

Smoky Mountain Astronomical Society

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

Society's ChRonological Astronomical PaperS

*They are not long, the days of wine and roses:
Out of a misty dream
Our path emerges for a while, then closes
Within a dream. ~Ernest Dowson*

From the President - Lee Erickson



At last months meeting, we decided to try to move the SMAS Banquet to Saturday December 8th if that evening was still available from Gondolier. I called and it is. So 7:00 PM December 8th will be the banquet. Put it on your calendar now.

Dennis Hutcheson is making progress with the details of a "group buy" for Green Laser pointers. If you are not on the smokymtnastro yahoo group and are interested you should contact Dennis right away. Phone him at: 423-368-4747 or email at: dennis_hutcheson@comcast.net

We had some good star parties and met some interesting guests again this month. The web site keeps bringing them in. Thanks, Michael McCulloch.

We have plans to get the word out regarding this year's Great Smoky Mountain National Park and SMAS Star Party and make even more friends. We have a program content planned for fair weather or foul. We can use everyone's help as Mike Masolona, the park ranger who is our contact, says we should expect the same number as last year, about 200-300 persons. Contact Lee Erickson at 865-977-1242 or Mike Littleton at 671-1022 or by the smokymtnastro Yahoo Group.

Interesting news for preserving Dark Skies in Blount County. The planning commission has voted to forward to the County Commission some zoning regulations. These regulations include Outdoor Lighting Requirements. The city of Maryville already has these requirements in place! There will be a further public hearing on the entire zoning package during the month of October and if all goes well, the resulting requirements could reach the Blount County Commission for adoption by November. What a nice holiday present for all the good little amateur astronomers of East Tennessee. I have attached the planning commission's proposed resolution as excerpted from a document created before the meeting last Thursday, September 27 (see below). The resolution that comes out of the meeting may be slightly different.

I hope Blount county residents will keep an eye on this development. You can read more about the Blount County government at www.blounttn.org/

Agenda for October 12, 2007 Meeting

7:00 Meet and greet

Return checked out library books

7:30 Formal meeting begins.

Last minute planning for the GSMNP and SMAS Star Party.

Program is a DVD of the recent program: Seeing In The Dark.

Gastronomy to follow meeting.

Note: November and January meetings. We need programs. If you have something you could share with fellow SMAS members please call Mike Littleton or Lee Erickson.

Minutes of September Meeting

by Dennis Hutcheson

Lee Erickson opened the meeting with the discussion for members to bring their dues up to date and how our dues go to also pay for Astronomical League dues and pay for our insurance at star parties. Lee took the opportunity to point out the various astronomy achievements and programs supported by the astronomical league to the new members and guest. Other announcements included the SMAS Star Party on Sept. 15, 2007 and that those unable to attend Look Rock should consider attending the TAO meeting and supporting TAO, as TAO was expecting around 60 people for their meeting. In addition Lee reminded everyone of the GSMNP and SMAS Star Party at Cades Cove on October 13, 2007.

New business included the details and possibility of a Group Buy of Green Lasers by Dennis Hutcheson. The price is \$32.00 each if we can get an order of 10 or more lasers. Additional new business discussed was the preparation for the GSMNP and SMAS Star Party. Issues discussed were attendance, light sticks, sandwiches / beverages, signage, talking points and dew control.

The program for the evening was developed by Scott Byers on the Set-Up and use of the club's Burgess Optical refractor telescope donated by Bill Burgess and the Meade LXD55 GOTO mount donated by Dennis Hutcheson. The presentation was very detailed providing specific information on initial setup, basic alignment, advanced alignment, basic mount operation, GOTO function operation, and take down.





September Star Parties

Unicoi Crest, September 8

Despite a poor Clear Sky Clock forecast, the afternoon sky looked promising, and six SMAS stalwarts braved the treachery of the skies. They needn't have worried; Unicoi Crest had its own weather agenda, and it was beautiful.

With Sasquatch to lead the way, the Summer Triangle at zenith, and virtually perfect conditions, Michael McCulloch, Lee Erickson, Dennis Hutcheson and Cassie Morgan, Bob Arr and guest Eric McAnly, and two visitors from Athens enjoyed many fine objects.

Dennis tried his new 31mm Nagler in his 16" Telekit dob. M11 was spectacular, as was the Witch's Broom in Veil Nebula using a UHC (Ultra High Contrast) filter. He and Michael also conducted a tour of planetary nebula.

The star party lasted until past 3 am, when everyone finally gave in to general exhaustion. But no one regretted the fine observing.

Look Rock, September 15

We had a very large turnout, and even recruited a new member (Maryville dentist Bill Drake and his sons Taylor, 9 and Holden, 13). Also present were Ann and Gary Bridges, Duane Dunlap and his buddy Bob, Dennis Hutcheson and Cassie Morgan, Janice and Lee Erickson, Nick Schepis, Tim Hunt, two local fellows whose names no one got (but one of them was already a knowledgeable amateur astronomer), guests Eric McAnly, Sabrina Law and myself. A few passersby stopped to look.

