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Exploring the Water World

by Diane K. Fisher

In some ways, we know more about Mars, Venus and the Moon than we know about Earth. That's because 70% of our solar system's watery blue planet is hidden under its ocean. The ocean contains about 98% of all the water on Earth. In total volume, it makes up more than 99% of the space inhabited by living creatures on the planet.

As dominant a feature as it is, the ocean—at least below a few tens of meters deep—is an alien world most of us seldom contemplate. But perhaps we should.

The ocean stores heat like a “fly wheel” for climate. Its huge capacity as a heat and water reservoir moderates the climate of Earth. Within this Earth system, both the physical and biological processes of the ocean play a key role in the water cycle, the carbon cycle, and climate variability.

This great reservoir continuously exchanges heat, moisture, and carbon with the atmosphere, driving our weather patterns and influencing the slow, subtle changes in our climate.

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President's Corner

by Gordon Hansen

Its April and our crowded season of events begins. April 20th is Astronomy Day which we celebrate by putting on two public events during the daylight hours: outside the Michigan Science Center (now re-opened!) and at the Nature Center at Kensington MetroPark. It's a great way to introduce others to our great hobby. We cap that day off with our first Beginner's Night at Island Lake starting at 7 pm. This is the first of our monthly events that run from spring till fall. We're changing the routine slightly this year.

Two of the events will be held at Lake Erie MetroPark (NOT Island Lake.) We're holding these events at Lake Erie in recognition of their granting us permits to use the park after hours for observing. If you are interested in observing there, Tim Dey has the permits and will be glad to issue one to you. Post a note on the Yahoo Group if you would like one. You must have the permit in your possession to be in the park past 10 pm.

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STAR STUFF

April 2013 - Vol. 23 No 4

STAR STUFF is published eleven times each year by:

FORD AMATEUR ASTRONOMY CLUB
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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 Community 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 at jenzdanowski@yahoo.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 more! URL: groups.yahoo.com/group/FordAstronomyClub.

President's Corner

(continued from Page 1)

The first of the Beginner's Nights held at Lake Erie this year is on May 18th will be advertised by the park as Stars Over Lake Erie. Beyond our normal observing, we will put on a presentation of Astronomy 101 and a basic equipment overview for the public. This event will be publicized by the park so can expect more "newbies" than our normal event. The second one will be held on October 12th - Erie Skies. The same program will be held that evening also.

The remaining Beginner's Nights will be held at Island Lake on June 15th, July 13th, and August 10th (Club Picnic!) As usual Astronomy at the Beach (September 27th & 28th) replaces our event in September.

If you haven't done so already, time is running out on making reservations for the annual club banquet. We'll hold the event on May 4th at Karl's Cabin starting at 6 pm. the cost is \$35/person - details can be found in the Files section of Yahoo. Please contact me at for reservations.

President@fordastronomyclub.com

Vunteer Needed: After several years of tirelessly bringing pop to our meetings, Ellen Duncan is stepping down. Thank you Ellen for doing this for so long! If you can manage the time each month to perform this needed task please see me.

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

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



Aug 26, 2012

This image from September 2012, shows that the Arctic sea is the smallest recorded since record keeping began in 1979. This image is from NASA's Scientific Visualization Studio at Goddard Space Flight Center.

Exploring the Water World

(continued from Page 1)

The study of Earth and its ocean is a big part of NASA's mission. Before satellites, the information we had about the ocean was pretty much "hit or miss," with the only data collectors being ships, buoys, and instruments set adrift on the waves.

Now ocean-observing satellites measure surface topography, currents, waves, and winds. They monitor the health of phytoplankton, which live in the surface layer of the ocean and supply half the oxygen in the atmosphere. Satellites monitor the extent of Arctic sea ice so we can compare this important parameter with that of past years. Satellites also measure rainfall, the amount of sunlight reaching the sea, the temperature of the ocean's surface, and even its salinity!

Using remote sensing data and computer models, scientists can now investigate how the oceans affect the evolution of weather, hurricanes, and climate. In just a few months, one satellite can collect more information about the ocean than all the ships and buoys in the world have collected over the past 100 years!

