

Smoky Mountain Astronomical Society

S.C.R.A.P.S.

Society's **Ch**Ronological **A**stronomical **P**aper**S**

Volume 29, Number 8
August 2006



Aug. 11th SMAS MEETING

PSTCC, Main Campus,
Hardin Valley Road
7:30 pm, Alexander Bldg, Room 223

From the President - Lee Erickson

Late July and August start the fall meteor season.

My favorite regular meteor shower, the Perseids, are predicted to peak the night of August 12 and the morning of August 13. That is a Saturday and Sunday event so you can stay up and sleep in. Perseids are bright, fast meteors. Unfortunately, the full moon will have occurred just 3 days before. On the night of August 12, the moon rises at about 11:33 PM EDT and will be waning and gibbous (there will still be a lot of it). This moon will give the meteors some stiff competition. Never the less, I look forward to watching the sky from a reclining law chair on a warm evening. Other fall meteor showers occur October 21 (the Orionids), November 17 (the Leonids) and just making it in before the winter Solstice, December 14 (the Geminids).

Of course, the summer skies treat us to the splendid view into the center of our own galaxy. The interesting and beautiful astronomical objects in our own galaxy range from looping clouds of gas that are the ancient remnants of super nova, to planetary nebula (which are like the backfiring pops of gas from a star whose gas tank is nearly empty), to the infant stars in nebula such as the Lagoon. The globular clusters are out in force, there are a veritable swarm about the center of the galaxy - off in the direction just west of the teapot spout in Sagittarius.

In other events, the August SMAS meeting will feature Gary Noland. Gary is an avid amateur telescope maker, and explains to me he has a new twist on this interest. Perhaps I should say a new old twist. Come to the meeting August 11 and find out for yourself.

Is everyone getting the Reflector (the publication of the Astronomy League)? Keep an eye out in the next issue or perhaps the following. You never know what might show up there.

Distant Worlds - Lee Erickson

I present here two tables of information on "Distant Worlds". These worlds are planets orbiting around nearby **visible** stars.

This information is from a sky chart and some "baseball" like cards provided to SMAS by the NASA Night Sky Network.

I have entered this information in a table format as a handy reference for planning a night's observing.

Table 1 is sorted by Magnitude of the star around which the distant world or worlds orbit.

Table 2 is sorted by RA of the star around which the distant world or worlds orbit.

Some of the star coordinates I looked up in Guide are approximate.

Do not trust the coordinates for HD 89744 (Ursa Major), HD 38529 (Orion), and 55 Cancri.

Distant Worlds

From NASA Night Sky Network

Table 1

| Star | Planet Name | RA Hours Min | Dec De- gree minuets | Mag | LY from Earth | Star to Planet AU | Planet Mass (Jupiters) | Orbit Years |
|-----------------------|--------------------------------|-----------------|----------------------------|------|---------------------|-------------------------|------------------------------|--------------------------------|
| Gamma Cephei | Gamma Cephei b | 23h 39m | 77d 39' | 3.2 | 39 | 2 | 2.8 | 2.5 |
| Iota Draconis | Iota Draconis b | 15h 24m | 58d 57' | 3.3 | 100 | 1.3 | 8.7 | 1.5 |
| Epsilon Eridani | Epsilon Eridani b & c | 3h 33m | -9d 26.8' | 3.7 | 10 | 3.3 & 40 | 0.9 & 0.1 | 6.8 & 260 |
| Upsilon Andromedae | Upsilon Andromedae a, b & c | 1h 26m | 41d 24' | 4.1 | 44 | 0.06 & 0.83 & 2.5 | 0.71 & 2.1 & 4.6 | 4.6 days & 0.66 & 3.5 |
| Tau Bootis | | 13h 47m | 17d 27' | 4.48 | | | | |
| 70 Virginis | | 13h 28m | 13d 47' | 4.96 | | | | |
| 47 Ursae Majoris | 47 Ursae Majoris b & c | 10h 59m | 40d 25' | 5.1 | 43 | 2.1 & 3.7 | 2.4 & 0.76 | 3 & 7.1 |
| HD 19994 (Cetus) | | 1h 40m | -7d | | | | | |
| Rho Coronae Borealis | | 16h 1m | 33d 18' | 5.4 | | | | |
| 51 Pegasi | 51 Pegasi b | 22h 57m | 20d 46' | 5.5 | 48 | 0.05 | 0.5 | 4.2 days |
| Gliese 777a (Cygnus) | | 19h 58m | 30d 59' | 5.5 | | | | |
| HD 89744 (Ursa Major) | | 11h | 34d | | | | | |
| HD 38529 (Orion) | | 5h | 0d | | | | | |
| 55 Cancri | | 9h | 31d | | | | | |

