



Volume 25, Number 10

October 2015

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next lunar eclipse

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## How we know Mars has liquid water on its surface

By Ethan Siegel

Of all the planets in the solar system other than our own, Mars is the one place with the most Earth-like past. Geological features on the surface such as dried up riverbeds, sedimentary patterns, mineral spherules nicknamed "blueberries," and evidence of liquid-based erosion all tell the same story: that of a wet, watery past. But although we've found plenty of evidence for molecular water on Mars in the solid (ice) and gaseous (vapor) states, including in icecaps, clouds and subsurface ices exposed (and sublimated) by digging, that in no way meant there'd be water in its liquid phase today.

Sure, water flowed on the surface of Mars during the first billion years of the solar system, perhaps producing an ocean a mile deep, though the ocean presence is still much debated. Given that life on Earth took hold well within that time, it's conceivable that Mars was once a rich, living planet as well.

*(continued on Page 3)*

## President's Article

By Tim Campbell

### Three Schools and a Metropark

Now that the fall colors have arrived, we're at the end of the club's regular observing season. We've had our final "Beginner's Night" of the year and annual outreach for Lake Erie Metropark "Eerie Skies" — with an indoor Astronomy 101 presentation followed by a cool crisp evening with telescopes under mostly cooperative skies (the occasional patch of clouds.)

We've also been rather busy with school outreach events...

Each year we do an outreach for West Middle School in Taylor. This year Dennis Salliotte, Rick Azardon, and myself were there with telescopes, and Sandra Macika did her "Shooting Stars" presentations indoors — every period of the day — for a total of 300 students.

*(continued on Page 2)*

# STAR STUFF

October 2015 - Vol. 25 No 10

STAR STUFF is published eleven times each year by:

**FORD AMATEUR ASTRONOMY CLUB**  
P.O. Box 7527  
Dearborn MI 48121-7527

PRESIDENT: Tim Campbell  
VICE PRESIDENT: Tim Dey  
SECRETARY: Ellen Duncan  
TREASURER: Gordon Hansen  
WEBMASTER: Greg Ozimek  
NEWSLETTER EDITOR: Jennifer Monske

## 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](http://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](mailto: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](mailto: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/>

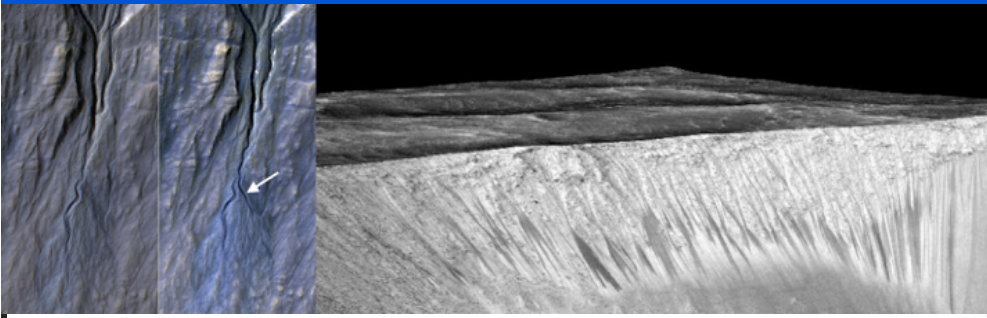
The images are from the Taylor school event (with photo credits to Rick Aazardon. Thanks Rick!)



Liam Finn organized an outreach event for Spiritus Santus academy in Plymouth. I arrived a bit late at that event to discover a fire-pit and quite a large number of students and parents (not to worry... nobody was sacrificed in the fire pit). I believe Liam was predicting 60 attendees but do not have a final count. Liam Finn, John McGil, and Rick Azardon were all there (I apologize if I missed any other club members).