NASA's Earth Science Division has launched many missions to planet Earth. These satellites and other studies all help us

understand how the atmosphere, the ocean, the land and life—including humans—all interact together.

Find out more about NASA's ocean studies at <http://science.nasa.gov/earth-science/oceanography>. Kids will have fun exploring our planet at The Space Place, <http://spaceplace.nasa.gov/earth>.

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

Treasurer's Report

April 12, 2013

By Chuck Jones

Ford Amateur Astronomy Club
Balance Sheet
 As of April 12, 2013

Apr 12, 13

ASSETS

Current Assets	
Checking/Savings	
CD 200599272	1,056.86
CD 205196033	1,002.01
CD 89265268	1,103.54
Checking	2,919.03
FAAC Savings	
Equipment	1,301.08
Scholarship	319.06
Total FAAC Savings	1,620.14
Petty Cash Account	117.20
Total Checking/Savings	7,818.78
Other Current Assets	
GLAAC	2,741.29
Total Other Current Assets	2,741.29
Total Current Assets	10,560.07
TOTAL ASSETS	10,560.07
LIABILITIES & EQUITY	0.00

Club Wear

You can order online from LL Bean, using the instructions contained in a file that you can view on our club Yahoo Group website Club Wear file folder at

<http://tech.groups.yahoo.com/group/FordAstronomyClub/files/Club%20Ware/>

Meeting Agenda - April 25th

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

Opening/Introduction/Member Observing

Tech Talks:

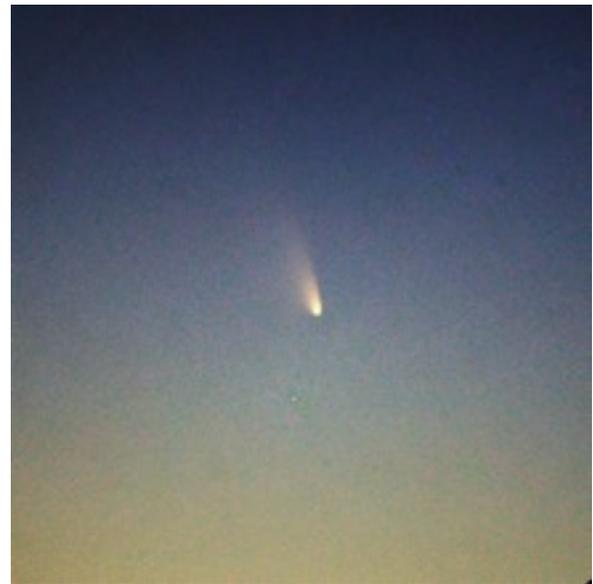
LX200 Experience	Jim Frisbie
Planetarium Software – Overview	George Korody
Tellus Museum - Georgia	Frank Ancona

Club Projects/Committees/Member Support

Club Business/Secretary/Treasurer/Equipment Reports

Adjourn to the Planetarium

Member Photos



Above, photo taken by Brian Kutscher of Comet PanSTARRS on March 14th at 8:34 pm from "The Hill" in Allen Park, MI. It was made with a Canon EOS 30D digital camera, fitted with a 70-300 mm Canon zoom lens, set at 300 mm. It was a single five second exposure, with the lens set at f/5.6. Because the Canon 30D is not a full frame sensor camera, the effective focal length of the lens is 500mm. Because the image is cropped, the field of view is about what a very "fast" 875mm lens would show to a viewer. The camera was piggyback mounted on an 8 inch Celestron telescope with an Orion equatorial mount, which kept the camera pointed at the target for the five second exposure.

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 **May 9th**. The meeting room location - HFCC Admin. Services and Conference Center (same building), Berry Amphitheater Auditorium.

Topics invited. Pizza served.

FAAC Events 2013

Saturday May 4th - Club Banquet

**Sunday May 5th - Sean FitzGerald's Memorial
at the Gaelic League in Detroit**

**Friday May 10th & Saturday May 11th - Point
Crescent State Park in the Thumb**

**Saturday May 18th - Beginner's Night at Island
Lake**

**Saturday June 15th - Beginner's Night at Island
Lake**

**Saturday July 13th - Beginner's Night at Island
Lake**

*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.

