



BACK BAY observer

The Official Newsletter of the Back Bay Amateur Astronomers
P.O. Box 9877, Virginia Beach, VA 23450-9877

EPHEMERALS January 2013

02/01
Skywatch
Northwest River Park

02/07, 7:30 pm
BBAA Monthly Meeting
TCC Campus, VA Beach
Building J, Rm JC-12

02/09
Nightwatch
Chippokes State Park
Surry, VA

02/15, 7:00 pm
Garden Stars
Norfolk Botanical Gardens



Looking Up!

Greetings fellow stargazers! I know it has been a long time since I have written one of these articles, but our newsletter editor, Paul Tartabini, has been so gracious to give me leeway during my first semester at college. I have indeed survived.

As semesters go, it was good. I learned a lot, and not just precalc and chemistry. I learned that everything they say about college is true, that it is a lot harder than high school, that I really do need to study harder. All in all, a successful semester.

The only downside was that it left me very little time to do any stargazing. I haven't been out in I don't know how long. My telescopes are beginning to gather dust. So I am hoping that as soon as I get back in the groove of school, tutoring, and everything else I have to get done (my mom insists that laundry is more important than watching Jupiter), I will be able to make some of the outreach events on the schedule. I'm still passionate about outreach, just not as willing to pay for the gas it takes to get there...

I know this is a short article, but I'm currently also planning an 18th birthday party for a friend and trying to write another article that may appear in the Reflector. See you all soon!

Courtney Flonta

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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.

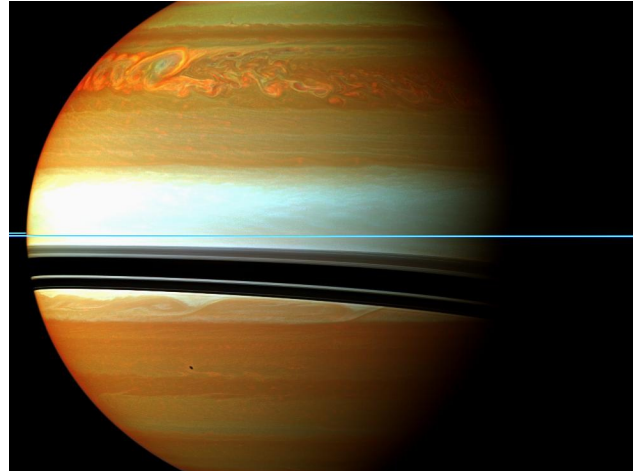
According to Dr. Scott Edgington, Deputy Project Scientist for Cassini, "Ethylene [C₂H₄] is normally present in only very low concentrations in Saturn's atmosphere and has been very difficult to detect. Although it is a transitional product of the thermochemical processes that normally occur in Saturn's atmosphere, the concentrations detected concurrent with the big 'burp' were 100 times what we would expect."

So what was going on?

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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.



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.

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.

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The Back Bay Amateur Astronomer's
Observer

The BBAA Observer is published monthly; the monochrome version is mailed to members who do not have internet access. Members who do have Internet access can acquire the full color version on the Internet at <http://www.backbayastro.org/observer/newsletter.shtml>

Please submit articles and items of interest no later than the date of the monthly meeting in order to be in the next month's edition.

Please submit all items to:
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BBAA Meetings

The BBAA meet the first Thursday of every month except for July. While school is in session, we meet at the VA Beach TCC Campus. The February meeting will be held at TCC in Virginia Beach, Building J, Room JC-12 at 7:30 pm. Directions available at www.backbayastro.org.

BBAA Internet Links

BBAA Website
www.backbayastro.org

Yahoo! Groups
tech.groups.yahoo.com/group/backbayastro

BBAA Observer Newsletter
www.backbayastro.org/observer/newsletter.shtml

NASA Space Place, continued from page 2

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 finding 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.

January 3, 2012 BBAA Meeting Summary

The Meeting at Plaza Middle School was called to order by president Courtney Flonta at 7:31 PM

Those in attendance were:

Nick Anderson, Robert Beuerlein, Tom Flatley, Courtney Flonta, Mark Gerlach, Dino Giangregorio, Mary Giangregorio, Jeff Goldstein, Bill Holmes, Chuck Jagow, Thomas Jarvis, Robyn Korn, Bill Mclean, Cynthia Meigel, David Meigel, Katelyn Neese, Bill Powers, Joey Quinn, Andrew Reisenweber, George Reynolds, Mat Snellings, Kevin Swann, Jason Tackett, Paul Tartabini and Bird Taylor.

