



NEWSLETTER

RITTENHOUSE ASTRONOMICAL SOCIETY

Founded 1888 WWW.RITTENHOUSEASTRONOMICALSOCIETY.ORG

January 2009

OPEN TO PUBLIC AND STUDENTS
Upcoming Meeting on January 14th at
7:30 PM
The Franklin
20th Street and Benjamin Franklin Parkway

January's Meeting:

David J. Thompson
NASA Goddard Space Flight Center
Fermi Gamma-ray Space Telescope
Deputy Project Scientist

Fermi Gamma-Ray Space Telescope Deputy Project Scientist Dr. David J. Thompson from the NASA Goddard Spaceflight Center, Maryland will address the Rittenhouse Astronomical Society at the Franklin Institute, Philadelphia at the regular monthly meeting on Wednesday evening, January 14, 2009 at 8 PM. The talk is titled "The Fermi Gamma Ray Telescope: Viewing the Extreme Universe". The lecture will focus on observational plans for NASA's newest space telescope and what we hope to discover. Students are encouraged to attend.

The Fermi Gamma-ray Space Telescope, formerly called GLAST, is a mission to study the most energetic form of light: gamma rays. In addition to breakthrough capabilities in energy coverage and localization, the very large field of view enables observations of 20% of the sky at any instant and the entire sky on a timescale of a few hours. Following its launch on 11 June 2008, Fermi now opens a new and important window on a wide variety of phenomena, including pulsars, black holes and active galactic nuclei, gamma-ray bursts, the origin of cosmic rays and supernova remnants, and searches for hypothetical new phenomena such as super symmetric dark matter annihilation.



Launch of GLAST on 11 June 2008 from Cape Canaveral, FL on a Delta 2 rocket

Dr Thompson is the leader of the team that built the Anticoincidence Detector for the Large Area Telescope on the Fermi Gamma-Ray Space Telescope. He serves as the Multiwavelength Coordinator for the Large Area Telescope (LAT) instrument. He helps plan cooperative observations with many other telescopes in order to maximize the scientific return from GLAST. He has worked in the Astrophysics Science Division of NASA Goddard Space Flight Center since 1973 and his research interests include high-energy studies of pulsars, blazars, gamma-ray bursts, diffuse radiation, and unidentified sources.

~Ken Kremer, JPL Ambassador

Meeting Agenda

7:20 - Prelude
7:30 - Astronomy Lesson
President's Message
Sky This Month
Guest Speaker
Rooftop Observing - Weather Permitting

Visible Planets 01/14/2009

	Rises	Transit	Sets
Mercury	07:55 am	12:58 pm	06:01 pm
Venus	09:39 am	03:17 pm	08:54 pm
Mars	06:46 am	11:24 am	04:01 pm
Jupiter	07:50 am	12:41 pm	05:32 pm
Saturn	09:33 pm	03:53 am	10:12 am

Message from the President:

The Rittenhouse Astronomical Society had its beginning across the Delaware River in Camden, New Jersey in 1888. The society was incorporated as the Camden Astronomical Society on April 3, 1888. In 1927, because most of the members of the Camden Astronomical Society lived in Philadelphia, the name was changed to the Rittenhouse Astronomical Society. By 1931, at the suggestion of Dr. James Stokley, Associate Director of The Franklin Institute Museum, the meetings were held at The Franklin Institute which was located on South Seventh Street. In 1934, when The Franklin Institute moved to its present location on the Parkway, the Rittenhouse also moved there. We've enjoyed our close relationship with The Franklin over 80 years.

~Dr. Milton Friedman

December's Meeting:

