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Where the Heavenliest of Showers Come From

By Dr. Ethan Siegel

You might think that, so long as Earth can successfully dodge the paths of rogue asteroids and comets that hurtle our way, it's going to be smooth, unimpeded sailing in our annual orbit around the sun. But the meteor showers that illuminate the night sky periodically throughout the year not only put on spectacular shows for us, they're direct evidence that interplanetary space isn't so empty after all!

When comets (or even asteroids) enter the inner solar system, they heat up, develop tails, and experience much larger tidal forces than they usually experience. Small pieces of the original object—often multiple kilometers in diameter—break off with each pass near the sun, continuing in an almost identical orbit, either slightly ahead-or-behind the object's main nucleus. While both the dust and ion tails are blown well off of the main orbit, the small pieces that break off are stretched, over time, into a diffuse ellipse following the same orbit as the

comet or asteroid it arose from. And each time the Earth crosses the path of that orbit, the potential for a meteor shower is there, even after the parent comet or asteroid is completely gone!

President's Article

By Tim Campbell

Preparing for a New Year

Apparently last month's partial lunar eclipse was a big hit. Many of the astronomy and physics students from both Henry Ford College and U of M Dearborn also attended and thanked us for the event. We should schedule more of those.

Speaking of scheduling... I'd like to take a moment to recognize and thank Frank Ancona. As many of you know, Frank has undertaken the task of finding and scheduling our speakers and presentations for the monthly club meetings -- a role he has performed for the past five years. Frank has passed this role to Dale Partin, who has graciously accepted this responsibility.

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STAR STUFF

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FORD AMATEUR ASTRONOMY CLUB
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Dearborn MI 48121-7527

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SECRETARY: Ellen Duncan
TREASURER: Gordon Hansen
WEBMASTER: Greg Ozimek
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Club Information:

The Ford Amateur Astronomy Club (FAAC) meets on the fourth Thursday each month, except for the combined November/December meeting on the first Thursday of December - at Henry Ford College Administration Services and Conference Center in Dearborn. Refer to our website for a map and directions (www.fordastronomyclub.com).

The FAAC observes at Spring Mill Pond within the Island Lake State Recreation Area near Brighton, Michigan. The club maintains an after-hours permit, and observes on Friday and Saturday nights, and nights before holidays, weather permitting. The FAAC also has use a private observing site near Gregory Michigan and Lake Erie Metro Park. See the FAAC Yahoo Group* for more information.

Observing schedules and additional info are available on our website, or via the FAAC Yahoo Group.* Or call the FAAC Hotline, for info and leave a message, or ask questions: 313-757-2582. or send email inquiries to info@fordastronomyclub.com.

Membership in the FAAC is open to anyone with an interest in amateur astronomy. The FAAC is an affiliate of the Ford Employees Recreation Association (F.E.R.A.). Membership fees:

Annual - New Members: \$30 (\$15 after July 1)
Annual - Renewal: \$25 (\$30 after January 31)

Membership includes the STAR STUFF newsletter, discounts on magazines, discounts at selected area equipment retailers, and after-hours access to the Island Lake observing site.

Astronomy or Sky & Telescope Magazine Discounts

Obtain the required form from the FAAC club treasurer for a \$10 discount. Send the completed form directly to the respective publisher with your subscriptions request and payment. Do not send any money directly to the FAAC for this.

Star Stuff Newsletter Submissions

Your submissions to STAR STUFF are welcome! Send your story and/or images to the editor: StarStuff@fordastronomyclub.com. Email text or MS Word is fine. STAR STUFF will usually go to press the weekend prior to each general meeting. Submissions received prior to the 15th can be included in that issue.

* FAAC Members are welcome to join our Ford Astronomy Club Yahoo!Group. Messages photos, files, online discussions, and

This month's background photos of the moon Page 1 courtesy of John Kirchhoff. See more of John's photos at:

<http://www.flickr.com/photos/33926475@N06/with/4311533997/>

Dale also performs this role for the Warren Astronomy Club. Please take a moment to thank Frank for his many years of service in this capacity.

It's hard to believe we're approaching the last club meeting of the year. As a reminder, this final meeting of the year is scheduled for Thursday, December 4, because our normal meeting day (the 4th Thursday of each month) would have been Thanksgiving Day and the December meeting tends to interfere with holiday plans as well.