New Guests:

Jason Tackett from Hampton, David Meigel from VA beach and Andrew Reisenweber. Mark Gerlach brought his nephew Thomas.

Treasurer's report:

- \$2569.46 general fund
- \$2543.92 Scholarship fund
- \$5113.38 Total
- Two thirds of members have paid dues. All officers must now have their signatures on file at BB&T near Volvo & Greenbrier Rds. Secretary and VP still must do so.

Outreaches:

- York River State Park may move observing from Friday to Saturday if cloudy.
- Garden Stars (at Norfolk Botanical Gardens) needs minimum 5 to be registered by the Wednesday prior.
- Cathy from the Chesapeake Parks dept wants an event similar to Garden Stars & may charge per person.

Calendar:

- January 4 Friday, Skywatch @ Northwest River State Park, Equestrian area, 5PM
- January 9 Wednesday, bring a scope to Jones Magnet Middle School Planetarium (1819 Nickerson Blvd), 7PM
- January 12 Saturday, Nightwatch @ Chippokes, 5PM
- January 17 Thursday through February 7, "Quest" @ Old Donation Center for Gifted & Talented school, 1:30-2:45PM
- January 18 Friday, Garden Stars @ Norfolk Botanical Gardens, 7PM
- February 1 Friday, Skywatch @ Northwest River State Park, Equestrian area, 5PM
- February 7 Thursday, monthly meeting @

TCC-VA beach campus, 7:30PM

- February 9 Saturday, Nightwatch @ Chippokes, 5PM
- February 15 Friday, Garden Stars @ Norfolk Botanical Gardens, 7PM

ALCOR:

- All BBAA Members, through the Astronomy League (AL), get issued a quarterly magazine "Reflector."
- AL observing programs are on www.astroleague.org
- Bill Mclean awarded Jim Tallman with AL's Venus Transit award (11 BBAA members have already completed) and Nick Anderson with the Caldwell award.
- Tom Flatley is doing the Galileo pin & he recommends a Jupiter moon software app.

General News:

- Jeff Goldstein's 60mm refractor was donated to the Giangregorio couple.
- Mark Gerlach is selling a scope donated to BBAA. See him for details.
- A solar scope is very good for sun spots & prominences. It is very active right now.
- Jim Tallman motioned a committee be formed to explore club enhancements. It was seconded. The president volunteered among others. Recommended work shops are: dew heaters, solar filters & use of, collimation, equatorial mounts, astrophotography & astronomy software. One example is, one hour prior to the start of a monthly Skywatch, folks can come early to get help learning to set up their scope.
- President Courtney asked everyone in the meeting to briefly introduce themselves. Some highlights:
 - ◇ Nick Anderson is a physics major at VT & plans to be a professional astronomer.
 - ◇ Robyn Korn uses Astro-binoculars the most.
 - ◇ Jeff Goldstein has 20X100 Astro-binoculars.
 - ◇ Mat Snellings has a Personal Observing Dome (POD) & thinks it is great because of no setup time.
 - ◇ Katelyn Neese (a senior at Granby High) wants to be an Astro-physicist.
 - ◇ Courtney Flonta's goal is to earn a doctorate in chemistry-physics
- Newsletter editor Paul Tartabini requested postings, including any member's writings.

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The 2012 Total Solar Eclipse: An Outback Odyssey

By Kent Blackwell

On November 14, 2012 Robert Hitt and I witnessed the most spectacular event in nature, a total eclipse of the sun. In order to see it, one had to travel to Australia.

Totality was only visible in the northern portion of the country, or, as an option out at sea. We felt the best chance of seeing it in clear skies would be aboard a cruise ship.

The November 5 flight out of Norfolk Airport arrived in Sydney a whopping 27 hours later. A bus was waiting at the Sydney airport to take us to the ship. Since it was too early in the day to board the Holland America ship *Oosterdam* we took a 4-hour tour of the city, visiting such sites as the famous Sydney Bridge, Opera House and other attractions.

