

Southern Skies

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President's Message

April Whitt

Jim Cherry Memorial Planetarium
Atlanta, GA

This spring I participated in webinar training for Communicating about Climate Change. Earth to Sky coordinated the webinar, and all the information is available at their web site: <http://www.earthtosky.org>

The program was offered jointly by NASA, the U.S. Fish and Wildlife Service, and the National Park Service. Speakers presented background on the science, what we know and what the trends appear to

Rates and submission formats for advertising space in SEPA's quarterly journal *Southern Skies* are:

Rates	Dimensions
\$100. high	Full-page 7" wide x 10" high
\$50. high	Half-page 7" wide x 4.5" high
\$25.	Quarter-page 3" wide x 4" high

These rates are per issue and in B&W copy. The entire back cover of our journal is also available either in B&W for \$125, or in color for \$150. A 10% discount to any size ad can be offered only with a year's (four issues) commitment of advertising. Ads accepted on a space available basis. Ads must be camera ready and conform to dimensions listed. Payment must accompany advertisement order, made payable to the Southeastern Planetarium Association (send payment to Secretary/Treasurer Patsy Wilson). The underlying mission of our advertisements is to promote resources, products, and services related to the planetarium profession. SEPA reserves the right to refuse advertisements.

be, and how to include the subject in interactions with the general public.

Of interest to me was the "Six Americas" analysis. Yale University hosts a Project on Climate Change Communication (<http://www.environment.yale.edu/climate/>) and has interviewed thousands of American adults, polling them about the causes of climate change and determining how concerned the general public, and members of various political parties, are about the issue. As might be expected, there is a wide range of knowledge and opinion on the subject.

We get people asking all sorts of questions after our planetarium programs. From "Is it true that Earth's axis moved by four degrees after the Japan earthquake?" (sorry - more like four inches) to "Will the observatory be open Saturday night so I can see the Supermoon?" (sorry - the observatory is closed on Saturday night, but you might try your backyard) (and it wasn't on a Saturday anyway). We all get questions like these, and have the opportunity to do some really good teaching.

The webinar provided some ideas about how to get people thinking. Many of the participants work with visitors to national parks and recreation areas. People go to those places because they're interested in what's there, and to ask questions of experts (kind of like our visitors). We've probably also had the visitor who already knows the answer and wants

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SEPA President April Whitt

IPS Report

John Hare
ASH Enterprises
Bradenton, FL

The following is the third of three reports on the proposed sites for the 2014 IPS Conference. Beijing, China was featured in the fall 2010 edition of SS and Rio de Janeiro, Brazil was featured in the winter 2011 edition of SS.

H. R. MacMillan Space Centre
Vancouver, Canada.
Proposed conference dates are Friday, June 27 to Wednesday, July 2, 2014.

The registration cost will be \$450 CDN. The Banquet is extra. The conference headquarters will be the University of British Columbia.

Accommodations will be available on campus and range from \$44 to \$183 CDN per night. A variety of World-Class hotels are available in nearby downtown Vancouver. Various sites on campus will be utilized for vendor exhibits, papers, poster, and plenary sessions.

Additional activities, including the opening reception and planetarium demonstrations, will take place at the H.R. MacMillan Space Centre. Transportation between the UBC campus and the H.R. MacMillan Space Centre will be provided by busing delegates between the sites. These buses will be running throughout the conference to connect the Planetarium with the conference site.

The main planetarium theater is a 19.8m dome containing 230-seats and a Zeiss Universal Mark III projector. There is "generous space" in the cove area to accommodate vendor equipment. Other Space Centre facilities include a 209-seat auditorium, an 87-seat multimedia theater, the Cosmic Courtyard - a 500 square meter exhibit area, and the Gordon MacMillan Southam Observatory.

The proposed conference theme is Inform, Inspire, Provoke - the Planetarium as Storyteller.

The population of Greater Vancouver, including all major suburbs, is just over 2 million people. The city of Vancouver itself has 565,000 and these "Vancouverites" originate from more than 60 cultural groups. This multicultural flavour is threaded throughout the region in the restaurants, festivals, and unique neighborhoods that make up Vancouver and the Lower

(Continued on page 17)

Editor's Message

James Sullivan
Buehler Planetarium & Observatory
Davie, FL

I would like to thank everyone who contributes to *Southern Skies*. I hate to think what the journal would like without all those contributions: a couple of ads and a cover. It would take less time to edit and be cheaper to mail, but it wouldn't be very fulfilling to read.

I especially want to thank long time contributor Betty Wasiluk, whose insights often ring true with my own experiences in the dome. Also, Woodrow Grizzle has been enlightening us with tidbits from the astronomical past, which I look forward to reading each quarter. In addition, Robin Byrne continues giving us wonderful book reviews. I am sure that everyone finds this helpful, since with the limited funding nowadays no one wants to spend money on a worthless book.

Furthermore, I wish to thank the state coordinators for gathering the news, and thanks to all of you who contribute.

We can receive electronic files in most any format. Also, graphics can be received electronically or in hardcopy, including slides or photos, and will be converted to digital with sufficient resolution.

Submission deadlines: January 1 (Winter), April 1 (Spring), July 1 (Summer), October 1 (Fall).

Thanks to Broward College and its wonderful printing department for assistance.



Paul Campbell Fellowship Award Nomination Form

Nominees must have been a member of SEPA for at least ten years, and they must display qualities in each of five areas, as represented by the five-pointed star shaped award: integrity, friendship, service, knowledge, and vision. Please submit this form to any SEPA Council member.

Nominee's Name: _____
Qualifications: _____

SEPA Membership Form

Please send your check to SEPA, c/o Patsy Wilson, Margaret C. Woodson Planetarium, 1636 Parkview Circle, Salisbury, NC 28144.

____ One Year, \$25 (\$15 outside SEPA geographical region)

____ Two Years, \$40

Name _____

Organization _____

Planetarium _____

Address _____

City _____

State / Zip Code _____

Voice Phone _____

Fax Phone _____

Email Address _____

Staff Position _____

IPS Member? Yes _____ No _____

Contribution to Scholarship Award Account: \$ _____

Small Talk

Elizabeth Wasiluk
Berkeley County Planetarium
Hedgesville, WV

It has been a long haul until Spring Break time and as I write this, it is still over a month away. The natives are really restless. By natives, I mean students and people who neglected to reserve their planetarium programs until the last two months of school. There are over a dozen reservation forms I have that I look at, look at my calendar, shake my head and look at this list again.

Also, some of my astronomy students are exhibiting really childish behavior; don't know, maybe it is spring fever before the weather gets warm or a result of the latest grades. The astronomy class seemed to do really poorly this grading period as a result of their failure to go outside and look at the moon and keep a lunar log. They were supposed to observe the moon on four separate nights during a nine week period. I guess it was hard prying them away from their video games and I-pods, or was it the rash of cloudy weather? The class did not do well (read that as not submit any observations at all) on this assignment. Looks like some seniors will be looking at something else to do come graduation time.



I remember mentioning this to Dennis Schatz, once, <http://www.dennisschatz.org/bio.html> from the Pacific Science Center when he was demonstrating the activity of "Keeping a Lunar Log" <http://www.udel.edu/physics/scen102/00/HS/lunarlog.htm>.

What does he do with kids who refuse to do the activity and he said he doesn't know because he doesn't have that problem. Do you have any suggestions when whatever cool activity you try with adolescents gets a "This is stupid. This is boring."? A hydrogen alpha view of the sun doesn't even faze them. (Pardon the pun.) Come to think of it, getting an "F" doesn't seem to bother them either.

I do have good news to tell you. My students won the annual pulsar search data analysis marathon. This is the third time they beat out schools from around the country by examining datasets from the Robert C. Byrd Radio Telescope in Green Bank, WV. Go here and click on the button to read the marathon results: <http://psrsearch.wvu.edu/psc/> Even better, although my students were not involved, was that there were four discoveries of pulsars this school year by other middle school and high school students. Go here to read about the discoveries: <http://pulsarsearchcollaboratory.com/> One student from Sherando High School, not far from us in Virginia, may have discovered two! In total this makes five discoveries in three years by students. The program really seems to be paying off. Read more about their discovery at this web site: <http://www.nrao.edu/pr/2011/studentpulsar/>

Did you do your "Globe at Night" observation? This year, the "Globe at Night" people had two extended lengths of time to do both Orion and Leo. Again, it was really hard getting the astronomy class to do their observations. Check out the data at: <http://www.globeatnight.org/> Did you find a way to incorporate observations with people who visited your dome? Drop me a line and let me know.

Alright, is your planetarium plagued by mice? Just caught about five this year in the planetarium's storage room. I was told I need a planetarium cat. A mouse electrocuted itself gnawing on some wires. Do you have any safe solutions for ridding mice from around the dome? Please share your ideas.

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Small Talk (Continued from page 6)

Did you celebrate Astronomy Day on the May 7th date as suggested or hold an alternative date to view the sky? A club I belong to, the Tri-State Astronomers, will be holding a star party a month early at the Antietam Battlefield. You can go here to check out a flyer of the event: <http://www.tristateastronomers.org/ANB-poster4-2011.pdf> This event happens twice a year, in spring and fall, however, it ties in with the 150th anniversary of the Civil War this year.

The Tri-Staters also had a barn door raising, building a barn door contraption to take pictures. All members jumped in by pooling resources and labor. I have included a picture from the get together. It was one of those rare spring days around here on the day we got together at a fellow member's donated workspace. In between working, we went out to look at a now more active sun through a solar telescope. When I mentioned this to Dave Hostetter at the planetarium at the Lafayette Science Center in Lafayette, LA, in an e-mail he fired back, "Yeah, I saw it in my PST (Personal Solar Telescope) - very, very cool! Then the incredible, deadly gravity of the terrible Supermoon of Death ripped the PST off its mount, suspended it in mid-air, and shook it. I got pictures, but they didn't come out."

Well, regardless of the way you define "small" drop a line and share with everyone the goings on in your dome, strange or otherwise.



Two Tri-State Astronomers donate time to work on the barn door trackers club members are making as a group to mount on a tripod and take astro photos.



Here I am screwing in the hinge for my Barn Door Tracker.

Remember your State Coordinator!

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Archeo- astronomy

Cross-Referenced: Cross-quarter Days Then and Now

Part III: Beltane

Woodrow W. Grizzle III
Elizabeth City State University Planetarium
Elizabeth City, NC



Eiar: spring personified. A.D. 2nd-3rd century. Floor mosaic, glass and ceramic tesserae. House of the Drinking Contest, Antioch, Syria. Virginia Museum of Fine Arts. 2010.

May Day! Our calls for reprieve from winter's chill have, at last, been heard, and spring is here. The bent and grizzled and spry and svelte alike rejoice at the Sun's return, felt upon the cheeks of her children across our terraqueous globe.

We now look toward spring in part three of our journey along Earth's orbit, in which we pause briefly near the cross-quarter days to observe and reflect upon these little known and oft-forgotten moments in our planet's long dance about the Sun.

Beltane is the next upcoming cross-quarter day. Coming from the Gaelic name for month of May, Beltane can mean either the entire month or the festival taking place on the first day of May. Summer traditionally begins on this day in Ireland, Scotland, and the Isle of Man. The Beltane festival will sound familiar to those who have read the previous installments of "Cross-Referenced." Great bonfires are lit and various purification rituals are performed to purge evil spirits from the land and bring good fortune to its people. Like Imbolc, Beltane also has a furry creature connection, which will shortly become revealed.

