

# President's Message

The new year offers hope for better times to come. This year at the Virginia Living Museum, the holiday season was accompanied not so much by the sounds of jingle bells but by the sounds of diesel engines, backhoes, graters, plows, dump trucks, semis, and steamrollers. Our once natural looking entrance drive now looks like a disaster area. That's progress, they say. While we have long awaited the beginning of this expansion project, it is sometimes difficult to picture how all the mess will one day become the gleaming new structure in our blueprints. I guess it is times like this that you just need to have faith that all will get better over time. Fortunately, the site of our summer meeting was begun long before our project and is still on schedule.

Council has been dealing with several matters since the last journal was published. During the Kentucky conference we were approached with a couple of options for the 2003 conference site. Unfortunately due to the amount of work we had to do at the business meeting, there was not enough time to consider conference sites at that time. As a result, Council needed to deal with this via e mail. We had two very good offers. One came from Leslie Bochen ski of the Aldrin Planetarium in West Palm Beach, Florida. Planetarians Dave Menke and Jon U. Bell graciously pledged their help and support in what could be an interesting conference with activities scheduled in several different domes. The other offer came from Richmond, Virginia. This facility has hosted conferences before including SEPA in 1983 and IPS/ SEPA in 1988. This site offers us a much larger dome and a location in the east, immediately after meeting near the far western edge of the SEPA region. In addition, they have shown interest in inviting the Middle Atlantic Planetarium Society to join with us there. Council has therefore voted to accept the invitation from Richmond, Virginia for the 2003 SEPA conference.

I also want to mention that we will be considering sites for the 2004 conference at the upcoming conference in June. Please consult your respective administrators now about the possibility of hosting

the conference. Let me know as soon as possible about your bid and then be prepared to make a short presentation at the Baton Rouge conference.

I just received word on the IDEAS Grant proposal I sent off several months ago. This was for possible funding of a Galileo program and activity book that I believe I mentioned last time. They sent me a note saying that our project proposal has not been accepted for funding. This may be a blessing in disguise as I needed to fit the project into their guidelines. Now we can step back, reassess the project, make decisions, and seek alternative funding for some form of the project. It will hopefully cost considerably less than our original request.

At the upcoming conference we will be electing officers for the next term. Anyone may suggest persons for consideration. On Council's recommendation, I have asked a group of members to serve on a nominating committee. They are Dave Hostetter, Carole Helper, and Jack Fletcher. If you would like to suggest a person's name for consideration send a note to them or give a phone call to me or any council member and we will pass the names on to the nominating committee for consideration.

I have heard that there are some additions to the SEPA Membership Guidebook. Thank you to all who have contributed. You still may have time to be included in the next set of additions. If you do not have one of these very useful books it is likely that the reason for this is that you have not sent in your information. Please contact Mike Chesman for the procedures.

As I mentioned in state news from Virginia, we are losing another planetarian to an alternative career. My assistant Kenneth Moore is leaving to pursue a career in computer networking. Not only am I losing a very valued staff member, but also SEPA is losing the person who worked very diligently on our Web site. This means that we will soon need someone to take over upkeep on the SEPA Web

David C. Maness  
President  
Peninsula Planetarium  
Newport News, Virginia



site. Please contact me if you have some skills with that and would like to assume those duties. I will then put you in touch with the people who know what you need to know. Ken should be congratulated on his new position and on behalf of SEPA I thank him again for his fine work. He will be greatly missed.

Time is approaching for Council to consider nominations for SEPA's highest honor, the Paul D. Campbell Fellowship Award. Please think of which of your colleagues best meets the qualifications (mentioned in most issues of Southern Skies). Fill out a nomination form, and send it to me or any Council member for consideration. The award will be announced at the upcoming conference in Baton Rouge, Louisiana.

On a personal note, something happened the other day I thought some might like to hear. I returned a call to a prospective

volunteer. He is a weatherman in the U.S. Air Force and was interested in helping out in the planetarium or observatory. He mentioned that he remembered attending a planetarium as a kid. It was a visit that sparked his lifelong interest in science and astronomy. The planetarium was at a college near an Air Force Base (which is now closed) on the shore of Lake Champlain, where his dad was then stationed.

It turns out that this was the very same college I was attending at the time. When he came to the planetarium, I was a college student doing some work in that very same planetarium theater. I can't say that I performed one of the programs he saw as a kid, and I am certainly not taking personal credit for his career choice either. I was just one of several staff at the time. I will need to get more details when I meet him this Saturday. It is just one of those rare coincidences that make me smile with

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## IPS Report: 2002 Confer-

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John Hare  
IPS Representative

The 2002 IPS Conference is July 28 August 1 at Exploration Place, Wichita, Kansas. All IPS members and selected other addresses will receive the mailing.

Dr. Alan Dressler will give the banquet lecture entitled The Next Generation Space Telescope: Exploring the Birth of the Modern Universe. Dr. Carolyn Porco, Imaging Team Leader on the Cassini Mission, will speak at Tuesday's luncheon.

July 27 the Digistar Users Group will join with early arriving IPS delegates for a Chuck Wagon Supper at a prairie ranch that's developing national attention <[www.prairierosechuckwagon.com](http://www.prairierosechuckwagon.com)>.

Sunday afternoon NASA Education and Public Outreach professionals will offer educational workshops. Dr. Jeffrey D. Rosendhal, Education and Public Outreach Director, NASA Office of Space Science will attend. At least one will cover the Cassini Mission to Saturn; another will focus on Mars. Details will be mailed to delegates who indicate their interest on the registration form.

If you are a vendor and plan to exhibit, you should already have a packet of information. If not, e mail a request to <[ipsvendors@exploration.org](mailto:ipsvendors@exploration.org)>. Vendor coordinator is Christine Ryan.

Early registration and paper abstract

deadline is April 1. An electronic copy of your complete paper is due at the IPS 2002 office by May 15 so it can be included in the Conference Proceedings.

Display boards are available for poster papers. Consider this option, since paper presentations are often over subscribed.

A Post Conference Tour, Observatories of New Mexico, has an exciting itinerary: the Very Large Array in Socorro, the National Solar Observatory in Sunspot, Albuquerque's Lodestar Astronomy Center, and the UFO Museum and Research Center in Roswell. There's a planetarium there too!

The IPS2002 conference Web site is <[www.exploration.org/ips2002](http://www.exploration.org/ips2002)> Host mailing address is IPS 2002, c/o Exploration Place, 300 North McLean Blvd., Wichita, Kansas 67203. For information call (316) 266 4288 or 266 4257 (voice) or 263 4545 (fax).

Delegate Registration:

<[ipsregistration@exploration.org](mailto:ipsregistration@exploration.org)>

Vendor Registration:

<[ipsvendors@exploration.org](mailto:ipsvendors@exploration.org)>

Local Organizing Committee:

<[ipsloc@exploration.org](mailto:ipsloc@exploration.org)>

Local Conference Coordinator: Diana Palmer. I hope to see as many SEPA folks as possible there!

# Editor's Message: Photography and Typography

Thank you very much to Dennis Cowles and to George Fleenor for sending in some photographs to break up the long columns of text that normally appear within the pages of Southern Skies.

In the Louisiana state news section you'll see a picture of the new facility that is to host the 2002 SEPA conference in Baton Rouge. Delegates to that meeting will be treated to the first ever look at this arts and science center before its official opening to the public. Also in the same section we're treated to SEPA's President Elect doing his best impression of a star projector. Mike Sandras is standing where the instrument will be installed in his new facility in Kenner. Dave Hostetter tells about progress on the new museum and star theater in Lafayette. Those folks in Louisiana must be doing something right with all the new planetariums being constructed in that state.

George Fleenor treats us to a photo he took of the December 14 partial solar eclipse. The event was clouded out for me, so I was happy to see someone enjoyed

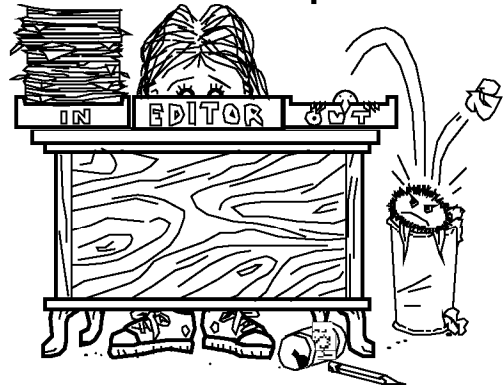
it.

