

UNA Planetarium Newsletter

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With the Shuttle program ending and the future directions of the US manned space program being discussed we often forget the other programs NASA supports. As we speak, two rovers are exploring Mars, supported by orbiting spacecraft. The Cassini mission is orbiting Saturn, sending back spectacular views of the famous rings and the moon Titan. In earth orbit satellites like the Hubble space telescope and the Spitzer space telescope send back unprecedented views of the Universe every day. We are studying the activity of the Sun using the Stereo and SOHO missions and studying the birth of black holes with the Fermi gamma ray satellite. Even the Moon is being mapped in greater detail than ever before.

The technologies that have gotten into space have evolved dramatically. The Saturn V rocket was the most powerful rocket ever built before or since. The space shuttles were designed to be reusable and built the Space Station and launched the Hubble Space telescope. The next generation rockets will be completely new again. Some private companies are building hybrid systems which use airplanes to get the rocket to high altitude before launch. Today, if you've got the cash you can even buy a ticket to space! NASA is developing plasma drives that might someday get us to asteroids and on to Mars.

These things lead me to be very optimistic about our exploration and understanding of the Universe.

Mel Blake.

UNA Planetarium and Observatory, is operated by the Dept. of Physics and Earth Science

Image of the Month



With this issue coming out just before July 4th it seems appropriate to show this image of Buzz Aldrin saluting the flag. The astronauts landed on the moon for the first time 41 years ago this month, on July 20, 1969 the astronauts took off on July 16th, 1969 their Saturn V rocket and landed on the moon four days later. Despite travelling millions of miles, they stayed on the Moon for only a few hours. It then took them another four days to get back. Many consider the Moon landing to be the greatest feat of engineering in history. Many countries are planning to set up bases on the Moon. Recently water was discovered on the Moon; this will be a valuable resource to future visitors if it can be used. **Image courtesy NASA.**

Astro Quote: *It is difficult to say what is impossible, for the dream of yesterday is the hope of today and reality of tomorrow. -*

Robert Goddard, American rocket pioneer.

Our public programs include a discussion of the summer constellations and either observing or a multimedia show depending upon the weather. Shows are intended for a general audience. \$3/person.
Tuesdays: 8PM,
Thursdays: 4PM.