Beltane literally means "fire of Bel," which is a shortened version of Belinos, one of the many names for the sun god. The celebration of Beltane, with its bonfires and feasts, marks the coronation of Belinos. This coronation is in honor of the sun's return from the lower celestial latitudes and the light and life that returns to Earth during the spring months.

The fires of the returning sun brought forth the reemergence of passion in these ancient people. In ancient times, Celtic youths spent the entire night preceding the Beltane feast "A-Maying," which is a sort of all-night frolic. Married couples were allowed to remove their wedding rings for this one night and



"Maypole Revelers" A.D. 18th century. Woodcut print on vellum. Public Domain.

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Archeoastronomy (Continued from page 8)

indulge their ids as they saw fit. At dawn, they would then gather to decorate with flowers and dance around the Maypole, an erected pole of phallic suggestion. Revelers would dress in new clothes, braid flowers into their hair and decorate their homes with flowers and other greenery gathered from the forests and meadows.

The rise of Christianity in the A.D. early centuries saw a transformation of the Beltane festival of light and life into Easter, a time of remembrance and reflection upon death, resurrection, and eternal spiritual life. The phallic Maypole was replaced with Calvary's Cross and a life-giving festival of a different sort emerged. Retained, however, were the new clothes, decorations with flowers, and symbols of new life, such as the Easter egg.



"Easter Greeting" A.D. Early 20th century. Linen postcard. Public Domain.

Eggs have long been associated with new life for obvious reasons. The young chick develops and resides within its shell, emerging as if by magic after (for chickens) 21 days. The egg's rounded shape also suggests the cycle of life: birth, re-birth, and resurrection, which are key facets of the Christian faith. Around the time of Beltane, birds begin to lay eggs, and so it is with the many species of plover, which are wading birds that nest upon the ground and lay their eggs in the grass of verdant meadows. Young rabbits and hares also begin to emerge at this time of year, leading the ancients to associate rabbits with eggs found in the grass, and thus giving rise to the Easter Bunny.

Delving into the traditions of our cross-quarter days reveals the origins of many odd observances. From



"Killdeer, a kind of plover." Photograph. U.S. Fish & Wildlife Service. 2010.

groundhogs to Easter Bunnies, maypoles to new clothes for Easter, much lies hidden in these nearly forgotten moments of Earth's orbit. Perhaps the most fascinating part of it all is the astronomical root that ties all of these observances together. So much of our experience as humans exists as it does because we live on this planet, with its particular motions and celestial neighbors, and it reveals a connectedness between our lives and the rest of the universe. The earth and the sky make us who we are as a species.

A Side Note: Beltane has enjoyed a modern revival since the late 20th century. The Beltane Fire Festival occurs each year since 1988 on the night of April 30th in Edinburgh, Scotland. Up to 15,000 people revel in the flames on this exciting night of fire, dancing, and drama. Participants act out various ancient rituals and set alight many effigies, with a great bonfire lit to welcome Beltane morning. Over the years, the Festival has grown and is now a ticketed event. If you plan to be in Scotland in late April, you might want to check it out. More information can be found at <http://beltane.org/>.

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Dollars and Sense

Patsy Wilson
Margaret C. Woodson Planetarium
Salisbury, NC

Greetings from your SEPA Secretary/
Treasurer!

Mickey Jo Sorrell and I have finished transferring all databases, accounts and paperwork for the Secretary/Treasurer. I'm in the process of becoming familiar with the job, the records and the accounting. I've come to realize that SEPA owes Mickey Jo a huge "THANK YOU" for her dedicated service over the past several years. This is not an easy task, but she did a great job.

\$ As you prepare for the 2011 conference in Young-Harris, GA, remember that your membership must be up to date to participate. If you aren't certain when your membership expires, contact me.

\$ Thank you to those who have sent membership renewals during the first quarter of 2011.

\$ Remember, there are professional development financial grants available to help allay the cost of attending conference. All you have to do is apply.

\$ Vendors: Thank you to those vendors who have advertised in *Southern Skies*. It's a great way to inform the planetarium community about your products.

\$ Give some consideration to a project for SEPA to fund. We've done two shows in the past that were very well received. We have adequate funding to pursue innovative ideas that could benefit our membership. The council would love to hear from you.

2010 Year End Financial Report for the Southeastern Planetarium Association Submitted by Mickey Jo Sorrell February 15, 2011

All funds held at Branch Banking and Trust Company, Chapel Hill, North Carolina.

Balances as of 12/31/10:

Operating	21,046.04
Savings	24,649.59
Scholarship	<u>7,864.19</u>
Total	53,559.82

Operating Account

Balance (01/1/10) **2,951.26**

Income:

Full Membership	2,115.00
Associate Membership	495.00
Journal Ads	2,260.00
"The Planets"	150.00
Conference 2009	1,362.17
Conference 2010	16,305.13
Total Income	<u>22,687.30</u>
Total credits	<u>25,638.56</u>

Disbursements:

Journal (six issues)	4,140.92
Website and hosting	305.75
Bank Charge	15.00
Plaques	130.82
Total Debits	<u>(4,592.52)</u>
Balance (12/31/10)	<u>21,046.04</u>

Savings Account (1/1/10) 24,448.15

Interest earned	<u>161.44</u>
Balance (12/31/10)	<u>24,649.59</u>

Scholarship Account (1/1/10) **3,060.58**

Auction	693.61
Donations	735.00
Vendor Contributions 2010 Conference	3,375.00
Total Contributions	<u>4,803.61</u>
Balance (12/31/10)	<u>7,864.19</u>

President's Message (Continued from page 3)

a game of "Stump the Astronomer." One of the suggestions in the webinar was that instead of being the know-all expert, to really listen to what people were saying or asking, and get them to work out ideas for themselves.

It's all right for people to leave wondering about what they've seen and heard, and encouraged to go find out more. Check out the Earth to Sky web site. There's some good stuff there.

By the time you read this, the Mountain Top Experience of the SEPA conference will either just be beginning or just ended. Steve Morgan deserves a round of applause for his excellent coordination and hard work hosting us in Young Harris, Georgia. I hope that successful applicants for the Professional Development Stipend enjoyed the meeting and have new ideas and information to share with their audiences.

And how about those great door prizes? Thank you, vendors! Write them an e-note, or drop them a line through postal mail, and let them know we appreciate their support.

While you're in "send" mode, how about a note or an article for the *Southern Skies* journal? Let your state representative know what's happening under your dome. Share a teaching or technical tip with us. Let us know about a great web resource. Send a story to one of the regular columnists. Read any good astronomy books lately?

And finally, a moment of silence for the *Stardust* spacecraft. March 25th, at 3:30 p.m. (EDT) the on-board sequence issued the command to place the spacecraft into safe mode and turned the transmitter off for the last time.

Adapted from Anita Sohus' posting: On March 24, 2011, at about 1 p.m. EDT, four rocket motors on NASA's *Stardust* spacecraft were scheduled to fire until the spacecraft's fuel was depleted. This burn effectively ended the life of NASA's most traveled comet hunter. *Stardust*'s burn to depletion was expected to impart valuable information, because the spacecraft has essentially been running on borrowed time for some time. Without fuel to power

the spacecraft's attitude control system, *Stardust*'s solar panels do not remain pointed at the sun. When this occurs, the spacecraft's batteries are expected to drain of power and deplete within hours.

Launched on Feb. 7, 1999, *Stardust* had already flown past an asteroid (Annefrank), flown past and collected particle samples from a comet (Wild 2), and returned those particles to Earth in a sample return capsule in January 2006 - and in so doing racked up 4.63 billion kilometers (2.88 billion miles) on its odometer. NASA then re-tasked the still-healthy spacecraft to perform a flyby of comet Tempel 1, a new, low-cost mission that required another five years and 1.04 billion kilometers (646 million miles). After all those milestones and all that time logged on the spacecraft, the *Stardust* team knew the end was near. They just didn't know exactly how close. Since no one has ever developed a reliable fuel gauge for spacecraft, engineers make best guesses about how much fuel a craft has left at any time. *Stardust*'s burn gave valuable data that will aid in future missions.



One of the nice parts of my job is working with students. These two young ladies visited the planetarium for the Saturday morning live "The Sky Tonight" program as research for their school projects. They sent me pictures of their completed projects, both of which received high marks. Way to go, girls!

Discovery: STS-134 from VAB to OPF: A complete mission cycle

Suresh Atapattu
Buehler Planetarium & Observatory
Davie, FL



January 31st, 2011: "Discovery" departs high bay #4 for STS-133 mission (38th & final). Last time she will do this if plans do not change..again. The shuttle stack's (orbiter + external tank + 2 solid rocket boosters) height: 56.14 m (184.2 feet) tall. It sits on the mobile launch platform (MLP) which is 7.6 m (25 feet) tall. The MLP rest on the transporter which is approx. 6.1 m (20 feet) tall. Total height = 69.84 m (223.13 feet). The United Space Alliance workers at the different levels show the scale of this vehicle.



January 31st, 2011: "Discovery" departs high bay #4 for STS-133 mission (39th & final). During Space shuttle build-up operations inside the VAB, integrated SRB segments are transferred from nearby SRB assembly and checkout facilities, hoisted onto a Mobile Launcher Platform in High Bays 1 or 3 and mated together to form two complete SRBs. The ET, after arrival by barge, is inspected and checked out in High Bays 2 or 4 and then transferred to High Bay's 1 or 3 to be attached to the SRBs already in place. The orbiter is then "mated" with rest of "stack."



January 31st, 2011: Discovery on a crawler heading towards launch complex 39A - and its final mission - STS-133. It is the second trip to the launch pad; the orbiter had to be taken back to the VAB for scans and repairs. The Nov. 5 launch attempt was aborted due to a leaky Ground Umbilical Carrier Plate (GUCP). Engineers also found a section of popped up foam on the shuttle's external tank. Further inspection showed that the cracks extended all the way down to the aluminum skin of the external tank. These were all fixed.

February 23rd, 2011: "Discovery" has just been

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"unveiled" as the Rotating Service Structure (RSS) has just been rolled back on a unusually cold and foggy Florida night. The cockpit cabin lights are on as technicians work to preset the switches to launch configuration (this reduces the work load for the pilots at launch time). Soon all non essential personnel will have to retreat to the safety of 3.1 miles as the 12 hour tanking process begins for tomorrow's fireworks.



February 24th, 2011: The "astrovan" carrying the STY-134 astronauts to the pad pauses in front of Kennedy Launch Control to drop off the launch director and the chief astronaut. This is a standard ritual of launch preparations. NASA workers gather outside to cheer on the astronauts.



February 24th, 2011: "Discovery" blasts off on her 39th and her final mission. Here the water clouds and the SRB exhaust smoke have rapidly consumed the LC-39A complex and spread about .5 miles end to end in seconds. White clouds are water vapor.

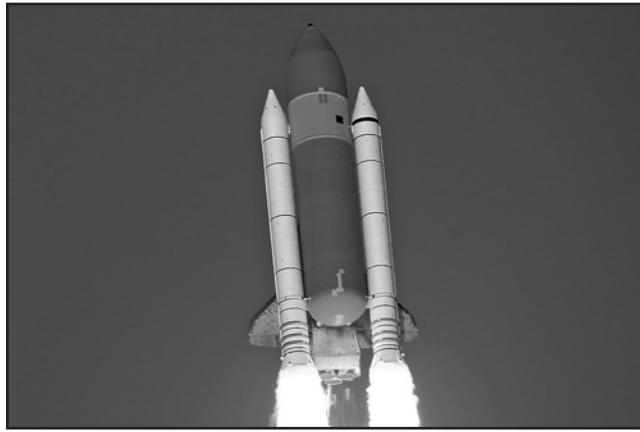


February 24th, 2011: "Discovery" starts accelerating and her roll to get into the orbital insertion angle for the very last time. At this moment she has 142,917,535 miles on the odometer and will accrue approx. 5 million more. As designed two covers of the front reaction control system nozzles are falling off with one about to be burned in the lower part of the picture and other is at the mid deck level.