It's a new calendar year, and it's time for a little refresher lesson in grammar and typography. If some contributors would check documents before they submit them to Southern Skies, it would make my job a bit easier.

With but a few exceptions punctuation marks ALWAYS go inside quotation marks. Did you know that the names of the seasons of the year are NOT capitalized?

Inserting two spaces after your punctuation is a holdover from using old manual typewriters. DO NOT double space after any punctuation. This is probably the only rule in the universe that does not have an exception EVER. If you'll please watch

Duncan R. Teague  
Secretary/Treasurer  
Southern Skies Editor  
Craigmont Planetarium  
Memphis, Tennessee



Mike Cutrera

Send your \$25.00 check made payable to SEPA to the following address:  
Craigmont Planetarium, 3333 Covington Pike, Memphis, TN 38128 3902

Name		
Planetarium		
Organization		
Address		
City		
State	Zip	
Area	Voice	
Area	Fax	
Position		
E-mail address		

# Small Talk

Elizabeth Wasiluk  
Small Talk Editor  
Berkeley County Plan-  
etarium



Since I am writing this on the last day of school before Christmas break, I thought I would make a list of my favorite Christmas books. I have been collecting books on the Star of Bethlehem ever since I was eight. I heard a broadcast about the star in a radio program broadcast about the Adler Planetarium on Chicago's WLS. Little did I know that I would be doing planetarium programs on this topic when I grew up. Recently a local minister came into our astronomy club to talk about this topic for the Shenandoah Astronomy Club in Middletown, Virginia. I brought along my collection for show and tell. Here's what's in my stash:

- The Star of Bethlehem, a pamphlet by the Adler Planetarium and Astronomical Museum: I got it for 20¢.
- That Christmas Star, by Linton and Phyllis Pitluga, c. 1976 by Cygnus Publishing, 600 North McClug Court in Chicago, Illinois: Phyllis used to be staff astronomer at the Adler Planetarium.
- The Christmas Sky, by Franklin M. Branley: It was written in 1966 but revised with new illustrations in 1990.
- The Brightest Star, a Bible PopOrama book by Augsburg Press.
- One Special Star, by Anita Mc Fadzean: Illustrations are by Kate Jaspers; it's a counting book.
- The Christmas Star, by Marcus Pfister: This book isn't accurate but is cute because the same people who made The Rainbow Fish also make it.
- The Christmas Star, by John Moseley, planetarian from the Griffith Observatory.
- The Star of Bethlehem, by Michael Molnar: Here's a new updated theory.
- The Christmas Star: The Search for the Star of Bethlehem, a 1993 York Films of England film (ISBN# 1 56938 009 0): This is a video tape I got from the following address:

Critic's Choice Video & DVD  
P.O. Box 749  
Itasca, IL 60143 0749  
1 800 367 7767  
URL: <[www.criticschoicevideo.com](http://www.criticschoicevideo.com)>

E-mail: <[vcatalog@ccvideo.com](mailto:vcatalog@ccvideo.com)>

It wasn't in stock the last time I checked the Web site. This company is terrific for getting videos and DVDs quick and at a great price. They have a toll free number for the hearing impaired at 800 272 2900.

Here's a book I want. I seem to have seen a new Star of Bethlehem book by some Spanish astronomer that seems to agree with the Michael Molnar book. I couldn't find the title or the author on the Web, though. Can anyone help?

One last reference is The S.O.B. Show by Elissa Malcolm. It is in some December Isaac Asimov Magazine. Elissa was married to Tom Hamilton, Wagner College Planetarium. Elissa worked with Tom. I met them in 1980 at the Chicago IPS meeting. After they divorced, Elissa changed her name back to Malcolm and started writing. This story is about a planetarium conference that takes place during December.

It has many people in it I am sure you will recognize. For Star Wars fans an Angel from Lego makes an appearance long before they ever were mentioned in The Phantom Menace. I read it each holiday before I dust off the Wise Men for the dome.

If you are not already familiar with it, read The Star by Arthur C. Clarke. It is a short story in The Nine Billion Names of God. When I did a Christmas show at J. M. McDonald Planetarium in Hastings, Nebraska, I borrowed one from Vancouver, British Columbia's planetarium, and this was mentioned in it. Adapting it for the planetarium would give people something to think about.

This story has nothing to do with the Star of Bethlehem, but it has an observatory and a telescope, and it is kind of cute: Family Circle's The Mole's Family Christmas. It's in the December 1969 edition. Adapting it would make a good kids story with no controversy anyway. The author is Russel Hoban. Illustrations are by Victoria Chess.

Get an audiotape of Dylan Thomas reading A Child's Christmas in Wales. Get your art folks to make pictures to go with it. It has nothing to do with stars and astronomy, but it is so lovely. It'll make the

# Book Review: Brother Astronomer:

In the local farm houses and members of royalty book store, it appeared that the literati used the age old filing system of just tossing the books up and hoping they landed on the shelves. This book did belong in the astronomy section. It was by an astronomer at the Vatican Observatory. Brother Guy Consolmagno is a member of the Jesuit Order. He works at Castel Gandolfo and is directly responsible for one of the world's largest meteorite collections.

The book is autobiographical in nature. It describes how Brother Consolmagno went from Ivy League college to living near the Pope. Along the way he describes some of his astronomical research and how the course of his career and soul searching led him to his present line of work.

After work in the realm of cutting edge research where folks need to insure their research is the most cutting edge and everyone else's is the work of madmen, the author realized he did not like the backstabbing nature of the progress of scientific discovery. So he joined the Peace Corps. He wanted to experience real life and help people who had little. With his education and background, he was assigned to teach astronomy in a fairly well to do school in Africa. So much for roughing it. It was, however, more rewarding.

After his stint with the Peace Corps, he decided he might enjoy the priesthood. His only experience with organized religion was in his pre college school days. Members of the Jesuit order taught high school. He thought this might be a good thing to do. So he signed up. Soon he was asked to join the staff of the Vatican Observatory. He suddenly found himself the curator of one of the world's largest meteorite collections and no idea what to do with it.

Someone suggested he could use the collection to determine from where all these meteorites had come. Since he had access to one of almost every meteorite known to exist, he had a good sample base with which to work. One of his graduate school areas of research involved the composition of certain meteorites. One implication of his work was some meteorites came from the asteroid Vesta and most of Vesta was

still in space. Another was that meteorites could come from the Moon or even Mars. The Vatican collection could help refine the compositional study.

In November 1996 he became part of the NSF team that searched for meteorites in Antarctica. Among the team members were some major players involved in possible fossils in the meteorite from Mars. He felt he had the least experience of any of them, and his tales of life way down under are very amusing.

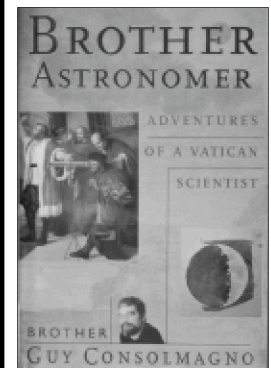
After any snowfall equipment must be uncovered quickly before the snow hardens to ice. On one occasion they needed to shovel snow off six snowmobiles. After shoveling for a few minutes and feeling he wasn't getting anywhere, he moved to a snowmobile that wasn't covered and drove it to a covered one. He dug the snow away from the front of the vehicle, rocked it a few times to free the skids from the ice, and pulled the covered vehicle out of the snow in a few seconds. After freeing five vehicles, he went back to the group, which was struggling with the first one. He helped finish that one too.

He wore his contacts most of the time in Antarctica. This made it difficult to see meteorites. He had a hard time seeing any thing clearly that was closer than twenty feet from his face. He almost had to trip over a meteorite to discover one.

