



# CONSTELLATION

Summer 2011, No. 2



*Science is facts:  
just as houses are  
made of stone, so  
is science made of  
facts; but a pile  
of stones is not a house, and a  
collection of facts is not neces-  
sarily science.*

*~Jules Henri Poincaré  
(1854-1912)*



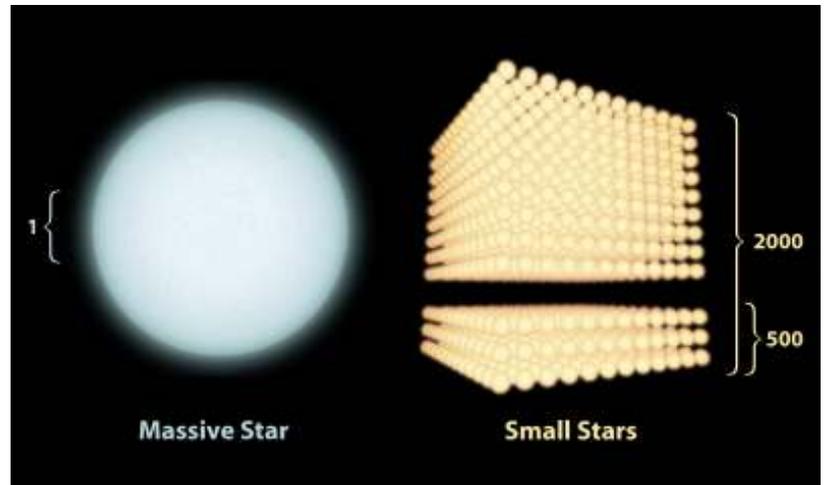
## What Causes a Tornado?

Do tornadoes just appear out of nowhere with no warning? From all the lives they have taken and destruction they have caused this year, you might think so. But, no. Weather forecasters see them shaping up in weather satellite images and try to warn people as early as possible. Find out more about tornadoes and how NASA and NOAA plan to even further extend the time people will have to take shelter.

Visit [scijinks.gov/tornado](http://scijinks.gov/tornado)

## Cosmic Recount

by Dr. Tony Phillips



Astronomers have recently found that some galaxies have as many as 2000 small stars for every 1 massive star. They used to think all galaxies had only about 500 small stars for every 1 massive star.

**News flash:** The Census Bureau has found a way to save time and money. Just count the biggest people. For every NBA star like Shaquille O'Neal or Yao Ming, there are about a million ordinary citizens far below the rim. So count the Shaqs, multiply by a million, and the census is done.

Could the Bureau really get away with a scheme like that? Not likely. Yet this is just what astronomers have been doing for decades.

Astronomers are census-takers, too. They often have to estimate the number and type of stars in a distant galaxy. The problem is, when you look into the distant reaches of the cosmos, the only stars you can see are the biggest and brightest. There's no alternative. To figure out the total population, you count the supermassive Shaqs and multiply by some correction factor to estimate the number of little guys.

The correction factor astronomers use comes from a function called the "IMF"—short for "initial mass function." The initial mass function

*(Continued on page 12)*

# MAPS 2011

Photos by Steve Innes



MAPS members visited the Edelman Planetarium, the H.W. Ray Planetarium and the Upper Dublin School District Planetarium.

## MAPS Conference Sponsors

We would like to thank the following who made MAPS 2011 possible by their generous contributions! Thank You Very Much!

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### FOURTH MAGNITUDE:

Simulation Curriculum

MAPS would like to thank the following for graciously contributing a door prize to this years conference: Ash Enterprises, Digitalis Education Solutions, Jan and Steve Russo, John Scala, Kalmbach Publishing, Lochness Productions/Mark Peterson, MAPS, Maynard F. Jordan Planetarium/Alan Davenport, Noreen Grice, Novins Planetarium/Gloria Villalobos, Patty Seaton, Schenectady Museum, Seiler/Zeiss, Sky-Skan, Sudekum Planetarium/Chris McCall, Tom Hamilton



Members arriving at the Edelman Planetarium at Rowan University



Enjoying lunch and a cosmology lecture on the floor of the centrifuge room at Johnsville Centrifuge & Science Museum.