February 24th, 2011: "Discovery" begins her roll program that will put her the correct attitude to reduce dynamic stress while accelerating to the escape velocity that will put her into Earth low orbit at approx. 225 miles and 17500 miles per hour. As soon as she clears the large lightning rod on the Launch Complex 39A tower, the space shuttle stack roll over on her back so that she enters space in an upside down and head down orientation.

(Continued on page 14)



February 24th, 2011: "Discovery" continues her roll program that will put her the correct attitude to reduce dynamic stress while accelerating to the escape velocity that will put her into Earth low orbit at approx. 225 miles and 17500miles per hour. The two solid rocket booster that provides approximately 76% of the take off thrust can be clearly seen here.



February 24th, 2011: "Discovery" blasts off on her 39th and her final mission. Here the water clouds and the SRB exhaust smoke have rapidly consumed the LC-39A complex and spread about .5 miles end to end in seconds. White clouds are water vapor; the brown smoke is from the solid rocket boosters. At 3 miles distance from the pad, the vibrations & noise are very loud too!

March 09th, 2011: Discovery on final approach to runway 15 at NASA-Kennedy Space Center,FL on her 39th and final mission on March 09th,2011. As the wakeup call for Discovery on one of her last flight days, the William Shatner,Canadian born actor famous for being the character Captain Kirk, read the following morning wakeup call: "Space, the final frontier. These have been the voyages of



the Space Shuttle Discovery. Her 30-year mission: To seek out new science. To build new outposts. To bring nations together on the final frontier. To boldly go, and do, what no spacecraft has done before."



March 09th, 2011: Discovery on final approach to runway 15 with Commander Lindsey in manual control of the spacecraft in the window. Last seconds of 365 days and last mile of 148,221,675 of space flight.



March 09th, 2011: A solemn funeral procession. A perfectly good and functional spacecraft on the way

(Continued on page 17)

SciDome XD

Extreme-resolution fulldome education is here. The new SciDome XD delivers over 2500 x 2500 pixels, and a stunning 8,000+ lumens for unbelievably bright, crisp starfields and graphics. Like all Spitz systems, XD offers the most comprehensive educational resources available, and the ease of use educators expect from SciDome - including the AutoWarp self alignment system.



Want a closer look at SciDome XD? Join us Wednesday May 4th for an open house at our Chadds Ford PA facility
Contact spitz@spitzinc.com or visit www.spitzinc.com/maps-day



Bookends

Robin Byrne
Bays Mountain Planetarium
Kingsport, TN

The Measure of All Things: The Seven Year Odyssey and Hidden Error That Transformed the World by Ken Alder

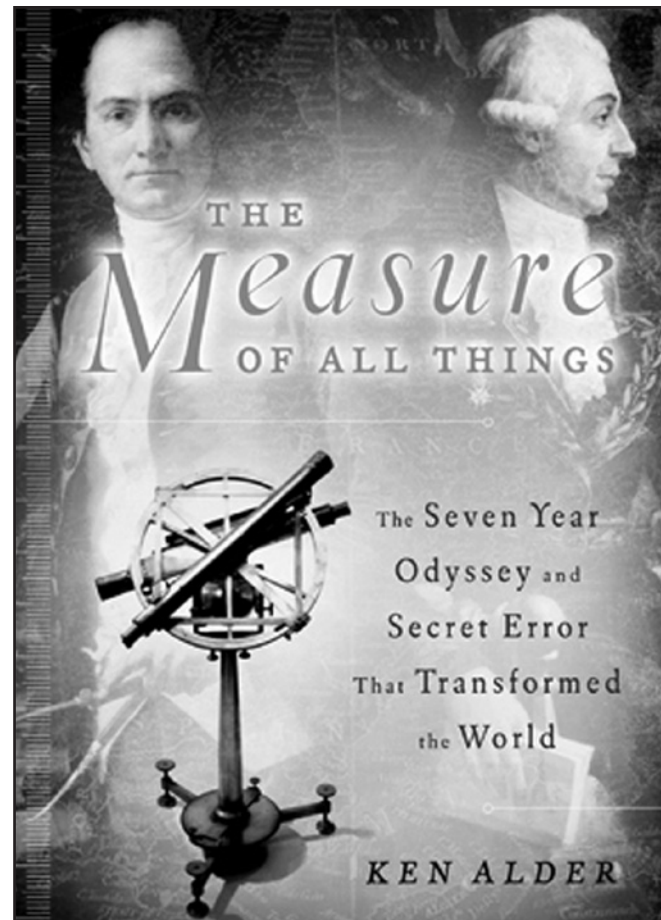
It's time, once again, to pull a book off the ol' shelf and review it. This time, the book is "The Measure of All Things: The Seven Year Odyssey and Hidden Error That Transformed the World" by Ken Alder.

If you're like me, the basis for our units of measure never crossed your mind. You may have heard that a foot was the length of some monarch's actual foot, the yard was the length of their arm, or an inch was based on the distance from the knuckle to the first joint of a thumb. Actually, it was even more random than that. In the 18th century, there were no standard units of measure. From town to town, not only the names of the units might change, but even if it was called by the same name, the amount might be different. It could also differ depending on who you are. For example, the amount of flour in a pound when bought by a merchant could be more than the amount of flour in a pound sold by that same merchant to a customer. This was how merchants made a profit.

Then the French Revolution came along. Under the banner of "egalite" (equality), the proposal for standard units throughout France was developed. However, these new units couldn't possibly be based upon a monarch's anatomy under the new democracy. A new standard would need to be used that transcended mere men. So, the decision was made to base the unit of length upon the size of the Earth. In particular, one ten-millionth of the distance from the pole to the equator would equal this new unit of length: one meter.

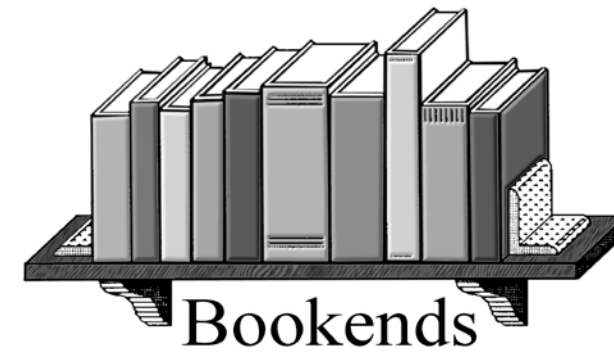
This meant measuring the size of the Earth with more accuracy than ever before. Obviously, measuring one quarter of the Earth's circumference was not a practical idea. Instead, a portion of this arc would be measured, and the full length would be extrapolated from that. The measured arc would run from Dunkerque, France at its northernmost point, through Paris to Barcelona, Spain at the southern terminus. The two men in charge of this task would be Jean Baptiste Joseph Delambre (for the northern portion) and Pierre Francois Andre Mechain (for the southern arc). These two men would spend seven years triangulating from city to city, measuring selected distances, and determining particular latitudes. Using the most precise equipment available at the time, their measurements would have accuracies measured in mere seconds of arc. Based on modern measurements of Earth's size, the standard meter, as determined by these two men, was off from the desired size by 0.2 mm. Not too shabby.

Alder also shows us that at the same time as units of length were being "decimalized," so were other units of measure, such as: currency, angular measures, and time. This was when the French Franc



(Continued on page 17)

Bookends (Continued from page 16)



was developed, which was divided into 100 Centimes. In the new system, there would be 100° in one quarter of a circle (instead of 90°). There would be 10 months of 36 days each in a year, plus a 5-day holiday. One week would have 10 days. Each day would have 10 hours, with each hour containing 10 minutes, and each minute 10 seconds. I can imagine the calendar printers and clock makers having a field day with all of the changes! Needless-to-say, most of these changes didn't last, and even the metric system of length was adopted with different levels of enthusiasm and enforcement, depending upon which regime was in power.

In "The Measure of All Things," you not only learn about the history of measurement, but also the ordeals suffered by Delambre and Mechain as they strove to complete their mission. Revolutionary-era France was in a constant state of upheaval, which added unexpected roadblocks, such as the threat of execution by local coalitions. Apparently contradictory measurements would contribute to Mechain's mental breakdown and inability to continue his work, and, ultimately, his attempt to cover-up what he (wrongly) assumed was a fatal flaw in his measurements. Add into the mix weather delays and physical injuries, and the fact that the project was completed at all is amazing.

If you relish a combination of history, biography and science, pour yourself a drink from a 2-liter bottle, so you can take some painkiller measured in milligrams, after being whacked over the head with a meter stick, and enjoy "The Measure of All Things."

"The Measure of All Things" by Ken Alder, The Free Press, 2002.

IPS (Continued from page 4)

Mainland area.

The Vancouver International Airport (YVR), located in Richmond, south of Vancouver's city centre, is a half-hour drive to the downtown core. On March 24, 2010 Vancouver International Airport was named Best North American Airport at the Skytrax World Airport Awards and 11th overall worldwide. The Vancouver International Airport serves over 41 international, national, and regional carriers.

At the business meeting at SEPA 2011, I will present an overview of all three invitations. I plan to attend the 2011 off-year IPS Council meeting in Novgorod, Russia that will be held in early July. I will cast my vote according to the wishes of SEPA. Feel free to bend my ear on any other IPS issues you may wish to discuss. If you're not planning to be in Young Harris for this year's conference contact me by e-mail to make your opinions known. <johnhare@earthlink.net>

Discovery (Continued from page 14)

to get her guts ripped out and powered down prior to "mummification" at the Smithsonian. "This is a pretty bittersweet moment for all of us. As the minutes pass, I'm getting sadder and sadder about this being the last flight. And I know all the folks involved in the shuttle program feel the same way."- Cmdr. Lindsey



March 09th, 2011: End of the line at a gloomy time of day: Discovery is towed to decommissioning place. Will be stripped of her engines and systems that make her live/function.

A Solar System Scale Model in the Eastern United States

Kris McCall
Sudekum Planetarium
Nashville, TN

Meet Jacob Larsen, a young man with big ideas.

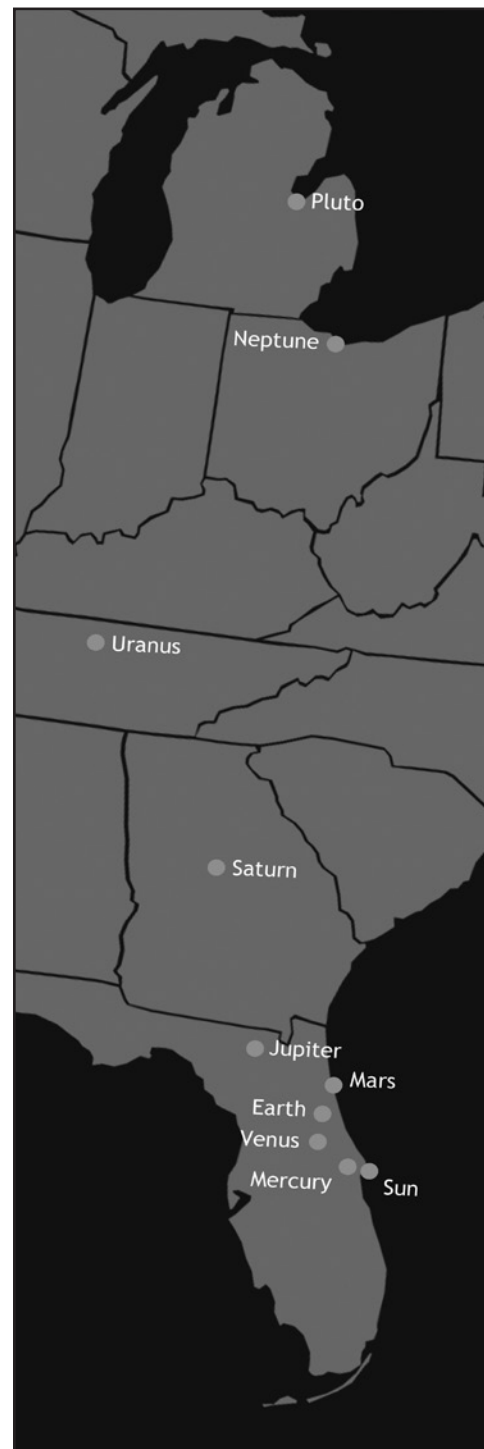
Jacob A. Larsen's interest in space began at an early age. His 10th birthday was celebrated at the Delta College Planetarium and Learning Center in Bay City, Michigan, where this scale model's Pluto is located.