This is a great book that describes the work of an average research astronomer. The book does not focus on religion much, except to explain how the Vatican justifies and reconciles the findings of astronomical research. Brother Consolmagno explains this very well. If you want some good background information to answer the question, Why didn't you say God made the solar system? this book is the book to read. Brother Consolmagno coauthored



Brother Astronomer:  
Adventures of a  
Vatican Scientist  
by Br. Guy Consolmagno  
ISBN 0-07-135428-X  
McGraw-Hill  
New York, NY 10121-2298  
© 2000  
229 pages  
\$24.95 hardcover



# Digital Cosmos

## SkyChart III



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I have a real treat for this issue: Sky Chart III from Southern Stars Systems <[www.southernstars.com](http://www.southernstars.com)>. For those who haven't heard of SkyChart before, it is more than just a desktop planetarium or star chart generator. It's a space simulator. If you ever used Dance of the Planets, then you have some idea of what to expect, only expect a lot more.

Let's start with some of the technical details:

#### PC System Requirements:

Pentium 100 or faster; Pentium II 233 or faster recommended  
64 MB RAM  
35 MB hard disk space  
Windows 95, 98, ME, NT, or 2000

#### Macintosh System Requirements:

PowerMac 601 604e, 100 MHz or faster; PowerMac G3 233 or faster recommended  
96 MB RAM for Classic; 128 MB RAM for Carbon (Mac OS X)  
35 MB hard disk space  
Mac OS 8.6 9.2 for Classic version;  
Mac OS X 10.1 for Carbon version

As you can see, SkyChart III will run on most any machine manufactured since 1994. While Windows XP is not mentioned, the program should run in emulation mode at the very least, if not under the full OS. My test machines were as follows:

- 75 MHz Pentium with Windows 95
- 233 MHz Pentium II with Windows
- 900 MHz Pentium III with Windows 2000
- 500 MHz Macintosh G4 running Mac OS 9.0.4

The software installed smoothly and without problem on all my test machines. When I brought it up for the first time I had a view of the night sky as seen from San Francisco. Clicking on the Location option from the main menu opened a window with two options: view from Earth or view from object (more on this later).

There is a dialog box with a list of cities around the world. Orlando isn't listed, but I can enter my latitude, longitude, altitude, and time zone. I also can save my location to the list rather than entering it each time. The program also lets me save all the configuration settings. This is a blessing, as there are numerous settings you can customize.

Other settings include displaying a blue sky during daytime hours, twilight brightness, limiting magnitude, visible star colors, labels, etc. Just about anything can be set by the user and then saved. With just a few clicks, any saved setting can be reloaded. Since the program allows the user to give a unique name to the saved settings, special events can be recalled quickly and easily.

The program offers a variety of view projections such as spherical, Lambert, and Mercator to name a few. Also, the field of view ranges from 360 to  $\frac{1}{360}$ . The view can be centered on any object, and objects can be programmed to leave trails. Selecting what is displayed is as simple as clicking the mouse. From the Draw menu all of the selections are available, and those that are active have a check mark next to them.

If you click on a star, planet, or other object, a window pops up giving detailed information about that object. From this window, you can center the object, turn trails on/off, and edit orbital elements.

Of course charts can be generated, printed, and saved for use in other programs. These charts can be printed in both black and white and in color. The program

even tells you that you will save ink by printing with a white background and will make the needed changes for you if asked.

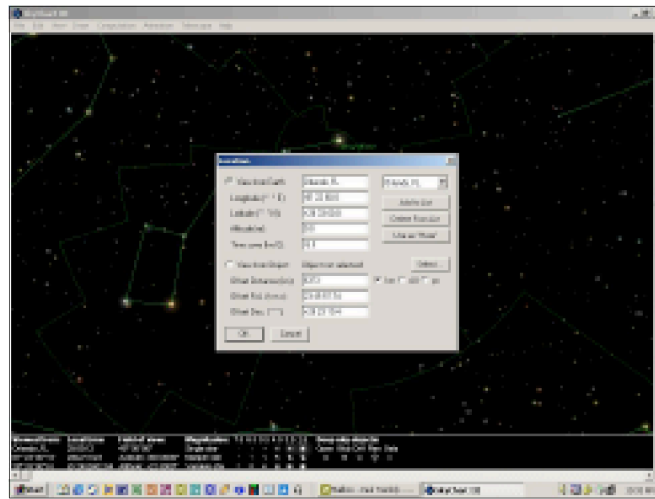
The charts are an area where the program suffers a bit. On both the Windows and Macintosh machines, when printed in portrait mode, the chart legend printed off the left side of the page. In landscape mode there was no problem. Once I applied the v3.5 update from the Web site, the charts lost their crisp look and had a more dot matrix feel to them. When printing from the Macintosh, the program shut down with an error every time I printed. The update fixed this problem, as well as the problem of printing past the right margin.

How would you like to view the Solar System as seen from Hale Bopp? Or watch Saturn fly by as seen from Voyager? Will that new comet hit Earth in 20 years? Want to find out? It's simple. Remember I said that the Location menu gave me the option of view from an object? From here you can place your viewpoint on any object you have loaded, be it a planet, a comet, an asteroid, a spacecraft, etc.

Let's take the comet example; will it hit Earth? Get the orbital elements and select New Planet from the menu. This is one part of the program that is not intuitive. I had to look this one up in the help file to figure out how to use it. SkyChart considers everything that has an orbit a planet - rather odd, but it works. Enter all the orbital information and save. Now position your point of view above the comet and 90° to the plane of the solar system, set your dates and time skip, click Animate, and watch. This can be saved and recalled at any time.

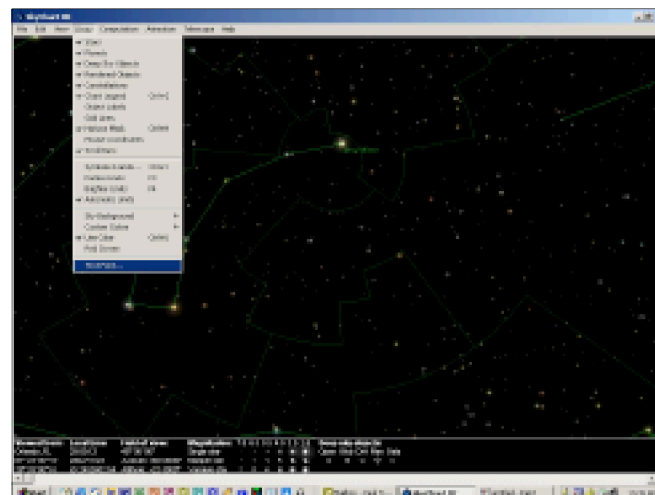
Want to know if a certain NASA satellite will be visible? Either get NASA's satellite file off the Web and import it or enter the orbital elements yourself. You can even ride the satellite if you wish. For Web masters, the animation can be saved as an animated .gif file.

If you thought New Planet was odd, how about New Star? This option allows you to enter a non orbiting object. Just as the program thinks of orbiting



objects as planets, those with out orbits are Stars. Good for new deep sky discoveries perhaps, but not a function that is likely to get a lot of use. On a side note, there seems to be no limit to how faint the magnitude filter will go. With everything that can be drawn turned on, I crashed my PIII 900 when I got down to 14<sup>th</sup> magnitude. With just stars turned on, and a very small field of view, I was able to run down to 30<sup>th</sup> magnitude without problem. So, it appears that any object no matter how faint can be displayed so long as you are careful of the settings.

The version that I received was version 3.2.1. The Web site has an update to version 3.5.0. This is well worth it, as the update has many great features. (If you don't count the change in quality to the print outs) The best is that it ... renders star images and planet surfaces in 32 bit color with data derived from NASA spacecraft imagery. While this is CPU intensive during some simulations, it is great to be able to look at Jupiter and visually see if the red spot is on your side or not.



SkyChart III  
continued

Right: The "Location" dialog box from SkyChart III

Right: The "Draw" menu from SkyChart III

Check out the Web site for screen shots of the rendered and non rendered planets <[www.southernstars.com](http://www.southernstars.com)>. The rendered objects slowed down animations, and on the Pentium 75, while they looked nice, the machine was just too slow to run animations. You can turn the rendered objects off however, so this feature is no a make or break item.

Like many astronomy packages, SkyChart allows you to control a telescope, and most of the current crop of goto scopes and encoders are supported. You can display the telescope field of view for different oculars, and simulate a connection for learning the interface, or practicing encoder alignment.

detailed instructions for setting up simple simulations.

