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The "G" in GOES Is What Makes It Go

By Dr. Ethan Siegel

Going up into space is the best way to view the universe, eliminating all the distortionary effects of weather, clouds, temperature variations and the atmosphere's airflow all in one swoop. It's also the best way, so long as you're up at high enough altitudes, to view an entire 50 percent of Earth all at once. And if you place your observatory at just the right location, you can observe the same hemisphere of Earth continuously, tracking the changes and behavior of our atmosphere for many years.

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President's Article

By Tim Campbell

2015 Sirius Award

Each year the club presents the Sirius Award to a club member selected for their volunteer contributions to the club and to the community.

This year, the Sirius Award was presented to Doug Bauer. Doug has been a member of the club for 17 years (having joined in 1998). Doug's list of accomplishments is long, but I'd like to summarize just a few of the highlights.

Doug has previously served as club president for three years, and served an additional three years as secretary. He is currently the membership chairman and manages the membership roster as well as handles all new memberships and membership renewals. He also served as StarStuff newsletter editor and coordinator, reserves our meeting rooms at Henry Ford College, and organizes the annual club picnic.

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STAR STUFF

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STAR STUFF is published eleven times each year by:

FORD AMATEUR ASTRONOMY CLUB
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SECRETARY: Ellen Duncan
TREASURER: Gordon Hansen
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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

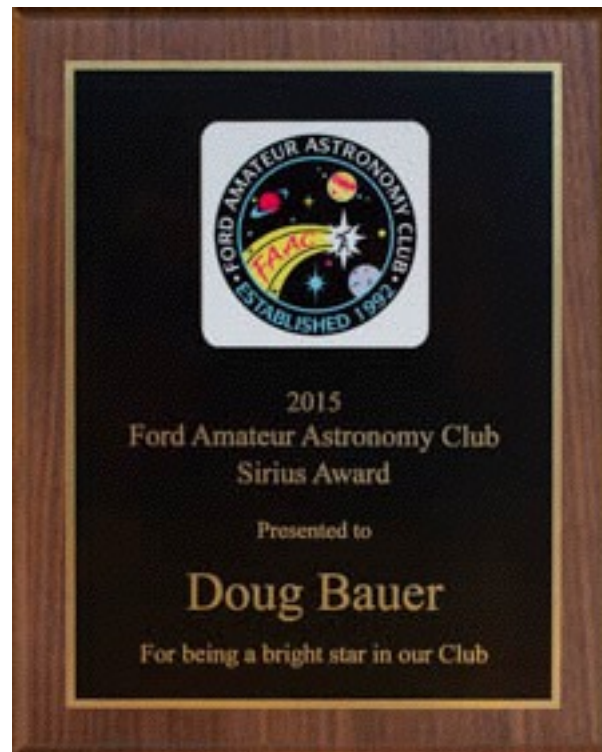
Your submissions to STAR STUFF are welcome! Send your story and/or images to the editor: StarStuff@fordastronomyclub.com Email text or MS Word is fine. STAR STUFF will usually go to press the weekend prior to each general meeting. Submissions received prior to the 15th can be included in that issue.

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

This months 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/>

Additionally, Doug performs a considerable amount of community outreach. Doug has performed some 26 outreach events in just the past few years — and that's not a complete list.



In recognition of these efforts, the club has awarded Doug Bauer the 2015 Ford Astronomy Club Sirius Award.

Shooting Star Award

This past year, on June 7, I received an email. The sender of that email indicated that they would like to donate "...one Celestron Sky Prodigy 90 and one Meade LS 8" ..." along with some other equipment. That email came from Maria Comninou. I asked George Korody if he would contact Maria — since (at that time) she did not live far from George and Pat Korody.

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Image credit: National Oceanic and Atmospheric Administration, of the first image ever obtained from a GOES satellite. This image was taken from over 22,000 miles (35,000 km) above the Earth's surface on October 25, 1975.