Jacob read countless books and watched hundreds of programs about astronomy and space exploration. One program featured astronomer Sheldon Schafer who created a fifty-mile long scale model of the solar system in Peoria, Illinois, to illustrate for his students the huge distances between the planets.

At age 13, Jacob decided he wanted to build a scale model of the solar system in his own hometown, but soon decided the model needed to be larger than that. The proposed model would start at a nearby planetarium and end at a library - 18 miles away!

Jacob developed plans with the help of local astronomers. His parents made him do all the math by hand. After a year of effort, including attending government meetings, Jacob's dream became reality. After the ribbon was cut, Jacob was asked what his next project might be. He replied, "A national solar system."

To create this new scale model more than 1,300 miles long, Jacob worked with NASA and planetariums in five states. Jacob hopes this model will give people a better sense of the vast distances between



(Continued on page 19)

Solar System (Continued from page 18)

the planets in our solar system.

In 2009, when this model was completed, Jacob was 16 years old and planning to be an astrophysicist.

The Final Result

Jacob not only created a tremendous scale model of the solar system, he and his family visited all of the planets on their way from watching a shuttle launch in August 2009.



For this distance scale model of the solar system, the Sun is located at Kennedy Space Center next to the new Hubble exhibit outside the IMAX theater. Jacob worked with and received permission from NASA to locate his Sun poster at the Visitor Complex.



Mercury is located at the Astronaut Memorial Planetarium at Brevard Community College in Cocoa, Florida, 22 km / 13 miles from the Sun at Kennedy Space Center. According to Jacob there were many interesting exhibits here including some old ones



(Continued on page 22)

A great image begins with a great lens!



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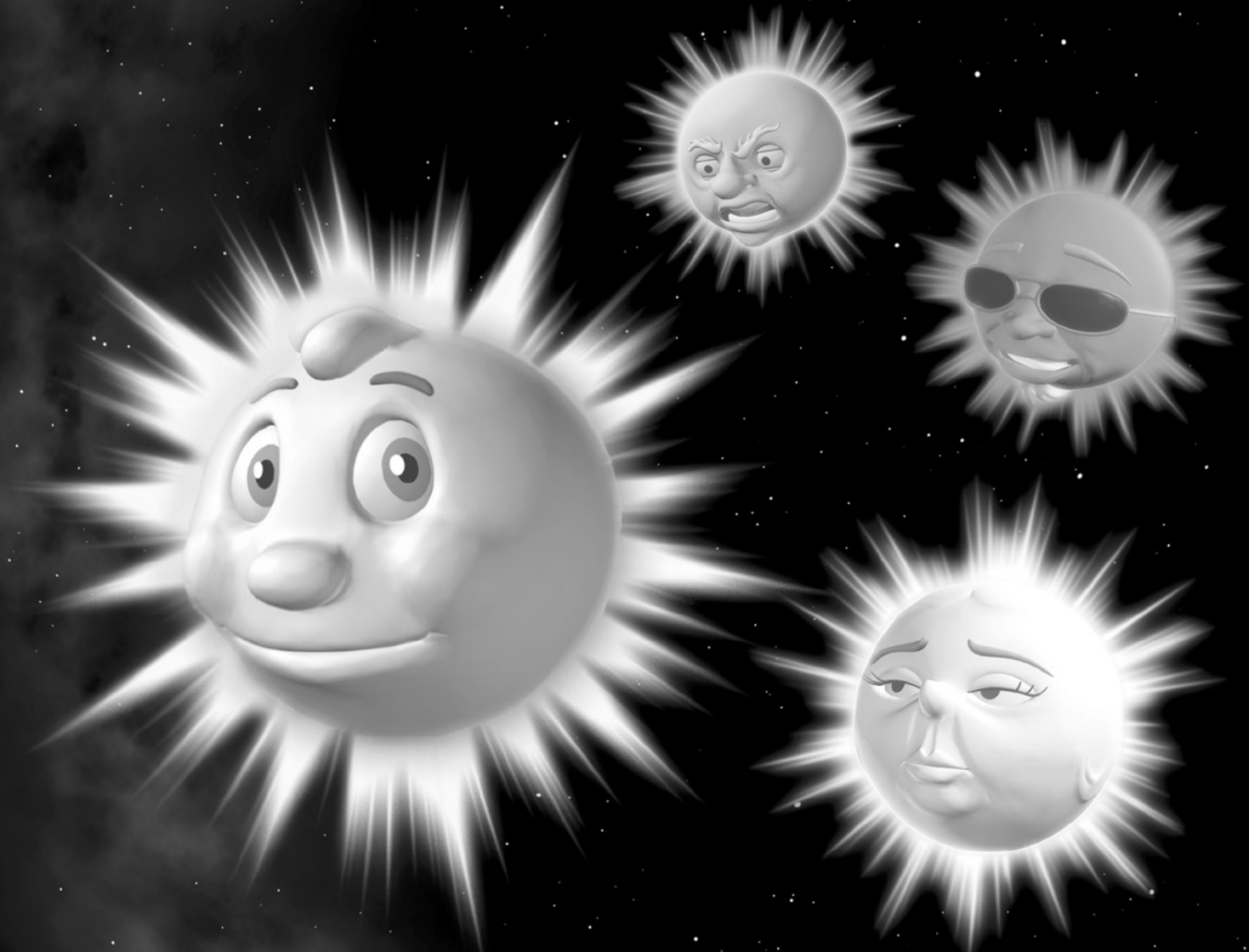
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Skypoint s.r.l.
Via Zorutti 145/11
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Fax: +39 0432 663473
www.mediaglobepanetarium.eu

All Other Inquiries Contact:

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Osaka, 550-0005 Japan
Tel: +81.6.6110.0570
Fax: +81.6.6110.0572
www.konicaminolta.com/planetarium

The Little Star That could



Sometimes, being average can also be special.



Solar System (Continued from page 19)
from the Kennedy Space Center.

Venus is located at the Orlando Science Center in Orlando, Florida, 40 km / 25 miles from the Sun at Kennedy Space Center. Jacob said there were activities for all ages at this science center.

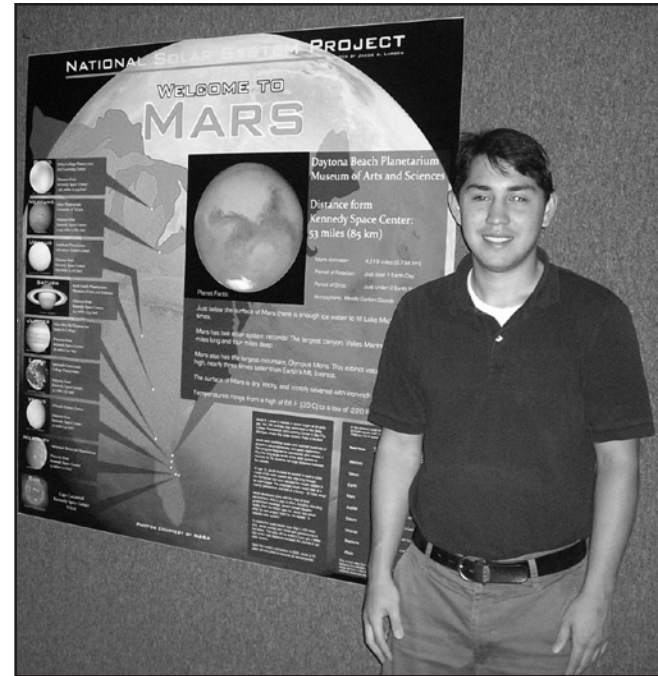


Earth is located at the Seminole Community College Planetarium in Sanford, Florida, 56 km / 35 miles from the Sun at Kennedy Space Center. According to Jacob, these were real characters that had him and his family laughing the whole time they were there.



Mars is located at the Daytona Beach Planetarium in the Daytona Museum of Arts and Sciences in Daytona Beach, Florida, 85 km / 53 miles from the Sun at Kennedy Space Center. One entire wing of the Science Center was flooded in early 2009 and

was closed when Jacob visited. Disappointingly, this included the planetarium.



Jupiter is located at the Kika Silva Pla Planetarium at Santa Fe College in Gainesville, Florida, just 291 km / 108 miles from the Sun at Kennedy Space Center. Several facilities had the chance to be Jupiter, but Gainesville was the only one to respond.

Saturn is located at the Mark Smith Planetarium at the Macon Museum of Arts and Sciences in Macon, Georgia, at a distance of 538 km / 334 miles from the Sun at Kennedy Space Center. Not only did Jacob appear on local television talking about the scale model project, he was also there on luau day and had lots of fun.

Uranus is located outside the Sudekum Planetarium at the Adventure Science Center in Nashville, Tennessee, 1,077 km / 669 miles from the Sun at Kennedy Space Center. Someone had to be the seventh planet. Why not us? I already had the hat because I attended a costume party impersonating the seventh planet. We usually refer to it as the seventh planet when talking to middle school students just to avoid the jokes.

Neptune is located at the Ritter Planetarium at the University of Toledo in Toledo, Ohio, 1,680 km / 1,044 miles from the Sun at Kennedy Space Center. Here, Jacob saw a beautiful refracting telescope and toured the science department of the university.

(Continued on page 23)

Solar System (Continued from page 22)



Pluto, whether you think it is a planet or not, is located at the Delta College Planetarium in Bay City, Michigan, 2,193 km / 1,363 miles from the Sun at Kennedy Space Center.



What does the future hold for Jacob?

Jacob plans on studying Astronomy and Astrophysics. He also wants to build a scale model solar system from coast to coast across the United States. The Sun would be located in California. Pluto would be located in New York - at the Hayden Planetarium. I don't think he has consulted with Neil DeGrasse-Tyson about this yet.

JACOB DOES THE PLANETARIUM CIRCUIT



SEPA 2011 Conference

Steve Morgan
O. Wayne Rollins Planetarium
Youngstown, GA



“Creating Mountaintop Experiences” June 21-25, 2011

O. Wayne Rollins Planetarium is pleased to be your host for the 2011 conference of the Southeastern Planetarium Association. This event serves the SEPA region, but is open to all active planetarians. In keeping with our mountain location, our conference theme is “Creating Mountaintop Experiences.”



A fantastic lineup of events has been planned, including delicious meals, interesting speakers, and a Thursday excursion to the new Tellus Museum & Planetarium in Cartersville GA. And of course, it just

wouldn't be a SEPA conference without the incredible displays from vendors demonstrating their wares and who help make this event possible through their generosity. We also look forward to the amazing planetarium shows, presentations and workshops you SEPA members will be contributing!

