

Cape Fear Skies

*The Official Newsletter of the
Cape Fear Astronomical Society
Wilmington, North Carolina*

A Member Society of the Astronomical League

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*

April 2000



Meeting Announcement - Sunday, April 2, 2000

Room 104 in Morton Hall on the UNCW Campus

Join us before the meeting for dinner at **K&W Cafeteria** at 5:00 P.M. (3501 Oleander Dr.)

The business meeting of the Cape Fear Astronomical Society will begin at 7:00 P.M.

The general meeting will begin at 7:30 P.M.

This month's meeting: Will be a telescope clinic, general information, and help session. Bring in your telescope if you have one and want help; members will be able to assist you and answer questions. This is a great opportunity for beginners to get the guidance they need.

Messier Marathon

Weather permitting, on Saturday, April 1 we will hold our annual Messier Marathon at the Yamacraw site. (See inside for Doug's excellent map to the new site.)

"Messier Marathon" is a term describing the attempt to find as many Messier objects as possible in one night, with the best opportunity occurring around the new moon at the spring equinox.

For those serious in qualifying for Messier Certificates, you can plan to use your 'scope to view as many objects as possible, taking you well into the early hours of morning. Viewing 70 or more objects qualifies for a Regular Certificate, and viewing all 110 for an Honorary Certificate. There is also a category for binocular viewing.

For novices who may require 20 minutes or more just to find the Andromeda Galaxy, (who, me?) we plan to work with each other, share the views, and checking

them off our lists. While this does not fall under any of the offered certificates, it should provide lots of casual observing fun. When we get cold or tired, we quit.

A Messier checklist will be available at the site, and John Canaday has provided guide booklets that members can use. He also has one copy left of the excellent Messier Marathon book available at \$20.

Plan to dress warm, the night can get very cold! Keep your ankles covered to protect against ticks. Bring a thermos and snacks, bug spray, lawn chair, clipboard, and star charts.

We will be setting up during daylight hours, and for those of us in the second category, working out a game plan at that time. This will be a FUN observing night, don't miss it!

Web sites for excellent information on Messier Marathons:

<http://www.seds.org/messier/> and

<http://www.en.com/users/cygnus/observe.htm>

Cape Fear Astronomical Society

Minutes by Si Cantwell, CFAS Secretary

Meeting Minutes of March 5, 2000

A meeting of the Cape Fear Astronomical Society was called to order by President John Canaday at 7:05 p.m. March 5, 2000, in Bryant Auditorium, Morton Hall, the University of North Carolina at Wilmington.

Both Doug Greene and Tom Jacobs have maps to the dark-sky site at Yamacraw, and "Cape Fear Skies" Editor Susan Buccini has copies of each. A map is to appear in the April issue of the society's newsletter.

John contributed a new book, "365 Starry Nights" to the club library.

We will have the April meeting in Room 104 of Morton Hall, but the May and June meetings will be in the auditorium, he said. The April meeting will consist of a question-and-answer session about telescopes.

John talked a bit about the club's Messier Marathon, scheduled for April 1 at the Yamacraw site. "It's a great excuse to try to stay up all night and try to bag all the objects," he said of the 110 objects that Charles Messier catalogued to help avoid confusion among comet hunters. He had five Messier Cards he has ordered in bulk and will sell for \$5 each, and three copies of the Messier book he will sell for \$20. (Editor's note: one copy of the book remaining.)

Ben Steecman said (actually a little later in the meeting) that we have \$1,288 in the bank and \$1,308 in our certificate of deposit.

John asked for observing reports, and Ronnie Hawes said the previous night six or seven people converged on the Yamacraw site and didn't leave until after 11 p.m. They saw the zodiacal light - twice now at that site, Tom noted -- and viewed objects including Jupiter, Saturn, M42, M3 and the Pleiades. A "nice meteor" was also seen. Dew was low, and the road was dry.

Rich Williams said he had first light on his new 4-inch refractor and was impressed with the results, even viewing from a city location.

Doug said he observed the space shuttle Endeavour, and that it was "very bright and very fast."

Susan said she and her father, John Buccini, have observed many sunspots using a solar filter, and that this is a good time to be observing Sol as it approaches a peak period of solar activity in its 11-year cycle.

Si Cantwell said he has created a mailing list for society members and other locals interested in astronomy. It can be accessed at www.egroups.com/group/capefearastro, or you can subscribe by sending an e-mail message to capefearastro-subscribe@egroups.com.

Tom Jacobs said it's important to pick up our trash at the Yamacraw site, and he would greatly prefer that people not dump their trash in the back of his pickup truck.