**MIDDLE ATLANTIC PLANETARIUM SOCIETY  
MINUTES OF THE BUSINESS MEETING OF MAY 7, 2011**

The meeting was called to order by Patty Seaton for Steve Mitch at 9:32 AM.

Keith Johnson presented a short version of a presentation on behalf of Ken Miller from GOTO. That presentation was unable to be shown during the Conference because of transportation delays.

**Secretary's Report:** The Minutes of the May 22, 2010 Business Meeting were distributed and accepted.

**Treasurer's Report:** Keith Johnson presented the MAPS financial report. As of December 31, 2010, we have a balance in our account of \$ 69,513.12. The current balance is actually higher than that figure, but this balance does not reflect the expenses to be paid for the present meeting. We have continued to benefit by substantial support from our sponsors.

**Membership Committee:** Keith Johnson reported that we had 149 members this year. A few members who have paid dues more than once can either have their memberships extended or receive a refund of the extra dues paid.

Keith reported that he is continuing to compile a master list of all planetariums in our region; this will be distributed to the membership for correction and verification and then used in the recruiting of new members. A revised membership brochure is being created thanks to the efforts of Gloria Villalobos.

**Education Committee:** John Scala reported that the Education Committee met at this Conference. The *Constellation* will be the major method to disseminate the contributions of the committee. The MAPS web site will allow you how to contribute lessons, etc., and will also make the contributed materials available directly for our use. Some members have worked on the developing national educational standards; these standards are now posted on the GLPA web site.

**Conference Report:** Keith Johnson reported that we have about 79 delegates in attendance and have excellent vendor support for this Conference. The membership thanked the three hosts that made the Conference possible- Keith Johnson, Don Knapp, and Kim Small.

**Web Committee:** The web committee is chaired by Tim Collins. The committee will be revising the web site to make it better fit the needs of our membership. Material to be posted on our web site, including reference information, articles, and images should be sent to either the MAPS Secretary or Treasurer for consideration.

**Publications Committee:** The report was presented by Kevin Conod. The *Constellation* still welcomes your submissions for coming issues. Our publication keeps on getting better and better. The membership was advised to keep publication deadlines in mind. The mailing list for electronic distribution will be set up through a new system due to changes in the University of Maine's servers. Mike Smith was congratulated for the production and distribution of the *Proceedings*. Photos from this Conference are welcome so that they can be included in the next *Proceedings*.

**Awards Committee:** Wendy Ackerman reminded the membership to nominate and recommend colleagues for awards, including MAPS Fellow, the Distinguished Service Award, and the Outstanding Service Certificate. All nominations should be directed to Wendy Ackerman. The criteria for awards will be available on our web site.

**Elections Committee:** Don Knapp handled the recent election of our officers. Don is stepping down as head of the Nominations Committee, and was thanked for his long service to MAPS in this work. The head of the audit committee, Paul Krupinski, announced that Alan Davenport will be the President-Elect, Keith Johnson continues as Treasurer, and Steve Dubois is elected as Secretary. The proposed Amendment to the Constitution was unanimously approved.

The next election will be for Board members; this process will start in the Fall.

## CONTACT!

### MAPS Executive Committee

#### Officers (2011-2013)

##### President

Patty Seaton  
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pxts13@yahoo.com  
301-918-8750

##### President Elect

Alan Davenport  
M. F. Jordan Planetarium  
Orono, ME  
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##### Past President

Steve Mitch  
Benedum Planetarium (retired)  
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304-242-7614

##### Secretary

Stephen Dubois  
Ferguson Planetarium  
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perchbuoy@yahoo.com

##### Treasurer

Keith Johnson  
Edelman Planetarium  
Glassboro, NJ  
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856-256-4389

#### Board Members (2010-2012)

Lee Ann Hennig  
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703-750-8380

Paul J. Krupinski  
Mr. K.'s Mobile Dome Planetarium  
RMSC's Strasenburg Planetarium  
Cheektowaga, New York  
mobiLEDOME1993@earthlink.net

Mike Smith  
North Planetarium, North Museum  
Lancaster, PA  
msmith@northmuseum.org

## President's Message

Happy Solstice! I hope you all are enjoying it since apparently we only have a few more to celebrate until the End of Time... seriously, I hope that you have all had a chance to read Anthony Aveni's book of the same name, and to use Steve Russo's FAQ Sheet on the 2012 scare. Both are great resources, and I trust that you all are embracing the opportunity to teach science in the midst of more misunderstood archaeoastronomy! I had a chance to address the issue to the public the week after our annual conference. And I was truly refreshed and ready to go as a result of "Teaching in the Dark" with all of you in Pennsylvania/New Jersey.

