



# the EYEPIECE

the Fort Wayne Astronomical Society • PO Box 11093 • Fort Wayne, IN 46855

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Editor: Gene Stringer, 9609 Colsons Hill, Fort Wayne, IN 46825, (260) 489-8135

E-Mail: [genestringer@mac.com](mailto:genestringer@mac.com)

FWAS Web page: <http://fortwayneastronomicalsociety.com>

## GENERAL MEETING

Visitors Welcome

Tuesday Evening, August 18, 7:30 PM

### About ASTRONOMY & TELESCOPES

A question and answer session in the round. The year of 2009 has been designated The Year of The Telescope. This may inspire you to dig that old spy-glass out of the closet to find out if it has any worth in exploring the sky. Questions? Opinions? Bring them to the meeting and join fellow members in a rousing discussion session.

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

## A Scope for All Seasons

The August meeting will be a Q&A session. It is not a "show and tell" but if you have a question or problem with your scope, bring it along so we can help you solve for an answer. We will sit in an informal circular setting with freedom to get up and move about the room where a group may be showing someone how to collimate their scope--if that comes up. Persons who have questions or a topic to address may e-mail or phone a message to a board member or contact person ahead of the meeting so that we can be ready to give better answers. The following volunteers may be contacted:

BJ Harper at [starladybj@aol.com](mailto:starladybj@aol.com)  
Chris Highlen at [HighlenC@aol.com](mailto:HighlenC@aol.com)  
Phil Hudson at [graphicad1@mac.com](mailto:graphicad1@mac.com)  
Gene Stringer at [genestringer@mac.com](mailto:genestringer@mac.com)

We will address various issues with scopes, binoculars, the night sky, etc. It will give members and guests time to chat informally with other persons.

A Society tradition of meeting at Pizza Hut after the regular general meeting has been going on for years. Join us there too.

## Calendar Events Aug - Sep

Following are the scheduled events for the next two months:

### 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

### September

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

General Meeting Tuesday, Sep 15

Deep Sky viewing at Pike's home, Sep 18 (see below)

Board Meeting Tuesday, Sep 22

## 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: **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>

## Star Party Requests

The following star parties are scheduled. Volunteers please check with Chris Highlen, 744-4623 for details:

August 28, 2009 at Fox Isle, from 9:00 PM to 11:00 PM  
Faith Baptist Church (Ron Kerr). Rain date Sep. 25 from 8:00 PM to 10:00 PM.

September 25, 2009 at Little River from 8:00 PM to 9:30 PM  
~50 Public, Little River Wetlands Project at Eagle Marsh on Engle Rd. near Smith Rd.

Volunteers are needed to run the dome at Fox Isle for:

August 29

September 5, 12, 26

October 10, 17, 24, 31

Please sign up with Chris

## Board Meeting Highlights

- The Board met on Tuesday, 28 July at 7:30 p.m. in Phil Hudson's office.
- Treasurer reports a total of \$3,578
- S\*Q total pledges \$58,309
- The next board meeting will be on Tuesday, 25 Aug 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.

Downloaded from the NASA Cassini web site:  
<http://ciclops.org>

### A Small Find Near Equinox

August 7, 2009

The Cassini spacecraft captured this image of a small object in the outer portion of Saturn's B ring casting a shadow on the rings as Saturn approaches its August 2009 equinox. [Ed: *see arrow in image below*]

This new moonlet, situated about 300 miles (480 kilometers), inward from the outer edge of the B ring, was found by detection of its shadow which stretches 25 miles, or 41 kilometers, across the rings. The shadow length implies the moonlet is protruding about 660 feet, or 200 meters, above the ring plane. If the moonlet is orbiting in the same plane as the ring material surrounding it, which is likely, it must be about 1,300 feet, or 400 meters, across.

This object is not attended by a propeller feature, unlike the band of moonlets discovered in Saturn's A ring earlier by Cassini (see *Locating the Propellers and Rings and More Rings*). The A ring moonlets, which have not been directly imaged, were found because of the propeller-like narrow gaps on either side of them that they create as they orbit within the rings. The lack of a propeller feature surrounding the new moonlet is likely because the B ring is dense, and the ring material in a dense ring would be expected to fill in any gaps around the moonlet more quickly than in a less dense region like the mid-A ring. Also, it may simply be harder in the first place for a moonlet to create propeller-like gaps in a dense ring.

er-like gaps in a dense ring.