The SkyChart CD ROM includes several good simulations, the entire Hubble Guide Star database of 19 million objects, and a smaller database or 300,000 objects, hundreds of Messier, NGC, and IC deep sky objects.

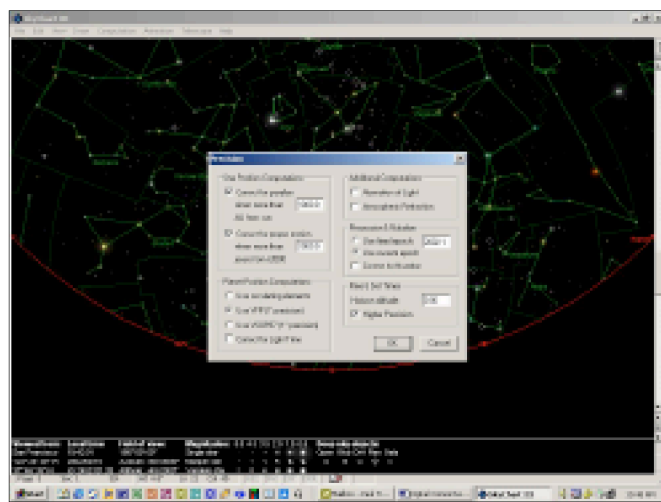
The only downside to this software is that there is no listing of future events such as eclipses. Having a drop down list of eclipses, you could click on one, and it would be a useful feature for a beginner or home user. Granted you can input the date and time easily enough, and most planetarians have access to reference publications to get this information. And it can always be found on the Internet, but why not have it available from within the program?

At only \$45.95, SkyChart III is a steal compared with other astronomy programs like The Sky. Also, ... SkyChart III has been selected by textbook publisher Prentice Hall as the companion software for its college astronomy textbooks *Astronomy: a Beginner's Guide to the Universe*, 3<sup>rd</sup> edition and *Astronomy Today*, 4<sup>th</sup> edition.

This is a great software package, and while a beginner might become overwhelmed with some functions of the program, there is

still plenty to utilize. Educators will find this a very useful program as well. The price is good and the features are great. SkyChart III is definitely one of the best astronomy products I have encountered.

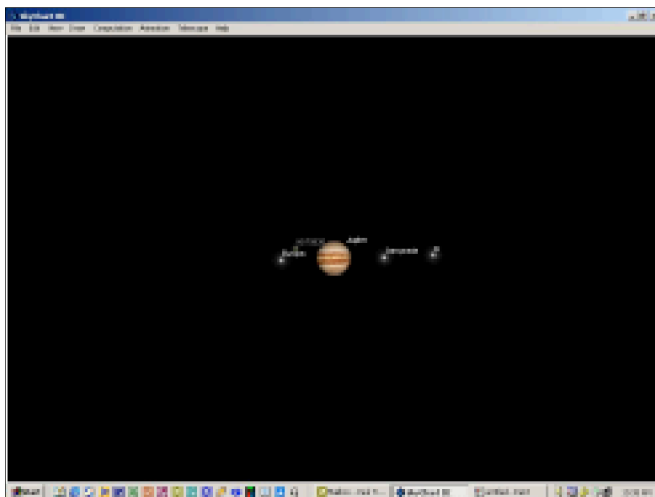
Left: The "Precision" dialog box from SkyChart III



Can anyone tell me the date and value of the minimum angular separation of Jupiter and Saturn during 2002? It's March 27 at 2:40:17 Eastern time and 26.7'. The point? SkyChart allows you to find such items with comparative ease. Just enter the two objects, the date range, and the type of separation you want and click. You can then display the event, or continue searching. You can also print highly detailed ephemerides as well. There is a menu selection called Precision. Here you can enter things like aberration of light, atmospheric refraction, and nutation. Highly accurate simulations can be accomplished on a limited scale.

The Southern Stars Web site is full of great items like comet files from the Harvard Smithsonian Center for Astrophysics and minor planet files. There is a good FAQ, which includes some

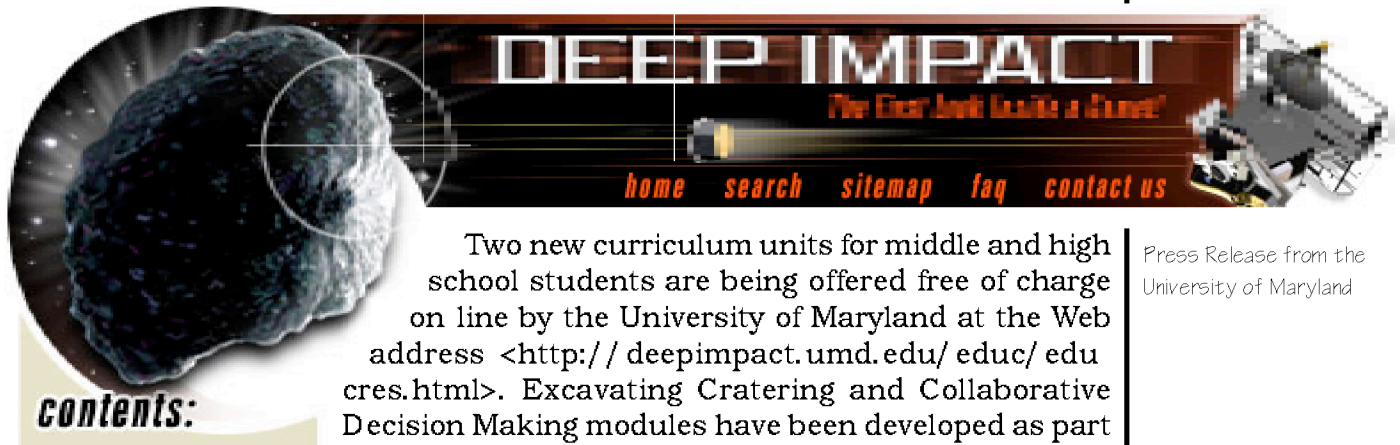
Right: SkyChart III zooms in on the Jupiter system





# Free Online Science Curriculum

Middle and High School Students Can Be Part of NASA Mission



## contents:

Two new curriculum units for middle and high school students are being offered free of charge on line by the University of Maryland at the Web address <[http:// deepimpact.umd.edu/ educ/ edu cres.html](http://deepimpact.umd.edu/educ/educres.html)>. Excavating Cratering and Collaborative Decision Making modules have been developed as part of the NASA Deep Impact mission. Both units allow students to get involved with a NASA mission that is

Press Release from the University of Maryland

currently in development.

Excavating Cratering asks students to answer the same question with which Deep Impact mission scientists are dealing: How does one make a football field sized crater, seven stories deep, in a comet? Students brainstorm about what factors influence crater size, evaluate their ideas, and design their own experiments. The unit is designed to engage students in conducting scientific inquiries and in gaining greater understanding of scientific modeling.

Collaborative Decision Making lets students compare the risks of varying courses of action confronting scientists and engineers who are part of the Deep Impact mission. It asks students to clarify and research a specific issue, justify their approaches and advocate for alternate viewpoints. They also agree on a way for coming to consensus.

A NASA Discovery Mission, Deep Impact is six years long from planning through impact. It is the first space mission designed to hit a comet, Tempel 1. Launch of the Deep Impact spacecraft is scheduled for January 2004, and the encounter with Comet Tempel 1 is scheduled for July 4, 2005. A 770 pound (350 kg) copper cylinder will hit the comet and send electronic data and images back to Earth. Scientists will analyze cometary debris exposed by the impact for many years.

Excavating Cratering was developed by Gretchen Walker, Education and Outreach Coordinator of the University of Maryland Astronomy Department. Collaborative Decision Making was developed by McRel, Mid continent Research for Education and Learning. Both incorporate the National Science Education Standards, particularly in regard to focusing on inquiry in science classrooms. Each unit takes from two to three weeks and portions can be done in less time.

