



the EYEPIECE

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GENERAL MEETING

Visitors Welcome

Tuesday Evening, July 21, 7:30 PM

JUPITER

THE GIANT PLANET

a History Channel Presentation

Two and a half times the size of all the other planets in the solar system combined, and half a billion miles from Earth, Jupiter is a colossal riddle whose remote distance and cloudy covering have made it difficult to study. Explore Jupiter and journey into the immense storms that whirl around the planet's surface.

General Meetings are normally held at Fox Island "Nature Observatory" (Octagon Building), the third Tuesday of each month, 7:30pm.

Three Rivers Festival Help Needed

This year the FWAS will be one of the featured events for the Three Rivers Festival. Specifically, the Saturdays of 11 and 18 July should experience a larger crowd at the Fox Island Observatory. We anticipate trouble with parking and long lines at the telescopes. Besides the usual telescope volunteers we will need members to manage the parking, greet visitors, point out constellations, and control groups of visitors with guided tours. Please plan to help in any way you can. Call Chris Highlen at 744-4623 to coordinate our activities. But we will gratefully accept last minute volunteers and put you to work where needed.

Observer's Star Chart

Observer's with access to the internet should check out the web site: <http://www.skymaps.com> to download and print the 2-page star chart for the month. The first page presents a sky chart for the month with the usual constellations and objects. The second page lists objects of note, grouped into the categories of Naked Eye, Binoculars, and Telescopes. You will not be able to save the download, but the printout will work well.

Calendar Events July - Aug

Following are the scheduled events for the next two months:

July

Public star gazing at Fox Island Observatory every clear Saturday for 2 hours +, starting 1 hour after sunset.

General Meeting Tuesday, July 21

Deep Sky viewing at Pike's home, July 24 (see below)

Board Meeting Tuesday, July 28

August

Public star gazing at Fox Island Observatory every clear Saturday for 2 hours +, starting 1 hour after sunset.

General Meeting Tuesday, Aug 18

Deep Sky viewing at Pike's home, Aug 21 (see below)

Board Meeting Tuesday, Aug 25

Deep Sky Star Parties

Deep Sky observing events are scheduled for FWAS members and their guests to observe the fainter objects in the sky from a location away from city lights. Greg Pike has again generously allowed the FWAS to use his property for deep sky observing this season. Observing times are scheduled for Fridays near the new moon each month. The remaining dates for this year are: **July 24, Aug 21, Sep 18, Oct 16**. Directions and a map to Greg's site are presented in the May issue of the Eyepiece, available as a download from our web site: <http://fortwayneastronomicalsociety.com>

Agreement with Fox Island

The Allen County Park Board has sent us a draft agreement for the lease of the land on which the observatory stands. The agreement is negotiable each year. In the past we have paid a fixed fee for the lease. This year the draft proposes to charge the FWAS a fee based upon the number of paid memberships in the society. This would increase your dues by the amount agreed upon. How do you feel about this? Be prepared to talk about this and other issues at the general meeting on Tuesday. Your opinions will help the FWAS Board to negotiate an equitable lease agreement for this year that may set a precedent for the lease agreement that we will negotiate for the new Star*Quest observatory when it becomes operational.

Board Meeting Highlights

- The Board met on Tuesday, 23 June at 7:30 P.m. in Phil Hudson's office.
- Treasurer reports a total of \$3,837
- S*Q total pledges \$58,581
- The next board meeting will be on Tuesday, 28 July at 7:30 p.m. in Phil Hudson's office.

FWAS OFFICERS

President: Robert Crider 747-0774
Vice-President: B.J. Harper 489-2753
Secretary: Larry Clifford 824-2655
Treasurer: Phil Hudson 484-7000

EDITORIAL STAFF

Eyepiece editor, Gene Stringer, 489-8135
Distribution, Chris Highlen, 744-4623
Submissions to the Eyepiece are cheerfully accepted by E-mail (preferred) or on CD or other media, or on paper. Submissions may be edited for space or style.

The MOO Gang Grows

By Gene Stringer

What is the MOO Gang? MOO stands for Mount Ossian Observatory, the tongue-in-cheek name that FWAS member Gedas Vysniauskas has bestowed on his back-yard observatory. However, the tongue quickly removes as your jaw drops when you review the deep space images that Gedas has posted on his web site at <http://gedas.cc>. Those images are worthy to compare with the finest that have been published by professionals and amateurs in slick magazines or on Astronomy Picture Of the Day (Google apod). They testify to the skills and techniques that Gedas has developed for gathering and processing digital astronomical images. They also prove that you don't have to live in Arizona to produce world class images.

What should be of most interest to FWAS members is that Gedas has been very generous with sharing his time and skills by mentoring individuals who seek to improve their imaging techniques. This is where the "Gang" comes in. Several of us have formed a group that converses mostly by e-mail. We share our images with one another and Gedas gives critique, suggestions and pointers for improvement. The group began with a few members, but has grown in the past year. As of this writing there are 13 of us in the gang.

