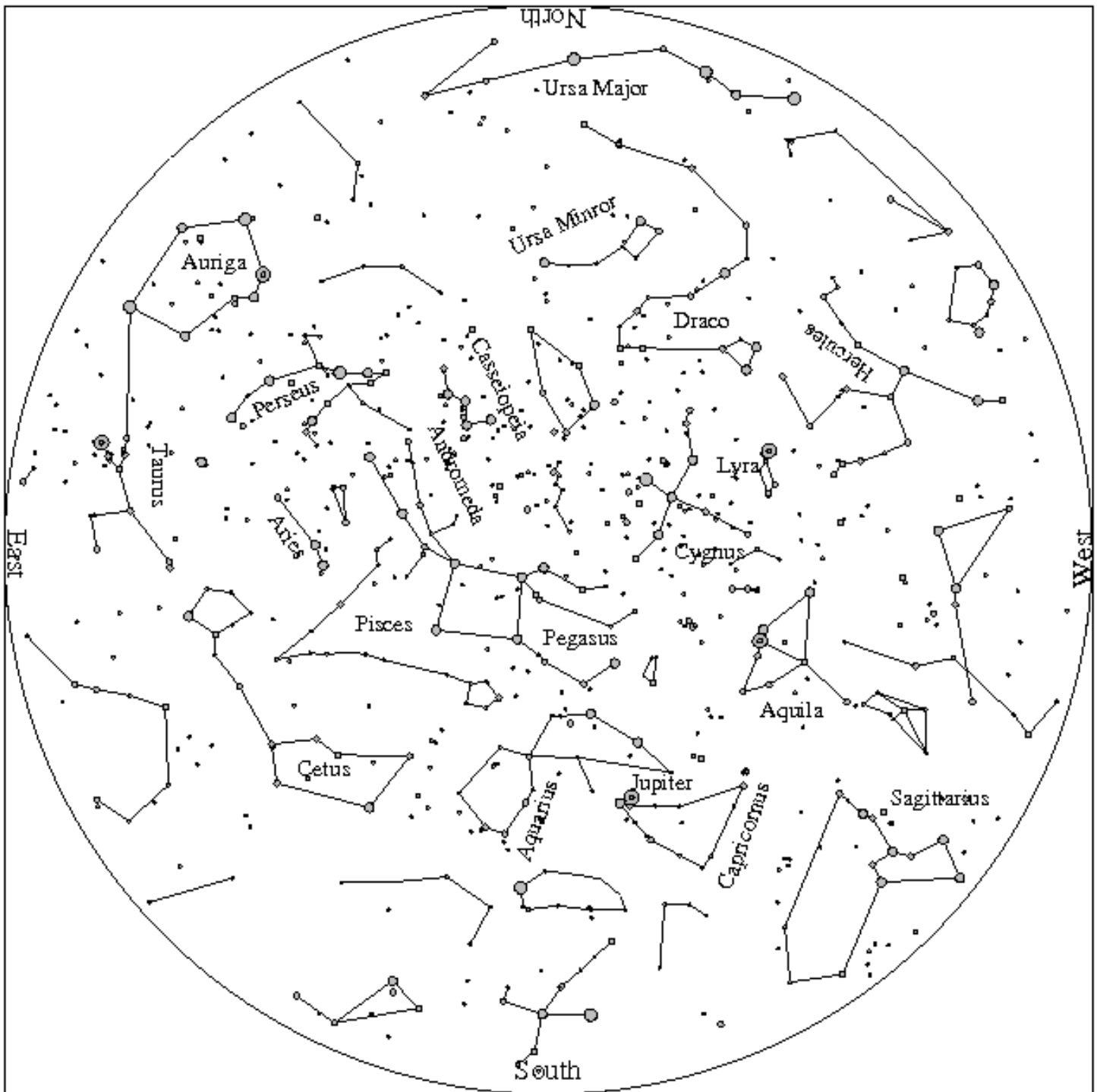
Planetarium tours start at 7:30PM. Tours include a planetarium star show, a video presentation and observing through a telescope if weather allows. \$3/person, UNA students free. No reservations are required.

## Observing Highlights

Watch for Jupiter in the southern sky in Capricornus.

Mars rises just before midnight in the southeast.

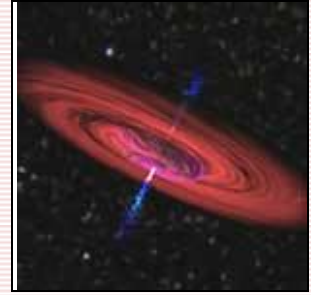
## The October 2009 Sky for North Alabama



**How to use this Chart:** The sky is shown for 8:00PM, Oct 20<sup>th</sup> for Florence, Alabama. It will appear this way one hour earlier for each week difference in time. The stars brightness's are represented by different sized dots. The faintest stars you can see are the small dots; the brightest ones are large dots. Hold the chart with the direction you are facing down. So if you are facing north, hold the chart with north down. The circle represents the horizon and the center of the chart the point directly over your head. So an object half-way between the center and edge of the chart is half-way up in the sky. This chart was prepared using the SkyNow software of R. M. Blake. This chart may be reproduced for non-commercial purposes with the following acknowledgement included: Courtesy UNA Planetarium and Observatory. <http://www.una.edu/planetarium/>.

