



NEWSLETTER

# RITTENHOUSE ASTRONOMICAL SOCIETY

Founded 1888

[WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG](http://WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG)

January 2010

OPEN TO PUBLIC AND STUDENTS  
Upcoming Meeting on January 13th at  
7:30 PM  
The Franklin  
20th Street and Benjamin Franklin Parkway

## January's Meeting: A Look Back, A Look Forward

*Derrick Pitts*

*Chief Astronomer at The Franklin Institute*

International Year of Astronomy now draws to a close. The New Year is typically a time to review the previous year and to set some goals or resolutions for the year to come. For our January meeting, we are quite pleased to have Derrick Pitts, the spokesperson for the International Year of Astronomy. Derrick would like to do what is quite typical at this time of the year. He would like to give an overview of what was accomplished during the I.Y.A. but more importantly, he would like to discuss what efforts and initiatives to carry forward from I.Y.A. into the future.



Please join us for our kick-off meeting of 2010 as we review I.Y.A. Derrick is best qualified to guide us in the review and will afford us an excellent way to start off the New Year. The meeting is open to guests, students are encouraged to attend.

## December's Meeting

*Commander Christopher Ferguson*

Hoping for something special to celebrate the International Year of Astronomy, we started looking in January 2009 for an appropriate guest speaker. Commander Ferguson had previously been contacted and expressed interest in speaking to our group at the Franklin. Ferguson had grown up in the area (attending Arch Bishop Ryan High School, then Drexel University) and had some very endearing memories as a student visiting The Franklin Institute. We thought he would be the perfect guest speaker for the occasion.

E-mails were exchanged throughout the year; tentative speaking dates were developed while shuttle launch schedules negated those plans on a few occasions. Chris contacted us in early October and said he would most likely be in the area after the last mission of the year in early December. December 2 was suggested, and plans were made again. First we planned for a meeting in the planetarium, and then changed it to Franklin Hall to accommodate a greater number of attendees. Paper work was completed for our astronaut appearance, press releases were cleared through NASA as also was our website. What most don't realize is there is an entire department devoted

### Meeting Agenda

7:15 - Introduction  
7:30 - Astronomy Lesson  
President's Message  
Sky This Month  
Guest Speaker - Derrick Pitts  
Rooftop Observing - Weather Permitting



to 'astronaut appearances' which helps to enforce the rules and regulations established to help ensure a successful speaking engagement.

Chris called us the day of the talk to let us know his plane was delayed and that he would be at the museum approximately 6:00 p.m. This foiled any dinner plans to eat before the meeting. With the terrible weather, we were reluctant to eat at a local restaurant. It did not seem feasible to take our officers and guest speaker off site, place orders for food, and expect to be back in time for our members to arrive. Our dinner plans foiled, we quickly covered some tables, and alternatively we ordered pizza locally, had it quickly delivered, and sat down in a corner Ben's Bistro (in the museum) for a quick meal.

At first we were disappointed by the quick food plans, but that disappointment would quickly dissipate as we sat down to eat with Chris. We shared our memories of The Franklin Institute from our visits years ago as students. This started conversation off quickly and set a warm welcoming mood. Chris shared his childhood amazement with the Baldwin Locomotive and his wish to drive that train. Even though it only moves a few feet, it was a tantalizing site for young Chris who was fascinated with the movement of such a large piece of machinery.

Outside the rain poured down, the Vine Street Expressway had an accident slowing traffic, and a few other events in the building caused some delays in the parking garage. Not knowing how many guests to expect, we held our breath to see who would battle the challenges to attend. Not to be thwarted by the conditions, we finally had just over 200 attend an amazing talk delivered by Chris in Franklin Hall.

Commander Ferguson gave our audience a firsthand look at what it is like to pilot the space shuttle. He shared what was involved to join a crew on the space station to complete the mission of servicing the Hubble Space telescope. What interested me most was the preparation needed and the tools developed to perform maintenance and repairs on the space telescope that were never intended to be used in space. Chris included movie clips and pictures of the journey to accompany his lively narrative and discussed what it is like to fly the space shuttle. Our members and guests observed the presentation on all four walls simultaneously in Franklin Hall. Chris later remarked how neat it was to see his presentation surrounding us in The Franklin Memorial, and how he did not need to turn his back on the audience.

Questions and answers from the audience (quite good ones at that) ended the presentation. Chris remained in the room for another hour after the presentation to sign autographs and answer more questions from the audience.

We'd like to thank our members for their support of this presentation by their attendance and for bringing along family and friends. It is through your support of these events that we are able to attract such amazing guest speakers for our organization.

#### Visible Planets 01/13/2010

	Rises	Transit	Sets
Mercury	06:02 am	10:53 pm	03:48 pm
Venus	07:28 am	12:11 pm	04:55 pm
Mars	06:30 pm	01:43 am	08:57 am
Jupiter	09:15 am	02:33 pm	07:52 pm
Saturn	10:43 pm	04:46 am	10:49 am

## President's Message

*Dr. Milton Friedman*

We will probably learn a lot more about the Universe in 2010. Every year that has passed has been quite revealing giving us more insight into the solar system; the stars and how all this came about. One area of major discovery has been about exoplanets. Until 1995, only predictions and theories were all we had about planets beyond our solar system.

According to the Extrasolar Planets Encyclopedia, on December 18, 2009 there were 415 planets beyond the eight in our solar system. Of these, 385 were discovered by the radial velocity or astrometry method involving a wobble of the orbit of the star caused by an orbiting planet. Sixty-four were discovered when the planet passed in front of the star and dimmed its brightness known as a transit. Others were detected by microlensing, imaging or timing.