(continued on Page 4)



*Images credit: NASA/JPL-Caltech/Univ. of Arizona, of a newly-formed gully on the Martian surface (L) and of the series of gullies where the salt deposits were found (R).*

## How we know Mars has liquid water on its surface

*(continued from Page 1)*

But unlike Earth, Mars is small: small enough that its interior cooled and lost its protective magnetic field, enabling the sun's solar wind to strip its atmosphere away. Without a significant atmosphere, the liquid phase of water became a virtual impossibility, and Mars became the arid world we know it to be today.

But certain ions—potassium, calcium, sodium, magnesium, chloride and fluoride, among others—get left behind when the liquid water disappears, leaving a “salt” residue of mineral salts (that may include table salt, sodium chloride) on the surface. While pure liquid water may not persist at standard Martian pressures and temperatures, extremely salty, briny water can indeed stay in a liquid state for extended periods under the conditions on the Red Planet. It's more of a “sandy crust” like you'd experience on the shore when the tide goes out than the flowing waters we're used to in rivers on Earth, but it means that under the right temperature conditions, liquid water does exist on Mars today, at least in small amounts.

The measured presence and concentration of these salts, found in the dark streaks that come and go on steep crater walls, combined with our knowledge of how water behaves under certain physical and chemical conditions and the observations of changing features on the Martian surface supports the idea that this is the action of liquid water. Short of taking a sample and analyzing it in situ on Mars, this is the best current evidence we have for liquid water on our red neighbor. Next up? Finding out if there are any single-celled organisms hardy enough to survive and thrive under those conditions, possibly even native to Mars itself!

*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 October 13, 2015

By Gordon Hansen

Oct 13, 15

### ASSETS

#### Current Assets

##### Checking/Savings

10000 · Checking 156.06

##### 11000 · FAAC Savings

11100 · FAAC Club Savings 1,300.70

11200 · Equipment 2,160.70

11300 · Scholarship 302.26

11400 · GLAAC 6,489.37

Total 11000 · FAAC Savings 10,253.03

12000 · Petty Cash Account 99.83

##### 13000 · CD's

13100 · CD 200599272 1,062.67

13200 · CD 205196033 1,007.32

13300 · CD 89265268 1,111.11

Total 13000 · CD's 3,181.10

Total Checking/Savings 13,690.02

Total Current Assets 13,690.02

**TOTAL ASSETS 13,690.02**

## Meeting Agenda - October 22nd

HFC – Berry Auditorium -Admin. Services & Conference Center [www.fordastronomyclub.com](http://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

(continued from Page 2)

I spent the day on Friday doing indoor astronomy presentations for Lincoln Park Middle School 8th grade science students and we've got an observatory day planned for them on October 19 (which will already have happened by the time you read this article.) I don't have a student count but it should be about 300 students.

These events are always a big hit with the students — many of whom have never looked through a telescope before.

This closes out the regular cadence of monthly beginner's nights for the 2015 season.

After the regularly monthly club meeting on October 22nd (always the 4th Thursday of each month), we combine the November & December meetings because the regular meeting for November would occur on Thanksgiving Day and the regular meeting for December would occur on Christmas Eve. The combined November/December meeting will be held on the first Thursday of December which will be December 3.

The (somewhat) traditional theme for that meeting will be a show & tell for useful astronomy items (the sort of items that might make good gifts.) If you've got any cool gadgets, devices, software, etc. that you could briefly show off ("Show & Tell" style — not a presentation, just a few minutes), let us know and bring it/them to the November/December meeting.

## 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 **November 12th**. The meeting room location – HFCC Admin. Services and Conference Center (same building), Berry Amphitheater Auditorium.

Topics invited. Pizza served.

## FAAC Events 2015

**November 12th - Astro SIG - HFC 5:30p**

**December 3rd - General Meeting - HFC 5:30p**

**December 10th - Astro SIG - HFC 5:30p**

*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.

## Classified

### Dobstuff Telescope For-Sale

with a 16 inch -- 1.5 inch thick -- F4.5 mirror

from a Meade Equatorial Starfinder  
Built in September 2011

6 point all aluminum mirror cell  
2-speed 2-inch Moonlite Focuser  
Destiny curved 3 vane Spider  
3.1 inch Coulter Secondary

This is a Push-To Telescope with Homemade Digital Setting Circles (DSC) using a Tungsten T3 Palm Pilot.