Bring your checkbooks to the meeting, there are two reasons you may want to have it handy:

1. It's time to renew membership. Dues renewal is \$25 for the year if paid by the end of January.
2. There will be a "Silent Auction" at the December meeting. Bob MacFarland has sent out notices on the Yahoo group with the list of items.

There are a few more items I'd like to mention as we prepare for a new year.

Elections:

It's time for club elections. If you are interested in running for a club office position, please see Frank Ancona or Greg Ozimek. Frank and Greg are running the nominating committee and elections this year. The elections take place at the January club meeting. Frank and Greg will announce the slate of candidates thus far, but any club member interested may contact Frank and Greg.

Sirius Award:

Though we have many members who offer their time and efforts in service to the club and to the community in our mission of astronomy outreach, each year we select one member for recognition of the club Sirius Award -- our "Brightest Star".

Any current club member can be nominated for the award with two exceptions... (1) current club offers are exempt and (2) past recipients of the award are also exempt. The award is presented at our club banquet each year (traditionally that's in May).

To nominate someone for this prestigious award, please email your nominees to president@fordastronomyclub.com. Include your comments and reasons for selecting your nominee(s). You may nominate more than one individual.

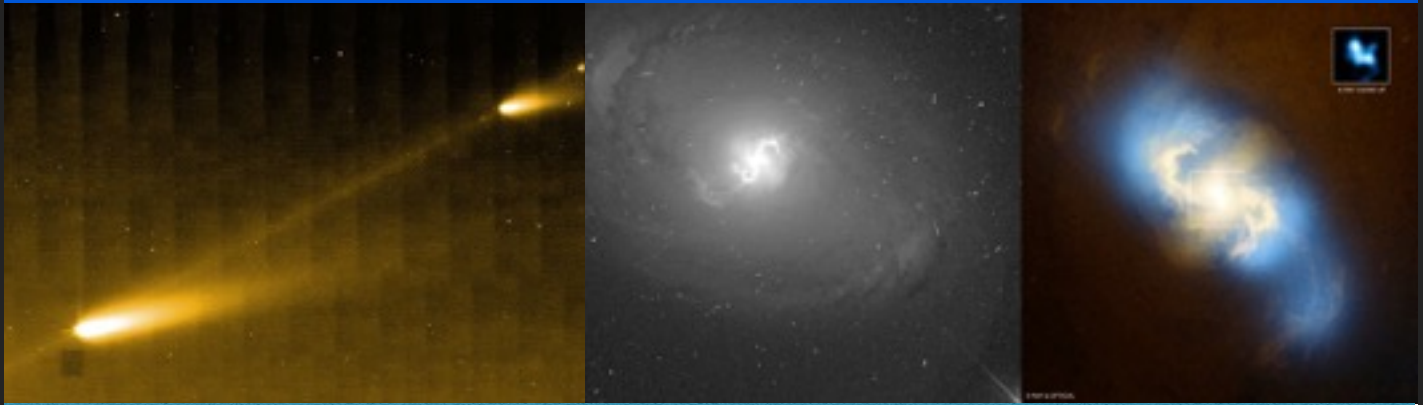


Image credit: NASA / JPL-Caltech / W. Reach (SSC/Caltech), of Comet 73P/Schwassman-Wachmann 3, via NASA's Spitzer Space Telescope, 2006.

Where the Heavenliest of Showers Come From

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This relationship was first uncovered by the British astronomer John Couch Adams, who found that the Leonid dust trail must have an orbital period of 33.25 years, and that the contemporaneously discovered comet Tempel-Tuttle shared its orbit. The most famous meteor showers in the night sky all have parent bodies identified with them, including the Lyrids (comet Thatcher), the Perseids (comet Swift-Tuttle), and what promises to be the best meteor shower of 2014: the Geminids (asteroid 3200 Phaethon). With an orbit of only 1.4 years, the Geminids have increased in strength since they first appeared in the mid-1800s, from only 10-to-20 meteors per hour up to more than 100 per hour at their peak today! Your best bet to catch the most is the night of December 13th, when they ought to be at maximum, before the Moon rises at about midnight.

The cometary (or asteroidal) dust density is always greatest around the parent body itself, so whenever it enters the inner solar system and the Earth passes near to it, there's a chance for a meteor storm, where observers at dark sky sites might see thousands of meteors an hour! The Leonids are well known for this, having presented spectacular shows in 1833, 1866, 1966 and a longer-period storm in the years 1998-2002. No meteor storms are anticipated for the immediate future, but the heavenliest of showers will continue to delight skywatchers for all the foreseeable years to come!