The University of Maryland, the California Institute of Technology's Jet Propulsion Laboratory, and Ball Aerospace and Technologies Corporation are all partners in the Deep Impact mission. Principal scientist, Mike A Hearn of Maryland's Astronomy Department, says, The major goal of the mission is to understand what's deep inside a comet in order to get a historic view of the universe. Seeing inside the comet will allow us learn a great deal about the

# The Real Reasons for the Seasons: Sun-Earth Connections

Donna Rhodes Thomas  
Craigmont Planetarium  
Memphis, Tennessee

The reviewer for this teacher's guide has 19 years of teaching experience, 10 years as a 7<sup>th</sup> grade science teacher, 2 years as a planetarium instructor. The reviewer is also an experienced Mac user with a moderate amount of experience on PCs.

The Real Reasons for Seasons, produced by Lawrence Hall of Science, is a complete unit on seasons for grades six through eight. Seasons was developed with funding from the NASA Sun Earth Connection Education Forum (SECEF). The unit supports the National Standards of Science and Mathematics, requiring students to apply a variety of skills from both disciplines. Additionally, lessons require students to use language arts and social studies skills, making the unit truly interdisciplinary. Some of the skills necessary for success in this unit include observing, graphing, analyzing data, making models, drawing conclusions, and explaining those conclusions through the spoken and written word. Students also sharpen their computer skills by researching the Internet and using an informative CD ROM (included in the packet of teacher materials).

Specifically, this unit has eight activities, with the majority of those activities requiring approximately 45 minutes to complete. The concepts covered by these activities include each of the following: causes of the seasons, Sun Earth comparison, the spherical Earth, Earth's orbit and rotation, ellipses, tilt of the Earth, north

ern and southern hemispheres, latitude and longitude, temperature, and angle of sunlight. The teacher's guide includes an overview for each activity along with a materials list, an introduction to the concept being covered, and detailed directions on completing the lesson. Also included in the teacher's guide are suggestions for assessment, additional resources (print, software, and Internet links), literature connections, a student lab book, and a CD ROM.

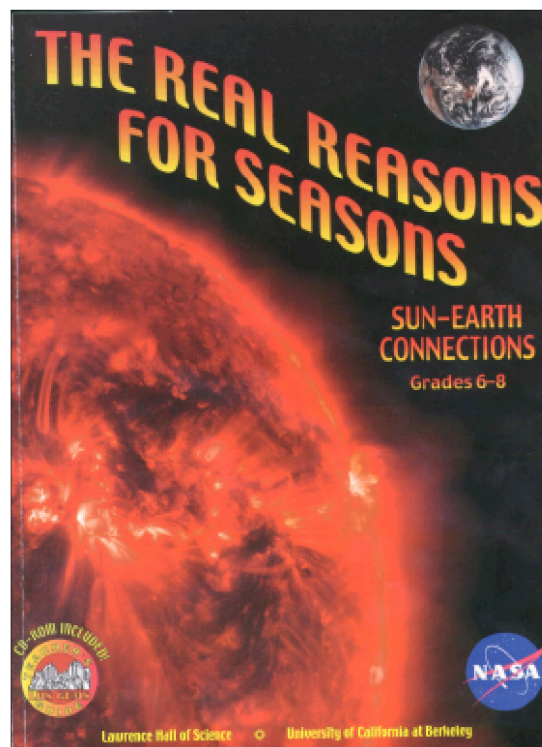
The teacher's guide includes a student lab book which teachers can duplicate for each student. Each activity coincides with a lab activity for the student to complete. The lab book includes activities, which are purely factual along with activities that require map reading skills, composition and analysis of data and charts, and critical thinking skills.

The CD ROM includes an abbreviated version of the printed material contained in the teacher's manual and the student lab book. The CD ROM is organized as if it were on the Internet. The user navigates by clicking on a particular activity, then moving forward, backward, or returning to the beginning by clicking on More, Back, or Home.

The material in the CD ROM is organized into chapters according to activity number. Each chapter contains additional information on the particular concept covered by the activity. In addition, there are a variety of animations (QuickTime™ movies and slide shows) within each chapter that help simulate or illustrate the concept. There are also direct links to the Internet for resources for both student and teacher.

The content and organization of this unit are excellent. The directions and requirements for the activities are easy to follow. For a teacher who needs help with content, there are many resources both within the manual and within the Internet links provided by the manual. The activities are on grade level. Students are expected not only to learn factual material, but also are also required to use inference and critical thinking skills in order to work through the lab activities.

Left: front cover of the teacher's guide for The Real Reasons for the Seasons



The computer requirements for the CD ROM are as follows:

- PC: Pentium 100; 4X CD ROM
- Operating System: Windows 95, 98, 2000, or NT 4.0
- Windows 95/ 98: 32MB (64 MB recommended)
- Windows 2000/ NT 4.0: 64 MB (128 MB recommended)
- Macintosh: Power Mac; 4X CD ROM
- Operating System: Mac OS 8 or later
- 32 MB RAM

The CD ROM contains the following software, which may be copied to your computer. They are all necessary to run various components of the CD.

- Adobe Acrobat™ Reader 4.0 or later
- QuickTime™ 3.0 or later
- Netscape 3.0 or later
- Internet Explorer 4.0 or later

The CD ROM also contains the BASIC version of Starry Night, a basic star finding program. The program is easy to use and set to your particular location. It allows the user to view the night sky on a particular date from a particular place.

Several different computers were used to review the CD ROM included with The

Real Reasons for Seasons.

- Power Mac G3 with Mac OS 8.6
- iBook with Mac OS X v 10.1
- Gateway PC with Windows 98

Only minor problems were found using these computers. While trying to view a couple of the QuickTime™ movies from the Power Mac and the Gateway, errors occurred. The codec used to compress the movie was incompatible with the version of QuickTime™ installed on the computer. Other than that the CD ROM worked well. The movies and slides shows were well done and were an excellent complement to the lessons.

This is an excellent unit for middle school students. I recommend it to teachers whose children need guidance in the reasons for seasons, or to teachers who need some new ideas about how to teach the seasons.

The cost of The Real Reasons for Seasons: Sun Earth Connections is \$25.50. The price includes the CD ROM and the student lab manual in the back. The lab manual may be duplicated for students at no additional cost. For more information about this unit or for a free catalog from the company, contact:

The University of California, Berkeley  
GEMS, Lawrence Hall of Science  
#5200

The Real Reasons  
for the Seasons:  
Sun-Earth Connections  
continued



Right: navigation screen from the PDF file on the CD ROM that accompanies The Real Reasons for the Seasons

# News from SEPA States

Alexander Brest Planetarium, Jacksonville

Patrick McQuillen reports that things are very busy. School programs continue weekdays with no end in sight, which is a good thing revenue wise. The current public planetarium shows include Winter Skies and Spirits From the Sky: Thunder On The Land. Winter Skies is the usual live current night sky program. Spirits From The Sky is an offering from the Adler Planetarium. The program focuses on sky legends of Native American peoples. It is a great show to relax and watch during the cold (for us) Florida winter days.

Cosmic Concerts continue with our winter family offering being Peter and the Wolf from Laser Fantasy. This is the classic Peter and the Wolf story, with this version narrated by Sting. The soundtrack is very enjoyable under the dome. Other winter offerings include Backstreet Boys/ NSYNC (Mike Dunn) that has attracted audiences for over a year and a half. Late night laser shows start again in February with Pink Floyd: Dark Side of the Moon and Led Zeppelin's Greatest Hits.

In early December the laser system was down for routine maintenance. The laser tube needed to be re gassed. This involved a fun mailing of the laser and power supply to California and an even funnier return shipment that sent the laser and the power supply back to us from two different locations after it left Florida. One part went to Atlanta, the other to Toledo. Go figure! But both parts made it to us intact. The laser is now so bright that at full current we can see a secondary image caused by laser light going through the dome holes, bouncing off the planetarium wall, and re entering the dome. Pretty cool, but it does make the shows hard to watch unless you are wearing your laser glasses. Then it looks like an intended part of the show. Turning the current knob down a bit removes the problem.

Early March takes us to one of our best attended special events, Star Date Weekend. This annual event focuses on a science fiction theme, and most of the days events are conducted by the local Star Trek fan clubs. Most of the stuff that

you would see at a science fiction convention can be seen during this event. Fan club members dress as Federation and Klingon characters which draws attention as you might expect. This will be the 10<sup>th</sup> year for this out of this world event.