I must thank again the fantastic coordination efforts of Keith Johnson, Kim Small, and Don Knapp. The logistics of using three separate facilities for one conference posed many challenges, which they were able to overcome beautifully! We had a nice mix of vendor and delegate presentations, and I'm still discussing some of the ideas I picked up at this year's conference with my supervisor! For those of you who missed it, Mike Smith is already compiling the Proceedings. Now that we have the logistics for the CDs figured out, we expect to have them mailed out in short order!

For those who like to plan ahead, the Board has already accepted bids for conference hosts for the next two years! In 2012, we will return to Toms River New Jersey to see the recently renovated Robert J. Novins Planetarium at Ocean County College. Gloria Villalobos has secured the dates of May 16-19, 2012 for the conference. In 2013 we will return to Maryland, this time headed to Frederick to see what Jeffrey Grills and the rest of the staff at the Earth and Space Science Lab have been doing with their GOTO Chronos hybrid! Dates will be determined as the plans for that conference are secured!

As for MAPS itself? I am excited to be taking the reigns as President once again. As a "recycled" President, I never really left... I've been on the Board for the last 8 years, and have been pleased to see the direction the organization is going. Our Web Committee is back in action and working on revisions to our beautiful new web site. The Strategic Planning Committee is continuing to revise and develop documents that will assist with conference planning and general flow of MAPS business. The Constitution Review Committee has regularly been updating our By-Laws to bring us up to date with the electronic age and to clarify processes! The Education Committee continues to explore ways to keep all of us connected on strategies and resources. It is an exciting time to serve on a Committee! If you are interested, contact the Committee chair or talk to one of the Board members! Also consider serving on the Board, as those elections are coming up next!

I look forward to continuing the great work already being done. Thanks for what you do!!

Sincerely,

*Patty Seaton*

President

Legends Of the Night Sky  
**Perseus & Andromeda**



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There are Stories in the Stars

## EDUCATION COMMITTEE

2011 has been declared the "Year of the Solar System". How appropriate that planet Neptune will be completing its first orbit of the Sun since its discovery this year! For small school facilities, such as my own, educating the public is our main mission, but with a staff of ONE this can be overwhelming. Seek out the local astronomy clubs for their help! Most members of these organizations share your passion for the stars, and are usually more than willing and anxious to provide the experience of looking through an eyepiece to view the wonders of the Universe we describe and present under our domes.

This issue includes a submission from Francine Jackson. All members, not just those of the Education Committee, are encouraged to submit articles/lessons/activities for the good of the entire membership. Submissions can be sent to [jscala@lvhs.org](mailto:jscala@lvhs.org).



### DAWN

Francine Jackson  
[Francine\\_Jackson@brown.edu](mailto:Francine_Jackson@brown.edu)

This summer marks another notch in the belt of successful programs coming out of NASA: The Dawn close approach to its first target object, the asteroid Vesta. Dawn is one of two sister craft to leave the Earth - the highly successful Phoenix landed on Mars three years ago, confirming water in the arctic regions before becoming a metallic icicle in the frigid Martian winter. Both of these probes, Dawn and Phoenix, relied on a different, unique form of propulsion, ion engines, described in good detail in the June, 2007 Constellation, "The Ions of Dawn," by Patrick L. Barry.

*(Continued on page 9)*

## MINUTES OF THE BUSINESS MEETING

*(Continued from page 3)*

**Constitution Review Committee:** Steve Russo will send the documents reflecting changes in the By-Laws and Constitution to the Board and also make them available for the web site. Eventually, an index will be produced for these documents as well as Awards Criteria, Conference Guidelines, and so on, making member searches easier.

**IPS Report:** Lee Ann Hennig reported on IPS activities and plans. The next meeting of IPS is in Baton Rouge, LA in 2012. There are bids for 2014 from Rio de Janeiro, Vancouver and Beijing. Sendai, Japan, has withdrawn its offer. More details are on the IPS web site.