What's the best way to see a meteor shower? Check out this article to find out:

<http://www.nasa.gov/jpl/asteroids/best-meteor-showers>

Kids can learn all about meteor showers at NASA's Space Place:

<http://spaceplace.nasa.gov/meteor-shower>

Treasurer's Report November 17, 2014

By Gordon Hansen

Nov 17, 14

ASSETS

Current Assets

Checking/Savings

10000 · Checking 169.98

11000 · FAAC Savings

11100 · FAAC Club Savings 976.89

11200 · Equipment 1,496.36

11300 · Scholarship 333.26

11400 · GLAAC 5,266.18

Total 11000 · FAAC Savings 8,072.69

12000 · Petty Cash Account 220.24

13000 · CD's

13100 · CD 200599272 1,060.56

13200 · CD 205196033 1,005.32

13300 · CD 89265268 1,108.35

Total 13000 · CD's 3,174.23

Total Checking/Savings 11,637.14

Total Current Assets 11,637.14

TOTAL ASSETS 11,637.14

Meeting Agenda - December 4th

HFC – Berry Auditorium -Admin. Services & Conference Center www.fordastronomyclub.com
5:30

Opening/Introduction/Member Observing

Main Presentation:

Club Projects/Committees/Member Support

Club Business/Secretary/Treasurer/Equipment Reports

Astro Imaging SIG

Gordon Hansen

All are invited to join us in the Astro Imaging SIG meetings, to share and discuss images, experiences, and techniques.

We always have a good time, with lively discussion, and sharing of valuable information.

Next meeting is **December 11th**. The meeting room location – HFCC Admin. Services and Conference Center (same building), Berry Amphitheater Auditorium.

Topics invited. Pizza served.

FAAC Events 2014

December 4 - General Meeting at HFC

December 11 - Imaging SIG Meeting at HFC

Background Photo from Lunt Solar Scope Image taken at the Hector J Robinson Observatory, June 28, 2010

One FAAC members blog

<http://hjrobservatory.blogspot.com/>

A few updates on the observatory, quick articles and photos. I'll try to improve my writing on this blog. Also, I try to keep daily updates on this blog. - Greg Knekleian, HJRO volunteer.

FAAC Equip Report 11/19/14

By Dennis Salliotte

| Item | Currently Held By: | Date Last Verified |
|---|--------------------|--------------------|
| Telescopes | | |
| 4" Dobsonian | George Korody | 1/18/14 |
| 4 ½ " Galileo Alt/Az Reflector | Dennis Salliotte | 11/19/14 |
| 8" Orion 8XTi Dobsonian | Patrick Lawton | 10/23/14 |
| 4" Donated Reflector in need of repair | George Korody | 1/18/14 |
| Presentation Tools | | |
| Projector | Bob MacFarland | 11/19/14 |
| Projection Screen 8' | Bob MacFarland | 11/19/14 |
| Speaker System w/wireless mic | Bob Mac Farland | 11/19/14 |
| Bullhorn | George Korody | 1/18/14 |
| DVD Player | Jim Frisbie | 1/26/14 |
| Projection Screen 6' | Gordon Hansen | 7/13/14 |
| Projector, ViewSonic | Mike Dolsen | |
| Demonstration Tools | | |
| Weight On Planets Scale | George Korody | 1/18/14 |
| Lunar Phase Kit | Bob MacFarland | 11/19/14 |
| 100 ft Scale Model Solar System Kit | Bob MacFarland | 11/19/14 |
| Display Items | | |
| Astronomy Event Sign (3' X 6') | Gordon Hansen | 7/13/14 |
| PVC Display Board - Folding | Tim Campbell | 6/5/14 |
| Banner – Large (32" X 16') | Dennis Salliotte | 11/19/14 |
| Banner – Medium (24" X 72") | George Korody | 9/27/14 |
| Banner – Small (24" X 32") | George Korody | 3/15/14 |
| Tri-Fold Presentation Boards | Don Klaser | 1/23/14 |
| Tri-Fold Poster Board (Early Club Photos) | George Korody | 1/18/14 |
| Other | | |
| Sky Quality Meter | Jon Blum | 9/26/14 |
| Canopy (10' X 10') | Tim Campbell | 8/10/14 |
| Equipment Etching Tool | Gordon Hansen | 4/22/14 |
| Pop Cooler | Michael Dolsen | 10/23/14 |

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