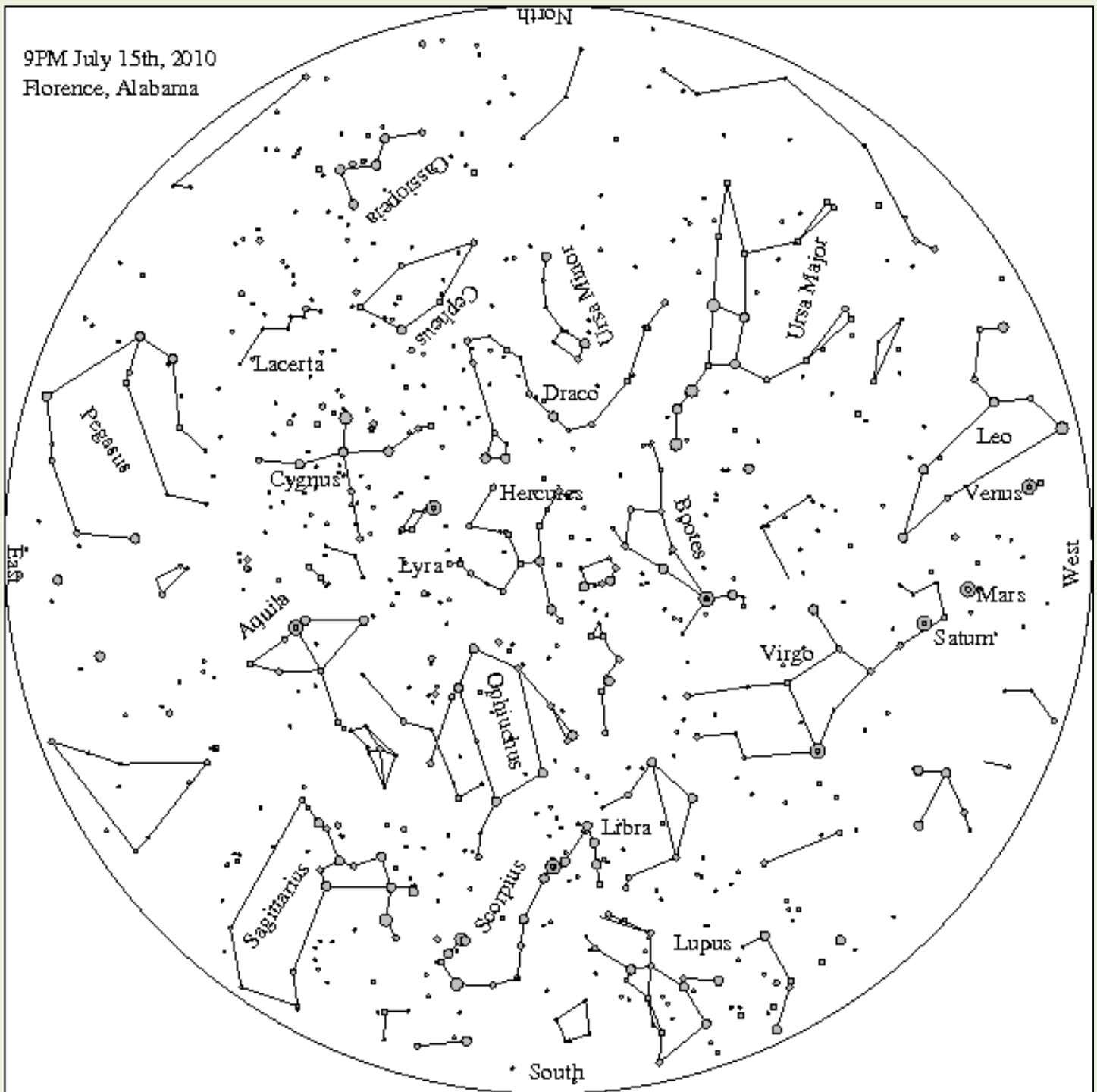
Calendar for July. 2010

July 6th. Planetarium Public Night.
July 8th. Planetarium Afternoon Show.
July 13th. Planetarium Public Night.
July 15th. Planetarium Afternoon Show.
July 20th. Apollo 11 41st anniversary.
July 20th. Planetarium Public Night.
July. 22nd. Planetarium Afternoon Show.
July 27th. Planetarium Public Night.
June 29th. Planetarium Afternoon Show.

Observing Highlights

Venus, Mars and Saturn lie low in the southwestern sky at sunset in Leo and Virgo.

The July 2010 Sky for North Alabama



How to use this Chart: The sky is shown for 9:00PM, July 15th 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/>.

Recent Activity and Visitors



UNA Planetarium and the Shoals Astronomy Club teamed up to do Sidewalk Astronomy for the Helen Keller Festival. This activity was supported by the NASA Night Sky Network. Here kids look through the solar telescope at prominences. Image Mel Blake.



UNA Planetarium recently hosted a group of kids from the Astronomy day camp run by the Continuing Education program. Here kids make models of comets. They also learned about the constellations. Image Mel Blake.

South Eastern Planetarium Association

Planetarium staff recently attended the South Eastern Planetarium Association (SEPA) meeting in Kingsport Tennessee. We presented an education talk about teaching astronomy in the planetarium environment. We also presented with our colleagues at Pisgah Astronomical research Institute (PARI) about the SCOPE stellar classification project for the general public (<http://scope.pari.edu/>). We also visited the Gray Fossil Site. Images by Mel Blake.





What Happened to the Milky Way?

By: Deb M. Bailey

A few weeks ago, I encountered a young man who wanted to know how I became interested in astronomy. I described how I had grown up in a rural area and spent most of my nights outside staring at the sky. He didn't seem interested. Sure, stars are pretty. He agreed with me on that, but he didn't think they were enough to cause someone to stare at the sky. I was appalled. How could someone suggest that the night sky wasn't interesting? And then it hit me. He must have grown up in the city, or at least not in the country as I had. He had never seen the sky covered in glitter or the edge-on view of the Milky Way from Earth. As far as I was concerned, he was deprived. And he's not the only one. About one fifth of the Earth's population has never seen the band of the Milky Way in the sky, and the reason for that is light pollution. Most people think that the light levels of urban areas are normal because that's all they have ever known. However, that lighting has hidden the parts of the universe from view.

In most areas, only the brightest stars and planets are visible on a typical, clear night because there are too many lights on Earth. The most common are security and roadway lights. Although the intention is safety, security lights tend to be counterproductive. Many are much too bright and can blind anyone outside of the glare. This means that we aren't actually protected against intruders. The most effective security lighting is set at ground level so that the glare does not impair vision. Similarly, roadway lights should cast light downward on the road instead of in all directions. This reduces the amount of light going directly into the eyes of drivers. An increasing problem is waste lighting. Most streetlights and security lights cast their beams upward and horizontally, which is unnecessary since the light is needed on the ground. However, there is a movement to convince light engineers and manufacturers to design lights that cast their beams 20° lower than horizontal.

Related to security lighting, is light trespass, nuisance lighting that crosses onto property where it isn't wanted. For example, the light from a neighbor's security lighting by the back door may flow into your bedroom window while you are trying to sleep. The same is true for structures such as stadiums that leave their lights on the entire night, even when there are no games or other events. Not only is light trespass annoying for the sleep deprived and astronomers, it is also damaging to wildlife, especially nocturnal animals. Many nocturnal birds use the moon and stars for navigation, and when they encounter artificial light, they can become disoriented. There have been many cases of birds, sometimes entire flocks, flying into buildings.

The combination of light trespass, light clutter, and waste lighting is known as sky glow. When artificial light is pointed towards the sky, it reflects off the particles in the atmosphere and causes an orange glowing effect seen above cities from a distance. The effects of sky glow become much worse when it is mixed with atmospheric pollution because there are more particles for the light to bounce off of. On a good night in a town without sky glow or pollution, somewhere between four and five thousands stars are visible. With pollution, that number is reduced to fifty or less.

Because of light pollution, many people are missing out on their window to the universe. Although having light is certainly necessary, we can reduce the amount of light we point toward the sky. Consider buying light fixtures that send the beams toward the ground instead of the sky, and next time you turn your porch light on, ask yourself if it's necessary. Even with just a few lifestyle changes, we can let others see stars they have never seen before. After all, the stars are for everyone's enjoyment.

These photos compare the effects of light pollution on the southern sky. The top photo was taken in Leamington, Utah, a town with just over 200 people. The bottom photo was taken in Orem, Utah, a town with roughly 400,000 people. Without light pollution, the sky in the bottom photo would be identical to that in the top.

Image Credit: Jeremy Stanley/Wikimedia