Review

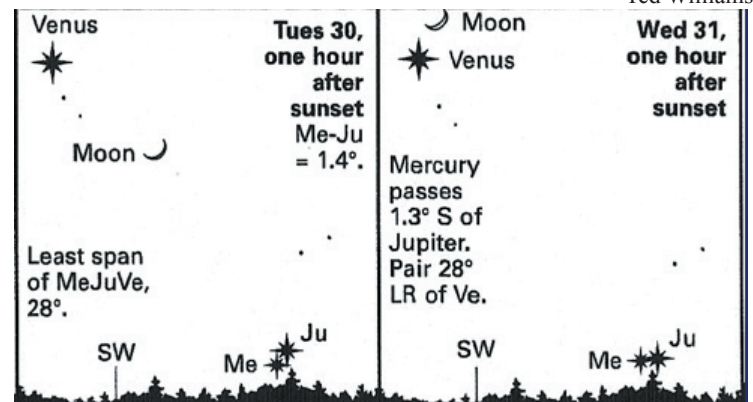
Our December meeting started with Derrick Pitts addressing the group on the upcoming Galileo Exhibit. Alan Daroff then launched into an informative discussion on some of the misconceptions that are capitalized on when advertising binoculars for viewing the sky. He explained how the percent difference in magnification range, rather than the power is one misleading factor. Eye fatigue, apparent field of view, high power claims, and related topics dominated the conversation. Recommendations and opinions for image stabilizing binoculars (highly recommended for astronomical viewing by our members) were shared.

Dr. Ken Kremer then conducted a presentation on the "Daring Flight of the Phoenix: Icy Jackpot Hit on Mars (in 3-D)" Dr. Kremer continues to amaze us with updated timely pictures and information on the Lander. He started by taking us to the launch pad, and guided us through the mission ending with 3-D views of the Martian surface. Many questions from members and guests were steady throughout the presentation. Many views of Mars that have not been released to the public were also on display.

We utilized 2 screens (two projectors) to gain more control of the contrast and color of one of the projectors and had very good success with the 3 D images. We also staggered the slides at times so that the view that was just discussed was on display as the next slide was presented. Members complimented the two projector set up for the 3-D display and gave recommendations on how to do this at future meetings. We are getting better with each 3-D presentation we host (now 4 in the past two years.)

If one thing becomes evident when listening to Dr. Kremer, he enjoys a challenging question. The fact that he has the ability to adapt a presentation to fit the interests of his audience is a tribute to his speaking abilities. With overcast skies, we let the meeting run past 9:00 PM due to the high interest displayed by the members and guests present. All the officers conferred at the close of the meeting and felt the dialog between speakers and guests was excellent, engaging, and worth the commute through the snagged traffic we faced earlier when arriving. We sincerely hope those in attendance felt the same.

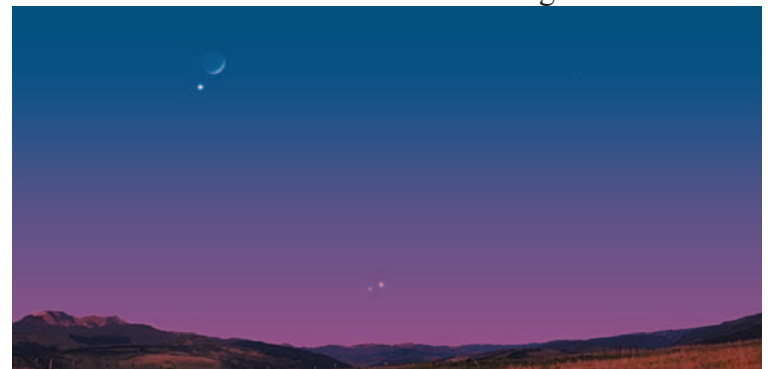
~Ted Williams



Excerpt from Abrams Sky Map
Part of your yearly membership

Unique Astronomical Pairing

Early in December we were treated to a view of a conjunction that included Jupiter, Venus and the crescent Moon. The end of December will offer us another unique view or pairing in our Southwestern sky. The Moon and Venus will be just next to each other at Sunset. If you are out early and have an unobstructed view of the Southwest sky, you also see a pairing of Jupiter and Mercury. The Moon and Venus will be high in the Southwest, with Jupiter and Mercury appearing below them, quite low to the horizon. Mercury can be a difficult planet to observe due to its usual appearance close to our horizon (due to its location in the planetary system closest to our star.) With the presence of Jupiter next to it, it will be easier to identify. Occurring on New Years Eve will assist in remembering to look.