More Member Photos



Above: Photo taken by Greg Knekleian through Ken Anderson's large Dob. No processing. 20mm Ethos eyepiece in lens discovery.

FAAC General Meeting Minutes

March 28th, 2013

By Jim Frisbie

Opening:

The meeting was called to order in the Berry Auditorium at 5:30 pm by President, Gordon H. All attendees introduced themselves. Gordon H. welcomed new members and guests. Members contributed their observing experiences. Comets PanSTARRS and Ison were discussed.

Whats Up in March?

President Gordon H. presented interesting objects for viewing in April.

Business Meeting:

- Secretary's Report in Star Stuff - Approved
- Treasurers Report in Star Stuff - Approved
- . SWAP Meet was discussed. Best Ever! with \$782 profit
- The Club received a thank you from the 7 Ponds Club for participation in their recent event.

Projects and Events:

- April 5,6: Lake Hudson – Dark Sky Observing – Messier Marathon
- April 12: Lake St. Claire: Sidewalk Astronomy
- April 20: Astronomy Day (Beginner's Night) Day: Michigan Science Center & Kensington Night: Island Lake
- May 4, 6 pm-?: FAAC Banquet, at Karls' Kabin, (See flyer on Club sites).
- May 5: Sean FitzGerald's Memorial at the Gaelic League in Detroit
- May 10 & 11: Point Crescent State Park in the Thumb

George & Pat Korody requested prize donations to be presented at the Club Banquet. Business meeting closed at 6:30 pm and group moved to the Planetarium.

Main Program:

HFCC Planetarium Spring Show

The meeting was adjourned by President, Gordon H. after the Planetarium Presentation.

FAAC Equipment List 4-10-13 provided by Dennis Salliotte

<u>Item</u>	<u>Currently Held By:</u>	<u>Date Last Verified</u>
<u>Telescopes</u>		
4" Dobsonian	George Korody	2/7/13
4 1/2 " Galileo Alt/Az Reflector	James French	4/10/13
8" Orion 8XTi Dobsonian	Matthew Kehoe	4/3/13
4" Donated Reflector in need of repair	George Korody	4/4/13
<u>Presentation Tools</u>		
Projector	Gordon Hansen	4/10/13
Projection Screen	Bob MacFarland	3/12/13
Speaker System w/wireless mic	Bob MacFarland	3/12/13
Bullhorn	Gordon Hansen	4/10/13
DVD Player	Gordon Hansen	4/10/13
<u>Demonstration Tools</u>		
Weight On Planets Scale	George Korody	2/7/13
Lunar Phase Kit	Bob MacFarland	3/12/13
100 ft Scale Model Solar System Kit	Bob MacFarland	3/12/13
<u>Display Items</u>		
Astronomy Event Sign (3' X 6')	Gordon Hansen	4/10/13
PVC Display Board - Folding	Bob MacFarland	4/4/13
Banner – Large (32" X 16')	Bob MacFarland	3/12/13
Banner – Medium (24" X 48")	Bob MacFarland	3/12/13
Banner – Small (24" X 32")	Bob MacFarland	3/12/13
Tri-Fold Presentation Boards	Don Klaser	3/13/13
Tri-Fold Poster Board (Early Club Photos)	George Korody	2/7/13
<u>Other</u>		
Sky Quality Meter	Syed Saifullah	3/8/13
Canopy (10' X 10')	Greg Ozimek	4/10/13
Equipment Etching Tool	Dennis Salliotte	4/10/13

HJRO Update

by Greg Knekleian

Auto-Guide Test at HJRO

Mike Rousseu brought out his auto guiding camera to HJRO and he, George Korody and Tim Dey tested the observatory mount by taking test photos.

I spent much of the month doing little observing trips nearby and playing a bit with some visual features of my Nexstar 4SE. Syed Saifullah called me up and let me know that he spotted a used Televue 55mm Plossl on Astro Mart and he recalled I was interested in getting one of these. He asked if I wanted him to get the eyepiece as he put in the first request about it with the seller. I told him to pick it up and I could cut him a check. I seriously wanted to check this out and compare it with the Harold Wonder eyepiece which is a homebuilt or repurposed eyepiece that I thought was about 60mm.

