



# Monthly Notices of the Everglades Astronomical Society



Naples, FL  
January 2013

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## President's Message

Well here it is the start of the new year already! I hope you had a Happy Holiday season so far! The next few months have some exciting presentations in store for you starting with Denise Sabatini and her Mayan Astronomy presentation this next meeting.

We have a lot of club activities also planned starting on January 11 at Cypress Palm Middle School. I'll go over some others during the meeting next week. We had considerable success at two events before Christmas where a couple of hundred people attended. I'll ask Charlie and Rick to give some details this upcoming Tuesday.

Clear Skies,  
President  
Mike Usher

## Dates for the "Fack"

Usually the best times to go out to the Fakahatchee Strand viewing site are moonless nights. Below is a list of upcoming Saturday nights that you will often find fellow club members out there enjoying the skies with you (weather permitting).

Date	Moonrise	Moonset
Jan. 5	12:40 a.m.	12:22 p.m.
Jan. 12	7:43 a.m.	7:11 p.m.

## Sky Events

- Jan. 2 - Earth at perihelion, closest to sun
- Jan. 3 - Quadrantids Meteor Shower
- Jan. 4 - Last Quarter
- Jan. 11 - New Moon
- Jan. 18 - First Quarter
- Jan. 26 - Full Moon

## Next Meeting

Jan. 8, 2013  
Time 7:00 – 9:00 pm  
At the Norris Center, Cambridge Park

## Getting Out There

Attached is a poster created by Cypress Palm Middle School in anticipation for an event at which Everglades Astronomical Society members will volunteer their time, telescopes and knowledge for students, parents and teachers. While this is not a public event, the Society wishes to inform its members how it spends time reaching the public.



## Partnering to Solve Saturn's Mysteries

By Diane K. Fisher

From December 2010 through mid-summer 2011, a giant storm raged in Saturn's northern hemisphere. It was clearly visible not only to NASA's Cassini spacecraft orbiting Saturn, but also astronomers here on Earth—even those watching from their back yards. The storm came as a surprise, since it was about 10 years earlier in Saturn's seasonal cycle than expected from observations of similar storms in the past. Saturn's year is about 30 Earth years. Saturn is tilted on its axis (about 27° to Earth's 23°), causing it to have seasons as Earth does.

But even more surprising than the unseasonal storm was the related event that followed.

First, a giant bubble of very warm material broke through the clouds in the region of the now-abated storm, suddenly raising the temperature of Saturn's stratosphere over 150 °F. Accompanying this enormous "burp" was a sudden increase in ethylene gas. It took Cassini's Composite Infrared Spectrometer instrument to detect it.

According to Dr. Scott Edgington, Deputy Project Scientist for Cassini, "Ethylene [C<sub>2</sub>H<sub>4</sub>] is normally present in only very low concentrations in Saturn's atmosphere and has been very difficult to detect. Although it is a transitional product of the thermochemical processes that normally occur in Saturn's atmosphere, the concentrations detected concurrent with the big 'burp' were 100 times what we would expect."

So what was going on?

Chemical reaction rates vary greatly with the energy available for the process. Saturn's seasonal changes are exaggerated due to the effect of the rings acting as venetian blinds, throwing the northern hemisphere into shade during winter. So when the Sun again reaches the northern hemisphere, the photochemical reactions that take place in the atmosphere can speed up quickly. If not for its rings, Saturn's seasons would vary as predictably as Earth's.

But there may be another cycle going on besides the seasonal one. Computer models are based on expected reaction rates for the temperatures and pressures in Saturn's atmosphere, explains Edgington. However, it is very difficult to validate those models here on Earth. Setting up a lab to replicate conditions on Saturn is not easy!

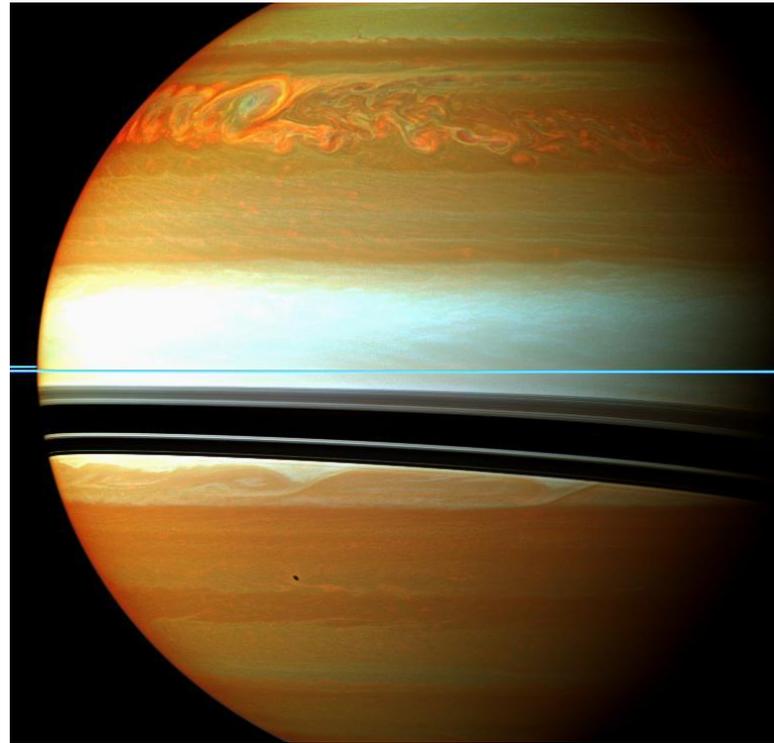
Also contributing to the apparent mystery is the fact that haze on Saturn often obscures the view of storms below. Only once in a while do storms punch through the hazes. Astronomers may have previously missed large storms, thus failing to notice any non-seasonal patterns.

As for atmospheric events that are visible to Earth-bound telescopes, Edgington is particularly grateful for non-professional astronomers. While these astronomers are free to watch a planet continuously over long periods and record their findings in photographs, Cassini and its several science instruments must be shared with other scientists. Observation time on Cassini is planned more than six months in advance, making it difficult to immediately train it on the unexpected. That's where the volunteer astronomers come in, keeping a continuous watch on the changes taking place on Saturn.

Edgington says, "Astronomy is one of those fields of study where amateurs can contribute as much as professionals."

Go to <http://saturn.jpl.nasa.gov/> to read about the latest Cassini discoveries. For kids, The Space Place has lots of ways to explore Saturn at <http://spaceplace.nasa.gov/search/cassini/>.

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



Caption:

*This false-colored Cassini image of Saturn was taken in near-infrared light on January 12, 2011. Red and orange show clouds deep in the atmosphere. Yellow and green are intermediate clouds. White and blue are high clouds and haze. The rings appear as a thin, blue horizontal line.*