

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

Society's ChRonological Astronomical PaperS



From the President by Bob Arr

One would probably expect a successful star party to involve observing stars. One could be wrong. The culmination of a year's effort to establish public participation at our local star parties came on April 26. WATE TV was recruited to give us a plug on their 6 o'clock weather, and The Daily Times said they would print a notice of our event, which we supplied. Our only problem seemed to be the weather, which was clearing, but maybe not quite fast enough. The alternative would be to wait another month (because of lead times), but there was no guarantee that the weather would be any more cooperative then. So we proceeded.

Members began assembling at Look Rock early. Robb Feldhege, Steve Rothschild, Tom Rimmell and buddy Tracey Monroe were on site before sunset. Wayne Thompson and Eric Neumann were next, then Roy Morrow and Owen Hoffman, Angela Quick, visitors John, Anita and Alice Sosville, Janice Erickson, new member John Tipton, Ed Gorney and Bob Arr. We circled the wagons to make space for the telescopes and set them up. By dark, we were ready for the public.



Our First Public Invitation to a Star Party

Almost. The sky was overcast. Still, everyone was confident that we were on the back edge of the clouds, and they would soon drift away. Clear Sky Clock had indicated this, as well as WATE's Bob Becker. The group was abuzz with excitement and anticipation, and nobody was concerned with a little delay.

By 10 PM, the public arrived-both of them! They had seen it on TV, and were curious. The overcast remained, but still everyone was in good spirits and talk about new equipment, techniques and interest in many astronomic things echoed around the site. The SMAS members were obviously in the mood for it. The two members of the public never got to see any stars because of the clouds, but they certainly got a taste of an involved and enthusiastic club.

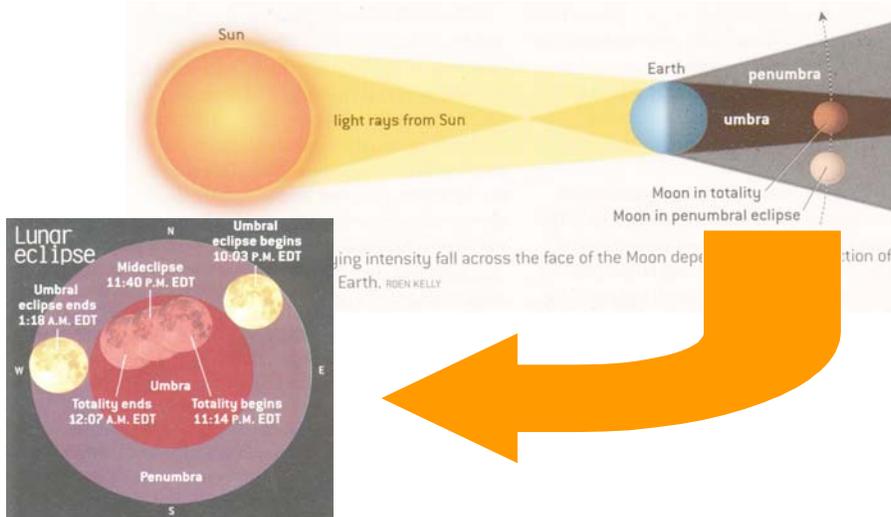
For only two members of the public to show up was disappointing. And yet it was a unique case of a star party without stars, enjoyable and productive because of the great give and take of the participants. Maybe you had to be there to appreciate it, but everyone really had fun. Best of all, SMAS broke the ice with its first invitation to the public. (We'll play the tape of the TV announcement at the next meeting.)

Total Lunar Eclipse May 15, 2003 by Angela Quick

While we may not be able to see the more spectacular events going on in our solar system this month (the transit of Mercury across the surface of the sun, or the annular solar eclipse), there is an exciting astronomical event that will be visible from Knoxville: a total lunar eclipse on the evening of Thursday, May 15.

A lunar eclipse occurs when the earth passes between the moon and sun and casts its shadow on the moon.