Once In A Lifetime

Derrick Pitts spoke in the prelude to our December meeting with the offer of a once in a life time opportunity. His focus was on the upcoming Galileo exhibit at the Franklin. He is looking for a volunteer staff of slightly different nature. Volunteers are needed that have some basic experience with astronomy, or those who are avid astronomy enthusiasts willing to learn the details of the Galileo exhibit.

This touring exhibit will only happen once. The museum that currently houses the Galileo telescope is being renovated. During that time the exhibit will travel to Philadelphia to be hosted by The Franklin from April 4 through September 7, 2009. The successful hosting of the Tut Exhibit and others with priceless artifacts that draw amazing numbers of visitors helped factor into the decision of who could successfully host the exhibit.

The Franklin is looking for volunteers to assist as explainers / educators for the exhibit. Previous exhibits have employed an amazing array of special effects including a storm theater, ice walls, icebergs, falling snow, walking on water simulations, flying the Millennium Falcon, and passages into tombs and wardrobes. The Galileo exhibit will be a bit more traditional in nature. Many more print graphics are utilized, along with a more traditional observational tour of the exhibit. It beckons a return to some earlier successful ways of assisting those visiting an exhibit with a tour guide or explainer / interpreter. Volunteers will help tell the story of the Galileo, his life and times, and assist in the understanding of the tools that were in existence during his day. It is a great opportunity for those interested to assist with this once in a lifetime exhibit tour.

If you are interested in learning more about this exciting opportunity or would like to request a Volunteer Application, please contact Jamie Collier, Director of Volunteer Programs The Franklin Institute, jcollier@fi.edu or 215-448-1163.

Looking Back

Dave Walker

The world is in turmoil. Wars rage across the globe. Leaders have been assassinated during the preceding year. In the waning days of nineteen sixty eight things seemed dark indeed. In fact it was just after the Winter Solstice and a great journey was about to reach a turning point.

Three brave men, the most isolated individuals in human history, were coming out of the cold dark shadows of the Moon. Before them lay a barren desolate waste; gray and devoid of air, water, life, and colour. Surrounding them a black and cold void; punctuated only by pricks of pale distant light.

Drifting across that waste came a new light, different in colour, in a vista dominated by gray and black, came a shining orb of rich blues, dotted with white, brown and greens of their home. Slowly and majestically the sphere of the Earth rose above the Lunar horizon. Human eyes were seeing for the first time the whole of humanity and their home set against the whole of the otherwise lifeless universe.

Robot probes had sent back similar pictures in the past, but none would have the impact of the view seen through the tiny porthole of Apollo 8, and no machine could interpret in words the meaning it would have for the human race.

One world, one blue, and vibrant world, set alone against vast emptiness. All of our lives, our hopes, our differences and disputes, were all confined to this one oasis, this Island Home in the universe.



In the 40 years since this photo was taken on 24 December, 1968, we have seen Earth through the rings of Saturn, and from the very edge of our solar system. But nowhere, yet, have we found a place as warm, wet, and inviting as our own Earth.

Astronomy Outreach

Dr. Ken Kremer

The club hosted me at the December RAS monthly meeting. Snow storms forced cancellation of my other talks, to be rescheduled in 2009.



“Daring Flight of the Phoenix: Icy Jackpot Hit on Mars (in 3-D)”; presented by Dr. Ken Kremer, NASA JPL Solar System Ambassador, at the Dec 10 meeting of the Rittenhouse Astronomical Society. Two viewing screens ran simultaneously



RAS members and friends experience 3-D views from the Phoenix Mars lander at Dec 10 meeting and asked lots of great questions for an enjoyable evening of astronomy.

Please contact me for more info or science outreach presentations by email. My upcoming Astronomy talks include:

Amateur Astronomers Association of Princeton: Princeton, NJ, Jan 13, Tue, 8 PM. “Daring Flight of the Phoenix & 5 Years of Mars Rovers (in 3-D)”.

Website: <http://princetonastronomy.org/activities.html>

Doylestown Presbyterian Church: Doylestown, PA, Wed, Jan 7, 6:30 PM. “Phoenix and the Twin Mars Rovers in 3-D”. Website: <http://www.dtownpc.org/frames12.html>

Riverside Elementary School, Family Astronomy Night: Princeton, NJ, March, 6 PM. “Phoenix and the Twin Mars Rovers (in 3-D)”.