Upon arrival at the dock, the queue to board the ship was very long so Robert and I walked around town. The dock is located in the middle of town so there was plenty to do. It was fascinating seeing the lovely gardens and beautiful birds such as Ibis and Cockatoos in the wild. Sydney is one of the loveliest cities we have ever visited.

Once onboard the ship we could finally relax after a very long day of travel, knowing the next day would be a full day at sea with nothing to do except worry over which of the five restaurants in which to dine.

Our first port was the city of **Brisbane**, the state capital of Queensland, and the third most populous city in Australia. We boarded a tour bus for a 2-1/2 hour ride to the resort beach community of *The Gold Coast*. The area is a favorite vacation spot of many Europeans and Australians and was quite a bustling community lined with multiple luxury condos and beautiful beaches with crystal clear waters of the Coral Sea.

The next day was another full day at sea, and gave us ample opportunity to set up our 80mm f/8



refractor aimed at the Sun. Many passengers stopped by to chat, and look at several sunspots while Robert and I explained about viewing and photographing solar eclipses.

The next port was **Hamilton Island, Queensland Australia**. Although the most heavily populated and developed island in the Whitsunday group it has been carefully preserved in its natural state, which translates into beautiful beaches, native bush trails and spectacular lookouts. Robert and I opted out of any tours. Instead, we rented a golf cart and drove around the island. That was so much fun, and better than having to tag along with others on tours. We visited *All Saints Church*, a beautiful historical church located on a wonderful overlook of the island and the sea. The view from the churchyard was nothing short of spectacular. Robert scolded me for reaching up and pulling the rope to ring the church bell.

As the ship left the Port of Hamilton Island we learned that a woman had been delayed getting to the dock and the ship sailed without her. She flew to our next port of Mackay Island so she could catch up with the ship.

The seas began to get quite rough and the winds howled at terrific force. Amazingly, the *Oosterdam* remained quite steady as she traversed the rough seas. In fact, I found it comforting. The gentle rocking of the ship made sleeping quite restful.

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Outback Odyssey, continued from page 5

By daybreak we arrived at **Mackay Island**. The port required tenders for the passengers to disembark. I was concerned about those small tenders in such rough seas. What if we got ashore and the seas became rougher and we couldn't get back to the ship?

By noon Captain Hendrik Draper announced that because of the rough seas we would have to skip the port of Mackay Island. I was relieved. Although it would have been nice to have seen the island I think he made the right choice. It was simply too dangerous. Ah, but wait a minute. Remember the lady left behind at Hamilton Island? She flew to Mackay to catch the ship, and we skipped that port. Poor lady, she missed the rest of the cruise and the total eclipse as well.

The day before the eclipse was another full day at sea, and gave everyone time to practice viewing and photographing the sun. I warned people who have never witnessed an eclipse not to waste time trying to photograph it, especially if their only camera equipment was a simple point-and-shoot. With such cameras the size of the sun's image would only be a half millimeter! Robert Hitt and I also warned people not to take flash pictures and not to walk around during totality. If anyone tripped on my tripod, they were going overboard.



The eclipse day finally arrived. It began very early in the morning, soon after sunrise. First contact was at 6:49 AM and the skies were mostly cloudy. Between first contact and totality the sky cleared a bit, but the conditions were still very iffy.

We called the bridge of the ship and informed them that if they sped up we could



make the clearing about three miles ahead. They said they had reached their waypoint, but we explained the path of totality is 100 miles wide. "Really?" was their response. Obviously no one had properly prepared the officers on the bridge about chasing eclipses!

We never sped up, and never completely reached the clearing ahead. As fate would have it a large hole in the clouds slipped by and we saw most of the total eclipse, but missed third contact, and the diamond ring effect.



The fault of not steering the ship towards clear skies ultimately lies with the captain, but fault also lies with the onboard "experts" and Holland America Lines as well. After all, it was advertised as an "Eclipse Cruise". However, we did see most of totality and everyone was grateful for that.

The sky was completely cloud free an hour after the eclipse, and remained clear the rest of the day. In fact, I saw a magnificent Green Flash that afternoon as the sun sank below the western horizon.

