SHENANDOAH ASTRONOMICAL SOCIETY

May 2009

Moon and Aldebaran

By Jan Clatterbuck

Aldebaran is the eye of the Bull and is known as alpha Taurus being the brightest star in the constellation. Taurus has been known since ancient times. The head of the Bull is formed by the cluster if stars known as the Hyades, the long horns tipped by the stars beta and zeta Tauri. Jan caught the bright, yellow crescent Moon about 10 degrees to the east of Aldebaran on the evening of April 27.

Mysterious Space Blob Discovered 12.9 Billion Light Years Away

Posted by Guy Pirro on 4/23/2009 4:11 PM on AstroMart web site.

Using information from a suite of telescopes, astronomers have discovered a mysterious, giant object that existed at a time 800 million years after the Big Bang. Even with superb data from the world's best telescopes, they are not sure what it is. Because it is one of the most distant objects ever found, its faintness does not allow the researchers to understand its physical origins.

Scientists discover a nearly Earth-sized planet

Posted by Greg Claytor on 4/21/2009 5:10 PM on AstroMart

European astronomers said Tuesday that they had discovered the smallest planet yet found orbiting another star. The planet could be as little as only 1.9 times as massive as the Earth and belongs to a dim red star known as Gliese 581, which lies about 20 light-years from Earth in the constellation Libra.

Sunspot Activity Mimics the Stock Market - Just When You Think It Has Hit Bottom, It Goes Even Lower

Posted by Guy Pirro on 4/4/2009 5:17 PM on AstroMart

2008 was a bear. There were no sunspots observed on 266 of the year's 366 days (73%). To find a year with more blank suns, you have to go all the way back to 1913, which had 311 spotless days. Prompted by these numbers, some observers suggested that the solar cycle had hit bottom in 2008. Maybe not. Sunspot counts for 2009 have dropped even lower. As of March 31st, there were no sunspots on 78 of the year's 90 days (87%).

Program for May 13 at LFCC

Time: 7:00 PM, Room to be announced

Alan will bring us the video on the International Year of Astronomy that was made to celebrate the 400 years of telescopic astronomy. Don't miss this one.

A Tiny Correction

In December, I talked about optics at the monthly meeting presenting the formula for magnification in our telescopes and why it works that way. Simply divide the focal length of the objective of the telescope by the focal length of the eyepiece and you have the angular magnifying power for the eyepiece in use. Of course, we change the eyepieces for different powers. That is so neat but why does the simple formula work?

I explained that as well as why an achromatic objective corrects for color aberration and how our telescopes bring in many times as much light as our eyes can, in other words, the light gathering power of our scopes.

However, I did make overlook a point that is interesting and I want to correct that. I used the Moon as a illustration of magnification in my talk and pointed out that the size of the image of the Moon is dependent on the focal length of the observing instrument whether it is our eye or a telescope. For example, the size of the image of the Moon in a telescope with 1000 millimeter focal length is about 9 millimeters. So the size in different telescopes varies but is always very tiny. Thus the magnification comes from the eyepiece as it acts as a magnifying glass to look at the image formed by the objective inside the telescope tube.

All that is correct but here is the idea I want to mention. The focal length of the human eye is about an inch or less. Some put it as low as 17 millimeters. So I am going to assume here that it is about 20 millimeters. That means the image of the Moon on the retina of the eye is only about two tenths of a millimeter. Thus the image formed by the telescope objective is much larger than the image on the retina formed by the eye lens. So there is a magnification provided by the objective in that sense. John Hershey reminded me of that at the end of the meeting.

Now you all know. Thanks, John.
- Jim Adkins

NOTE: The magnifying power of of a telescope is called angular magnification. It is the angular size of the image entering the eye from the eyepiece compared to the angular size of the Moon as one looks up at it with the unaided eye. This is somewhat different from comparing the linear sizes of the images. (You can replace the Moon by anything you are looking at.)