10 Dec RAS meeting: Ken Kremer describes the 9 Jun 2008 Aviation Week magazine cover he created soon after the Phoenix spacecraft landed on 25 May and which shows the discovery of water ice blasted free by the retro rocket thrusters on the Phoenix lander at the martian north polar region. See the full Mars mosaic at the Astronomy Picture of the Day (APOD) website on 12 June 2008: <http://antwrp.gsfc.nasa.gov/apod/ap080612.html>



Ken describes high resolution 3-D view of Phoenix Mars lander and crowd at 10 Dec meeting. Thanks to Dave Walker for many nice crowd shots during the lecture.

Upper Moreland Middle School: Hatboro, PA, Wed, March 25, 7 PM. “Mars Day Celebration: Phoenix and the Twin Mars Rovers in 3-D”.

Dr. Ken Kremer Email: kremerken@yahoo.com
 NASA JPL Solar System Ambassador
 Website: <http://www.rittenhouseastronomicalsociety.org/Dr.Kremer/K.htm>

The Red Square Nebula: Extreme Symmetry in the Cosmos

Ivin Williams

Adjectives such as beautiful, dazzling and stunning are often used to describe various celestial objects but in April of 2007 when a composite infrared image of a remote star in the constellation Serpens was released, astrophysicists turned to a less colorful but perhaps more accurate description of what they saw: symmetrical. Scattering red light in almost perfect symmetry like some kind of celestial red jewel box, the Red Square Nebula along with it's extremely white core star MWC922 is about as breathtaking an image as anything that has ever been observed in the cosmos when viewed in the infrared region of the electromagnetic spectrum. Astrophysicists don't fully understand why this particular nebula appears so symmetrical especially when many other nebulae out there look like brilliantly colored puffy clouds in almost every conceivable shape. Is the Red Square Nebula really a glowing celestial red box and if so, are there other nebulae or objects out there in the cosmos that are just as symmetrical?

The Red Square Nebula and it's dying host star MWC 922 lies some 5500 light years away from us in the constellation Serpens within our Milky Way Galaxy. It stretches a 1/2 light year across and compared to say the Eagle Nebula which has become a pop icon in the cosmos due to NASA's photo called the "Pillars of Creation", the Red Square Nebula seems quite orderly and almost calm like. The interstellar medium which are those vast regions of dust, gas and plasma with higher average density is often the culprit for many of those spectacular cloud like images that the Hubble Telescope provides us. The Red Square Nebula is quite different from the Eagle Nebula and other similar nebulae though because what we are seeing from here on earth that looks like a glowing red square or a box is almost certainly an illusion. This particular nebula looks to be what is called a bipolar nebula and what is probably really taking place is that MWC922 is shooting out it's innards of dust, gas and whatever else in the form of dual cones located on opposite poles. The actual physics involved is a little too lengthy to get into here and I will be more than happy to discuss it in more length with anyone who might be interested but basically, this process when viewed from just the proper angle like say from right here on earth,

creates an X that gives us the illusion that we are actually seeing an object in the shape of a square or box.

Bipolar nebulae exhibit distinct symmetric characteristics that are often the result of two lobes that are attached to a core object which is exactly what the Red Square Nebula features. Certain planetary nebulae are also bipolar in shape like the exotic "Wings of a Butterfly Nebula" which is extremely interesting because if the Red Square Nebula turns out to be a planetary nebula, then we know that the celestial symmetry we are now seeing is actually on borrowed time due to planetary nebulae being remnants of exploding stars called red giants. The Red Square Nebula could also possibly one day become a supernova remnant like 1987A which has also been suggested due to the many similar internal features that both seem to exhibit.

The Red Square Nebula is not the first symmetrical celestial object that astronomers have observed. In 1973, images of a nebula dubbed The Red Rectangle located near the Monoceros constellation were released and like the Red Square Nebula, it seems to be shooting out dual jets. Peter Tuthill of Sydney University in Australia and James Lloyd of Cornell University in New York are the astrophysicists who discovered the Red Square Nebula and it was team leader Peter Tuthill who coined the term, the Red Square due to it's color, shape and almost certainly in recognition of the Red Rectangle Nebula. Using data from both the Hale Telescope on Mt. Palomar in California and the Keck-2 Telescope on Mauna Kea in Hawaii, this team provided us with an image that is very difficult for one to forget after having viewed it.

