

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

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

**May 13th SMAS MEETING**

PSTCC, Main Campus,

Hardin Valley Road

7 pm, Alexander Bldg, Room 223



**From The President—Mike Littleton**

**Confessions of a Techno-Geek**

You have to admire those talented and experienced amateur astronomers who can find the dimmest galaxy or nebulae with only a star chart and telescope. For my part, it is time to come out of the closet and confess that I have never enjoyed star hopping. I bought my first computer-controlled telescope, the Celestron Ultima 2000, in 1998 and loved it from the start. I now have a 10" Schmidt Newtonian on a Losmandy G-11 mount with a Gemini computer. My intention has always been to use the G-11 for CCD imaging. I have only recently learned enough to attempt imaging with the G-11. I thought I could share my advice on using sophisticated computer-controlled mounts and CCD cameras. (I have not always taken my own advice!)

1. Learn the software and hardware from your backyard. It is really disheartening to drive a long way to dark skies and have a non-working telescope. It is much easier to find a fatal error in operating the system, take the telescope in, and call it a night from home.
2. Write down the fatal error. In addition, note recent changes made in the hardware or any other symptoms for use in troubleshooting.
3. When in doubt, read the manual! A buddy with the same equipment or member of an Internet users group may also know the cure for an error.
4. If you do take the super scope to those dark skies, take a well-known backup scope with you. One night at Unicoi, my backup failed because of a loose hex screw.
5. Take tools and a backup power supply when you travel to those dark skies.
6. Learn one thing at a time. Learn the mount software before you attach the CCD camera.
7. Do not forget to enjoy the night sky.

Clear skies

## **Minutes SMAS April 8th, 2005—Lee Erickson**

The meeting came to order at 7:05 PM. There were 13 members in attendance and one guest.

Michael Littleton presided and quickly turned the meeting over to the main program:

April Night Skies: Spring Galaxies - by Michael McCulloch,

This program was a marvelous introduction to the galaxies from Canes Venatici to Virgo. He provided a 3-page handout - two pages of maps, and a page of subjective ratings for 36 objects. Michael presented Power Point slides with nice photographs from Kitt Peak Observatory and HST of these objects. We began with the northern most objects and generally worked our way southward. It sounded so wonderful that I wanted to see them all as soon as possible. Even Bob Arr seemed interested in a few of these galaxies.

Following the program, M. Littleton led a discussion about what to do with the club's 20-inch telescope. It has been learned that the mirror was never polished and that it may impair contrast. There was discussion about getting a trailer to house the scope and possibly a ladder with handrails, but action on this was deferred. The secondary mirror assembly is known not to be very rigid, and Brent Holt volunteered to build a more rigid mirror spider assembly.

Bob Arr presented a proposal usage policy for the Yahoo Groups, and it was decided to send a special email to the membership about this proposal and voting for adoption at the next meeting. M. Littleton to write a cover letter note for this special email.

Eric Iverson described Ronchi testing a telescope objective. After some discussion, the pronunciation of the test is thought to be a two-syllable word like "RON - KEY". Eric presented a few slides that showed how, with the use of a grating, the figure of a mirror could be tested, by examining the light from a point source such as a star. Eric will post to the Yahoo Group the URL of the web site with both the testing patterns that can be printed on transparency material and the charts for evaluating the results of the Ronchi test. He passed around a homemade tester constructed from a 35 mm film canister. We all wanted to make one. Eric brought the club's 10" telescope with the idea of demonstrating Ronchi testing after the meeting.

Eric Iverson then presented the answer to the brainteaser. The phase of the Moon was shown by a diagram and a few special cases to be the complement of the phase of the Earth in the Earthrise picture. With knowledge of which way is north on the Earth, you can also figure out that the Moon was waxing at the time of the photograph. Finally, examining the phases and dynamics of the Earthrise from the point of view of an observer above the ecliptic plane

towards Polaris, you can see that Apollo was orbiting the moon clockwise. Our thanks to Apollo Astronaut Bill Anders, for taking this photo December 24, 1968.

The meeting adjourned to admire the beautiful Right Ascension mount and bearing that Brent Holt had brought. WOW! He has yet to make the ring and worm gear for the declination axis, but it sure is a beautiful thing to behold, even at this stage.

No Ronchi mirror test demonstration was possible due to clouds with no adequate sucker holes.

<b>2005-2006 SMAS Officers</b>			
Michael Littleton	<i>President</i>	Erik Iverson	<i>Vice President</i>
Ron Dinkins	<i>Treasurer</i>	Lee Erickson	<i>Secretary</i>
Mike Fleenor	<i>Webmaster</i>	Peter Bush	<i>Editor</i>

**Proposed Policy Change—Mike Littleton**

My Fellow SMAS Astronomers,

There has been an ongoing discussion of the purpose and content of the SMAS Yahoo Group. During our meeting of 4/8/05, a proposal was put forward changing the Yahoo Group policy. The proposed policy appears on page 4 (the existing policy is in the Files section of the Yahoo Group site).

Please consider the proposal carefully. We will discuss this proposal at the 5/13/05 SMAS Meeting, and if someone moves to adopt it, we will vote at that meeting. If you are unable to attend the May meeting and wish to comment on the proposal, send your comments by email to Secretary Lee Erickson at [leerickson@earthlink.net](mailto:leerickson@earthlink.net) (use this address ONLY for these comments).

We will read your comments in the discussion at the next meeting. Note however, that in order to vote on any motion that may arise regarding this proposal, you must be present at the SMAS meeting.