Bishop Planetarium, Bradenton

If you haven't heard by now, as of November 15, 2001 George Fleenor's position as Director of the Bishop Planetarium was terminated and there are no plans to rebuild the Planetarium. In fact, in a press release stating my departure, the museum announced the Planetarium will be closed for at least two years and may not ever reopen. The museum administration and board of directors blamed the events of September 11<sup>th</sup> for the lack of visitors to the facility and the slow adjustment by the insurance company for the demise of the Planetarium and any hopes of rebuilding it. The Planetarium was underinsured and supposedly the insurance company was not allowing enough money to refurbish the facility. There is a whole lot more to this story, and I choose, for both personal and professional reasons, not to go into at this time. Perhaps, in face to face meetings, I will fill you in on the exact facts and issues. Not long after the fire of August 23, 2001 the Bishop Planetarium name was removed from all brochures, the building itself and the Web site. It is almost like the pages of the old Soviet Union's history books!

Everyone in the community appears to be upset at the board's decision, and news stories and letters to the editor appear almost daily in both the Manatee Herald Tribune and Bradenton Herald. As of the August 23, fire I have not and was not included in any conversations regarding the fate of the facility. A special task force has been appointed by the Board to do a feasibility study for what would work best in the Planetarium's gutted chamber. Needless to say, it does not look good for the Bishop. I do know for a fact that this story is far from over, and on a political front it is about to get really ugly. I have made it a point to distance myself from the issue as much as I possibly can, since I do not want to burn

George Fleenor  
Bishop Planetarium  
Bradenton, Florida

any bridges locally or professionally. There is a lot I could say but I choose to remain low key, even though I have been accused otherwise. The local astronomy club, the Local Group of Deep Sky Observers, have started a campaign to make people aware of the plight of the Planetarium. Since the Museum tried to keep a lid on the 100% loss of the Planetarium, the public was unaware that it might not ever reopen. Information released played down the true nature of the loss. The club has sponsored sidewalk astronomy events and designed a special bumper sticker to promote their endeavor.

My future is uncertain and I have thrown my name in the ring for a couple of other facilities. I do look forward to the future with great anticipation, and it could be the best thing to have happen to me. Only the future will tell. I am doing my best to stay in the SEPA region. I am happy to announce that Kelly Quinn has accepted a position at East Coast Controls, and Brett Jacobs is heading to Jacksonville and the Alexander Brest Planetarium.

Due to the circumstances this is probably my last report from the Bishop Planetarium. I will continue to edit the Florida news, as long as I remain in the state. Hopefully, a new job will arise soon. If anyone has any leads for me, please contact me via e mail at <Jetson1959@aol.com>.

On the light pollution front: Locally, I still have been rather quiet due to all of the issues facing the Planetarium. This is really sad since we had such momentum going for change. As chair for the Informal Education in Science Centers and Planetariums Work Group for IDA, I/we had been challenged to produce a traveling exhibit that was to debut next October in Boston. However, the size of the exhibit prohibited us from realistically meeting the deadline. We are developing various smaller traveling exhibits, in addition to a larger model, and any input you might have would be beneficial. The Work Group consists of many planetarians and science center employees across the country that is generating some great ideas.

Buehler Planetarium & Science Center,  
Davie

Susan J. Barnett reports their week end public shows are Light Years From Andromeda and Max's Flying Saucer. The Wednesday rotation includes The Explor-

ers, The People, Voyager Encounters, The Mars Show, and Astrology: Fact or Fiction. New shows being introduced, as specials, are The Explorers of Mauna Kea and Clouds of Fire: The Origins of Stars. We will also be running African Sky Lore and Women Hold Up Half The Sky.

Orlando Science Center, Orlando

Paul Trembly reports: While we had clouds and rain for the Leonids, we had better weather for the Geminids and great weather for the Dec 14<sup>th</sup> solar eclipse. With an estimated attendance of around 500, people enjoyed the ability to look through a telescope and then wander back inside to watch on video monitors. Four TV news crews covered the event; one local station broadcast all of their weather from inside the observatory. The local paper ran several nice articles about our activities and profiled a couple of our volunteers, without whom we could have never pulled this off. Orange TV, the local county run cable station, broadcast the entire eclipse live.

Under the other dome we have been running Tis the Season during the holidays, but WSKY will return in January. We will be having a film festival of IMAX films during January and February. We will be opening the show Worlds In Motion either in late March or in early April.

By the time you read this Sky Skan may have finished installing video upgrades that will allow us more flexibility in using custom animation and other video. We are installing a new graphics workstation for the creation of our own 3D animations and models. I'll tell you more in the next issue after we have had time to use the software.

And in the realm of other uses for a dome we had a wedding performed in our planetarium recently. The bride was an avid stargazer and wanted the ceremony held in a planetarium. We also had a gentleman rent our observatory for an evening for the sole reason of proposing to his girlfriend. (She said, Yes. ) We populated the observatory with staff and were running slides; when we got to the Ring Nebula everyone quietly vanished, and the caterers brought in champagne and dinner. Recently our observatory was listed as one of the top ten places to take a date when in search of something different.

Hallstrom Planetarium, Fort Pierce

Jon Bell reports: Wow, has it been a year

News from SEPA States  
continued

George Fleenor  
Bishop Planetarium  
Bradenton, Florida

George Fleenor  
Bishop Planetarium  
Bradenton, Florida

already since my last report? Okay, here's what's happened and what's going to happen at the Hallstrom Planetarium.

January 31, 2001: One more Bell to answer; Frances Marie is born to Jon and Lisa and sons Daniel (6) and William (4.) Now I'll have three kids to whom to teach astronomy and planetarium operation. (My theory: if your administration isn't in a position to let you hire staff, raise your own!)

Winter 2001: Ran Dark Skies/Deep Space. Audiences loved it, especially the real sky telescope viewing opportunities following the evening shows, courtesy of the Treasure Coast Astronomical Society.

Spring 2001: Wrote, produced, installed and ran an original planetarium show, The Planets, using myself as narrator. I use me a lot because I'm usually pretty easy to get a hold of. Although I discovered to my horrified amusement that I still hadn't shaken off the William Shatner speech pattern that took hold of me when I was reading Captain Kirk's part for Boldly Go last year's Star Trek themed show. So parts of the new show go like this: Those telescope views were (pause for dramatic effect) ... misleading. The canals (another pause, then say next phrase with bemused irony) ... never existed. They were simply blurry views (small pause in order to accent the next word) ... of (another pause to let people know that the last word had been emphasized) ... mountain chains or (pause) ... natural valleys (big pause) ... on Mars. (Read next six words very fast so they sound like one big word.) But there is hope, even now (pause to catch breath) ... that (pause) ... at least simple forms (say next two words at a higher pitch indicating significance) ... of life, etc.

Summer 2001: Another conference, another Constellation Shootout. I promise (threaten?) I will keep doing these competitions until everybody has won it, or people stop signing up. Thanks to George Fleenor, Kelly Quinn, Mike Chesman, and Carole Helper for serving as judges, and to Jack Fletcher and his staff at the Arnim Hummel Planetarium for hosting the SEPA/GLPA conference and the Shootout.

Fall 2001: After I served two years as chairman of my college's Biology Department (I'm still trying to figure out how someone with a background in physical sciences ended up okaying the purchases of petri dishes and various critters for dis-

section labs.), a more than worthy replacement was found—an actual biologist who is doing a terrific job while I go back to just running the Planetarium and teaching astronomy.

October–November: Another new in-house production, The Whale's Tale (and Other Fishy Folklore) is a companion piece to Bear Tales, except it has a fall evening star ID instead of spring. A family is out raking autumn leaves and retelling the Greek myth of Andromeda, Cetus, Perseus, Cassiopeia, and Pegasus, as well as Arion's harp Lyra and Delphinus. There's information about the Moon, and of course participatory singing. (No Waltzing With Bears, sadly, but an updated chantey about different kinds of whales.)