Young Harris College is a private, liberal arts college with a current enrollment of just over 800 students. Located in the Enchanted Valley, Young Harris is nestled in the midst of the North Georgia mountains, just a few miles from Brasstown Bald, the tallest peak in the state. The college is about a two hour scenic drive from Atlanta GA, Asheville NC, Greenville SC, and Chattanooga TN. Summertime weather in Young Harris is typically quite pleasant with highs in the 80's and lows in the 60's.

Conference Accommodations

Our conference hotel partner is the Brasstown Valley Resort & Spa, <www.brasstownvalley.com>, a spectacular mountain lodge resort featuring the area's largest conference center. Located in the heart of North Georgia's beautiful Blue Ridge Mountains, but only a mile or so from the Young Harris College campus and Rollins Planetarium, this 503-acre mountain resort offers the perfect retreat for our SEPA conference. Surrounded by nature and spoiled by all the comforts of home, you'll find Brasstown Valley Resort & Spa more than accommodating. Wireless Internet access is available at no extra charge in the guest rooms, lobby and meeting spaces. Your families are more than welcome, so why not extend your stay before or after the conference and enjoy what Brasstown Valley has to offer!

Reservations Info



(Continued on page 25)

SEPA 2011 (Continued from page 24)

The resort is holding a block of rooms for us at a special SEPA rate of \$143/night, with up to four (4) occupants/room (plus taxes and fees). To reserve a room, please call Hotel Reservations directly at 1-800-201-3205 and identify yourself as a member of SEPA in order to receive this rate. The hotel's cutoff date is May 23, 2011. After that date, reservations will be accepted only on a space and rate available basis. Brasstown Valley is a popular summer destination, so don't wait! Make your reservations now!



Young Harris College is also pleased to offer a limited number of its college dormitory rooms as a less expensive lodging option for SEPA attendees. We can offer \$50.00 per night charges for a single room, but guests will have to furnish their own linens (twin bed sheets and towels, etc.). Some residence hall rooms may have private baths, while others may be designed “suite style” to serve two or more rooms. The number of dorm rooms is limited, so don't delay! Reserve yours now by e-mailing Steve Morgan at <smorgan@yhc.edu> or calling 1-706-379-5130.

Overview of the 2011 SEPA Conference

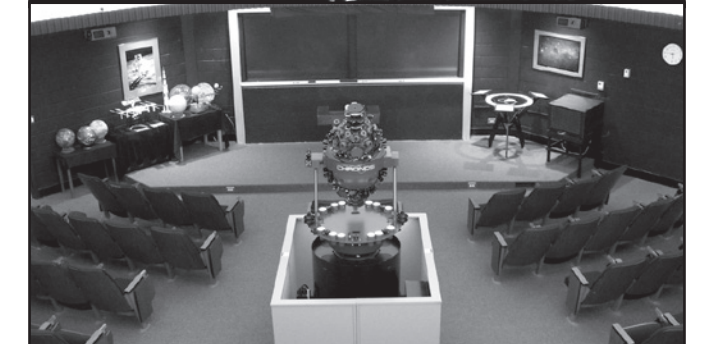
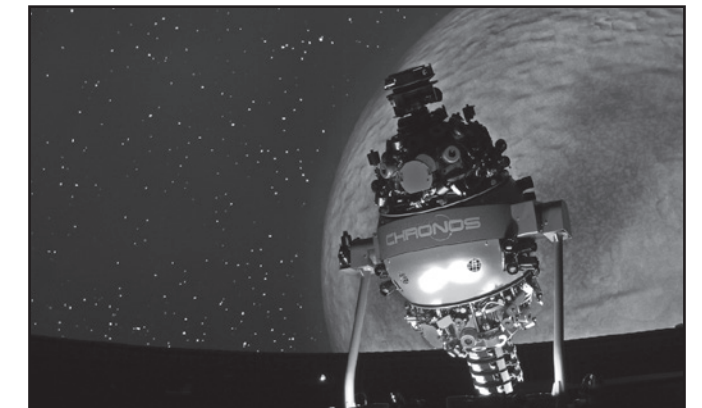
Full registration has been set to \$250 per person.

Without the generous support of our visiting vendors, it would be considerably higher - so a big “Thank you” to all the vendors who support the conference!

Tuesday afternoon, June 21, you'll receive a warm Georgia Mountain welcome from the superb staff of the Brasstown Valley Resort and Spa as you check in for your guest room in the lodge. Rollins Planetarium staff and members of the SEPA 2011 Conference Committee will also be on hand to greet you and provide you with your registration materials.

Tuesday evening begins with a special welcome session for new SEPA members, after which is the Opening Reception featuring delectable hors d'oeuvres! Then we'll make our way to the planetarium, just a short 1.5 miles or so from the resort lodge.

Rollins Planetarium features a GOTO CHRONOS Space Simulator star projector. Installed in 2002, it was the first installation of the CHRONOS model anywhere in the world. A Sky-Skan Definiti full-dome digital projection system was added in 2008 in a 6-projector compact DLP configuration. The planetarium also features a 40-ft. Spitz dome, ECCS Pleiades RGB cove lighting, and a Klipsch 5.1 audio system installed by Bowen. We are also pleased to announce the theater is being renovated with new Irwin seats, new carpet and a fresh coat of paint in advance of the conference!



(Continued on page 26)

Wednesday, June 22, head to the conference's first paper sessions and check out the vendor hall. Please make time to call on our visiting vendors and thank them for their support of our conference. The silent auction is another important part of SEPA. The proceeds go directly to the SEPA Professional Development Fund to provide financial support for conference attendance. Those wishing to donate to the auction should contact Dave Maness at the Sharpe Planetarium in Memphis TN. Tables will be available for the auction items on Wednesday morning so you will have plenty of time to peruse the tables and start bidding early.

Our lunch speaker on Wednesday is Peter McLeish, a Canadian artist who specializes in paintings and multimedia events highlighting the beauty of science. His talk will be on "The Hundred Year Hunt for Red Sprites." As you may be aware, red sprites are upper atmospheric optical phenomena associated with thunderstorms that have only recently been documented using low-light cameras. One researcher exclaimed it was as if biology had suddenly discovered a new human body part.

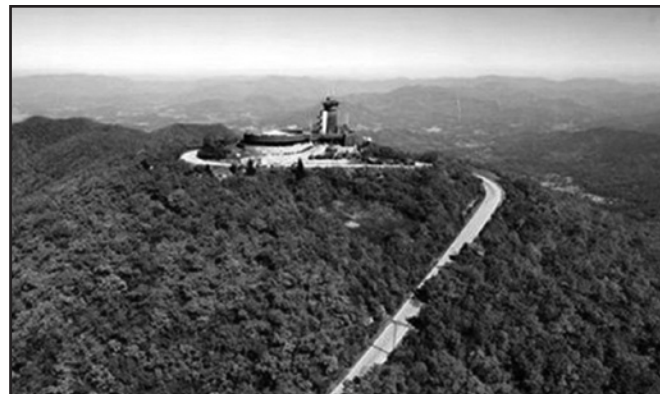
Young Harris sits at the heart of the ancestral Cherokee homeland, so it is our privilege to bring noted Cherokee historian and educator Freeman Owle to the planetarium for a special Wednesday evening session on "Cherokee Sky Legends." Freeman was born on the Qualla Indian Boundary, home of the Eastern Band of the Cherokee Nation, and is an authoritative lecturer and demonstrator of Cherokee culture.



Following Freeman will be the infamous Constellation Shootout. Jon Bell will host this annual favorite where you will compete in pointing out constellations, asterisms, stars with names, and deep sky objects with Messier numbers or names. You'll go round-robin until there's only one left. Even if you don't participate, attendance is highly recommended as you'll learn so much about the night sky.

After we leave the planetarium, you'll have the option to see many of those same objects in the real

night sky! Weather permitting, you are invited to make your way with us to the parking area at the top of Brasstown Bald Mountain, Georgia's tallest peak with an elevation of 4,784 feet. Bring your own telescope if you're able- this will be a great chance to use it under dark skies! It's about a 30 minute drive from the planetarium to the summit. Carpooling is encouraged, as no shuttle bus will be available.



Thursday, June 23, is Tellus Day. We'll board buses that morning for an excursion to the Tellus Museum and Planetarium in Cartersville GA. David Dundee and his staff will host our group for lunch, followed by planetarium shows and demos in their 120-seat digital planetarium featuring a Konica-Minolta MEDIAGLOBE-II projector. We'll also be treated to observatory solar viewing and a general tour of the facility. Tellus is a relatively new, world-class museum located just off I-75.

After returning to Young Harris, we'll have a fun and relaxing evening at the resort's Sunset Pavilion. Let yourself go in a real down home open-air environment with a great view of Three Sisters Mountain and the golf course, including- with fingers crossed for good weather!- a sunset worthy of applause. For dinner, it's a Brasstown Barbeque! Hope you like mountain music; you'll hear lots of it. Our musical entertainment is Cornbread Ted & the Butterbeans, bringing us FOOT STOMPIN' MUSIC from the Mountains of North Georgia! Cornbread's musical stylings harken back to the early days of radio, when humor and entertainment went hand in hand



CORNBREAD
 ★★ ★ **TED** ★★ ★
 & THE BUTTERBEANS

(Continued on page 27)

with the music.

Friday, June 24 finds us back at the conference center for morning workshop sessions. Space is limited, so submit your workshop proposals early! Afterward, it's time for the SEPA business meeting. After the meeting ends, you can grab a boxed wrap lunch to go and then head out to enjoy some free time in the afternoon for your own mountain excursion. That's right- many of you asked for a block of free time during the conference, so we set aside the entire afternoon for you to spend as you wish. There are so many fun things to see and do in the mountains that we worked with the resort to put together a list of optional activities you might enjoy- guided hikes, a waterfall trip, boat rides, even a daytime visit to the summit of Brasstown Bald!



Friday ends with the banquet and our keynote speaker, Dr. Mark Devlin. What better way to end our week of mountaintop experiences than by hearing from an astronomer whose current projects include the highest telescope facility in the world, the Atacama Cosmology Telescope, at 17000 feet elevation in northern Chile!

Mark has been called the "Indiana Jones of Astrophysics." He's an experimental cosmologist at the University of Pennsylvania who designs and constructs the devices that collect the data that help us understand our universe. Rather than working out theories on a chalkboard, he's more likely to be found crawling inside the frame of a car-sized telescope, soldering gun in hand, or standing on the windswept ice of Antarctica preparing to send that high-tech appliance to the very edge of space on a NASA balloon. Mark will tell us about his work on BLAST, short for Balloon-Borne Large-Aperture Submillimeter Telescope, a sophisticated scanning device that detects light from distant star-forming dust clouds.



Saturday, June 25 is the last day of our conference. After a delicious catered breakfast, our final official activity will be the door prize drawing. If you would like to donate something for the drawings, please contact us.

In closing, on behalf of both Rollins Planetarium and Young Harris College, it is a real honor for us to host SEPA and its members for this conference. We will do all we can to make this a mountaintop experience for all who attend. Look forward to seeing you in June!



SEPA 2011

Scholarship Fund

Silent Auction

Dave Maness
Sharpe Planetarium
Memphis, TN

It's time once again to start thinking about what items you would like to donate to this year's silent auction. In case you are new to the group, this is a fun activity we do to help other planetarians by supporting the Professional Development Fund (formerly known as the SEPA Scholarship fund). We are raising money so that someday (hopefully soon) one or more of our colleagues will benefit in the future from a little financial help to attend a professional workshop or a SEPA conference. To all those who provided items and bid on items in the past, I cannot thank you enough.