The IPS is working on assisting "planetariums at risk." See the IPS web site for further information. All MAPS members were invited to join IPS.

**Unfinished Business:** none.

**New Business:** The Strategic Planning Committee will continue to work on issues affecting the long-term success of our Society. The committee consists of Steve Mitch, Patty Seaton, Paul Krupinski, Gloria Villalobos, and Lee Ann Hennig.

A request was made by John Scala for the scheduling of a specific time for the Education Committee to meet during the Conference was made. Perhaps this should be extended to all committees, giving them a dedicated meeting time during the Conference.

Don Knapp suggested that we compile our own information database on planetariums in our region; this would possibly be of use by planetariums at risk of closure. Since MAPS is an IPS affiliate we can request the information from IPS.

A suggestion was made to make astronomy clubs aware of MAPS. Also, suggestions were made to offer financial incentives for early Conference registration and for new membership.

Gloria Villalobos announced that our next Conference will be at the new Robert J. Novins planetarium in Toms River, New Jersey. Dates are tentatively scheduled and will be near the end of May. In 2013, the Frederick County (MD) Public Schools Earth and Space Science Laboratory will host our meeting.

### **For the Good of the Order:**

Our outgoing President, Gloria Villalobos, was thanked for her years of service. Sam Storch was thanked for his 21 years of service as Secretary. Keith Johnson, Don Knapp, and Kim Small were thanked again for their work on this successful Conference.

The meeting was adjourned at 10:44 AM.

Respectfully submitted,  
Sam Storch



### **You Like Us! You Really Like Us!**

MAPS is now on Facebook! Just type "MAPS Planetarium" in the search box and then click on the "Like" button at the top of the page.

## truly incredible

The realtime features of Digistar 4 are truly incredible -- I just flew a bunch of third graders through the rings of Saturn to see the ice particles! Wheee!

Kevin Conod, Newark Museum

## imagination

It's really whatever your imagination can come up with.

Chris Fenwick, County College of Morris

## potent educational tool

Digistar 4 is the most potent educational tool I have ever encountered... It's what every planetarium wants to be when it grows up!

Cory Stone, The Gene Roddenberry Planetarium

## to another level

A star show is an unforgettable experience, but the latest Digistar will take things to another level. These are exciting times.

Dr. Tom Mason, Armagh Planetarium

## truly an innovation

Digistar 4 is truly an innovation. The point and click features allow quick interaction with the audience's needs and interests at any given moment. Within seconds of someone asking a question, we can illustrate our answer with an example on the dome.

Jennifer Sellers, Kingman Museum

## a whole new experience

Digistar 4 brings a whole new experience to the audience.

Joe Eakin, Colgate University

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## DAWN

*(Continued from page 6)*

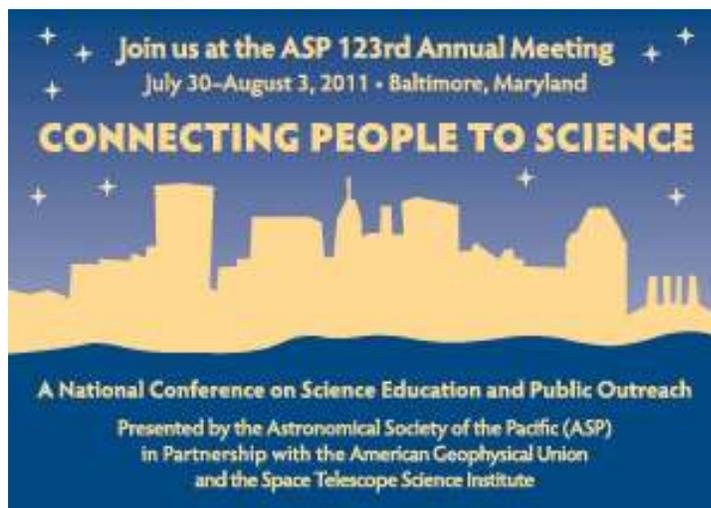
Vesta was the fourth asteroid discovered, in March of 1807, after a unique mathematical game, introduced by Titius in 1766 then stolen by Bode in 1772, which "predicted" a planet must exist between Mars and Jupiter. Suddenly, though, Vesta became the fourth of these planetary bodies located within this area of the solar system. This soon caused a new classification within our neighborhood - asteroids, also called planetoids or minor planets.