December: Star of Wonder again. Fixed two Christmas light strings that went out on my wreath panorama and made some improvements to visuals and special effects. I wrote/produced this show in 1989 with help from the Bishop Planetarium in Bradenton (including Brian Matthews, the talented artist who was on staff there at the time). It appears most, if not all, of the show art was lost in Bishop's August fire, so we may be gearing up for a new production soon. Those of you who are still running this production, please send me any comments about changes or improvements: <jbell@ircc.net>.

December 14: Had a nice partial solar eclipse event for students and members of the general public who came by. The sky was clouded over at first, so we held the eclipse indoors, using the Planetarium's special effects. After a 20-minute slide presentation on eclipses, the clouds parted, and we all went out to view the sun with shade #14 arc welding glass, as well as a white light filtered view through an 8 Celestron.

January 2002: Will be rerunning Through the Eyes of Hubble, by Rob Landis et al. and produced by Buhl Planetarium in Pittsburgh. The original 42-minute version has been trimmed to 32 minutes to give me about ten minutes for a live Hubble images update and current evening star ID at the beginning of the show.

Spring 2002: Because of many audience requests that have continued for several years now, I will be pulling out yet another old show, Daughter of the Stars, a series of native American Indian sky stories I'd written up almost ten years ago. When I ran the show back then, I added some live

Georgia Southern University Planetarium, Statesboro

Becky Lowder of the Georgia Southern Planetarium has a busy schedule ahead for the new year. They began their first public evening with Explorers of Mauna Kea on January 25<sup>th</sup> at 7:30 p.m. There was telescopic viewing outdoors following the presentation.

Saturn: Lord of the Rings was presented starting February 22<sup>nd</sup> at 7:30 p.m. by Dr. Clayton Heller, Assistant Professor of Physics at Georgia Southern University. Telescopic viewing outdoors of Saturn and its rings, Jupiter, and the Moon followed the presentation.

Join Statesboro Astronomy Club members at the Georgia Southern Botanical Garden on March 2<sup>nd</sup>, 6:30 - 10 p.m. for Star Gazing in the Garden as they share incredible telescopic views of the sky with the public. Dr. Ben Zellner, Professor of Physics at Georgia Southern University, will discuss The Greenhouse Effect: Fact vs. Fiction with the public on March 22<sup>nd</sup> at 7:30 p.m. at the planetarium.

Join them on April 6<sup>th</sup>, from 10 am - 4 p.m., for their largest event of the year, Astronomy and Space Day 2002, to celebrate astronomy and space. Astronomy and Space Day highlights will include: real Moon rocks from the Apollo missions and meteorites, on loan from NASA; a chance to meet and talk with astronomers from the Georgia Southern University Department of Physics; lots of hands on astronomy and space activities for all ages; star shows of the current night sky on the hour; telescope and astronomy displays with the Statesboro Astronomy Club; NASA/JPL videos on exploration of space with a NASA JPL Solar System Ambassador; free astronomy and space activities to take home; and safe telescopic solar viewing of sunspots, if skies are clear. They will end the season with a presentation to be given by Ms. Sarah Layton, planetarium intern and Georgia Southern University student, on April 19<sup>th</sup> at 7:30 p.m. at the planetarium. There will be telescopic viewing outdoors following the presentation.

In addition to the public evenings, they also offer educational school shows to Pre-K through university aged students and adult groups/ clubs during the week days during the spring semester session at Georgia Southern.

We hope you can join them for an exciting season of events. For more information,

please visit their Web site at URL: <[www2.gasou.edu/physics/planetariumpage1.html](http://www2.gasou.edu/physics/planetariumpage1.html)>.

Coleman Planetarium, Dahlonega

Joe Jones writes: Work is progressing on our new science building which will contain our planetarium when complete. The science building is suppose to be completed by March 2002, but I m not sure when the planetarium will be reinstalled. We will be using the planetarium theater for a classroom as well.

Jim Cherry Memorial Planetarium, Atlanta

April Whitt reports that Fernbank Science Center celebrated Black History month with two planetarium programs about African astronomy, both produced in house. Lion s Tales and African Stars entertained families with stories about the sky, and Stars Over Africa engaged the audiences with measuring the altitudes of stars as they toured the sky from northern to southern Africa.

School audiences attended a variety of programs correlated with county science objectives. A Century of Physics exhibit filled the halls with participatory activities, and a new meteorite exhibit will be enlarged and moved nearer the Aerospace Education Lab.

Several hundred Girl Scouts attended programs to earn Aerospace and Sky Search patches. A special committee has been formed to discuss other programs Fernbank might offer for scouts, and the search continues for another astronomer.

Mark Smith Planetarium, Macon

Jim and Carole are currently running [This show title didn t survive the journey over the Internet] as their public show. Loch Ness Productions More Than Meets The Eye opens on March 8. Preceding each show will be a presentation of Saving the Night. In addition to monthly Night Hikes (no flashlights allowed!) at our satellite site of Brown s Mount, we have started a series Sunset Picnics to take advantage of the panoramic western view.

News from SEPA States  
continued

Jim Greenhouse  
& Carole Helper  
Mark Smith Planetarium  
Macon, Georgia

Dennis Cowles  
Audubon Louisiana Nature  
Center Planetarium  
New Orleans, Louisiana

### Pennington Planetarium, Baton Rouge

The Irene W. Pennington Planetarium and ExxonMobil Space Theater is in its last phase of construction and preparing for the installation of its sound and projection equipment. The picture below shows how the theater looked 6 months from the scheduled SEPA conference dates of June 25 - 29. SEPA delegates will be the first in the world to see the newly installed technologies. The public opening will take place after the SEPA conference, so SEPA delegates will be the first to see the results of \$10 million and 10 years of lobbying and fundraising.

Among the new technologies unveiled will be the Minolta Infinium II, projecting 15,000 stars. It's the first planetarium in the United States with infrared remote control. Many of the special technologies that have been demonstrated at the last two SEPA conferences will be permanently installed and integrated at the new Pennington Planetarium. They include AVI's full dome Omniscan Laser system, Sky Skan's SkyVision system, Megsystems 870 large format film system with over 14,000 watts of 6 channel sound, and a full complement of lighting, panorama, and all sky systems, all projected on an Astro Tec dome. At this SEPA Conference,

delegates will also see a revolutionary theater design that should turn some heads and spark some lively discussions.

The staff of the Louisiana Arts & Science Center (LASC) and planetarians around the state are hard at work to make this SEPA conference the best yet. Look for a registration packet in the mail and more conference information in the next SEPA Journal. Please contact LASC's Amanda Heintz at [ABHeintz@LASCbr.org](mailto:ABHeintz@LASCbr.org) or Executive Director Carol Gikas at [CGikas@LASCbr.org](mailto:CGikas@LASCbr.org) or Philip Groce at [groce@infnet](mailto:groce@infnet) should you have any questions about the upcoming conference.

Freeport McMoran Planetarium and Observatory, Kenner

The planetarium is currently running several shows including HPS The Sky Tonight Winter Tales, SEPA's Saving the Night, and several in house productions.

Things had been very busy over the past few months with helping the American Astronomical Society Division of Planetary Science hold their conference in New Orleans during the last week of November 2001. Planetarium Curator, Michael Sandras, was in charge of local volunteers and bringing in groups for educational programming. The conference turned







Dennis Cowles  
Audubon Louisiana Nature  
Center Planetarium  
New Orleans, Louisiana

Right: Site of the new 50  
foot dome planetarium in  
Kenner, Louisiana

out to be a great success with over 600 delegates from around the world. Several SEPA members including Dave Hostetter, George Fleenor, Kelly Quinn, and Michael Sandras were in attendance. In exchange for the work done at the conference, David Levy and several other astronomers gave lectures at the planetarium and personnel from JPL and NASA put on a Girl Scout workshop at the facility as well.

SEPA President Elect Michael Sandras was also selected to be a participant at the recent NASA Educator's Workshop that was held in Huntsville, Alabama the first week of February 2002. This was a workshop for science center and museum personnel. Michael was also chosen as the 2002 Solar System Ambassador to the State of Louisiana for JPL/NASA.

Tom Finnicle is continuing his series of talks on space flight, and he is once again working on the Young Astronaut Program which proves to be successful year after year.

Finally, work continues on the new 50 foot planetarium. A chance for everyone to visit this facility as it nears completion is currently being worked into the 2002 SEPA conference schedule.