## Our Bizarre Universe: Black Holes By Ashley Wills

One of the strangest things in the universe could be black holes. Initially, one may wonder what exactly a black hole is. A black hole is a part of space where the gravitational pull is so strong that nothing can escape. It is called a “black” hole because although it absorbs all of the light, it emits absolutely nothing. These holes are discovered when stars and other objects in space go into orbit around a massive object when appears that there is nothing present.



Black holes are formed in the death of a star, called a supernova. During a supernova explosion, a star collapses in on itself, and gravity becomes the predominant force. For the most massive stars in the universe, eventually, the star will collapse so much that light becomes unable to escape. This boundary is called the event horizon.

One may also wonder what would happen if one were sucked into a black hole. In the beginning, one would feel as though he or she were free falling. As one continued to fall, one would begin to feel stretched because gravitational forces would differ depending on how close to the center parts of the body are. Finally, when one becomes close enough to the center, the gravitational pull would rip the human body apart.

## The Fate of the Space Station

By Deb M. Bailey

The international space station orbits the Earth every 90 minutes and flies approximately 250 miles over the surface. It was launched in 1998, and was intended to be used as a space-based research laboratory. Now, however, the fate of the involvement of the U.S. with the international space station lies in the hands of the Obama administration. The U.S. is among 16 countries that helped to build the space station, and has contributed around \$44 billion dollars to the project.

Currently, NASA is scheduled to halt funding in 2016, just 5 years after the projected building completion date. So what does this mean for further U.S. space exploration? NASA had previously been planning to halt funding in 2011 and use the remaining funds for the Constellation Program to return men to the moon. If NASA were to halt funding, any future missions such as returning to the moon or perhaps visiting Mars would be difficult to carry out. Instead of using their own spacecraft to travel to the space station, U.S. astronauts will need to board the Russian Soyuz.

Current research being conducted on the space station includes studies on microgravity, and the effects and dangers of long-term missions. Research of diseases is also being conducted. Astrogenetix, a private company, took advantage of zero-gravity on the space station to grow bacteria, and developed a vaccine for salmonella.



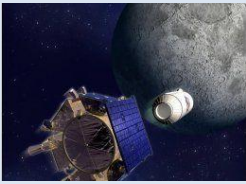
## NASA's Mission to Bomb the Moon

By Cara Depew.

The National Aeronautics and Space Administration (NASA) has attempted some incredible feats in the past. As if sending humans to outer-space and creating million-dollar devices to detect life on Mars is not unbelievable enough, NASA has just raised the bar. On Friday, October 9, NASA launched a dramatic mission to bomb the moon. The Lunar Crater Observing and Sensing Satellite (LCROSS) sent a missile moving twice the speed of a bullet to impact the moon's surface near the South pole.

NASA scientists expected the force from the impact of the Centaur rocket to be strong enough to eject a massive blast of debris from the moon. So why does NASA care about the debris from this impact? With the explosion of dust and rock on the surface, scientists are hoping to discover water or ice among the debris that they believe exists beneath the outer layer of the moon. If water is discovered, it may allow NASA to build a permanent lunar base for further analysis of the moon and our galaxy. This experiment has been long anticipated among astrophysicists, and particularly those who have donated their time to the LCROSS mission.

The impact went as planned, striking the moon's surface at approximately 4:36 a.m. that Friday morning; however, there has not been a conclusion made from the blast. Scientists are still analyzing data to determine whether or not water was present. When and if it is discovered, it will be another great achievement for NASA, for science, and for mankind.



## UNA Planetarium and Shoals Astronomy Club Participate in First Fridays

The Florence downtown hosts the First Fridays music each month. Partnering with the Shoals Astronomy Club, UNA Planetarium brought out one of its portable telescopes for the public to view Jupiter and the Moon. Over 100 people looked through the telescopes in just a few hours. Look for us on November 6th!







THE UNIVERSE  
YOURS TO DISCOVER

INTERNATIONAL YEAR OF  
ASTRONOMY  
2009

### Year of Astronomy Image Unveiling

UNA Planetarium has been selected as one of the national sites for an exciting unveiling of joint observations by the Hubble Space Telescope, the Chandra X-ray Observatory and the Spitzer Infrared Space telescope. UNA Planetarium will simultaneously unveil the images along with events at NASA and other museums and planetariums. The event will take place November 10<sup>th</sup>. The public is welcome to attend the celebration!

The subject of the images is a secret, so you'll need to drop by the planetarium to find out what the telescopes looked at. UNA Planetarium will hold an essay contest for middle school students in conjunction with this event. After the unveiling, students will be asked to write a two page essay about the images. Each teacher will select three essays to send to us. The class of the winning student will get to construct Galileoscopes, small telescopes for viewing the sky. The winning student will get a book about space.