This only happens when the moon is full and when the sun, the earth, and the moon form a perfectly straight line. There are two parts, or phases, to a total eclipse. The moon is partially shadowed by the earth in the *penumbral* phase. The earth completely blocks the light from the sun during the *umbral* phase. The umbral phase is also called *totality*. During a total eclipse, the moon will enter the partial shadow of the earth (the penumbra) first. The moon passes through the penumbral shadow until it reaches the dark, central shadow of the umbra.



At this point, the umbral phase, or totality, begins. The moon spends about an hour in the full shadow of the earth. The only light that hits the moon during this time is actually passing through the earth's atmosphere! After about an hour, the moon slowly moves back into the partial shadow of the penumbra.

To observe the May 15 eclipse, find a site with a clear view to the southeast. The site does not have to be particularly dark. If you can see the moon, you will be able to see the eclipse. That said, you will see

more detail if your viewing site does not have direct lighting that produces glare (parking lots, street lights, yard lights, etc.). The "best of the eclipse" will happen between 11 pm and 12:20 pm. Plan on viewing during this time. You may be able to see the moon begin to darken as early as 10 pm. You may be able to detect some shadow remaining on the moon until 1:15 am. Although the moon enters the penumbra at 9:05 pm and does not leave it until 2:15 am, it is very difficult to see anything for the first and last hour of the eclipse. The diagram above shows the expected times for all phases of the eclipse. The picture shows you what the sky will look like at mid-totality, or the midpoint of the eclipse. What should you look for during a lunar eclipse? You might try timing the phases of the eclipse. What is the earliest time at which you can detect a shadow on the moon's surface? At what time is the face of the moon completely shadowed? When does the moon begin to exit the shadow? The moon will dim drastically during the eclipse. You might try to estimate the brightness (or magnitude) of the moon compared to other objects in the sky at various times during the eclipse. During totality, some parts of the moon may be brighter than others. Look for unusual



Lunar Eclipse (continued)

shadows or patterns on the moon during totality, too. The moon will also change color markedly during the eclipse. During the partial, or penumbral, phases the shadowed part of the moon tends to look dark brown, grey, or black, but when the moon enters totality, it will most likely turn some shade of orange or red. (The color depends on the composition of the earth's atmosphere the day of the eclipse.) Depending on what part of the earth's shadow the moon passes through, different parts of the moon's surface may appear to be different colors! Frenchman Andre-Louis Danjon created the scale below to rate the color and intensity of the moon during total eclipse. Try estimating the Danjon number at different times during totality.

One of the best things about a lunar eclipse is that it looks terrific using no optical equipment but your own two eyes! You should be able to see everything mentioned in the above article just by going outside and looking up at the moon during the eclipse. If you want to use binoculars, they can help enhance the contrast between the shadowed and unshadowed portions of the moon. They work better for this purpose if you mount them on a tripod. If you decide to use a telescope, make sure you use a low power eyepiece so that the entire moon fits in the field of view with plenty of black sky around it. Do not use a moon filter! Also, this is one of those occasions where smaller aperture telescopes work better than a big light bucket. Let's hope for clear skies over Knoxville on the 15th!

DANJON LUNAR ECLIPSE LUMINOSITY SCALE

L=0.0	Very dark eclipse; moon almost invisible, especially at mid-totality
L=1.0	Dark eclipse, gray or brownish coloration; lunar surface details distinguishable only with difficulty
L=2.0	Deep red or rust colored eclipse; central part of the umbra dark, outer rim of the umbra relatively bright
L=3.0	Brick red eclipse, usually with a brighter (frequently yellow) rim to the umbra
L=4.0	Very bright copper red or orange eclipse, with a bluish, very bright umbral rim

THE WIZ

Dear Wiz, Last year, we had a good system. It was easy to remember--meetings on the second Friday, first star party the next day and second star party one week later. Bad enough we had to move, you guys just had to screw up the schedule too, didn't ya? Now there's no telling when a star party will come up, or where! Why couldn't ya just leave well enough alone? To think I voted for ya! C. Enderbum