The "G" in GOES Is What Makes It Go

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The trick, believe it or not, was worked out by Kepler some 400 years ago! The same scientist who discovered that planets orbit the sun in ellipses also figured out the relationship between how distant an object needs to be from a much more massive one in order to have a certain orbital period. All you need to know is the period and distance of one satellite for any given body, and you can figure out the necessary distance to have any desired period. Luckily for us, planet Earth has a natural satellite—the moon—and just from that information, we can figure out how distant an artificial satellite would need to be to have an orbital period that exactly matches the length of a day and the rotational speed of Earth. For our world, that means an orbital distance of 42,164 km (26,199 miles) from Earth's center, or 35,786 km (22,236 miles) above mean sea level.

We call that orbit geosynchronous or geostationary, meaning that a satellite at that distance always remains above the exact same location on our world. Other effects—like solar wind, radiation pressure and the moon—require onboard thrusters to

maintain the satellite's precisely desired position above any given point on Earth's surface. While geostationary satellites have been in use since 1963, it was only in 1974 that the Synchronous Meteorological Satellite (SMS) program began to monitor Earth's weather with them, growing into the Geostationary Operational Environmental Satellite (GOES) program the next year. For 40 years now, GOES satellites have monitored the Earth's weather continuously, with a total of 16 satellites having been launched as part of the program. To the delight of NASA (and Ghostbusters) fans everywhere, GOES-R series will launch in 2016, with thrice the spectral information, four times the spatial resolution and five times the coverage speed of its predecessors, with many other improved capabilities. Yet it's the simplicity of gravity and the geostationary "G" in GOES that gives us the power to observe our hemisphere all at once, continuously, and for as long as we like!

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

Treasurer's Report

May 23, 2015

By Gordon Hansen

May 23, 15

ASSETS

Current Assets

Checking/Savings

10000 · Checking 806.02

11000 · FAAC Savings

11100 · FAAC Club Savings 1,561.21

11200 · Equipment 1,942.70

11300 · Scholarship 435.26

11400 · GLAAC 5,566.18

Total 11000 · FAAC Savings 9,505.35

12000 · Petty Cash Account 196.13

13000 · CD's

13100 · CD 200599272 1,061.61

13200 · CD 205196033 1,006.32

13300 · CD 89265268 1,109.73

Total 13000 · CD's 3,177.66

Total Checking/Savings 13,685.16

Total Current Assets 13,685.16

Meeting Agenda - May 28th

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

Opening/Introduction/Member Observing

Main Presentation:

Tech Talk:

Club Projects/Committees/Member Support

Club Business/Secretary/Treasurer/Equipment Reports

President's Article

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The donation of equipment turned out to be far more substantial than anyone could have suspected. Everything was in working order and most was in new or like-new condition. It took a volunteer group of three people (George Korody, Bob MacFarland, and Doug Bauer) several months simply to inventory, categorize, and test each piece of equipment and identify a custodian in the club to care for each piece of equipment and ensure the equipment is maintained and available for use either to club members and/or for our many outreach events.

Such a generous gift cannot go without proper recognition. We had hoped Maria and her husband would be our guests at the annual club banquet where we had intended to present the award, but that was not to be. Maria had contacted George Korody and mentioned that there was one more item she wished to donate — a Garrett binocular telescope — and asked George if he could come by to collect the equipment. George seized the opportunity and asked me to come along so that we could present the award in person since Maria would not be at the banquet (Maria did not know we intended to present an award.)

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

Topics invited. Pizza served.

FAAC Events 2015

June 11th - Astro SIG Meeting

June 20th - Beginner's Night at Island Lake

June 25th - General Meeting

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.

President's Article

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The inscription on the plaque reads:

Thank you for being who you are and
for the things you have done.
Your gifts will touch the lives of those
who gaze at the stars and dare to
wonder at it all.

Dr. Tim Dey wrote the inscription. The award was presented in person to Maria on April 26.