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Distant Worlds

From NASA Night Sky Network

Table 2

| Star | Planet Name | RA Hours Min | Dec De- gree minuets | Mag | LY from Earth | Star to Planet AU | Planet Mass (Jupiters) | Orbit Years |
|---|--------------------------------|--------------------|----------------------------|------------|---------------------|-------------------------|----------------------------------|--------------------------------|
| Upsilon Andromedae HD 19994 (Cetus) | Upsilon Andromedae a, b & c | 1h 26m 1h 40m | 41d 24' -7d | 4.1 | 44 | 0.06 & 0.83 & 2.5 | 0.71 & 2.1 & 4.6 | 4.6 days & 0.66 & 3.5 |
| Epsilon Eridani HD 38529 (Orion) | Epsilon Eridani b & c | 3h 33m 5h | -9d 26.8' 0d | 3.7 | 10 | 3.3 & 40 | 0.9 & 0.1 | 6.8 & 260 |
| 55 Cancri | | 9h | 31d | | | | | |
| 47 Ursae Majoris HD 89744 (Ursa Major) | 47 Ursae Majoris b & c | 10h 59m 11h | 40d 25' 34d | 5.1 | 43 | 2.1 & 3.7 | 2.4 & 0.76 | 3 & 7.1 |
| 70 Virginis | | 13h 28m | 13d 47' | 4.96 | | | | |
| Tau Bootis | | 13h 47m | 17d 27' | 4.48 | | | | |
| Iota Draconis | Iota Draconis b | 15h 24m | 58d 57' | 3.3 | 100 | 1.3 | 8.7 | 1.5 |
| Rho Coronae Borealis | | 16h 1m | 33d 18' | 5.4 | | | | |
| Gliese 777a (Cygnus) | | 19h 58m | 30d 59' | 5.5 | | | | |
| 51 Pegasi Gamma Cephei | 51 Pegasi b Gamma Cephei b | 22h 57m 23h 39m | 20d 46' 77d 39' | 5.5 3.2 | 48 39 | 0.05 2 | 0.5 | 4.2 days 2.5 |

Minutes from SMAS general meeting 7/14/06 - Bill Dittus

Attending members were: Lee Erickson, Scott Byers, Bob Arr, David Fields, Tim Hunt, Roy Morrow, Brent Holt, Michael McCulloch, Bill Dittus

Attending were Guests: Tyler Moore, Dennis Hutcheson and his friend Cassie

Members and guests began arriving about 7:00 pm and the meeting was called to order by our president Lee Erickson.

First order of business: Lee brought a motion to accept the date of Dec. 3rd for our annual SMAS holiday banquet to be held at Farragut Gondolier restaurant. The motion passed with everyone attending saying they enjoyed the food and gathering last year.

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July 15, & August 5th star parties to be held at TAO
July 22 & July 29 Star Parties to be held at Unicoi Crest

Dr. David Fields gave a wonderful presentation on radio astronomy. He also made comparisons to the GBT (Green Briar 'Radio' Telescope) and the IBT (ITY BITY Radio Telescope) which he brought to our meeting as a demonstration instrument.

All who attended were introduced to the spectrum of information now being gathered, and used to supplement the optical astronomy work currently underway.

