Monthly Notices of the Everglades Astronomical Society

Naples, FL

October 2011

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President's Message:

Another month has come and gone, and the winter viewing season will soon be upon us. Fairly soon the rainy season will end and the skies will finally open up before midnight.

I'd like to mention my favorite Halloween activity - treating the neighborhood kids to some telescope viewing. After dropping some candy in the bag, part of their treat is looking at the Moon or Jupiter. Consistently I am the most popular stop around, some years I get 100+ kids and their parents. Try this activity this October 31!

Clear Skies,

Mike Usher
(239) 643-6017

Dates for the "Fak":

Usually the best times to go out to the Fakahatchee Strand viewing site are moonless nights. Below is a list of upcoming Saturday nights that you will often find fellow club members out there enjoying the skies with you (weather permitting).

Fak Dates	Sun Set	Moonrise	Moonset
Oct 22	6:53pm	2:54am	3:47pm
Nov 19	5:36pm	12:43am	1:21pm
Nov 26	5:35pm	8:19am	7:11pm

Next Meeting: *(Bring a friend!)*

October 11, 2011
Time 7:00 – 9 pm
At the Norris Center, 755 8th Avenue South, Naples, FL

Sky Events:

Oct 3 -- First Quarter Moon
Oct 11 -- Full Moon
Oct 19 – Last Quarter Moon
Oct 26 -- New Moon

Eclipse Dates:

November 25: Partial eclipse of the Sun This eclipse will not be visible from North America. The eclipse will be visible from Antarctica, southern Africa, southern India, and New Zealand.

December 10: Total lunar eclipse This eclipse will be fully visible from Alaska. The Moon will enter the penumbra at 2:32 A.M. AKST and will leave the penumbra at 8:32 A.M. AKST. The eclipse will be partially visible from parts of North America: Central and western areas will be able to observe both a penumbral and umbral eclipse. The Moon will enter the penumbra at 3:32 A.M. PST and the umbra at 4:45 A.M. PST. A penumbral eclipse will be visible from most of the East Coast, starting at 6:32 A.M. EST, just before the Moon sets.

Meteor Showers:

Meteor Shower: **Norther Taurids**
Radiant and direction: Taurus
Morning of maximum: Nov. 13
Hourly rate: 5

Meteor Shower: **Leonid**
Radiant and direction: Leo (E)
Morning of maximum: Nov. 18
Hourly rate: 10-20

Meteor Shower: **November Orionids**
Radiant and direction: Orion
Morning of maximum: Nov. 30
Hourly rate: 3

Astronomical Trivia Question of the Month:

Which holiday originated as a Cross-Quarter Date?

a. Groundhog Day (Feb 2nd)
b. May Day (May 1st)
c. Lammas Day (Aug 1st)
d. Halloween (Oct 31st)
e. All of the above

*Answer on next page.

Dark Clues to the Universe
By Dr. Marc Rayman

Urban astronomers are always wishing for darker skies. But that complaint is due to light from Earth. What about the light coming from the night sky itself? When you think about it, why is the sky dark at all?

Of course, space appears dark at night because that is when our side of Earth faces away from the Sun. But what about all those other suns? Our own Milky Way galaxy contains over 200 billion stars, and the entire universe probably contains over 100 billion galaxies. You might suppose that that many stars would light up the night like daytime!

Until the 20th century, astronomers didn't think it was even possible to count all the stars in the universe. They thought the universe was infinite and unchanging.

Besides being very hard to imagine, the trouble with an infinite universe is that no matter where you look in the night sky, you should see a star. Stars should overlap each other in the sky like tree trunks in the middle of a very thick forest. But, if this were the case, the sky would be blazing with light. This problem greatly troubled astronomers and became known as “Olbers’ Paradox” after the 19th century astronomer Heinrich Olbers who wrote about it, although he was not the first to raise this astronomical mystery.

To try to explain the paradox, some 19th century scientists thought that dust clouds between the stars must be absorbing a lot of the starlight so it wouldn’t shine through to us. But later scientists realized that the dust itself would absorb so much energy from the starlight that eventually it would glow as hot and bright as the stars themselves.

Astronomers now realize that the universe is not infinite. A finite universe—that is, a universe of limited size—even one with trillions of stars, just wouldn't have enough stars to light up all of space.

Although the idea of a finite universe explains why Earth's sky is dark at night, other factors work to make it even darker.

The universe is expanding. As a result, the light that leaves a distant galaxy today will have much farther to travel to our eyes than the light that left it a million years ago or even one year ago. That means the amount of light energy reaching us from distant stars dwindles all the time. And the farther away the star, the less bright it will look to us.

Also, because space is expanding, the wavelengths of the light passing through it are expanding. Thus, the farther the light has traveled, the more red-shifted (and lower in energy) it becomes, perhaps red-shifting right out of the visible range. So, even darker skies prevail.

The universe, both finite in size and finite in age, is full of wonderful sights. See some bright, beautiful images of faraway galaxies against the blackness of space at the Space Place image galleries. Visit http://spaceplace.nasa.gov/search/?q=gallery.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Caption: *This Hubble Space Telescope image of Galaxy NGC 4414 was used to help calculate the expansion rate of the universe. The galaxy is about 60 million light-years away. Credit: NASA and The Hubble Heritage Team TScI/AURA)*

Answer to the trivia question:

The answer is: **E -- All the above.**

A Cross-quarter date is the midpoint between an equinox and a solstice. Cross-quarter dates once were used as the beginning and ending dates for the seasons, and therefore were much more prominent holidays.

Links of the Month:

1. http://www.islandnet.com/~see/weather/almanac/arc2003/alm03jan.htm
2. http://www.nasa.gov/mission_pages/herschel/news/herschel20111005.html
3. http://science.nasa.gov/science-news/science-at-nasa/2011/15sep_doublesuns/

Items for Sale
http://naples.net/clubs/eas/sales.html

Handbook of Space Astronomy and Astrophysics - Paperback; 782 pages; 338 B&W illustrations; 247 tables. 40% off list price for astronomy club members. A comprehensive compilation of the facts and figures relevant to astronomy and astrophysics. This handbook contains the most frequently used information in modern astronomy and astrophysics, and will be an essential reference for advanced amateur astronomers, university students, graduate students, researchers and professionals working in astronomy and the space sciences. For more information and to purchase the handbook go to:

http://www.astrohandbook.com/astrohandbook_clubs.html

Martin Zombeck, mvz@alum.mit.ed, Club Affiliation: EAS; date posted: 23 November 2010.

2011 Membership Dues:

For the bargain price of only *$20.^{00} per family*, all this can be yours for the coming year!

- ✓ Meet with your fellow astronomy enthusiasts at least 10 times a year.
- ✓ Many opportunities to freeze/sweat/get bitten by mosquitoes in the Fakahatchee Strand.
- ✓ View planets, nebulae and many other celestial objects.

Don't miss out! Fill out this form (please print plainly) and send it with your $20 check, payable to:

Everglades Astronomical Society
P.O. Box 1868
Marco Island, Florida 34146

Name: _____
Address: _____
Phone: _____
Email: _____