Straw-like patterns of clumping ring material are also visible along the edge of the outer B ring near the right of this image. See *Inspecting the Edge* to learn more about these features.

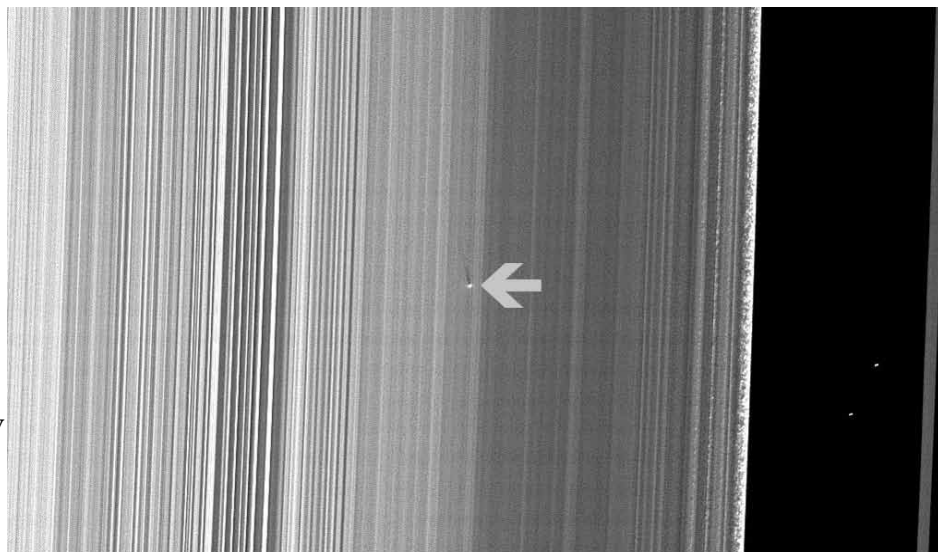
This image and others like it (see *Wavy Shadows* and *A Small Find Near Equinox*) are only possible around the time of Saturn's equinox which occurs every half-Saturn-year (equivalent to about 15 Earth years). The illumination geometry that accompanies equinox lowers the sun's angle to the ring plane and causes out-of-plane structures to cast long shadows across the rings. This view looks toward the sunlit side of the rings from about 42 degrees below the ring plane. Background stars are visible on the right of the image. They appear elongated by the camera's exposure time.

The image was taken in visible light with the Cassini spacecraft narrow-angle camera on July 26, 2009. The view was obtained at a distance of approximately 296,000 kilometers (184,000 miles) from Saturn and at a Sun-Saturn-spacecraft, or phase, angle of 120 degrees. Image scale is 1 kilometer (4,680 feet) per pixel

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington, D.C. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging operations center is based at the Space Science Institute in Boulder, Colo.

For more information about the Cassini-Huygens mission visit <http://saturn.jpl.nasa.gov>. The Cassini imaging team homepage is at <http://ciclops.org>.

**Credit: NASA/JPL/Space Science Institute**





## SARSAT to the Rescue

If a plane crashes in the woods and nobody hears it, does it make a sound?

Never mind contemplating this scenario as a philosophical riddle. This can be a real life or death question. And the answer most of the time is that, even if no people are nearby, something is indeed listening high above.

That something is a network of satellites orbiting about 450 miles overhead. The “sound” they hear isn’t the crash itself, but a distress signal from a radio beacon carried by many modern ships, aircraft, and even individual people venturing into remote wildernesses.

In the last 25 years, more than 25,000 lives have been saved using the satellite response system called Search and Rescue Satellite-aided Tracking (SARSAT). So what are these life-saving superhero satellites?

Why they are mild-mannered weather satellites.

“These satellites do double duty,” says Mickey Fitzmaurice, a National Oceanic and Atmospheric Administration (NOAA) systems engineer for SARSAT. “Their primary purpose is to gather continuous weather data, of course. But while they’re up there, they might as well be listening for distress signals too.”

In February, NASA launched the newest of these Polar-orbiting Operational Environmental Satellites (or POES) into orbit. This new satellite, called N-Prime at launch and now dubbed NOAA-19, prevents a gap in this satellite network as another, aging NOAA satellite reached the end of its operational life.