David pointed out that the data from radio telescopes are added to optical telescope images using false colors. We can thus better understand the immense forces that were unknown less than 50 years ago.

David introduced one of his students Tyler Moore who has been studying Jupiter's radio signature, and all were quite amazed to learn how much we didn't know about the King of the planets, Jupiter.

Great Job David and Tyler!!!

Bill Dittus gave a short presentation on the Night sky objects visible in July.

Bill's presentation title was the July Night Sky, a Veritable cornucopia of wondrous delights in the night sky, with background music by Aaron Copeland, Appalachian Spring

Listed were the constellation Scorpius, as well as numerous Messier Objects in the July Night Sky. He also showed images of numerous Globular Clusters, including M4.

He went on to discuss that Jupiter will slowly fade into the west, while Venus will become the morning star for the next few months.

He illustrated two of his personal favorite astronomy programs, Starry Night and Stellarium which is a free download available from: <http://www.stellarium.org/>

Finally he advised us of the meteor shower expected to show up in the constellation Aquarius toward the end of the month.

Great Job Bill!!

Finally Scott Byers made a brief presentation on the pronunciation of astronomical names.

Scott created an Access database which could be searched by title. The correct pronunciation would then appear. I think everyone learned a new pronunciation, I know this writer did.

The meeting was adjourned at about 9:15 pm and many members and guests chose to end the evening on a "GASTRONOMICAL NOTE"

The Wiz

Dear Wiz,

I've decided to go for the AL's Lunar Club award. Of course I want to optimize my viewing opportunities, and always view from the best possible sites. Unicoi Crest sounds ideal, but since we only schedule one star party per month up there, I suspect progress will be slow. Any suggestions?

M. Mullins

Dear (*I just can't stoop this low*) ...

Dear Mr. Mullins,

Yes, I have a suggestion. Forget Unicoi Crest. You couldn't pick a worse place to observe the moon.

No doubt you have noticed that the moon is so bright it leaves afterimages on your retina. And no doubt you are aware that "moon filters" are available, some called neutral density filters and some called adjustable Polaroid filters. Yes, they do reduce the brightness, but at the cost of reducing resolution, for they both put extra glass in the light path.

That extra glass is totally unnecessary. All you really need is a well-lit observing site. Under a street light in front of your house is probably ideal. Along a lighted pedestrian walk in a park; beneath a security light in the country.

No, this isn't madness. It's exactly what the big boys do.

When you have a high level of light at the observing site, your pupils adjust to it; they become smaller. Then when you look at the moon in your eyepiece, you enjoy two instant benefits: 1) the moon no longer overwhelms your eye with its brightness, and 2) your eye sees a sharper image simply because it is looking through a smaller pupil.

Ideally, the ambient light at the site would put the same level of light in your eye as the moon in the eyepiece. Then there would be no adjustment of the pupil needed at all, and no afterimages would develop. The view of the moon would be perfectly comfortable. Well, you aren't going to get perfect light balance, but you can get a great improvement over Unicoi Crest.

Since your object is the Lunar Club, that means you'll have to make notes. The bright site facilitates that, of course, as well as reading your moon charts.

And since we're mentioning benefits, setting up in a lighted, populated area is bound to attract neighbors. You could become a local celebrity, Moo—oops, Mr. Mullins.

Da Wiz



Celebrating 40 Years of Intent Listening

By Diane K. Fisher

In nature, adjacent animals on the food chain tend to evolve together. As coyotes get sneakier, rabbits get bigger ears. Hearing impaired rabbits die young. Clumsy coyotes starve. So each species pushes the other to “improve.”

The technologies pushing robotic space exploration have been like that. Improvements in the supporting communications and data processing infrastructure on the ground (the “ears” of the scientists) have allowed spacecraft to go farther, be smaller and smarter, and send increasingly faint signals back to Earth—and with a fire hose instead of a squirt gun.

Since 1960, improvements in NASA’s Deep Space Network (DSN) of radio wave antennas have made possible the improvements and advances in the robotic spacecraft they support.