Before the first discovery of a planet beyond our solar system, there were no need for words such as super-Earths and Hot Jupiters. Many space probes have discovered exoplanets and, surprisingly, the solar systems out there are different from ours. Most of the exoplanets that have been found are larger than Jupiter and orbit their sun closer than Mercury is to our Sun.

The goal has been to find Earth-like planets out there because they might harbor life. Now the Kepler space probe is searching for Earth-sized planets. Once found, the search will be on for the Habitable Zone of the planet that might be located, like ours, at a distance from its sun that is not too cold or too hot and therefore liquid water would be on the surface. Liquid water is necessary for life to develop in the Universe.

In February 2009 the smallest exoplanet, COROT-7b, was confirmed to have a diameter 1.7 times larger than Earth's diameter. Astronomers believe it is rocky like Earth but with less iron and more water. This exoplanet orbits very close to its sun and has a surface temperature of 3,300 to 4,700 degrees Fahrenheit. Another star, Gliese, has a super-Earth circling within the star's Habitable Zone. The planet is known as Gliese 581d. Interestingly, Gliese 581d might have life on it. In an effort to find out, a radio telescope in Australia sent a message to Gliese 581d. If there are listeners out there and they send us an answer, we'd get it in 2049.

The most Earth-like planet orbits a cool Red Dwarf. The planet, GJ1214b, may be cool and only 1.3 million miles from its star.

It would be the event of the year if life is discovered out there in 2010. **Stay tuned.**

## Tranquility ISS Module Handed Over to NASA

*Dr. Ken Kremer*



*Michael Suffredini, NASA ISS manager accepts ownership of Tranquility from ESA at ceremony inside the Space Station Processing Facility (SSPF) at the Kennedy Space Center on 20 November 2009. Cupola module attached at center is covered with thermal protection blankets.*

*Credit: Ken Kremer*

The European Space Agency (ESA) formally transferred ownership of the Tranquility manned module over to NASA at a commemorative ceremony inside the Space Station Processing Facility (SSPF) at the Kennedy Space Center on Friday, November 20. I was lucky to attend as part of press events during the STS 129 shuttle mission (see my reports online at the RAS Homepage and my webpage below). Included on the module is the "Cupola," which will provide astronauts with a panoramic view from the largest window ever flown in space, having a diameter of 80 cm.

ESA contributed the module in exchange for NASA's delivery of ESA's Columbus laboratory to the ISS in 2008. Official documents were signed by Bernardo Patti, the space station manager for ESA and Michael Suffredini, his counterpart at NASA. A crowd of managers and technicians from NASA & ESA who built the module witnessed the event. Media like myself attended and documented the formalities

"We are very proud to accept this module", said Suffredini. "Tranquility was built to start human life beyond Earth as we put things together on orbit".

Attached to the end of Tranquility is the Cupola advanced observation module and robotics work station. Both segments are set to launch aboard the next shuttle

flight, STS 130, presently scheduled for a 7 February 2010 blast off which I plan to attend. Spacewalking astronauts aboard the STS 129 flight worked to prepare the way for attachment of Tranquility and Cupola to the ISS.

Tranquility will provide increased living and scientific workspace for the resident ISS crews and house “many of the stations critical life support systems”, Suffredini said to me in an interview.

The unique 7 windowed Cupola module will afford astronauts a heretofore unparalleled 360 degree viewing spectrum of the Earth, the station and the cosmos.

‘Tranquility’ is named in honor the Sea of Tranquility, where mankind first landed on the moon during NASA’s Apollo 11 mission in July 1969.

Read my full Tranquility report at Universe Today and Spaceflight magazine: <http://www.universetoday.com/2009/11/23/tranquility-module-formally-handed-over-to-nasa-from-esa/>

Read my full reports on the ISS, Shuttle and Mars collected online at my webpages below and the Rittenhouse Astronomical Society homepage. Also in Spaceflight magazine, Jan and Feb 2010 issues available at Barnes & Noble Bookstores:

<http://www.rittenhouseastronomicalsociety.org/>

<http://www.rittenhouseastronomicalsociety.org/Dr.Kremer/K.htm>

<http://www.universetoday.com/author/ken-kremer/>

<http://www.bis-spaceflight.com/sitesia.aspx/page/183/id/2102/1/en-gb,en-gb,en-us>



Side view of Tranquility and Cupola. Credit: Ken Kremer

## Astronomy Outreach:

Dr. Ken Kremer

**Gloucester County College Astronomy Club:** Sewell, NJ, Jan, 2010 TBD, 7 PM. “Fixing Hubble: Eyewitness to Shuttle Atlantis Launch to save The People’s Telescope”

Website: [http://www.gccnj.edu/news\\_and\\_alerts/rotating\\_ads/ken\\_kremer.cfm](http://www.gccnj.edu/news_and_alerts/rotating_ads/ken_kremer.cfm)

**Plantation Astronomy Club:** Leesburg, FL, Feb 15, 7 PM. “LRO & LCROSS: America Returns to the Moon”.

Website: <http://www.palhoa.com/id103.html>

**Villages Astronomy Club:** The Villages, FL, Mar 16, 7 PM. “LRO & LCROSS: America Returns to the Moon”.

Website: <http://www.vlgastroclub.org/2101.html>

**Café Scientifique:** Philadelphia, PA, April 6, 2010 6 PM, Belle Cena Restaurant. “6 Years of Mars Rovers and the Search for Life (in 3-D)”

Website: <http://www.sciencecafephila.org/Home.html>

Please contact me by email for more info or presentations.

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Riverside Elementary School, Family Astronomy Night: Princeton, NJ, Dec 10. Over 100 kids and parents enjoyed my 3 talks on “The Twin Mars Rovers (in 3-D)”. Ken Kremer