Today, we've been finding ourselves willing to once again change names of what many of us consider well-established bodies. The most significant change has been of Pluto, which, although some of us hate the idea of knocking down this cute little member of our solar system, caused a new designation, dwarf planet, to enter our textbooks. But, what is the significance of a name? Consider Ceres, which for centuries was the largest asteroid. It started its discovered life as a planet, was demoted to asteroidal status, and now has been upgraded to join Pluto as a dwarf.

This whole nomenclature problem is a great introduction to how and why scientific objects are named what they are. What allows science to alter and/or change categories? Why should Ceres, for example, have undergone such up-and-down name changes? Why is Vesta, which is about a hundred miles smaller, listed as a "minor" planet, or - as some scientists are thinking - should it be classed as a "proto"planet?

Also, think back to the mathematical "idea" that got 18th and 19th century astronomers to look for an object there in the first place. As of this writing, we know there are thousands of objects in this asteroid belt region of our solar system. And, at the same time, think about Kepler's third law, "real" mathematics that determined each planet's position around the Sun.

**Back to Dawn** - to follow its progress throughout the coming months, refer to [www.nasa.gov/dawn](http://www.nasa.gov/dawn). This web site also has many hands-on activities, including a model of the little craft to put together. This will be a great way to introduce the public to this probe, and to follow its progress to its next destination, Ceres, whatever that is at the moment.



### A National Conference on Science Education and Public Outreach

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Tremont Plaza Hotel in Baltimore, Maryland

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Presented by the Astronomical Society of the Pacific (ASP) in Partnership with the American Geophysical Union (AGU) and the Space Telescope Science Institute (STScI)

For more information see: [www.astrosociety.org/events/meeting.html](http://www.astrosociety.org/events/meeting.html)

Any questions? Please direct them to: [2011meeting@astrosociety.org](mailto:2011meeting@astrosociety.org)

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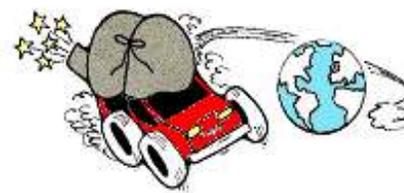
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## Mobile News Network



The International Planetarium Society's Portable Planetarium Committee is pleased to report that the 7th European Meeting of Small and Portable Planetaria, held in Finland 2010, was a complete success. Antonio Pedrosa of the Navegar Foundation in Espinho, Portugal will host the 8th European meeting. Information will be posted in the Planetarian column "Mobile News Network" and on the IPS website committee page. Contact information: António Pedrosa (email: [apedrosa@multimeios.pt](mailto:apedrosa@multimeios.pt))

We have posted four documents on the Committee web page (<http://www.ips-planetarium.org/or/comms/portablecom.html>):

1. "Mobile Domes in Business" which lists best practices for running a business with a portable planetarium.
2. "What Projector Should I Purchase" lists a series of questions to explore when making such a decision.
3. "Portable Planetarium Projections Systems" is a list of commercial portable planetarium projectors currently on the market.
4. "Portable Planetarium Domes" is a list of commercial portable planetarium domes currently on the market.

### As we look to the future we will focus on these ideas:

The committee will continue to update the documents posted on our page as we become aware of changes that need to be made. We are also considering some new pictures and documents that will be added in the near future: Advertising Tips, History, Resources/Links, News/Reminders and your suggestions. You can be instrumental in assuring that our web page is up-to-date and effective in assisting our colleagues. Please forward corrections, additions or requests to the committee members.

We are still working on producing, on CD, a collection of planetarium lessons from the winners of the "Week in Italy Contest" (1996-2010) for distribution to IPS members. We also plan to include a selection of audio records of these lessons.

### Reminders:

- ◆ **September 15** is the yearly deadline for the applicants of "**A Week in Italy for an American Planetarium Operator**".

#### Application Procedure:

Participants must send an application that includes your full name, complete address, year of birth and your curriculum vitae. Send this information along with a cover letter, explaining why you wish to be considered for this experience. You must also include the text of a lesson plan, with activities and stories that you would like to present for the students.