Dear Cal, Hate to say it, but it's bigger than all of us. It's that doggoned moon, shining so bright. You know how long it takes for it to get back to where it started? Exactly 29.5 days. You know how long an average month is? Exactly 30.4375 days. Every month the moon gains 0.9375 days on the calendar--that is, it rises that much earlier than it did the previous month. In a year, that's 11 days earlier. Who cares, right? Well, we do. We schedule star parties to avoid the moon, one on the Saturday just before a new moon, the second on the Saturday just after the new moon. Of course, the second one doesn't completely avoid the moon, but it's only a sliver and sets early. Every month that new moon creeps earlier .9375 days, and when it finally catches up and passes that earlier Saturday, we have to jump our two Saturdays a week earlier to bracket it again. It never ends. It will go on the rest of our lives!

Since Unicoi Crest is our best site for deep sky viewing in the fair weather months, we chose to assign it to the first Saturday when the moon will not impact it at all. That means that Look Rock automatically gets the second Saturday. And since Look Rock is our "Public Invited" site, a small crescent moon will likely sit very well. 'Preciate yer vote, there, starbuddy. Da Wiz

Omega Centauri was “Wonderful”

Late observers at the April 5 Star Party at Look Rock got to watch earth's largest globular cluster rise out of the early am haze and slowly reveal its amazing size. From fuzzy to “crisply fuzzy” to “Hey, I can see detail!”, the celebrated cluster climbed to its apex 7° above the Smoky Mountains about 1:15am, and could be viewed well by all our telescopes and binoculars.

Coincidentally, M13 was up about 45° and provided a perfect foil. OC was obviously much larger, but not as bright because it was low in the haze. Individual stars in M13 were clear, but not in OC. Still, patterns in the tapestry of OC were visible in larger telescopes (8" +), and its uneven edges were distinct.

Happy members included Robb Feldhege, Paul Bush, Tom Rimmell, Ed Gorney, Bob Arr, Mike McCullough, and John, Steve, and Andy Arehart. Omega Centauri will be viewable for another month, but the sky must be very clear to get a good look.

Another Observing Site on Cherohala Skyway by Bob Arr

Cherohala Skyway yielded another treasure to SMASers in the wee small hours of Sunday, May 4. Unlike Hoopers Bald and Unicoi Crest, this small observation site has no posted name, so we gave it one: South View. What it presents is a direct view of the southern sky. Scorpius can be seen in its entirety. The south horizon is very far away, and no hills rise to interfere with the view. The topography is actually similar to Look Rock, with a high ridge immediately to the north--Polaris is barely above the trees on the ridge.

The site has two blemishes. The parking area is slightly less than half the size of Unicoi Crest, and there is a pair of very tall, scraggly pines that rise 20° above the horizon, blocking it modestly. Still, there is room to set up to avoid the pines. On the brighter side, South View is 3 miles nearer than Unicoi Crest. Do you recall the graceful white concrete bridge that curves and dips as it crosses a ravine? South View is just before that bridge, on the south side of the Skyway. GPS gave us an elevation of 3700' (UC is 4600').

FOR SALE

Takahashi FS 78 package: This model telescope is no doubt the best three inch scope you will ever find. Razor sharp, crisp color free images are the hallmark of Takahashi and this scope is a performer. Items for sale: FS-78 OTA and also included Tak mounting ring, 6 x 30 Tak finder and camera angle adjuster and CA-35 camera adapter. This system is ready to go for astrophotography or CCD. On a steady night will easily support 300X magnification with no degradation for great views of Jupiter and Saturn and the Lunar terminator. Excellent for solar observations and exceptional wide-field performance as well. All items new would run \$1581 + shipping. My price for a SMAS member is \$1185.00 and I will sell without the astrophotography accessories for \$1000. For more info please contact Mike Fleenor.email: mffleenor@tds.net or phone: 675-5488.

PUT YOUR MIND IN GEAR!

Share your astronomical experience with the rest of SMAS and everyone on the Internet by writing an article for SCRAPs. Contact Mike Littleton at (865) 671-1022 or email littleton@ix.netcom.com.