As of this writing, the fund's account balance stands at nearly \$8,000. As I have said before, I think our ultimate goal should be to get this account to a level from which we can provide a significant grant by using the interest alone and leave the principal intact. But we still have a long way to go to if we want to make it self sustaining in that way. I am confident that we are good to go with some grants right now, as long as we replenish the Fund. If you think you are a good candidate please apply as soon as possible using the form on the www.sepadomes.org website.

As has been tradition, we will again hold a silent auction to benefit this fund at the conference at Young Harris, GA. What we need from the membership (as always) are your contributions of items or services that you would be willing to provide to the highest bidder. In the past we have offered books, games, artwork, crafts (including a beautiful hand-made quilt and some hand-tooled leather belts), musical CDs, books and even an actual piece of space memorabilia. We have gotten some of the highest prices for items that were hand made works of art. I know there are some very talented people out there. Of course we also like space related items

and artifacts. So think it over and let me know if you plan to bring something along to the conference at the O. Wayne Rollins Planetarium in Young Harris, GA. Knowing what to expect ahead of time will help me plan the space requirements. Also, let me know if you would like to help out on the SEPA Scholarship committee.

I have provided a form for you to use in describing the item(s) you bring for auction and for my records. If you have an item you want to donate but cannot make it to the conference, then send it to me. If it is not too big for my car, I will try to get it there. As usual the auction will take place in the mingling time before the banquet. Thanks again for your participation as an item provider, bidder, raffle ticket buyer, or all three. I hope to see you all in Youngstown.

SEPA SILENT AUCTION ITEM

If you cannot bring the item, draw a picture or paste a photo here (if you think it will help with the sale.)

Item:

Description:

Offered by (Your name):

Preferred mode of contact information (Phone, Mail, Email, Fax, Telegram, Pony Express, or other)

News From SEPA Region

ALABAMA

contact: *Mitzi Adams*
Wernher von Braun Planetarium
Huntsville, AL
mitzi.adams@nasa.gov



Christenberry Planetarium Samford University, Birmingham, AL

George Atchley reports: Attendance has been really good this fall 2010 and winter 2011. The planetarium is being used by more and more student groups across campus, but primarily for educational videos and as a high tech classroom. Several more schools in the area however, have scheduled presentations, possibly because the Robert R. Meyer Planetarium at Birmingham Southern has closed, presumably for remodeling. [Currently, there is no projected date for reopening.]

The recipe these days for new programming in the Christenberry Planetarium begins with high resolution astronomical images. Now stir in some NASA videos, add a dash of humor, and then "Voila!" turn the lights back on and everyone will run out and to buy a telescope. Well...perhaps in truth, they will more likely check to see if any clouds are blocking the Moon. But that's a start!

FLORIDA

contact: *George Fleenor*
GeoGraphics Imaging and
Consulting, Bradenton, FL
Jetson1959@aol.com



Solar System Ambassador Boca Raton, FL

Erich Landstrom reports: On Saturday, March 19th,

the Children's Science Explorium in Boca Raton, FL, hosted the second annual Explorium Edventure as a part of Sugar Sand Park Springtacular. For four hours, the free outdoor event dared visitors to dig deeper, and promised to peer into the excitement of science as we celebrate the wonders of our world! Hundreds joined us as we celebrated a day of hands-on exhibits, demonstrations, and activities meant to stir our natural curiosities. Amongst the most popular activities was the "Gee-Whiz Quiz Show" and telescope viewing. The attached picture shows Erich Landstrom orienting two young visitors in the direction the 16 inch Meade Schmidt-Cass was pointing to view a small sign 200 yards away announce the next nights for the "Eyes to the Skies" program. Public telescope viewing will be Saturday night, April 9th and Friday evening, May 13th.



A part of the Explorium Edventure was the new NASA EOS exhibit. EYES ON EARTH is a highly interactive science exhibition that focuses on NASA's Earth Observing System and examines how satellite observations are made and what we can learn about Earth using space technology. Designed primarily for families and school groups, visitors learn what a satellite is, discover the different types of orbits, and explore cutting-edge technology similar to that used by EOS scientists. EYES ON EARTH brings these concepts "down to earth" through a combination of fun, accessible interactives in a playful and "spacey" environment. The 2500 square foot exhibit from OMSI explores the basics of satellites, orbits, and satellite technology in a series of components.

Lily Landstrom learns about the different components of a satellite as she tests out the video camera connection on a satellite design station.





Lily Landstrom looks into the infrared. "Hot or Not" explores how satellites measure ocean temperature and create ocean maps by using pixels to create an image.



Lily Landstrom plays with a pin board, and explores the importance of camera resolution and pixels in imaging.

Eyes to Earth will be in the exhibit hall from February-April 2011.

On March 21st, Erich Landstrom presented a workshop at the School District of Palm Beach County, FL, technology conference: "Calculator Controlled Robots: Curiosity's Mission to Mars With Math, Model Rockets and Mini-Rovers."

High school classrooms already use TI-83 or -84 graphing calculator to solve complex problems. In this workshop, Landstrom lead educators to use it to write simple programs, created in TI-BASIC, to run Norland Research calculator robots. This activity plans a mission to Mars with math, model rockets and mini-robots, and includes an Estes Alpha model rocket kit, programming instructions and algebra help sheets to assist high school students. Data displayed on the calculator determines the distance their rockets race upward and their robots roll outwards. This November 25th, NASA's Mars Science Laboratory mission launches. The centerpiece of MSL is the Curiosity rover, which will assess whether Mars ever was, or is still today, an environment able to support microbial life and to determine the planet's habitability.

For more information about the NASA Solar System Educator Program, contact Erich Landstrom

**Bishop Planetarium
Bradenton, FL**

Jeff Rogers reports: The South Florida Museum is

pleased to feature visual works by Ringling College of Art and Design students and faculty during a month-long exhibit hosted today through April 17, 2011, in the Museum's East Gallery. The annual collaborative project is now in its fourth year. The works in this year's Cosmix exhibition, *First Person Immersive: The Challenge of Immersive Storytelling*, strive to eliminate the tradition of looking into the frame at an artist's world by replacing that concept with the idea that the viewer is a part of the image. To accomplish this, the artist may use techniques such as unique perspectives, exaggerated empathy or formal invention to help integrate the viewer with the picture. The ideal point of view expressed in these works is not the third person of the observer or the first person of the artist, but the first person of the audience. For a limited time, visitors are invited to browse 40 unique paintings, illustrations and videos in the Cosmix exhibition as part of general admission to the South Florida Museum.

On April 15-16, the South Florida Museum together with the Ringling College of Art and Design will present its 4th Annual Cosmix Symposium on Art and Design for Immersive Media. This year the symposium will feature presentations on scientific visualization and the development of immersive cinema. From current fulldome movies to visions of individualized I-Max (MyMax), telling stories in frameless visual media requires a new understanding of cinema composition and design. Along with guest speakers and visiting artists the symposium will offer screenings of major new works of full-dome cinema at the South Florida Museum's Bishop Planetarium Theater. The South Florida Museum will host the symposium at 7:30 p.m. on Friday, 4-15-11, in the Bishop Planetarium Theater for the screening of work by the symposium's visiting artists and scholars. The evening will begin with screenings of *R+J (Romeo and Juliet)* and *Cosmic Dance* directed by Harald Singer who will introduce the two features. *R+J*, a retelling of Shakespeare's *Romeo and Juliet*, was produced in 2003 and was the first Immersive Cinema movie. *Cosmic Dance* was recently produced for the Canadian Museum of Hindu Civilization in Toronto and shows the parallels between Hinduism and modern science as in explores the cosmic dance between creation and dissolution.

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The evening screenings will continue with screenings of *Light Echoes*, a music video for full-dome cinema, and *OneMinuteBlast!*, a review of work by space-music composer and director of Loch Ness Productions Mark Petersen. The evening will conclude with this area's premier showing of *Life: A Cosmic Story*, an all-digital journey featuring visualizations of the latest scientific data on the beginnings of life. The 25-minute feature is narrated by two-time Academy Award winner Jodie Foster and shows the connectedness of all living things on Earth. The feature will be introduced by Ryan Wyatt, director of the Morrison Planetarium at the California Academy of Sciences in San Francisco.

Tickets for the Friday evening reception are available for \$10/person for the general public. Ringling students, faculty members as well as Ringling students' family or guests will be admitted at no charge. At 12:00 p.m. to 1:30 p.m. on Saturday, 4-16-11, the South Florida Museum and the Ringling College of Art and Design will sponsor a special colloquium called Building STEAM (Science, Technology, Engineering, Art and Math) to discuss using immersive media in the creation of a 21st century curriculum. The colloquium is open free-of-charge to teachers, administrators and educators in science and the arts interested in developing 21st century methods and practice. Beginning at 2:30 p.m. Saturday there will be encore presentations of full-dome cinema works from Friday evening. Cosmix 2011 will conclude with two performances of pieces in immersive media by students and faculty of the Ringling College of Art and Design including live performances of space music. The performances are scheduled at 7:30 p.m. and 8:30 p.m. on Saturday, April 16 and will feature works drawn from the College's new curriculum in immersive media production and from members of the Ringling creative community. The performances accompany the closing of the exhibition the Museum's East Gallery. There will be a reception for the Ringling artists and symposium participants starting at 7 p.m. Most events will be open to the public on a first come, first served basis. For latest program information consult the Cosmix 2011 website at <http://www.ringling.edu/cosmix>.

Questions or requests from educators interested in joining the STEAM colloquium can be addressed to

the organizers at cosmix@ringling.edu.

**Buehler Planetarium
Broward College
Davie, FL**

Susan J. Barnett reports: The Buehler Planetarium & Observatory is running public shows four days a week. The weekend shows and monthly specials include *Rusty Rocket's Last Blast*, *The Endless Horizon*, *4000 Years and Home*, *Japan: Reglections in Time*, and *Celestial Navigation*.

We continue to rotate shows on Wednesdays, and these shows include *The People*, *The Dawn of Astronomy*, *Astrology: Fact or Fiction*, *2061: Secrets of Mars*, *To Worlds Unknown* and *A Dozen Universes*.

The Buehler Observatory has viewing four times a week. It has free public observing Wednesday, Friday, and Saturday evenings. In addition, we observe the Sun on Wednesday afternoons. We usually have one telescope set up to view sunspots, and watch flares through a Hydrogen-Alpha filter on another.

**The Bryan-Gooding Planetarium / Alexander
Brest Planetarium
Jacksonville Museum of Science and History
Jacksonville, FL**

Thomas Webber reports: Things have been very exciting and certainly very dynamic here since we reopened in November 2010. We are continually hitting record breaking attendance numbers - over 37,500 so far - and are doing much more than just astronomy under our dome. Here are some examples of some of the other creative ways the planetarium has been utilized:

- We have hosted a wedding;
- We have had live musical events called Music Under the Stars;
- We had a City Council Political Debate;
- We celebrated Groundhog's Day.

Yes, that's right, Groundhog's Day! That certainly warrants further discussion. It was decided that a member of the Jacksonville Zoo would come

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to the planetarium, do a little presentation, and a museum representative would announce that Spring was here. Then the planetarium would present a sunrise with Peer Gynt playing in the background, the media would get their snippets, and a good time would be had by all. However, the zoo did not have a groundhog in their collection, so instead they brought: A hedgehog! Really. And it turns out that hedgehogs are better than groundhogs at predicting the weather because of their diet of worms. I never thought I would see the day when we were inviting rodents and worms into the planetarium when we spend so much money a month on an exterminator to try and keep them out!