This was one of the only cruise ships we have sailed where the crew turned off all the deck lighting at night for those who wished to stargaze. The night sky in the Southern Hemisphere was magnificent.

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Outback Odyssey, continued from page 6



A [Green Flash](#) viewed at sunset from the Coral Sea. This phenomenon, caused by refraction from Earth's atmosphere, is only occasionally visible from clear skies just as the sun sets below the horizon.

The brilliant star Canopus was high in the sky, as were the Large and Small Magellanic Clouds. At 157,000 light-years these are the closest galaxies to us that are visible to the naked eye. Neither is visible from the United States.

I longed for a larger telescope on dry land to view the **Large Magellanic Cloud (LMC)**, a galaxy containing 700 open clusters, 60 globular clusters and 400 planetary nebulae. Even in my small telescope, the huge *Tarantula Nebula* in the LMC filled the field of view.

The **Small Magellanic Cloud** was nearly its equal. The brilliant globular star cluster *47 Tucanae* was beautiful in my 80mm telescope. It shines at five times the brightness of the globular cluster M 13 in Hercules, one we in the Northern Hemisphere regard as a showpiece. I shared telescopic views of *47 Tucanae* and other lovely deep sky objects with many Australian friends aboard the ship. A very interesting open cluster in the constellation

Carina is *IC 2602, The Southern Pleiades*. After seeing the loosely scattered and rather hastily arranged stars I told my fellow Australians, "our" Pleiades are far better than yours!

A day at sea after the eclipse gave everyone an opportunity to share experiences and pictures of the event. Most passengers had never seen an eclipse before, and in fact, quite a few didn't go on the cruise specifically for the eclipse. Nevertheless, it certainly turned out to be everyone's highlight of the entire voyage.

Our next stop was the small island of Lifou. Tenders took us through the Azure water to a lovely beach and a friendly, small community. It's hard to imagine a more beautiful place than Lifou but our next port was just that, Ile des Pins (Island of Pines). Captain James Cook gave the island its name in 1774 after seeing the tall native pines. An overseas territory of France, the island is often nicknamed "The Island Closest to Paradise."

It would take two full days at sea before arriving back to Sydney; days well spent relaxing and packing our gear and clothes for the trip home. Our flight was uneventful. That is if you want to consider another 27 hours in airplanes and airports uneventful.

Was it all worth it? You bet. The trip marked our 14th total solar eclipse, and twelve of them have been aboard cruise ships. It's a great excuse to travel, see the world and meet marvelous people. The 2013 total eclipse will be off the coast of Africa. If a cruise ship sails in that direction we'll be on it.

January Meeting Minutes, continued from page 4

Web Forum rules were not discussed at the officers meeting due to time constraints, so they were discussed at this meeting. There were some complaints concerning non-astronomy related arguments & discussions. Most of the discussion centered around the need for more than one moderator to share the responsibilities. Bird Taylor suggested opening the BBAA group up to everyone (not just forum members) so teachers can make requests for seminars. One problem mentioned with regard to having a moderated

forum is that the moderators will have to read the forum often to avoid non-member/member postings sitting in the queue. Also, someone may have a question about a meeting/outing later that day that won't be seen until approved by a moderator. This discussion will need to be continued.

Meeting was adjourned at 8:44PM

Minutes taken by Kevin Swann, Secretary



February 2013

BBAA Events	Special Outreach	Astronomical Events
02/01 SkyWatch @ Northwest River Park		02/02 Last Quarter
02/07 BBAA Monthly Meeting		02/08 Mercury passes 0.3 deg North of Mars
02/09 Nightwatch @ Chippokes State Park	02/15 Garden Stars @ NBG	02/09 New Moon
		02/17 First Quarter
		02/25 Full Moon



Sneak Peek into March

Fri 3/01/2013 Skywatch at Northwest River Park
 Thu 3/07/2013 BBAA Monthly Meeting, TCC Campus, 7:30 pm
 Sat 3/09/2012 Nightwatch at Chippokes State Park, Surry VA.
 Fri 3/22/2012 Garden Stars at Norfolk Botanical Gardens, 7:30 pm