FAAC Equip Report 5/13/15

By Dennis Salliotte

<u>Item</u>	<u>Currently Held By:</u>	<u>Date Last Verified</u>
<u>Telescopes</u>		
4" Dobsonian (Harold's donation)	George Korody	1/22/15
<u>Presentation Tools</u>		
Projector (older)	Jim Frisbie	1/6/15
Projection Screen 8'	Bob MacFarland	5/13/15
Speaker System w/wireless mic	Bob MacFarland	5/13/15
Bullhorn	George Korody	1/22/15
DVD Player	Jim Frisbie	1/6/15
Projection Screen 6'	Mike Dolsen	4/23/15
Projector, ViewSonic	Gordon Hansen	5/13/15
<u>Demonstration Tools</u>		
Weight On Planets Scale	George Korody	1/22/15
Lunar Phase Kit	Bob MacFarland	5/13/15
100 ft Scale Model Solar System Kit	Bob MacFarland	5/13/15
<u>Display Items</u>		
Astronomy Event Sign (3' X 6')	Gordon Hansen	5/13/15
PVC Display Board - Folding	Sandra Macika	4/13/15
Banner – Small (24" X 32")	George Korody	1/22/15
Banner – Medium (24" X 72")	Sandra Macika	4/30/15
Banner – Large (32" X 16')	Dennis Salliotte	5/13/15
Tri-Fold Presentation Boards	Don Klaser	1/22/15
Tri-Fold Poster Board (Early Club Photos)	George Korody	1/22/15
<u>Other</u>		
Canopy (10' X 10')	Tim Campbell	4/2/15
Equipment Etching Tool	Greg Ozimek	4/2/15
Pop Cooler	Michael Dolsen	4/23/15
<u>EQUIPMENT KITS</u>		
<u>Telescopes</u>		
TK3 Celstrn 130 Newt Goto mount	Liam Finn	2/13/15
TK4 Clstrn 90 Refrctr w/man mount	Liam Finn	2/13/15
TK5 4 1/2 " Reflector, on Fitz GEM mount	George Korody	1/22/15
TK6 8" Orion 8XTi Dobsonian	Patrick Lawton	2/13/15
<u>Binoculars</u>		
BK3 15x70 binocs, monopod mount	Bob MacFarland	5/13/15
BK4 20x80 binocs, altaz goto mount	Sandra Macika	2/5/15
BK5 25x70 binocs w/tripod adaptor	Tim Dey	2/13/15

FAAC Equip Report 4/12/15

By Dennis Salliotte

<u>Eyepiece Kit</u>		
EPK1 Eyepieces, filters & accesories	Liam Finn	2/13/15
<u>Other</u>		
TA Sky Quality Meter	Syed Saifullah	2/14/15
TA Sky Atlas 2000.0	Tim Dey	2/13/15
TA Orion telescope binoviewer	Liam Finn	2/13/15
<u>Lincoln Park Observatory</u>		
LPO Celestron binoviewer #93691	Tim Dey	3/16/15
LPO Celestron 2X 1.25" Barlow	Tim Dey	3/16/15
<u>Imaging SIG</u>		
C1 Celestron NexImage Solar System Imager model #93712	Gordon Hansen	5/13/15
C2 Meade Deep Sky Imager PRO III w/AutoStar Suite	Gordon Hansen	5/13/15
C3 Orion StarShoot Deep Space Video Camera NTSC #52185 w/video capture device #52178	Gordon Hansen	3/16/15
C4 Meade Electronic Eyepiece w/cable to a video monitor, VCR or TV. Pairw#43 AND Meade 3.5" LCD Color Monitor Kit # 07700 Complete (unused). Pair w#34	Gordon Hansen	5/13/15
C5 Orion StarShoot Deep Space Video Camera II #52195 AND Orion StarShoot iPhone Control for Deep Space Video Camera II #52195	Gordon Hansen	5/13/15
CA1 Rigel Systems Spectroscope	Gordon Hansen	5/13/15
CA2 Celestron 1.25" to T-Adapter(male thread) Model #93625	Gordon Hansen	5/13/15
CA3 Canon EOS deluxe astrophoto kit FOR Canon bayonet T-thread adapter ans variable 1.25" extender	Gordon Hansen	5/13/15
CA4 Orion StarShoot LCD-DVR #58125 2.5" LCD screen	Gordon Hansen	5/13/15
CA5 Celestron Canon EOS T-ring adapter #93419	Gordon Hansen	5/13/15
<u>Special Event Use Only- Not Available For Loan Out</u>		
TK1 Coronado PST solar scope w/double stack, Meade Autostar Goto mount & tripod and accessories	John McGill	1/22/15
TK2 Meade 8" ETX-LS-ACF w/tripod, voice assist, computerized GPS plus MANY (35+) accessories	Tim Dey	2/13/15
BK1 Orion BT-100 binocular telescope w/hard case, Orion VersaGo h.d. man altaz mount w/Vixen dovetail head and Vixen style binocular holder bracket	Ken Anderson	1/11/15
BK2 Zhumell 25x100 binoculars, hard case & Zhumell TRH-16 tripod w/soft fabric bag	Sandra Macika	2/5/15
TAK1 Night Vision Intensification binocular unit	George Korody	1/22/15
Dennis Salliotte equipment@fordastronomyclub.com		