I found that my Nexstar 4SE would act up with the battery convertor but actually worked with an AC power supply convertor. So I did a few tests with the little Nexstar 4SE and AC power supplies or an inverter from my car. I was able to get the SKYFI to control the little Nexstar, but had some issues getting it EQ aligned quickly due to a lack of a good polar scope for the "tilting" mount.

I did a lot of visual observing and also took a nice early morning photo of Comet Panstarrs from HJRO using the C14.

Comet Panstarrs continues to get fainter but also higher each day during the morning hours. One of my early observing sessions allowed me to use the new (used) Tele Vue 55mm Plossl, the Harold Wonder eyepiece and a Swan 40mm 72 degree field of view eyepiece to observe Panstarrs through the C14.

One of our regular visitors, James French, bought a couple of telescopes at the FAAC swap meet. We made a visit to Harold Thomason to look at James' F8 six inch Newtonian, check the mirror mount and align the optics. Later that week James and I took a trip to Lake Erie Metro Park. Although conditions were poor and there were a lot of clouds we could verify the optics on his 6 inch F8 reflector were performing well and no further star alignment was necessary for that evening.

James had a goal of observing all the Messier objects this year. We spent about an hour one night at HJRO and James saw about 22 Messier objects and added them to his observing log.

Tim Dey has been working out the details to get an Orion Auto guiding camera. Funds from a stalled project to paint the outside of the observatory and a donation from High School teacher, Leo McMaster will allow us to add that camera for auto guiding capability.

I spent one evening at my friend's house in Dexter under clear skies. I setup the Nexstar 4SE and my Vixen Binocular telescope. I was able to observe for a short time under clear crisp skies and my friend and his 14 year old son joined me to view a few objects. The SKYFI controller and Sky Safari worked well during that session.

OBSERVING SURPRISES

This was the first time I ever had an observer tell me they could see the Orion Nebula cloud without an optical aid. My friend's son, Eli claimed he could see the nebula without binoculars or a telescope.

I was also shocked later in the month to hear another observer claim he never saw the bands of Jupiter, even when viewing it through the C14 at HJRO.

HJRO Update (continued)

Tele Vue Plossl vs. Harold Wonder

During my trip to Harold's house I mentioned that I looked forward to observing and comparing the Harold "Wonder" eyepiece to the Tele Vue 55mm Plossl. Harold replied, I never should have given you that eyepiece. Perhaps he thought my testing would be excessive.

Once I picked up the Tele Vue, I was able to compare the two eyepiece. This comparison was limited to two nights and I didn't have a chance to use them both on "Big Bertha", an F5.35 Schmidt Newtonian.

The first night I tested the Harold "Wonder" vs. the Tele Vue Plossl I also tried out the observatory's William's Optics Swan 40mm wide field eyepiece. All three eyepieces are in the two inch format.

F11 C14 test: The actual field of view is almost identical for all three eyepieces. They all seem to show identical star fields which is rather surprising. I thought the Harold "Wonder" and Tele Vue would give a wider field of view than the 40mm Swan, but this was not the case. At F11 all three eyepieces performed essentially the same. The Apparent Field of view however was different for the three eyepieces. For the Tele Vue Plossl the field of view was 50 degrees. For the Harold Wonder, the field of view looked almost the same for the F11 configuration (but not the same for shorter faster configurations.) The Swan eyepiece offered a much wider immersive experience.

Viewing Jupiter showed pleasant views in all three eyepieces. None of these eyepieces would be considered a planetary eyepiece, due to their low power. M42 shows a more immersive experience with the Swan eyepiece. The others offered nice views of M42 as well at F11. A wide field target like M44 will show stars flat out to the edge of the field in all three eyepieces.