Terry Herrin and Tom attended the first meeting of the

N.C. chapter of the International Dark Sky Association, and they agreed that it was a good meeting. Terry said he was impressed at the cooperative attitude of business people such as a representative from Carolina Power & Light. There is a mailing list for the IDA at www.egroups.com for those who would like to subscribe.

After a 20-minute break, Ronnie Hawes gave his long-awaited presentation on "God, Religion and the Universe." He started at the beginning: Genesis 1:1, "In the beginning ..."

Using slides as illustrations, he pointed out many ways that biblical quotes presaged the discoveries of science (the round earth, the expanding universe). "I find no problem bringing religion and science together," he said. "They don't need to be at loggerheads, because they complement one another."

He reviewed astronomers and their contributions to science, noting that they often had to be careful not to offend the religious authorities of the day.

Offering his personal views, Ronnie said it's possible to believe in both the biblical account of creation and the scientific version ("How long is a day in the eyes of the Lord?"). He noted that the Catholic Church has embraced the Big Bang theory.

Noting a Bible passage in Ezekiel that sounds very similar to an Unidentified Flying Object sighting, he speculated that there may well be another Christ being born right now on another world out there somewhere. "Why would God confine all his compassion here, confined on this one piece of dust called Earth?"

The meeting adjourned at 9:48 p.m.

News & Notes

Messier Marathon Book - John Canaday has one copy left of this excellent hardcover book for \$20. Leave a message for him at 799-5596 if you're interested in it.

CFAS Site - Si Cantwell has created a mailing list for Cape Fear Astronomical Society members. The address is: <http://www.capefearastro@egroups.com> - but you must be a member of the list to post on it. To join, send an e-mail to: capefearastro-subscribe@egroups.com or go to: <http://www.egroups.com/list/capefearastro/> where there is a membership form found with the group's messages.

When you send an e-mail message to the list, capefearastro@egroups.com, it will be immediately posted to everyone who has joined the list. It's an easy way for us to discuss observing trips and other subjects of interest to CFAS members. Thanks Si!

April 2000 Calendar

- Apr 01 CFAS Messier Marathon!
- Apr 02 CFAS April Meeting (Room 104)
- Apr 03 Moon passes 3° south of Venus, 2 am
- Apr 04 New Moon
- Apr 7, 8 CFAS Group Viewing Sessions
- Apr 11 First Quarter Moon
- Apr 18 Full Moon
- Apr 21 Lyrid meteor shower peak
- Apr 26 Last Quarter Moon
- Apr 28 Mercury passes 0.3° south of Venus, 5 am
(look ½ hour before sunrise)
- Apr 28, 29 CFAS Group Viewing Sessions
- May 07 CFAS May Meeting

New Discoveries About the Leonids Show Amateur Astronomy at its Best

Meteor conference report from Germany - March 23, 2000

Contributed by Tom Jacobs

The systematic observation of meteors with the naked eye, photographic and especially image-intensified video cameras has become one of the rare fields in astronomy in which amateurs can not only contribute to science - but where the science produced from the amateur data can be crucial to advance the whole field. This has become clear again at the annual meeting of the German Working Group for Meteors (AKM) at the hospitable Sternwarte Radebeul on March 17-19, where both new insights into the workings of the Leonids were revealed but also the high state of 'routine' observations these days.

Surprising fine structure in the ZHR

The main discoveries about the Leonids, as derived from a torrent of data from the 1999 storm presented at Radebeul were:

There is an enormous fine structure in the activity profile, i.e. the rate of meteors seen as a function of time, during the hour-long storm - but it becomes evident only when one looks at observations (visual and esp. by video) from specific locations in the world. If one adds up the profiles from all places (Tenerife to Jordan), the details average out. The video data from the Jordan camp in particular reveal a strong 'early' peak of activity around 1:45 UTC, 20 minutes before the sharp main peak, plus enhanced activity around 2:30 UTC - all these features are considered significant now. Confirmation by other (non-visual) methods could be forthcoming.

Since observers at other sites (Spain was covered particularly well) saw and recorded a rather different profile than Jordan or France, it is even possible to generate a 'tomographic picture' of the dust trail(s) that made the meteor rate explode. The 1:45 UTC peak, e.g. was probably due to Earth's distant encounter with a dust

trail from Tempel-Tuttle's 1932 perihelion passage, though a significant effect on the meteor rate had not been predicted. The main peak has resulted from the 1899 dust trail, of course, confirming brilliantly the model calculations by D. Asher and R. McNaught.