Believe it or not, it actually got cool! Sweaters and jackets materialized from nowhere, and even persons who were not prepared found themselves gratefully wearing "loaners" from strangers.

The sky was great, and the moon set fairly early, but not before giving some wonderful views of its craggy surface. Mares Crisium and Fecunditatis were illuminated, but Serenitatis and Tranquillitatus were on the dark side of the terminator. By 9 pm, Luna slipped into the murk. Pretty convenient, really; deep sky objects were soon visible. (Continued next page)

Tim Hunt dedicated the evening to shaking down our new LXD55 mount with our 125mm refractor. About 11 pm he reported that it was doing an almost perfect job of tracking its targets.

Nick Schepis showed some of his superb astrophotos, many taken from Look Rock.

The newcomers and guests were shown many of the summer sky's wonders -- the Lagoon nebula, the Veil Nebula, Albireo, the Ring Nebula, M22, the Dumbbell nebula, the Wild Duck. A little later they visited Andromeda galaxy and later still, the ascending Pleiades.

During the course of the evening, the question of a nickname for our Burgess 125mm refractor came up. Any suggestions?

You don't know this, but —

As Sabrina and Eric, our two guest observers, departed the site, they encountered a person walking along Foothills Parkway, quite alone. The stranger hailed them, so they stopped. He turned out to be a stranded motorist, who had become lost. He had attempted to turn his car around on Happy Valley Road (the extension of Montvale road), only to drive into a ditch. His car was hopelessly hung up. He had hiked for two miles looking for help. Yours truly drove up as they put him in the bed of the truck and started back to his car. I followed.

When we saw the situation, it was clear that only a good sized chain could remedy it, but we did not have one. Eric took it on himself to drive into Top of the World, looking for help (it was 12:15 am). Twenty minutes later, he returned with a good Samaritan with chain. After crawling under each vehicle to hook up, Eric towed the stranger back onto the road.