The Harold "Wonder" eyepiece surprised me, performing much better than I expected. The Televue offered a slightly sharper more defined star images, the view was flatter. It was a subtle difference like looking at something with averted vision, almost subliminal in the difference, difficult to clearly see. Most viewers would not see much of a quality difference between the Tele Vue 55mm and the other two eyepieces. The Harold Wonder has a bigger exit cone of light and that also presents a problem; more of a shadow effect occurs with the "Harold Wonder", showing a secondary shadow or shadow that at times looks like a "mirror test" shadow.

During the second night of testing, I was able to view the moon and M42 with the Harold "Wonder" and the Televue 55mm Plossl. Seeing conditions were very poor however, so it was difficult to judge the lunar detail performance difference with the C14. I used the observatory's F6 refractor to view the moon and M42 with poor seeing. I could see a wider field of view with a rich field F6 refractor using the Harold Wonder eyepiece vs. the Televue 55mm Plossl. It seemed like the apparent field and real field of view was larger with the Harold "Wonder" compared to the Tele Vue 55. The 40mm Swan offered a wider apparent field of view than the Harold "Wonder" on a rich field telescope and on the F11 C14. It seemed that the tube on the Tele Vue 55mm or its design may limit the field of view for a rich field telescope compared to the other two eyepieces.

All eyepieces seemed to show roughly the same detail when looking at the moon through the C14, but this was with poor seeing, so I need to do more testing to compare their lunar performance. During the second test James French looked through the eyepieces and he preferred the Tele Vue over the Harold "Wonder" eyepiece.

HJRO Update (continued)

During the second test I was pulling the Harold "Wonder" eyepiece out of the focuser when it came apart. This was unexpected but allowed me to examine the optical design. I was surprised to see some chips in the middle lens. Previously I thought this eyepiece had two glass elements inside but apparently it has three elements. The second element can actually be rotated and moved in relation to the other glass elements if you did this before assembly. The chips on the edge of the middle glass element don't affect the image at all because they are not within the light path.

The Tele Vue eyepiece offers a more sterile flatter field of view; like a fine APO refractor. This doesn't mean the other eyepieces show false color, you just get a more sterile look, when using the Televue Plossl. The Harold "Wonder" seems to offer an apparent field of view somewhere between the Plossl and the 72 degree field of view than the 40mm Swan offers. The Tele Vue offers a brighter view, this is likely due to the actual field of view being much smaller and all that sky glow residing inside a smaller viewing circle. A wide field eyepiece will create an illusion of a closer image when viewing open clusters; angular star distances will be further apart due to the apparent wide field of view. A darker image results as well, because the sky is "painted on a darker larger internal screen" with wide field designs.

With an F11 configuration the Harold Wonder performs more like the 55mm Plossl, showing a field of view that is so much like the Tele Vue, that I would think it was a 55mm Plossl with a slightly different look. The Harold Wonder excels with Rich field telescopes, where the Tele Vue may fall a bit short and a user would probably prefer something like the Swan for a rich field telescope.

EYEPIECE SUMMARY

Immersive experience: Swan 40mm (\$135)

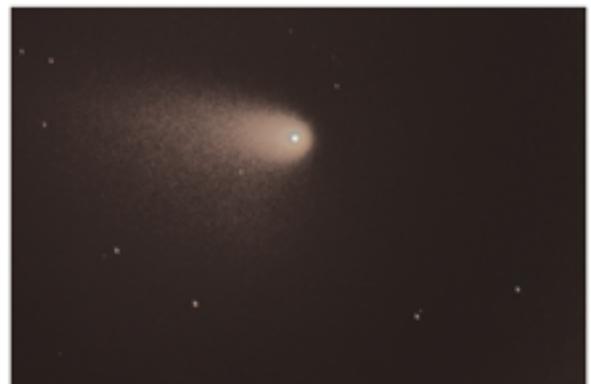
Flat Field and detail: Televue 55mm (\$250)

A bit of both: Harold "Wonder" (priceless)



Left to Right (above) Tele Vue 32mm Plossl, Swan 40mm, Tele Vue 55mm Plossl, and Harold "wonder".

(Below) Harold "Wonder" in two pieces. Chips near the edge of the middle element don't affect the view



(Above) Comet Panstarrs 4-2-2013 at 125x HJR Observatory - 10 second ISO1600, processed with Filter Storm App on the iPad.

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