Mike Littleton

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## Proposed Amended SMAS Yahoo Group Policy 8 April 2005

### Purpose of the SMAS Yahoo Group

- The Yahoo group is for announcing SMAS club activities, especially last-minute coordination of star parties.
- Discussion among SMAS members of club activities, observing reports, astronomy, astronomy equipment, astrophotography equipment, and space travel and exploration is ok too (i.e., original material only)
- No commercial sales advertisements.
  - o Personal sales ads (i.e., I just bought a 12", anybody want a pretty good 6" Dobsonian?) are fine.
- Please post humor only if it is astronomy related.
- No non-astronomy-related politics
- Do not repost news articles
- Do not post announcements of other organizations' routine events
  - o Mark these events on the Yahoo Group calendar instead.
- Don't reply to a private message by sending your reply to the list -- nobody else saw the original message, so nobody will know what you're talking about.
- Include full URLs in your message (with the <http://>), so that the link is active.

### Common Courtesy - "Be nice or be quiet"

- Don't use all CAPITALS in a message; it means you are SHOUTING.
- Don't flame - that is, post inflammatory statements or material to the list.
- When you disagree, say so in a respectful, polite manner.
- Don't assume that using a smiley will make the recipient happy with what you say or wipe out an otherwise insulting comment.
- Never respond to a rude message, even to criticize the sender for being rude. It just perpetuates the problem. If you must respond, do so by private email.

### Enforcement

- The first offense will result in a private email reprimand
- Any subsequent offense will result in the member being placed on "moderated" status for one month, where every message they send will need to be approved by one of the moderators.

## The Wiz

Hey Wiz,

My helpmate tells me a 2" eyepiece sees more sky than a 1.25" eyepiece. I thought all it did was make the image brighter, not wider. I also thought it was the optics of the telescope that limited the maximum field of view. Am I all wet?

D. Ping

Dear Drip,

Yes. Thank you for your question. (If you care to know why, read on.)

The objective has a maximum field of view that is set by its f/ratio, but that's just a start. As light travels down the optical chain, the FOV is quickly reduced by additional factors. By the time all the parts are in place, the field of view that's left is nowhere near the objective's maximum.

Keep in mind that in every type of telescope, the light that enters is processed into a cone. In refractors that's done by the objective lens. In newts, SCTs and Maks, it's done with a convex mirror, either spherical or parabolic.

Why do they do that? In order to concentrate a whole lot of dim photons into your small eyeball. Of course an eyepiece becomes necessary, because you're going to want to magnify the image. It works pretty good.

Here's the part you probably didn't realize: the farther off-axis a star is from the centerline of the objective, the less of its light gets into the cone. The result is, that if you could actually count the photons, you'd find that stars off center don't deliver anywhere near as many photons to the eyepiece as that one star that's dead nuts on. Ever heard the term "100% illumination?" Yeah, that's what it refers to.

So the eyepiece designer must answer the question, How much of that off-axis light is worth delivering to the exit pupil? Price and common sense suddenly enter the picture. The farther off-axis, the harder to design and manufacture glass to bend it properly.

Well, they could design eyepieces of any size, but unless manufacturers agree on some standards, marketing becomes impossible. Two sizes have been accepted, 1.25" and 2". As you may guess, the size of the opening on the eyepiece (the field stop) is one of the major limits

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to the portion of the cone that gets to your eye.

The 1.25" captures the heart of the 100% illuminated light cone, but in so doing it chops off a sizable amount of the outside of the cone, including light from stars a little too far off-axis. What's good about it? It's cheap.

The 2" captures the light cone out to about 80% illumination. Few observers notice the dimming around the edges, but it's there. Since that extra 20% of the cone contains light from stars that were outside the 1.25's field stop, you do indeed see a bigger field of view. But it costs considerably more. If you are fascinated by large objects, like the Double Cluster, the Veil Nebula, and the Great Orion Nebula, it's worth the cost.

In the case of the reflectors, the size and placement of the secondary plays a big role in how much of the cone is deflected to the eyepiece. A badly designed secondary can also reduce the field of view that the primary actually reflects. That's almost always executed properly in professionally designed telescopes, but is a big worry among amateur makers.

Your helpmate's pretty smart, isn't she?

Da Wiz

## **Astronomy Day—David Fields**

SMAS and ORION meet the public at Tamke-Allan

The TAO Kid's night and public stargaze on April 16 was very successful, with over 100 visitors enjoying the skies and special events. Visitors were hosted by members of the TAO Students Astronomy Society together with ORION and SMAS astronomy clubs. Thanks to SMAS and ORION people Michael, Owen, Eric, DR, Larry, Mary, Bob, Ken, Doug, Fred, Katie and Angela (who arrived late but bearing great homemade cookies!).



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Kids were appreciative and impressed by what we showed them. I think that we're doing well when we show the sights of the heavens to the public and that we should plan more such events. Let's try a Wal-mart event soon.

# May 2005

SUN	MON	TUE	WED	THU	FRI	SAT
1 SMAS Star Party April 30th Look Rock #1	2	3	4 Eta Aquarid Meteor Shower	5	6  UTK	7 SMAS Star Party Unicoi Crest  TAO
8 <i>New Moon</i>  Mother's Day	9	10	11	12	13  SMAS Meeting PSTCC Rm 223 7 pm	14
15	16	17	18	19	20  UTK	21  TAO
22	23 <i>Full Moon</i>	24 Moon occults Antares	25	26	27	28
<u>29</u>	30 Memorial Day	31				

UTK—roof of Neilson Physics Building  
on The Hill at UT  
1st & 3rd Fridays  
TAO—Tamke-Allan Observatory  
Public Stargaze  
Watts Bar Lake, Roane County  
1st & 3rd Saturdays