Many thank yous were exchanged. The stranger went on his way (with instructions how to get back to civilization), the good Samaritan and his chain were returned to his home, and the rest of us headed for ours.

~~~ *Bob Arr*

SCRAPS October Question(s) of the Month

1. What is a blue moon?
2. What is a dark moon?
3. What is a black moon?



In your own words, please. Verbatim quotes from Wikipedia are not acceptable.

## Letters to the Editor

From Lee Erickson:

Sir: I find the following challenge interesting, and I'd like to put it to the members:

See Ganymede naked eye. I've done it. It can be accomplished. What it takes is crystal clear skies and perfect seeing when Jupiter is at opposition and Ganymede is at elongation. It's tough, but something you will never forget.

Steven J. Crisp

Editor's comment: Just finding "crystal clear skies and perfect seeing" is challenging enough. Jupiter is in opposition every 399 days, which for this purpose probably results in being "close enough" for about 30 days at a time. Ganymede orbits in 7.2 days, which means one elongation every 3.6 days.

So there are roughly 9 opportunities clustered in one 30-day period ( $30/3.6$ ). That 30-day period occurs once every 399 days, using the "close enough" criteria.

Ganymede is the third Jovian moon, Callisto the fourth. Thus, Callisto's elongations are farther from Jupiter than Ganymede's. Ganymede, while very slightly larger than Callisto, has the distinction of being the largest moon in our solar system (it's actually a bit larger than Mercury). Also, Ganymede's albedo is a little brighter than Callisto's...but not much.

Yes, this is likely to be a real challenge. You'll need an ephemeris to tell you when opposition is imminent (or magazines or internet), then a planetarium program to determine when elongations will occur. Of course you'll need that incredible clear dark sky. Since the brightness of Jupiter itself might drown Ganymede, you might have to devise some way of masking the planet naked eye.

And finally, you'll need one very sharp set of eyes. Good luck.

Diameter in kilometers

|              |      |
|--------------|------|
| Earth's moon | 3480 |
| Callisto     | 4800 |
| Mercury      | 4900 |
| Ganymede     | 5260 |

|                         |              |
|-------------------------|--------------|
| <b>SCRAPS depends</b>   | <b>Help!</b> |
| <b>Upon its friends</b> | <b>Help!</b> |

## A Missile in Your Eye

by Patrick L. Barry

Satellite technology designed to catch ballistic missile launches may soon help doctors monitor the health of people's eyes. For the last 15 years, Greg Bearman and his colleagues at JPL have been working on a novel design for a spectrometer, a special kind of camera often used on satellites and spacecraft. Rather than snapping a simple picture, spectrometers measure the spectrum of wavelengths in the light coming from a scene. From that information, scientists can learn things about the physical properties of objects in the photo, be they stars or distant planets or vegetation on Earth's surface. In this case, however, the challenge was to capture snapshots of short-lived events—like missile launches! The team of JPL scientists designed the new spectrometer, called a computed tomographic imaging spectrometer (CTIS), in collaboration with the Ballistic Missile Defense Organization as a way to detect missiles by the spectral signatures of their exhaust.

But now the scientists are pointing CTIS at another fast-moving scene: the retina of an eye. Blood flowing through the retina has a different spectral signature when it is rich in oxygen than when it is oxygen deprived. So eye doctors can use a spectrometer to look for low oxygen in the retina—an indicator of disease. However, because the eye is constantly moving, images produced by conventional spectrometers would have motion blurring that is difficult to correct. The spectrometer that Bearman helped to develop is different: It can capture the whole retina and its spectral information in a single snapshot as quick as 3 milliseconds. "We needed something fast," says Bearman, and this spectrometer is "missile-quick."

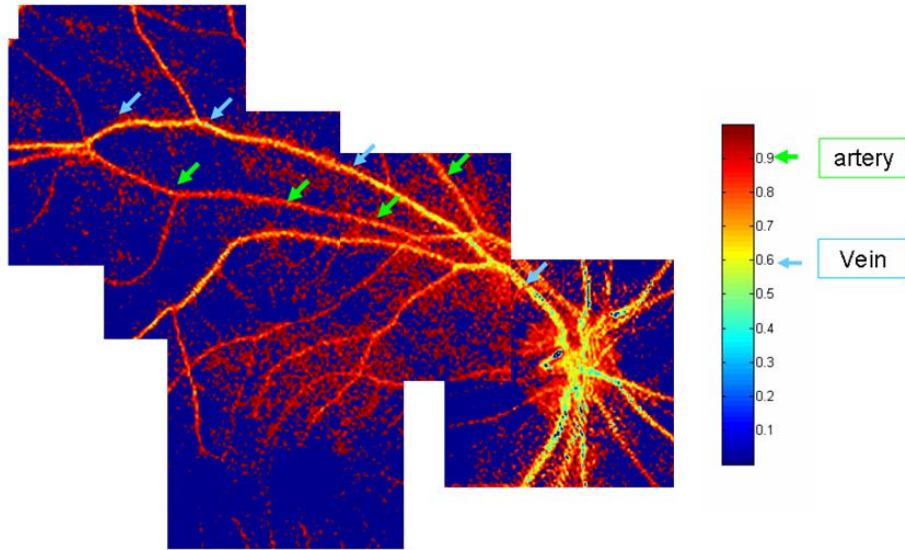
>>> See image, next page <<<

CTIS is even relatively cheap to build, consisting of standard camera lenses and a custom, etched, transparent sheet called a grating. "With the exception of the grating, we bought everything on Amazon," he says. The grating was custom-designed at JPL. It has a pattern of microscopic steps on its surface that split incoming light into 25 separate images arranged in a 5 by 5 grid. The center image in the grid shows the scene undistorted, but colors in the surrounding images are slightly "smeared" apart, as if the light had passed through a prism. This separation of colors reveals the light's spectrum for each pixel in the image.

"We're conducting clinical trials now," says Bearman. If all goes well, anti-missile technology may soon be catching eye problems before they have a chance to get off the ground. Information about other NASA-developed technologies with spin-off applications can be found at <http://www.sti.nasa.gov/tto>.

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





*This three-color composite image from the computed tomographic imaging spectrometer shows the oxygenation of the blood in the arteries and veins of a human retina. (Arteries appear red, veins appear yellow.)*





# October 2007

| SUN                                                  | MON | TUE                              | WED | THU                                                                                                                                                                                      | FRI                                 | SAT                                       |
|------------------------------------------------------|-----|----------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------|
|                                                      | 1   | 2                                | 3   | 4                                                                                                                                                                                        | 5<br>UTK                            | 6 SMAS<br>Star<br>Party<br>UC<br><br>TAO  |
| 7                                                    | 8   | 9                                | 10  | 11<br>New Moon                                                                                                                                                                           | 12 SMAS<br>Meeting<br>PSTCC<br>7 pm | 13 SMAS<br>Star<br>Party<br>Cades<br>Cove |
| 14                                                   | 15  | 16                               | 17  | 18                                                                                                                                                                                       | 19<br>UTK                           | 20<br>TAO                                 |
| 21                                                   | 22  | 23                               | 24  | 25                                                                                                                                                                                       | 26                                  | 27                                        |
| 28<br><br><b>SCRAPS depends<br/>Upon its friends</b> | 29  | 30<br><br><b>Help!<br/>Help!</b> | 31  | UTK—roof of Neilson Physics Building<br>on The Hill at UT<br>1st & 3rd Fridays<br>TAO —Tamke-Allan Observatory<br>Public Stargaze<br>Watts Bar Lake, Roane County<br>1st & 3rd Saturdays |                                     |                                           |