The Gang reminds me of the Judo club I joined as a freshman in college. Our instructor was a young black-belt (1st Dan) graduate from the Kodokan school in Tokyo. We students (Kyu) were at various levels of development, signified by the belt that we wore. Lowest three grades were white. Then yellow, green, and three grades of brown as skills developed. In the year that I was in the club I progressed from Rogo-Kyu (lowest, 3rd-Kyu) to Go-Kyu (2nd-Kyu) the next grade up, and felt very proud.

However, I hasten to say that in our gang we do NOT judge one another as to level of expertise. The only similarity is that Gedas, our "Black-belt" instructor, is patient with each of us, accepting us at whatever level we are, and he offers just the right guidance to keep us improving.

This month Gedas has gathered several images from the gang and has published them on his web site at:

<http://gedas.cc/v/The+MOO/MOO+Gang>

If you check it out you won't see jaw-dropping images. You will see images of varying quality, reflecting the particular equipment, software and techniques with which we are exploring. And if you would like to join the gang you are welcome. Not all of the gang are actively imaging right now. Some are just monitoring the message traffic to learn something about imaging. To be included in the loop you may contact any of the following members:

Gedas Vysniauskas: w8bya@mchsi.com
Dave Wilkins: wiljugl5@veizon.net
Phil Hudson: graphicad1@mac.com
Gene Stringer: genestringer@mac.com

We will be happy to talk to you about the problems we have and the fun we are having. Join the gang to get in on the fun.

Anyone for doubles?

by Gene Stringer

Summer skies present many glorious objects – nebulae, globular clusters and galaxies. But many of these require dark skies, available only part of a month, weather and light pollution permitting. However, when viewing conditions are not favorable there are objects besides the moon and planets still out there – double stars. try your hand at some of these from Brent Watson's *Finder charts of Select Double Stars*. (published by Star Spot, 2002)

Eta Cassiopeiae, "a gorgeous double star"
RA 0 h 49.1 m Dec +57° 49 m

Iota Cassiopeiae, "one of the finest triple star systems..."
RA 2 h 29.1 m Dec + 67° 24 m

As long as you are looking at Albirio, try
Delta Cygni, " a challenge" (sep 2.5 seconds, mag difference 3.4) at RA 19 h 45.0 m Dec +45° 8 m

M13 is a fine glob cluster, but also try
Alpha Herculis, "one of the most beautiful double stars..."
RA 17 h 14.6 m Dec + 14° 23 m

Antares, alpha Scorpii, is a difficult test requiring a 6" scope or better. RA 16 h 29.4 m Dec -26° 26 m

You must get this little book to get finder charts and read Brent's comments to appreciate more fully these wonderful objects.



The Cool Chemistry of Alien Life

Alien life on distant worlds. What would it be like? For millennia people could only wonder, but now NASA's Spitzer Space Telescope is producing some hard data. It turns out that life around certain kinds of stars would likely be very different from life as we know it.

Using Spitzer, astronomers have discovered the organic chemical acetylene in the planet-forming discs surrounding 17 M-dwarf stars. It's the first time any chemical has been detected around one of these small, cool stars. However, scientists are more intrigued by what was not there: a chemical called hydrogen cyanide (HCN), an important building block for life as we know it.

"The fact that we do not detect hydrogen cyanide around cool stars suggests that that prebiotic chemistry may unfold differently on planets orbiting cool stars," says Ilaria Pascucci, lead scientist for the Spitzer observations and an astrophysicist at Johns Hopkins University in Baltimore, Maryland.

That's because HCN is the basic component for making adenine, one of the four information-carrying chemicals in DNA. All known life on Earth is based on DNA, but without adenine available, life in a dwarf-star solar system would have to make do without it. "You cannot make adenine in another way," Pascucci explains. "You need hydrogen cyanide."

M-dwarf and brown dwarf stars emit far less ultraviolet light than larger, hotter stars such as our sun. Pascucci thinks this difference could explain the lack of HCN around dwarf stars. For HCN to form, molecules of nitrogen must first be split into individual nitrogen atoms. But the triple bond holding molecular nitrogen together is very strong. High-energy ultraviolet photons can break this bond, but the lower-energy

photons from M-dwarf stars cannot.

"Other nitrogen-bearing molecules are going to be affected by this same chemistry," Pascucci says, possibly including the precursors to amino acids and thus proteins.

To search for HCN, Pascucci's team looked at data from Spitzer, which observes the universe at infrared wavelengths. Planet-forming discs around M-dwarf stars have very faint infrared emissions, but Spitzer is sensitive enough to detect them.

HCN's distinctive 14-micron emission band was absent in the infrared spectra of the M-dwarf stars, but Spitzer did detect HCN in the spectra of 44 hotter, sun-like stars.

Infrared astronomy will be a powerful tool for studying other prebiotic chemicals in planet-forming discs, says Pascucci, and the Spitzer Space Telescope is at the forefront of the field. Spitzer can't yet draw us a picture of alien life forms, but it's beginning to tell us what they could—and could not—be made of. "That's pretty wonderful, too," says Pascucci.

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Do alien planets around other stars have the right ingredients for a pre-biotic soup?



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