Send your application to:  
Loris Ramponi, Osservatorio Serafino Zani, Via Bosca 24, 25066 Lumezzane – Italy  
Or email: [megrez58@gmail.com](mailto:megrez58@gmail.com)

- ◆ MAPS members need to check the Portable Planetarium Committee website (listed above) for newly posted documents and kindly send us any additions, corrections or suggestions for the committee page. Please send us news and pictures for the committee web page or for the Mobile News Network column in the IPS Journal.

## Cosmic Recount *(continued from page 1)*

tells us the relative number of stars of different masses. For example, for every 20-solar-mass giant born in an interstellar cloud, there ought to be about 100 ordinary sun-like stars. This kind of ratio allows astronomers to conduct a census of all stars even when they can see only the behemoths.

Now for the *real* news flash: The initial mass function astronomers have been using for years might be wrong.

NASA's Galaxy Evolution Explorer, an ultraviolet space telescope dedicated to the study of galaxies, has found proof that small stars are more numerous than previously believed.

"Some of the standard assumptions that we've had—that the brightest stars tell you about the whole population—don't seem to work, at least not in a constant way," says Gerhard R. Meurer who led the study as a research scientist at Johns Hopkins University, Baltimore, Md. (Meurer is now at the University of Western Australia.)

Meurer says that the discrepancy could be as high as a factor of four. In other words, the total mass of small stars in some galaxies could be four times greater than astronomers thought. Take that, Shaq!

The study relied on data from Galaxy Evolution Explorer to sense UV radiation from the smaller stars in distant galaxies, and data from telescopes at the Cerro Tololo Inter-American Observatory to sense the "H-alpha" (red light) signature of larger stars. Results apply mainly to galaxies where stars are newly forming, cautions Meurer.

"I think this is one of the more important results to come out of the Galaxy Evolution Explorer mission," he says. Indeed, astronomers might never count stars the same way again.

Find out about some of the other important discoveries of the Galaxy Evolution Explorer at <http://www.galex.caltech.edu/>. For an easy-to-understand answer for kids to "How many solar systems are in our galaxy?" go to The Space Place at: <http://tiny.cc/l2KMa>

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

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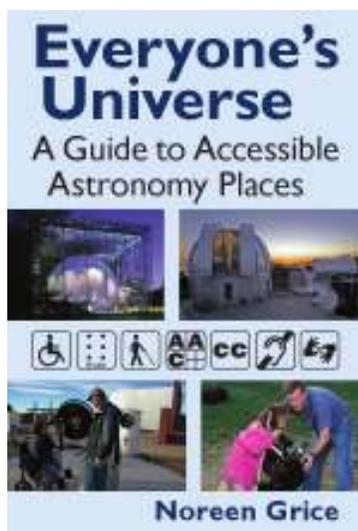
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# PLANETARIUM NEWS

## New Book Makes Astronomy Accessible to People with Disabilities



According to the U.S. Census, one out of every five Americans has a disability. People with disabilities want to enjoy the same opportunities as others including access to viewing the night sky.

**Noreen A. Grice**, astronomy educator and accessibility specialist, has released her sixth book, *Everyone's Universe: A*

*Guide to Accessible Astronomy Places*. Available through Amazon.com, this innovative book provides practical solutions for making astronomy programs more accessible and welcoming to people with disabilities. The book also features a national directory of already-accessible observatories, planetariums and star parties.

## Star Names

**Tom Hamilton** has a new book coming out, *Useful Star Names*; including Nebulas and Galaxies. The book lists both by constellation and alphabetically hundreds of named objects.

## Steve Russo



On June 30th, Long time MAPS Member Steve Russo will become the Director of the East Kentucky Science Center in Prestonsburg, Kentucky.

EKSC has a GOTO Chronos in a 40 foot dome, a large exhibit space, and a classroom for hands-on science learning.

The Planetarium also has a Skylase laser system, and over the Summer, a new Spitz SciDome HD will be installed to work with the GOTO Chronos.

## IN MEMORIUM



**Raymond J. Stein**, of Chester Township, N.J., died peacefully at the age of 81 on April 18, 2011, after a long illness. Mr. Stein was the founding director at the Newark Museum's Dreyfuss Planetarium, the first planetarium built in New Jersey. He was a curator, educator and scientist for more than 30 years. His diverse activities included supervising excavations of 70-million-year-old fossils, participating in NASA moonwatch programs and conducting biological and ecological field studies for state and federal agencies. He was elected a fellow of the Royal Astronomical Society in 1966 and served as a director of the New York Section of the American Astronautical Society and as chairman of the American Association of Museums' Planetarium Section.