Other surprises were the lack of faint meteors - video cameras with better limiting magnitudes but smaller fields of view saw far fewer meteors than those with worse sensitivity but larger fields - and a possible breakdown of the geometrical ZHR correction formula. Since decades the influence of the elevation (h) of the radiant on the number of meteors seen has been corrected geometrically into the Zenithal Hourly Rate (ZHR), dividing the seen number of meteors by $\sin(h)$. (Other corrections, such as for obstructions in the field of view and the sky quality, apply as well.) The data from the 1999 Leonid storm cast a doubt on that simple formula: Those with a low h got ZHRs of only 2000-3000 for the peak despite the correction formula, while those with the highest h got 5000 as the peak rate - it seems that the $\sin(h)$ effect must be replaced by a $(\sin(h))^{\gamma}$ correction, with γ other than one.

Given the success of the Asher/McNaught approach in predicting the time of the storm (a feat hailed by the IMO as equal in importance to the basic understanding of how meteors work that came after the 1833 storm; Rendtel in WGN 28 [Feb. 2000] 1), there is great optimism now that there will be even bigger storms in 2001 and 2002. The AKM which had gone to Mongolia in 1998 and fielded teams to Tenerife and Spain in 1999 has now started preparing two expeditions for 2001: One will probably return to Mongolia (shudder!), the other go to Northern Australia.

There is life beyond the meteor storms, too

Routine meteor observing can be a tough job, especially under bad sky conditions and when no major meteor streams are active: Only a handful of super-dedicated observers have spent more than 1000 hours gazing at the sky (with Jürgen Rendtel's breaking of the 4000 hour mark in 1999 an epic exception) - but video comes to the rescue. The image-intensified video cameras have by now been automated to such a degree that a couple of them watches the (mostly poor...) German sky every night, feeding the signal directly into a PC where all meteors are detected and logged.

Since not only numbers but also (very rough) brightness values, the direction and angular speed are recorded, many advanced studies can be done on the basis of these data - especially checking the reality of 'new' weak meteor streams that visual observers believe to have discovered now and then. Thanks to such video coverage in January and February 2000 it was possible, e.g., to dismiss the existence of the 'Xi Bootids' while discovering possible other radiants in that region of the sky. Within 3 to 5 years there could be enough video cameras at work that all meteor activity in the sky is monitored all the time and from anywhere in the world.

Upcoming Events for April 2000

Meetings of the CFAS are held on the first Sunday of the month (if holiday weekend, second Sunday) at 7:00 PM - Bryan Auditorium, Morton Hall, UNCW

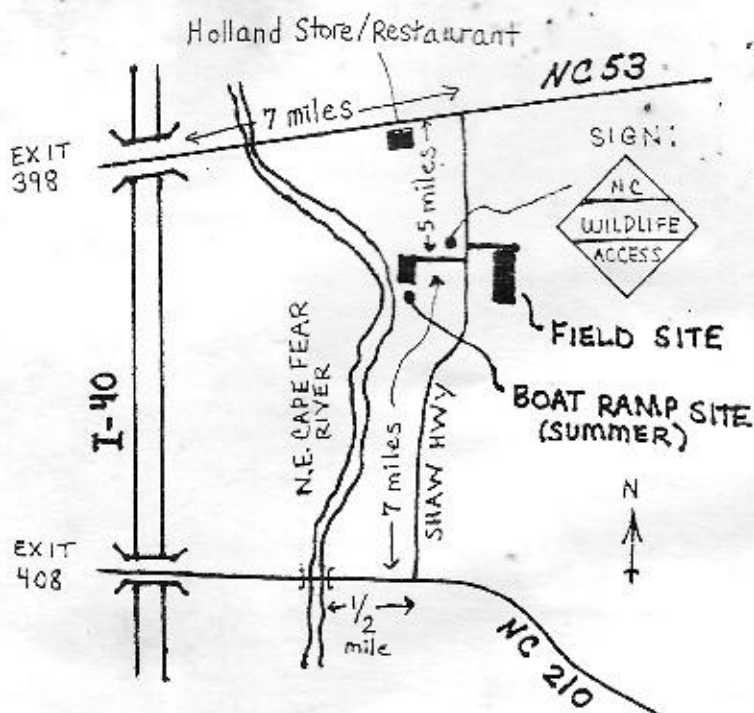
Group Viewing Sessions 14790

Please call Ron Hawes at 762-1033 to confirm a formal viewing session. Listed below are moonless nights so you can schedule good viewing. All group viewing sessions will be at the Yamacraw viewing site, unless otherwise specified. Time: Dusk until "7"

Friday, March 31	Saturday, April 1*
	* April 1 - Messier Marathon!
Friday, April 7	Saturday, April 8
Friday, April 28	Saturday, April 29

Please be cautious of unusual wildlife behavior while observing. A golf club or stick could be useful to keep nearby.

Holly Shelter Viewing Areas



When using the Holly Shelter site, please have your permit with you.

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