Like so many of you, we are gearing up for Astronomy Day. Even though it is not a new program, we will be premiering *Two Small Pieces of Glass* for the first time on our Super MediaGlobe II. We are also planning on some sidewalk astronomy, crafts throughout the museum, and the local astronomy club will be having workshops and observing opportunities. One of our educators will also be going to a local park to do a real star show. Here's hoping for clear skies.

In our effort to be a part of other museum exhibits, we will be premiering the program *Sea Monsters* this summer to go along with the *Savage Ancient Seas* exhibit. If you are not familiar with this program, it is very well done and very "real" in nature. Definitely not for the squeamish.

My partner, Brett Jacobs, and I recently received training on the Adobe Creative Suite 5 and are looking forward to putting some small shows together and perhaps even converting old slide-based programs. Brett is also working on detailed Flash-Quiz programs for our interactive touch screen. The times are constantly a-changin', and we're doing our best to keep up.

We are looking forward to a fun time in Georgia. Keep looking up!

Tampa, FL

George Fleenor reports: There is a new full dome planetarium content resource in Tampa, Florida focused on creating affordable content for small and

medium size planetarium theaters. FullDomeFX, Inc. has just released its first show *Space Shuttle: On the Wings of Dream*. They also plan to release Jon Bell's show *Trip Though Space* in early summer. For more information visit the website www.FullDomeFX.com

GEORGIA

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**Georgia Southern Planetarium
Georgia Southern University
Statesboro, GA**

Becky Lowder reports: Another very busy semester here at Georgia Southern University with 6 sections of astronomy labs, the planetarium directed study class with school shows, and many public outreach events. We started off 2011 with a public event and celebration of 30 years of the space shuttle program, *END OF AN ERA: THE SPACE SHUTTLE*. It's so hard to believe it's been 30 years!! Seems like it was just yesterday we watched the 747 carrying Enterprise fly over my home town of Columbia, SC. It was a very emotional presentation to create and present as a public evening, but very rewarding as I remembered the many shuttle launches and passes I'd witnessed with friends and family over the years. I hope to see the last two launches as the program comes to an end.

We celebrated our annual Astronomy and Space Day on March 26th with wonderful and hard working members of the Statesboro Astronomy Club, as well as the astronomers of the physics department helping out. Our next public event will be April 8 with our university planetarium intern II, Malorie Sponseller, presenting her show on "Oriental Skies" along with telescopic viewing of Saturn. Summer months will bring astronomy workshops, camps, and I'm really looking forward to attending SEPA this year now that I'm a permanent employee after over 12 years of working as casual labor in the planetarium here. I'm very fortunate to have a career that I absolutely love, sharing my passion of astron-

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LOUISIANA

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**Lafayette Planetarium
Lafayette Science Museum
Lafayette, LA**

Dave Hostetter reports: The Lafayette Science Museum successfully hosted the exhibit, *Star Wars: Where Science Meets Imagination*, ending in January. The exhibit drew 56,000 visitors (about a year's worth in 3 months), and it sure seemed like most of them were here in the last two weeks! In February, the museum opened the Space Science Institute exhibit, *Giant Worlds*. On a much smaller scale, we expect to upgrade the meteorite exhibit in the planetarium lobby by the end of the summer.

Our current public planetarium program is *Dark Matters*, from the Davis Planetarium at the Maryland Science Center. It's getting a nice response from visitors.


Our outreach efforts have been active, with sidewalk astronomy, Sun-Earth Day observing and programs, and a pair of well-attended presentations by University of Louisiana Lafayette Physics professor Dr. John Matese.

We have just received for the Museum's permanent collection a number of documents relating to the cancelled "VentureStar" proposed Shuttle replacement. Most of the documents relate to viable plans to launch and land the spacecraft from Acadiana Regional Airport outside New Iberia, LA. It's a little-known aspect of space history!

Planning continues for our conversion to full dome, and we expect lots of progress in the next few months.

NORTH CAROLINA

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**Pisgah Astronomical Research Institute (PARI)
Brevard, NC**

Christi Whitworth reports: PARI is heading into a busy Spring and Summer for 2011. Several groups are visiting the site in April including UNC Greensboro, Guilford College, and a group of high school students and teachers from Georgia sponsored by Jim and Shirley Smith. These groups will stay at the site, and work in optical and radio astronomy with our staff for overnight experiences.

Our open house Space Day will be held May 7, 2011. The annual event brings hundreds of people from all over to visit the site, meet our volunteers and program participants, and participate in Star-Lab programs. The beauty of western North Carolina and the impressive campus at PARI provide a simulating backdrop for this celebration.

Homeschool high school students will work in the Appalachian State University/ PARI Climate and Space Science Workshop May 9-14, 2011. These twenty-four students study instrumentation and data processing for weather instruments and learn some basic visual and radio astronomy.

NCSU Science House's Photonics Program will bring twenty-seven students to build Radio Jove receivers and antennas for a week in late June. These students will then conduct research with the newly built instruments. Thirty Duke TIP students arrive in early July for a two-week research experience. Students from across the country travel to PARI for this unique astronomy opportunity.

In early August, PARI's Space Science Lab will begin. This opportunity is being provided to thirty

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Two 2010 Duke TIP Field Study participants prepare to gather data through the 26m West radio telescope at PARI.

western North Carolina high school students by Burroughs Wellcome Fund. These students build refracting telescopes to study the Moon with PARI staff through the school year.

Throughout all of these events, PARI staff will be working with school groups, individual high school and undergraduate interns, university researchers, and the general public to share the research, educational, and public outreach endeavors ongoing at PARI year-round.

**ECSU Planetarium
Elizabeth City State University
Elizabeth City, NC**

Woodrow Grizzle reports: It has been a long, cold winter here in northeast North Carolina, but spring is here at last, and we have had a few warm days lately. We at ECSU spent those last winter weeks backing up our a/v resources and re-adapting a couple our favorite shows: Bays Mountain's **The Friendly Stars**, and Calgary Science Center's **In My Backyard**.

We wrote a new version of the Ursa Major story for **The Friendly Stars** that recalls an escaped slave's story à la **Follow the Drinking Gourd**. The Underground Railroad is an important part of the history of the Pasquotank River region. Elizabeth City State University's Great Dismal Swamp Boardwalk Project, which is a biological research area and wildlife

refuge, is also an official part of the National Park Service's National Underground Railroad Network to Freedom.

Back in the planetarium, several teachers have commented that they feel **In My Backyard** is too long for young children, and we agree. So, I shortened it to 22 minutes and it now ends with the story of Callisto and Arcus. I am working on some new animation elements, too. Overall, I think the show flows better in this shorter form, and we expect teachers will agree.

Another big task ahead of us right now is digitizing our slide library. We are slowly but surely moving away from our slide projectors and relying more heavily on three-screen video. It is the familiar tale of slide projectors being a dead technology and of the need to move beyond them. So, we will continue digitizing the slides that we want to keep and we will use digital images exclusively for new installations.

**Robeson Planetarium and Science Center
Public Schools of Robeson County
Lumberton, NC**

Ken Brandt reports: Events currently underway at the Robeson Planetarium include: showcasing the Mars Rover Curiosity's ramp up for launch. We have an inflatable, portable full-scale model of the rover on display to engage the public and our school groups about the wonders of exploration.

We are also going full speed ahead on our plans to "green" the planetarium and science center, installing solar panels and 3 small wind turbines to generate enough power to light all of our interior LED lights and recharge the batteries for equipment. We are getting three "pedal power" generators for students to manually generate power and learn about energy and its uses.

Ken is expanding his base in rocks and minerals by trekking around NC, SC and GA on specimen collection trips.

The planetarium is showing several in-house productions about MSL, Cassini, Kepler, Juno, MESSENGER and Dawn-all of which have or are

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News From SEPA Region (Continued from page 34) approaching significant milestones in our quest to understand the solar system and others in our galactic neighborhood.

**Mararet C. Woodson Planetarium
Horizons Unlimited, Rowan-Salisbury Schools
Salisbury, NC**

Patsy Wilson reports: Winter programming has focused on first (**Friendly Stars**), third (**Earth, Sun, Moon and Stars of the Night Sky**) and sixth (**Our Solar Neighborhood**) grade programming for school groups. In addition we've provided custom designed programming for special needs groups including visually impaired adults, mentally handicapped adults, students at risk and senior citizens.

Our monthly public planetarium show topics included constellation stories, the planet Mars and light pollution. We also introduced **Laser Country** to a delighted and enthusiastic audience.

This spring we will continue scanning slides from some of our favorite programs for conversion to DVD-based projection. Planning has begun for the Astronomy's Awesome summer camp session.

**Ingram Planetarium
Museum of Coastal Carolina
Sunset Beach, NC**

Mark Jankowski reports: At Ingram Planetarium, we are still enjoying great growth in both school groups and the public audience. Our 85-seat theater, which was once big enough to hold a full grade level of students from the surrounding counties has become too small. The groups have grown from 90 and under to over 160 plus. Our building is small so herding that many children around is a major challenge. Large schools from nearby counties send students over the course of three days.

The leadership of our foundation has changed. Scott Kucera left last fall. Our new executive director is Dottie David-Wilson. Dottie joined the ranks in January, 2011. She is busy learning the ropes of the Ingram Planetarium and Museum of Coastal Carolina. Dottie's background is as marketing director of YWCA of New Jersey. She has worked with other non-profit groups and has been a teacher.

SOUTH CAROLINA

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**DuPont Planetarium
Ruth Patrick Science Ed. Ctr. , USC
Aiken, SC**

Gary J. Senn reports: The DuPont Planetarium at the Ruth Patrick Science Education Center (RPSEC) on the campus of the University of South Carolina Aiken (USCA) is in preparation for National Astronomy Day on May 7. On that day, we host what we call, "Earth & Sky Night." Since National Astronomy Day is usually close to Earth Day, we combine the two into one celebration, although the astronomy side is certainly the highlight of the event. A variety of hands-on activities will be available from 7:00 - 9:30 to help people understand the wonders of planet earth and space beyond. Many activities will have materials that visitors can take home with them, and live animals such as snakes, turtles, alligators, and owls will be on display. Telescopes operated by members of the Astronomy Club of Augusta will be set up on the lawn outside of the RPSEC, and the RPSEC observatory will be open. This year, we have a local Girl Scout troop that will be helping with logistics and hands-on activities in partial fulfillment of some activity badges.

In March, we showed *Mission to Mars*, a local production; and *Journey into the Living Cell* from the Carnegie Science Center and Buhl Planetarium. Throughout the month of April we showed *Worlds in Motion* from the Sudekum Planetarium. In May, we will be showing *More than Meets the Eye* from Lochness Productions and *Digistar "Laser" Fantasy*, which is a local production. In May we move our evening planetarium show times an hour later so that there is a better chance of it being dark enough for patrons to visit the Bechtel Telescope on the roof of our facility.

We recently received some funding to purchase a new CCD camera for the Bechtel Telescope in the RPSEC Observatory. Hopefully, we can provide

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News From SEPA Region (Continued from page 35)
some news on this new item in a future report.

Clemson University Planetarium
Clemson University
Clemson, SC

Mark Leising reports: After nearly fifty years of operation, our planetarium in the Kinard Laboratory of Physics was shut down in December 2010. Since then we removed our Spitz A3P star projector, platform, seats, etc., and completed the hemisphere of the 24 ft dome. The old one had a vertical side due to an intruding room on the second floor. That room has been removed, and a new platform, carpet, and seats installed. The theater now has thirty-nine seats plus wheelchair spaces.