## Scholarship Fund Receives IRS Approval

On May 19, 2011 the Internal Revenue Service granted the Hamilton Planetarium Scholarship Fund, Inc. tax exempt status as a public charity under section 501c3 of the tax code. The Fund's website will post all sources of income and expenses, including the names and amounts of securities held: [planetariumscholars.webs.com](http://planetariumscholars.webs.com).

## ***CONSTELLATION DEADLINES***

The Constellation is published quarterly near the equinoxes and solstices. Please keep in mind the following deadlines:

<b>Cover Date</b>	<b>Deadline</b>
September 2011	Friday, Sept. 2, 2011
December 2011	Friday, Dec. 2, 2011

Submissions should be sent to the editor:

Kevin Conod  
43 Warren Trail  
Denville, NJ 07834

Phone#: (973) 596-6609, Fax#: (973) 642-0459  
E-mail: kdconod@yahoo.com



## **SAVE THE DATE MAPS 2012**

Our conference next year will be in Toms River, New Jersey at the recently renovated Robert J. Novins Planetarium at Ocean County College. Our host Gloria Villalobos has secured the dates of May 16-19, 2012 for the conference.

Stay tuned for details on the MAPS website!



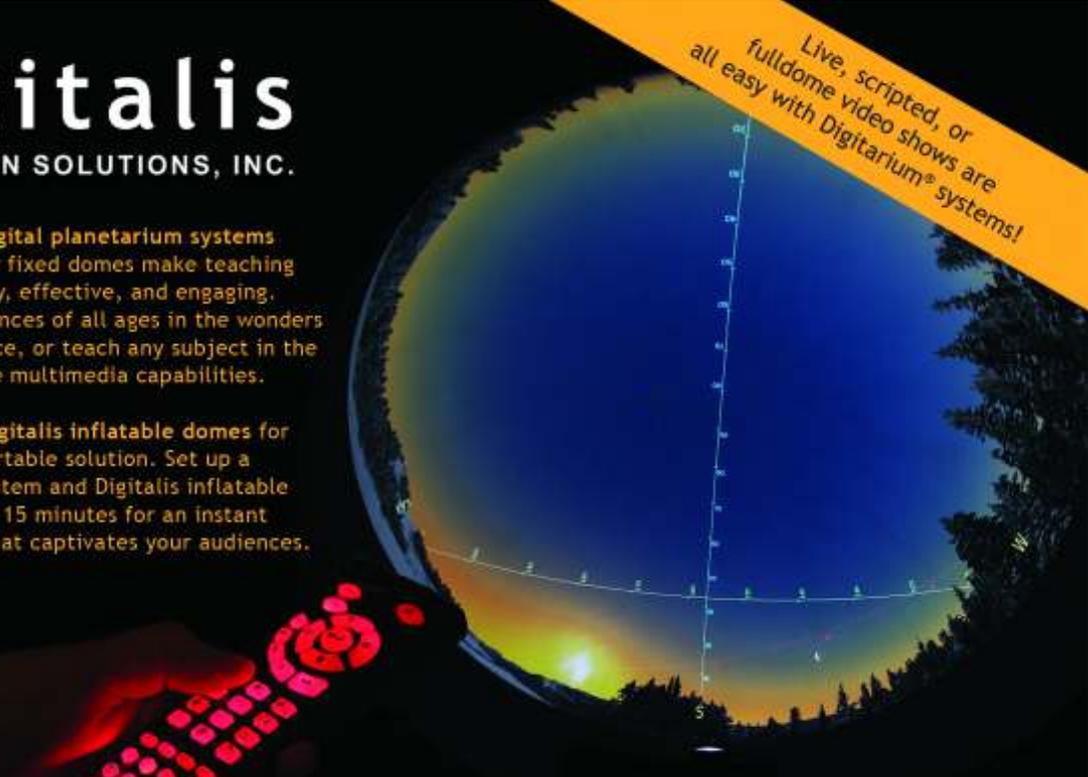
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