FAAC General Meeting Minutes, April 23, 2015

By Ellen Duncan

Tim Campbell called the meeting to order at 5:30 p.m. Everyone introduced themselves, and there were no guests or new members.

Several members talked briefly about their observing experiences since the March meeting. Doug Bock talked about his observing and imaging up at Boone Hill last week. Chris Strang, Mike Dolsen, , and Chuck Jones went up to Port Crescent dark skies area, which they said was pretty nice sky-wise, and they interacted with about 80 members of the public. Tim Dey was part of the Astronomy Day outreach at the Michigan Science Center, and he and others were able to show Jupiter to hundreds of people. Last Friday HJRO was opened, but there were problems with the motor, which now needs repair.

Dale Partin reported that the Warren Astronomical Society has copied our practice of donating scholarship funds to college science students. Way to go, Warren!

Tim Campbell presented "What's Up in May" which included observing suggestions such as the moon phases, the anniversary of the first American in space on May 5, May 7 Mercury will be at greatest eastern elongation, May 23 saturn will be at opposition, Jupiter in in cancer midMay, Eta Aquarid meteor shoer peaks May 5-7.

After Dennis Salliotte gave an update about the club's equipment, and George Korody added that the club binoculars that were sent in for repair have been replaced by the company, we took a break to tidy up pizza and pop detritus.

Steve Flessa gave the main presentation called "In the Shadow of the Moon," explaining something about solar eclipses. He also recommended websites about past and upcoming eclipses (2017, 2024, etc.): MrEclipse.com , eclipse.gsfc.nasa.gov/solar , GreatAmericanEclipse.com , eclipsewise.com , and a couple of books: Totality: Eclipses of the Sun by Littman, Wilcox, and Espenak (1999), and Observe Eclipses by Reynolds and Sweetsir (1995)

Don Klaser presented a tech talk on Antikythera Mechanism, an analog computer used to predict astronomical events built between 200 and 100 BC, discovered in 1900 in the Aegean Sea. He included a YouTube video demonstrating a Lego model of the mechanism.

Ellen Duncan said that last month's minutes are available in Star Stuff, the club newsletter available online. The treasurer's report is also in Star Stuff. Tim then showed us where to find more than 70 episodes of the program Astronomy for Everyone available on YouTube. When people subscribe to Astronomy for Everyone on YouTube, it helps the club's and the program's exposure.

Upcoming events:

*Canceled: April 24 Livonia Franklin High School Outreach

*April 25: Astronomy Day-

**Kensington Metropark Nature Center (Daytime Solar)

**Michigan Science Center (Daytime Solar)

**Beginners' Night at Lake Erie Metropark Nature Center (Evening/Night)

*May 2: FAAC annual Banquet at Karl's Cabin

*May 11: Taylor West Middle School Outreach (8 am - noon)

*May 23: Beginners' Night at Island Lake State Park (Spring Mill Pond site)

George recommended the Kensington Astronomy Day outreach as a lot of fun. Also more volunteers are needed to help plan Astronomy at the Beach for September.

Tim adjourned the meeting at 7:46 p.m.

Ford Amateur Astronomy Club
Star Stuff Newsletter
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