“In 1964, when Mariner IV flew past Mars and took a few photographs, the limitation of the communication link meant that it took eight hours to return to Earth a single photograph from the Red Planet. By 1989, when Voyager observed Neptune, the DSN capability had increased so much that almost real-time video could be received from the much more distant Planet, Neptune,” writes William H. Pickering, Director of JPL from 1954 to 1976, in his Foreword to the book, *Uplink-Downlink: A History of the Deep Space Network, 1957-1997*, by Douglas J. Mudgway.

Mudgway, an engineer from Australia, was involved in the planning and construction of the first 64-m DSN antenna, which began operating in the Mojave Desert in Goldstone, California, in 1966. This antenna, dubbed “Mars,” was so successful from the start, that identical 64-m antennas were constructed at the other two DSN complexes in Canberra, Australia, and Madrid, Spain.

As Mudgway noted in remarks made during the recent observance of the Mars antenna’s 40 years of service, “In no time at all, the flight projects were competing with radio astronomy, radio science, radar astronomy, SETI [Search for Extra-terrestrial Intelligence], geodynamics, and VLBI [Very Long Baseline Interferometry] for time on the antenna . . . It was like a scientific gold rush.”

In 1986 began an ambitious upgrade program to improve the antenna’s performance even further. Engineering studies had shown that if the antenna’s diameter were increased to 70 m and other improvements were made, the antenna’s performance could be improved by a factor of 1.6. Thus it was that all three 64-m DSN antennas around the world became 70-m antennas. Improvements have continued throughout the years.

“This antenna has played a key role in almost every United States planetary mission since 1966 and quite a few international space missions as well. Together with its twins in Spain and Australia, it has been a key element in asserting America’s pre-eminence in the scientific exploration of the solar system,” remarks Mudgway.

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Find out more about the DSN and the history of the Mars antenna at <http://deepspace.jpl.nasa.gov/dsn/features/40years.html>. Kids (and grownups) can learn how pictures are sent through space at http://spaceplace.nasa.gov/en/kids/phonedrmarc/2003_august.shtml.

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



For over 40 years, the "Mars" 70-m Deep Space Network antenna at Goldstone, California, has vigilantly listened for tiny signals from spacecraft that are billions of miles away.

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StarFest 2006

On October 14th and 15th, the Bays Mountain Astronomy Club in Kingsport, TN is hosting StarFest 2006. Registration is \$50 and entitles you to plenty of observing, free passes to Bays Mountain's programming, a T-shirt with original art-work, the choice to sleep in the newly carpeted Nature Center or uncarpeted Farmstead Museum, and lots of gastronomy. The main speaker is Bob Anderson who is Chief Antenna Engineer at Green Bank Observatory. Bob's presentation is entitled "The Top 10 Reasons Green Bank is So Cool". Events start at 9 AM on Saturday. Registration is limited to 90 astronomers, so register early. Contact Adam Thanz, StarFest 2006 Chairman, at (423) 229-9447 or bmplanet@baysmountain.com for details.



For Sale: Meade LX200-SS "Schmidt Newtonian OTA, Ultra-High Transmission Coating, 0 power and 7 x 50 right angle finders, Jim's Mobile Next Generation Focuser 2" with motor (focuser is a \$300 value) \$750. Contact Mike Littleton at mlittleton1022@charter.net.

August 2006

| SUN | MON | TUE | WED | THU | FRI | SAT |
|-----------------------|-----|-----|------------------|-----|--|--|
| 30 | 31 | 1 | 2 | 3 | 4 | 5 |
| | | | | | UTK | TAO |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | | | <i>Full Moon</i> | | SMAS Meeting PSTCC Rm 223 7:30 pm | |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Perseid Meteor Shower | | | | | UTK | SMAS Star Party Unicoi Crest TAO |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | | | <i>New Moon</i> | | | SMAS Star Party Look Rock #4 |
| 27 | 28 | 29 | 30 | 31 | 1 | 2 |
| | | | | | UTK | TAO |