The Red Square Nebula is an enormously beautiful and exotic looking nebula when viewed in the infrared but primarily due to the fact that MWC922 is a dying star, we earthlings should not get too comfortable with it's extreme symmetry because dying stars like MWC922 are just that and they usually last for a relatively short period of time before cooling down and becoming white dwarfs or another less spectacular body. The 35 year wait between images of celestial objects that also exhibit such symmetry suggests that must be extremely rare but again keep in mind that what we are looking at is really an illusion and as new generations of telescopes and other instruments come along, there almost certainly will be more celestial symmetry discovered for us here on earth to gawk over.



A Note from your Student Web Master

The new student website has been off to a great start this past year and offers a wide range of astronomical events and sightings for the beginner to the more advanced backyard observer. I have named it the Students Portal because we really want to make it a one stop place for all of our members to go to so they can quickly find events or objects to look for in the night sky incase they are interested in observing that night. Monthly features include skymaps, observing tips and tricks, deep sky objects, and planetary information. For those of you who like to get this information through the new web technology known as RSS (Really Simple Syndication) we also provide this option. RSS is a quick way to download all of this information right to your computer through a free source like Google IG or NetNewsWire. Instructions on how to sign up for these services can be found under the subscription information link.

Secondly, a great new technology on the web known as Podcasts have also hit home with our Students Portal. Podcasts are a free service that anyone can download. Using popular software like Apple's iTunes, you can 'subscribe' to our podcast for free and it will be downloaded directly to your computer each month! If you use other 'podcatching software' use the following link: <http://rittenhouseastronomicalsociety.org/Student/media/podcast.xml> and you will be subscribed to our podcast! We really are trying to make the podcast user friendly and a great supplement to the Student Site. We include more information in the podcast so it is definitely worth the listen! Finally, if you just click on the link on the podcast page the podcast will start playing right on your computer. We have a growing archive of the podcasts on our Podcast page on the student site which is linked from the Rittenhouse homepage: <http://rittenhouseastronomicalsociety.org>.

We are really trying to make the Students Page an interactive site for all of our members to go to! We are always encouraging you to submit content and we would be more than happy to post it on the site with your name. One idea that I have for the Student site is an observing reports page where members can submit their reports of their observations of any night along with pictures if you are interested in astrophotography.

I hope you have time in the New Year to take a look at our student's page and I'm sure you will find something of interest there! We are always growing and would love to hear your feedback. We have made it very easy for you to get in touch with Rittenhouse. Just click the Contact

link on the left hand site of the student's page and your email will be sent to the friendly Rittenhouse volunteer staff. I hope you have a great and safe New Year and many wonderful nights of observing! We look forward to your contributions to the student site! As always ...

Happy Hunting, and Clear Skies

Daniel McCormick
RAS Student Liaison
Student Webmaster

Space Trivia

What animals were used as test subjects in landing impact tests for the Mercury capsule?

- Pigs. Placed in contour couches (on their backs), the supine swine survived 52-g impacts, protected by a crushable aluminum honeycomb energy-absorption system. All were able to get up and walk away.

Who was the first astronaut selected from the U.S. Army?

- Robert L. Stewart (Eighth astronaut selection - 1978)

Happy New Year and Seasons Greetings from Your Officers and Members-At-Large

President.....	Milt Friedman
Vice-President.....	Alan Daroff
Secretary/WebMaster.....	Ted Williams
Treasury/Newsletter.....	Ruth M List
NASA Liason.....	Dr. Ken Kremer
Instructional Technology Advisor.....	Mike Mountjoy
Fels Planetarium Liason.....	Dave Walker
Observatory Liason.....	Carol Ludolph
Student Liason.....	Daniel McCormick
Science Journalist.....	Eric Van Osten
Amateur Cosmologist.....	Ivin Williams

Our **NEW** Mailing Address:

Rittenhouse Astronomical Society
P.O. box 283
Feasterville, PA 19053-0283