Paperwork, history of mirror, sketches, drawings, etc.

All in a 3-ring binder..

Have over \$2100 invested...Selling for \$1875

Rick Arzadon – N8XI  
6056 Hipp  
Taylor, MI 48180  
email: n8xi@juno.com  
Telephone: 313-561-4839



# FAAC Equip Report 10/1/15

By Dennis Salliotte

<u>Item</u>	<u>Currently Held By:</u>	<u>Date Last Verified</u>
<b><u>Telescopes</u></b>		
4" Dobsonian (Harold's donation)	George Korody	1/22/15
<b><u>Presentation Tools</u></b>		
Projector (older)	Jim Frisbie	6/30/15
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	Tim Campbell	9/25/15
<b><u>Demonstration Tools</u></b>		
Weight On Planets Scale	George Korody	9/26/15
Lunar Phase Kit	Bob MacFarland	5/13/15
100 ft Scale Model Solar System Kit	Bob MacFarland	5/13/15
<b><u>Display Items</u></b>		
Astronomy Event Sign (3' X 6')	Gordon Hansen	5/13/15
PVC Display Board - Folding	Dennis Salliotte	10/1/15
Banner – Small (24" X 32")	George Korody	1/26/15
Banner – Medium (24" X 72")	George Korody	9/26/15
Banner – Large (32" X 16')	George Korody	9/26/15
Tri-Fold Presentation Boards	Don Klaser	8/12/15
Tri-Fold Poster Board (Early Club Photos)	George Korody	1/22/15
<b><u>Other</u></b>		
Canopy (10' X 10')	Tim Campbell	4/2/15
Equipment Etching Tool	Greg Ozimek	4/2/15
Pop Cooler	Michael Dolsen	9/24/15
<b><u>EQUIPMENT KITS</u></b>		
<b><u>CARETAKER</u></b>		
<b><u>Telescopes</u></b>		
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	Jennifer Monske; CARETAKERSHIP IS AVAILABLE	9/11/15
TK1 Coronado PST solar scope w/double stack, Meade Autostar Goto mount & tripod and accessories	John McGill	1/22/15
Binoculars		
<b>BK3 15x70 binocs, monopod mount</b>	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 10/1/15

By Dennis Salliotte

Item	Currently Held By:	Date Last Verified
<b>Eyepiece Kit</b>		
EPK1 Eyepieces, filters & accesories	Liam Finn	2/13/15
<b>Other</b>		
TA Sky Quality Meter	Syed Saifullah	6/22/15
TA Sky Atlas 2000.0	Tim Dey	2/13/15
TA Orion telescope binoviewer	Liam Finn	2/13/15
<b><u>Lincoln Park Observatory</u></b>		
LPO Celestron binoviewer #93691	Tim Dey	3/16/15
LPO Celestron 2X 1.25" Barlow	Tim Dey	3/16/15
<b>Imaging SIG</b>		
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
<b><u>Special Event Use Only- Not Available For Loan Out</u></b>		
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	5/15/15
BK2 Zhumell 25x100 binoculars, hard case & Zhumell TRH-16 tripod w/soft fabric bag	Sandra Macika	2/5/15
Dennis Salliotte equipment@fordastronomyclub.com		

**REMINDER: FAAC membership renewals are due by January 31, 2016.**

Annual – New Member: \$30

Annual – Renewal: \$25 (\$30 after January 31)

Send your check for \$25 to:

FAAC

P.O. Box 7527

Dearborn, MI 48121-7527

Or bring your money to the next FAAC General Meeting at 5:30 PM in the Berry Amphitheater Auditorium in the Administrative Services and Conference Center on the campus of Henry Ford College.

Membership includes the *STAR STUFF* newsletter, discounts on magazines, discounts at selected area equipment retailers, and after-hours access to the Island Lake and Lake Erie Metropark observing sites, use of the FAAC Yahoo Group, and mentoring program.

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