In March we installed a Digistar 4 system with two SP2 HD cove mounted projectors from Evans & Sutherland. Everything is functioning well and looks great. We will present shows including "The Sky Tonight," "Exoplanets," "The Multi-wavelength Milky Way," and the pre-rendered "Wonders of the Universe" to Clemson astronomy lab students in the coming weeks in April. We will do shows for summer campers and students this summer, and open for South Carolina schools and for scheduled evening shows in the fall.

TENNESSEE

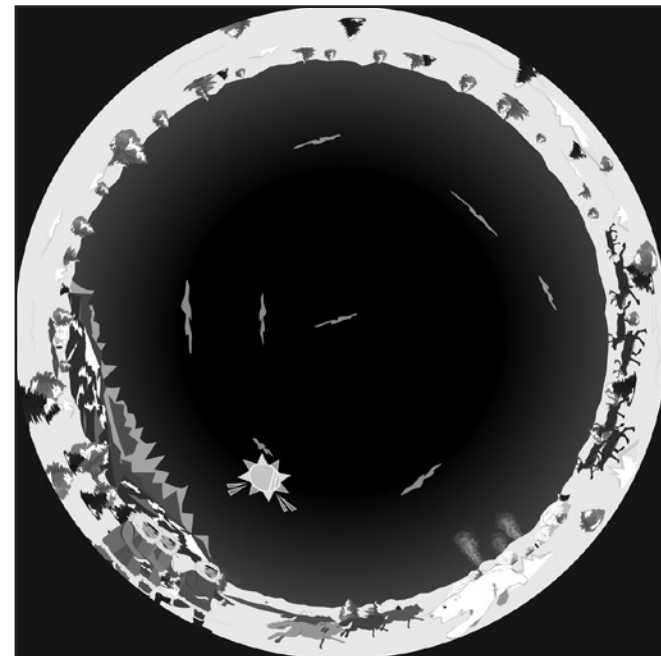
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Bays Mountain Planetarium
Kingsport, TN

Adam Thanz reports: Jason & I are currently running "A Part of the Sky Called Orion." It is our latest in-house production of a complete full-dome planetarium show. It looks at three fascinating sky stories from three different ancient cultures; Greek, Egyptian, and Inupiaq. But, the common thread is that they are all using the same stars! A modern-day narrator introduces each act and also shows how we can see each of these constellation collections. The stories themselves are done in first-person and they

link the star lore with the teller's real life of ancient times. See the image that shows a frame from the Inupiaq section. Our audiences include all ages and they have really enjoyed the program. They appreciate the mix of storytelling, artwork, and music. The show is mastered in 4K and will be available in two versions. One that will use your own star projector and another that is fully digital. We do plan on distributing the show, so ask us about it at the upcoming SEPA conference or contact us directly here at Bays Mountain!

We are also in the middle of our Spring StarWatch evening observing programs and they have been going great. Typical attendance is 30-50 and they are always lots of fun. Our club members have been working on refurbishing a classic 17.5" Coultter Odyssey telescope as a project and it is near completion. It is wonderful that they have been working as a team. Plus, they have incorporated some nice design features in the mirror cell, body, how the truss tubes attach, and more. The telescope is going to work like a charm. The budget can be described as a wonderful mix of donated materials and time,



This dome master image from the Inupiaq section of our show includes the main components of the sky story. You see the polar bear Nanook being attacked by five wolves. To the left are the three hunters protecting Nanook by chasing away the wolves. All around you see the arctic environment with caribou, igloos, fires, trees and mountains.

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News From SEPA Region (Continued from page 36)
some up-front cash from our Park Association, and additional donated funds from members and guests to supply features like digital setting circles.

Sharpe Planetarium
Memphis, TN

Dave Maness reports: As I write this, the just completed month of March is proving to be a very good one for the Sharpe Planetarium. Spring Break brought lots of folks indoors for many a pleasant 45 minutes or so under the planetarium dome. We were showing SEPA's *The Planets* through last weekend. Loch Ness' *Oceans in Space* opens this Saturday and will run through the first weekend in June. We are also showing our traditional *Visions of a Spring Night*. I typically include a live update on the current sky happenings with every show. By the middle of June I will bring back *Starlit Nights Live* and this summer we will see the return of the lively feature program *WSKY: Radio Station of the Stars*.

In February I headed down to Mississippi State University to hear a talk by Dr. Neil deGrass Tyson. He was very entertaining and informative on a variety of topics. Later I handed him my copy of *Universe Down to Earth* (one of his older books) to autograph.



He joked that the page listing other books by the author only had one other title listed while his newest book lists ten.

On the way back from the Tyson talk I stopped in at French Camp, Mississippi to pay a visit with Edwin Faughn and tour the scenic Rainwater Observatory.

On March 11 our earthquake exhibit displayed the



Rainwater Observatory

strong vibrations of the earthquake in Japan picked up by a sensor near Memphis. You can see how the earth took several hours to settle down from the initial shocks.



Evidence of the Honshu Quake, March 11

Speaking of earthquakes, I attended the Earthscope New Madrid-Central U.S. Interpretive Workshop March 17-20. It was well worth the time and I learned much about the fault in our back yard. Actually it is a couple hours drive north of here and thousands of feet underground. But Memphis is in a major zone of effect if it ever lets loose again. We had a great fieldtrip to see the deformation of the land where one part raised up making dome (the highest place in the very flat county) and another part sunk down to create Reelfoot Lake. All was



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caused by the quake in 1811-12. Lunchtime on the road included a stop at a new Earthquake themed rest area just across the border in Missouri. This unique and educational pit stop is set to open soon. It was good to meet all of the other attendees along with Kris McCall and Patrick McQuillan.

Again I am looking forward to seeing you all again at the conference this June. Look elsewhere in this issue for information on donating items for the silent auction to support the SEPA Professional Development (Scholarship) Fund. If you or your institution is having trouble finding the travel funds to send you to the upcoming SEPA conference, then go to the SEPA website (www.sepadomes.org) now and apply for professional development support. You just might get some help. I hope to see you all in Young Harris, GA in June.

VIRGINIA
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**Abbitt Planetarium
Virginia Living Museum
Newport News, VA**

Kelly Herbst reports: Spring has sprung, but as I write this it is lightly snowing outside here in Virginia. Very unusual for late March! But we're looking forward to wonderful, warm days ahead as we prepare for Spring Break. Currently we're offering an in-house production, *Beyond the Night*, an accompaniment to our bat-themed changing exhibit gallery show "Masters of the Night," as our featured program. We've also got *The Friendly Stars* from Bays Mountain for preschoolers and our classic live *Virginia Skies* running. With the local school districts splitting their Spring Break weeks this year, we're running an odd April schedule, with one week of massive Spring Break programming, then a week off, then another crazy week again. We'll continue to offer our basic three shows, but also add *IBEX* in as a space science offering, and *Laser Mania* as an afternoon entertainment show. Thanks to an advertising mistake, *Virginia Skies* will be missing

during Spring Break, but it is replaced with the very cool program *Astronaut*. School group attendance has increased a bit for the planetarium, but the local budgets are still keeping field trips to a minimum, and we've lost several groups who booked and then were unable to secure funding to pay for gas for the buses.

Speaking of tight budgets, our own belt-tightening has forced us to forego our usual plan of having a summer blockbuster planetarium show to tie-in with our summer exhibit. So we will instead feature a smorgasbord of offerings that we hope will appeal to a wide variety of attendees. This summer we will feature the classic program *WSKY: Radio Station of the Stars*, which our John Wright is bringing into the digital age on our new system. *Oasis in Space* returns to our line-up, as well as *Zula Patrol: Under the Weather* - this should make the preschool parents who've been requesting its return very happy! *Virginia Skies* remains in place, of course, and afternoon lasers round out the show schedule. We'll offer *Laser Retro* in May & June, *Laser Spirit* for July, and the brand-new *iPop* from AVI for August & September. We can already hear the tween girls squealing!

Sadly, the same belt tightening will keep me from being able to join you all for the SEPA conference this summer. I'm sure you will all have an amazing Mountaintop Experience!

**Pretlow Planetarium
Old Dominion University
Norfolk, VA**

Declan De Paor reports: ODU is now the proud owner of an OmniGlobe! From ODU President John Broderick's remarks at the unveiling: "If a picture is worth a thousand words, this spherical movie screen is worth ten thousand pictures. Indeed, tens of thousands of pictures and other data have gone into each frame of the OmniGlobe's numerous visualizations. They present the collaborative work of hundreds of thousands of researchers worldwide. The globe is programmable and will be able to present the work of our ODU research scientists, engineers, business and health studies experts, even artists in a format that engages the interest of the visiting public."

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Some of the most striking images relate to the environment. We live at a time when two parallel processes are happening. The world is increasingly showing the effects of human-induced global change and we are developing the ability to view the world as a planet and to comprehend how we as a species are changing it. When you stand a meter from this globe you benefit from a viewpoint previously accessible only to astronauts.

The OmniGlobe also allows us to visualize other planets and moons, even the sun, the galaxy, and the cosmic background. Examining the celestial sphere helps satisfy our curiosity about our place in the universe, but also reinforces how nice a place this planet is to live - as long as we take care of it individually and collectively.

The Pretlow Planetarium is currently featuring the show "Nanocam." From ODU College of Science Dean Chris Platsoucas' introduction at the premiere: "The traditional planetarium show dealt with the stars and galaxies - the largest structures in the universe. However, thanks to the digital revolution in planetarium projection, we can now fill the dome with images of the tiniest living things."

We have all become so used to animations and simulations that we have to keep remembering that the images in this show are of real living things, not models or products of the imagination. Nanocam's scientific rigor is remarkable.

Check out the website at <http://www.lions.odu.edu/org/planetarium/website/Show.html>

**Thomas Jefferson HS Planetarium
Richmond, VA**

Leslie Bochenski reports: As of January 1, I was right on track to reach my goal of a 10% increase in attendance over last year. Then I was out for 4 weeks after I broke my leg skiing in mid-February. Since the Planetarium is a one-woman operation, I had to cancel almost 40 programs and my attendance goal has been lost. The good news is that my leg is healing well, and I've been back at work for 2 weeks as of this writing.

My new program for first grade classes has been well received by the teachers. At first, I was a bit scared of the first grade, having never taught students this young before. I've learned that getting them to follow into a row of seats is like herding cats, and I must remind them to stay seated when the lights go down. And the lights have to go down VERY slowly! The program covers Earth rotation, and day-to-night cycles. The first graders love to watch the Sun move across the sky.

In other news from around Richmond, the Science Museum of Virginia has been without a Planetarium for about 5 months now. In October, the Digistar II graphics processor was making a noise that "sounded like a cross between a coffee maker and a blender" one console operator reported. Museum technicians have been working on system, and told me the projector has been repaired but they are still working on the processor. There are no plans to replace the 20 year-old Digistar II. So for the first time since the Science Museum opened its Planetarium in 1983, my little dome is the only facility in Richmond.

In the meantime, programs about the planets are presented with the Museum's new "Science on a Sphere" (SOS). SOS is a 6-foot diameter blank sphere hanging in the exhibit area, upon which are projected images of the planets and moons, including real-time satellite images of the Earth. The operator manipulates the images from a handheld control box. It's a great educational tool, but in my opinion is no substitute for the immerse experience of a real planetarium.

Out of this world experiences....

Out of this world experiences....

Out of this world experiences....

**Design
Engineering
Installation
Training
Support**

**Domed Screens
Astronomy Projection Systems
Digital 5.1 & 7.1 Audio
LED Lighting
Control Systems
Production Tools**

**Museums
Science Centers
Interactive Exhibits
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