April Meeting by Angela Quick

SMAS Meeting
Friday, April 11, 2003
Division Street Campus, Pellissippi State Technical Community College
14 members present

President Bob Arr began the meeting at 7 pm with announcements. First, we delivered the first Scope for Kids to Central High School today! Film of the presentation appeared on the Channel 6 evening news. (Bob has a copy on video.) Construction on scopes 2, 3, and 4 is in progress, with the next completed scope going to the Boys' and Girls' Club of Sevierville. Next, Bob told us that the Boy Scouts will hold a Camporee of several thousand scouts in the Great Smoky Mountain National Park in October, and they are looking for as many volunteers as they can get to help scouts with astronomy merit badge activities.

Erik Iverson gave a presentation on the benefits of using a Yahoo group to manage SMAS email. The main advantage of an online group is that, instead of typing in individual mail addresses for all members, you can simply type in smokymtnastro@yahoo.com in the address line to send mail to everyone in the club. You can sign up to receive club news via your regular email account, or you can choose to create an account on Yahoo.com and sign in on their web page to see additional information like an events calendar, photos, information files, member names and addresses, and more. After the presentation, it was moved and seconded that SMAS create a group on Yahoo.com. Motion carried. Erik will set up the group and send invitations to join to all SMAS members via email.

Angela gave a presentation on observing the total lunar eclipse that will occur on May 15. A copy of her MS PowerPoint presentation is available on the Yahoo group site under files.

Bob Arr gave a presentation using Guide and Starry Night Pro on what to see in the constellations Ursa Major, Ursa Minor, Bootes, and Canes Venatici. This region contains the famous stars Cor Caroli and La Superba and the globular cluster M3. It is also chock full of galaxies, and Bob gave some tips on how to best observe them.

Jack McConnell gave a presentation on upcoming public astronomy events in Tennessee. The Bays Mountain Astronomy Club hosts Astronomy Day at Bays Mountain Park in Kingsport on April 26 at noon. The club will also host the 20th Annual StarFest at Bays Mountain Park September 19-21. There will be public observing sessions on May 10 and on October 25 at 8:30 pm at the Obed Wild and Scenic River. There will be star parties at Big South Fork, Bandy Creek Campground on May 31, June 28, and October 4. There is a star party at the nearby Rugby community August 23. The Astronomical League holds its convention in Nashville this year July 9-12. And finally, the Tennessee Star Party will be held at Camp Nakanawa near Crossville September 26-28.

At 8:30, all adjourned to the student lounge to share refreshments and casual conversation until 9.



May 2003

President:
Bob Arr

Vice President:
Rob Feldhege

Observe Chair:
Ron Dinkins

Secretary:
Angela Quick

Star Party Organizer:
Tom Rimmell

Treasurer/ALCOR:
Erik Iverson

SCRAPS Editor:
Mike Littleton

SUN	MON	TUE	WED	THU	FRI	SAT
				1 New Moon	2	3 Starparty
4	5	6	7	8	9 SMAS Mtg. 1st Qt. Moon	10
11	12	13	14	15 Full Moon	16	17 TAO
18	19	20	21	22 Last Qt. Moon	23	24 Starparty
25	26	27	28	29	30	31 UT Outreach New Moon

SCHEDULE OF EVENTS

SMAS Website:
<http://www.smokymtnastro.org/>

Webmaster:
Mike Fleenor

- 5/2/03 and 5/16/03** Public observing from the roof of the Physics Building at UTK
5:23 AM; Mars rises at 2:05 AM; Jupiter sets at 1:57 AM; Saturn sets at 11:05 PM
Program at the Bandy Visitor's Center at Big South Fork State Park: Program starts at 8:30 PM followed by telescope observing in the visitor center's parking lot. Contact Paul Lewis at gplewis@utk.edu for more information.
- 5/3/03** Starparty at Unicoi Crest
•**5/17/03** Public observing at Tamke Allen Observatory
- 5/9/03** SMAS Meeting at the Division Street Campus of PSCC
•**5/24/03** Starparty at Unicoi Crest
- 5/15/03** Venus rises at
•**5/31/03** UT Outreach