“The launch of N-Prime was a big deal for us,” Fitzmaurice says. With N-Prime/NOAA-19 in place, there are now six satellites in this network. Amongst them, they pass over every place on Earth, on average, about once an hour. To pinpoint the location of an injured explorer, a sinking ship, or a downed plane, POES use the same Doppler effect that causes a car horn to sound higher-pitched when the car is moving toward you than it sounds after it passes by.

In a similar way, POES “hear” a higher frequency when they’re moving toward the source of the distress signal, and a

lower frequency when they’ve already passed overhead. It takes only three distress-signal bursts — each about 50 seconds apart — to determine the source’s location.

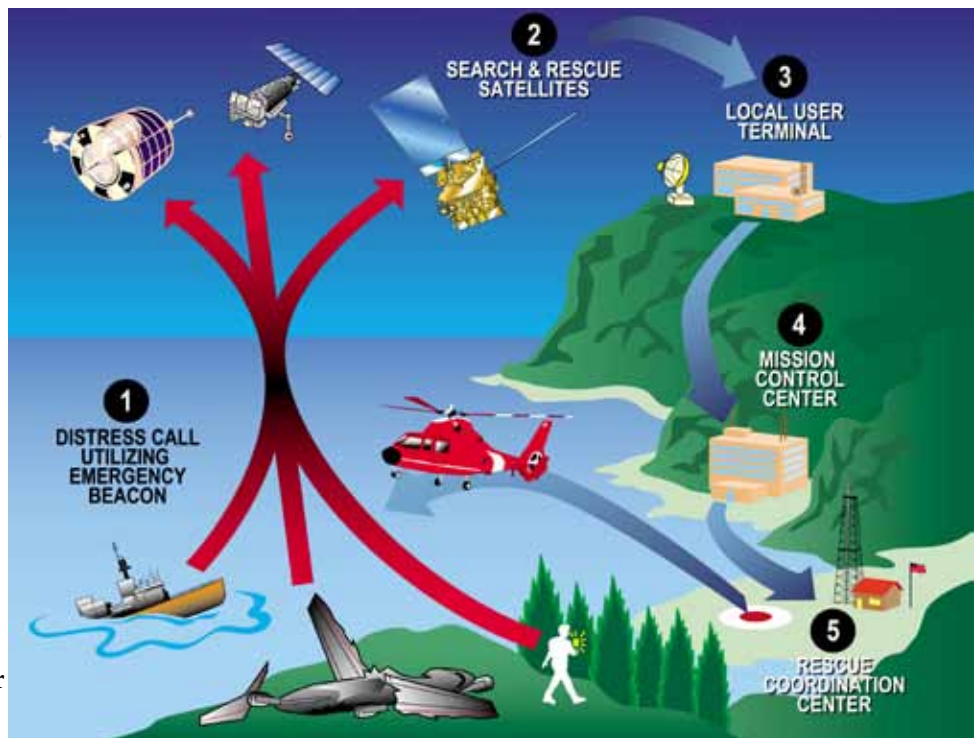
Complementing the POES are the Geostationary Operational Environmental Satellites (GOES), which, besides providing weather data, continuously monitor the Western Hemisphere for distress signals. Since their geostationary orbit leaves them motionless with respect to Earth below, there is no Doppler effect to pinpoint location. However, they do provide near instantaneous notification of distress signals.

In the future, the network will be expanded by putting receivers on new Global Positioning System (GPS) satellites, Fitzmaurice says. “We want to be able to locate you after just one burst.” With GPS, GOES will also be able to provide the location of the transmitter.

Philosophers beware: SARSAT is making “silent crashes” a thing of the past.

Download a two-page summary of NOAA-19 at [www.osd.noaa.gov/POES/NOAA-NP\\_Fact\\_Sheet.pdf](http://www.osd.noaa.gov/POES/NOAA-NP_Fact_Sheet.pdf). The Space Place gives kids a chance to rescue stranded skiers using their emergency rescue beacons. The Wild Weather Adventure game awaits them at [spaceplace.nasa.gov/en/kids/goes/wwa](http://spaceplace.nasa.gov/en/kids/goes/wwa).

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



NOAA’s polar-orbiting and geostationary satellites, along with Russia’s Cospas spacecraft, are part of the sophisticated, international Search and Rescue Satellite-Aided Tracking System.



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