Right: SEPA President-Elect Michael Sandras stands where the star projector will be in his new planetarium in Kenner

### Lafayette Natural History Museum and Planetarium, Lafayette

In less than a year the new Lafayette Natural History Museum & Planetarium will open! Some of the museum's stored equipment will be moved into the building in late spring with the staff moving in June. Grand opening is October 1, along with the MarsQuest exhibit.

The 40 Spitz dome and two 6 rooftop observatory domes were installed between Thanksgiving and Christmas. We selected the seats. Construction in the planetarium and work areas is nearing completion. Much of the JHE control system and production equipment is on hand, ready for installation when the planetarium construction is done.

Ms. Mary Henderson is our new Museum Administrator, three years after the position became vacant. She is from the Smithsonian Air & Space Museum in Washington, DC, and the Museum of Moving Images in Astoria, NY.

Lack of a planetarium and cloudy skies limited programming in the last few months. Our best success was sidewalk astronomy at the Children's Area of the Festival of Lights for over 300 visitors November 30. A video camera attached to one of the telescopes let us show the occultation of Saturn to groups of people instead of just the few looking through the eyepiece at the right time. It created a lot of interest and we plan to continue that sort of viewing from our new building. We used the opportunity to talk about light pollution.

### Saint Charles Parish Library and Planetarium, Luling

At the Saint Charles Planetarium, warmer weather is upon us, and visions of end of school semester visits still loom in the slightly distant future. Plans proceed for acquisition of grants to help fund upgrades and repairs. Many years of operation have taken their toll, and it is now time to fix up. Our programs for spring include Follow the Drinking Gourd, Spring Skies, and Just Imagine. Hopefully by the time SEPA rolls around, you may get a chance to see our Planetarium in the Swamps.

### Audubon Louisiana Nature Center Planetarium, New Orleans

The Nature Center is offering the following programs for the public on weekends: The Sky Tonight, Planet Patrol, The Oldies Laser Show, and an occasional program on meteorites. For school groups, the lineup includes the above programs plus The Little Star That Could, a variety of laser shows, a program on how lasers work, and Wonderful Sky.

Volunteer led monthly solar observing sessions for the public are a hit. Currently the Nature Center offers regular observing on the third Saturday of the month, but there are new volunteers in training, and eventually Dennis hopes to offer observing every weekend day.

Dennis has started a series of staff observing sessions to increase planetarium staff experience with observational astronomy. To go along with this plan, Dennis convinced the budget gurus that it would be nice to allocate money to pur

### Roper Mountain Science Center, Greenville

Here at Roper Mountain, we have most recently begun Lunar Odyssey and Worlds in Motion, both Sudekum productions. This past year, we also began customizing programs for J. L. Mann Science Magnet High School which meets regularly for both planetarium and observatory programs featuring the 23 Clark refractor. We are completing a new building which will house a state of the art astronomy classroom as well as a large telescope shop and a small instrument deck. It all happens beneath an upper level containing offices and a conference center. Public programs continue strong with Friday attendance topping 100 most clear nights.

### Stanback Planetarium, Orangeburg

The University has not given me an operating budget for this year and has decided to place me half time in the classroom. I'm still doing school shows but on a greatly reduced schedule

### Settlemyre Planetarium, Rock Hill

We here at the Settlemyre are gearing up for the spring rush of school programming. Our most popular show this year has been Planet Patrol. On the weekends we are offering a 11 a.m. children's show, and in the afternoons we are presenting Explorers of Mauna Kea. If your planetarium would like to be included in News from SEPA States, send me your e-mail address, and I'll be sure you're included.

Dennis Cowles  
Audubon Louisiana Nature  
Center Planetarium  
New Orleans, Louisiana

Glenn Dantzer  
Settlemyre Planetarium  
Rock Hill, South Carolina

Chesapeake Planetarium  
Chesapeake

Dr. Robert Hitt has been sick lately and I haven't been able to talk with him. I hope it isn't serious. I'm sure he's doing lots of school programs as we have been. We all hope he gets well soon.

Virginia Living Museum Planetarium  
Newport News

Shortly after winter began we closed the annual Star of Wonder program and replaced it with an in-house production called Our Winter Skies/ Saving the Night. The first part was my assistant Kenneth Moore's first produced script. It is being well received by the public. Good job, Ken! After this show closes in March, we plan to bring back our own popular production of Bear Tales and Other Grizzly Stories, a version of this is currently being distributed by Joe Hopkins Engineering.

Speaking of Ken Moore, he will be leaving the Virginia Living Museum shortly. He will be entering the computer field full time as a networking engineer. He will be greatly missed. By the time you read this, and after some personnel shuffling, we will be looking for a person to fill out our department on a part-time basis. Contact me if you know anyone who might be interested in a 25-hour per week position. As I mentioned in the President's Message, this will also effect SEPA in that we will need a new person to take over the Web site up-keep.

We're geared up for another quarterly evening event scheduled Saturday February 2. This has become an annual event for us on Groundhog Day (or as SEPA's would prefer Woodchuck Day). Our guest speaker will be me. I'll talk about the real reasons for the seasons. We're closer to the Sun in the summer, right? Heh heh.

Construction has begun on our new parking lot. Work on the additional trails is complete. We'll begin moving animals to their new outdoor habitats shortly. The city has begun installing the new turning lane and traffic control light just in time to interfere with our busiest time of the year.

Our board of directors approved our taking a loan out to pay for construction of our new building. This will almost triple our exhibit space. It will also eventually house a 50-foot planetarium theater. The opening of the primary building is tentatively scheduled for some time in 2004.

Please visit our Website at <<http://www.valivingmuseum.org>>.

Planetarium at the Edge of the Universe,  
Starlab Mathematics & Science Center,  
Richmond

George and Jane Hastings just returned from a fun trip to Quebec for some cross-country skiing. They also co-wrote the script for the new program at the Ethyl Imax Dome and Planetarium in Richmond.

Hopkins Planetarium/MegaDome Theater,  
Roanoke

Mark Hodges and (after major budget cuts) his two part-time staff are showing Jewels of the Night/Visions of a Spring Night in the Planetarium.

The Megadome film offerings are Lost Worlds: Life in the Balance and Wildfire: Feel the Heat. Coming soon will be the exciting film Thrill Ride.

Mark hopes to attend a conference again sometime in the future. He doubts that there will be money available for professional development this year, however. His e-mail address is <[mhodes@smwv.org](mailto:mhodes@smwv.org)>.

Ethyl Imax Dome and Planetarium  
Richmond, VA

Eric Mellenbrink reports the Science Museum of Virginia will be closed Mondays except holidays for the foreseeable future. The state has a hiring freeze in place.

In the planetarium they're running a new in-house production called How Did I Get Here? This is a tour of planets type of program with a look into the past as well as the present. This one, written by Jane and George Hastings, runs through June.

For IMAX films they will be showing Beauty and the Beast which runs through Memorial Day. Opening April 15 is Lost Worlds: Life in the Balance (about biodiversity). This one runs through end of September.

Journey Into Amazing Caves and China: The Panda Adventure will run through the

THE DEADLINE FOR THE NEXT ISSUE OF SOUTHERN SKIES IS APRIL 1. SEND SUBMISSIONS ON A 3.5 DISK OR VIA EMAIL ATTACHED FILE TO DTEAGUE2@MIDSOUTH.RR.COM OR TEAGUE1@K12TN.NET

News from SEPA States  
continued

Dave Maness  
Virginia Living Museum  
Planetarium  
Newport News, Virginia

# HST's Greatest Hits of '96

Duncan Teague  
 DT Publishing  
 3308 Bluemont Drive  
 Memphis, TN 38134-8454

The Space Telescope Science Institute (STScI) provides slides of Hubble images to individuals within regional affiliates who arrange to duplicate and distribute them. At our '96 conference, I was designated to receive and coordinate STScI materials and make them available to SEPA members.

Below you'll find a brief description of all 40 images distributed in 1996. Numbers next to the descriptions are shortened versions of STScI press release numbers, e.g., 21a refers to PR 96 21a.

The entire set of 40 slides is \$50, including postage and handling. Send your check or purchase order to the address at left.

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| <p>01.a Hubble's deepest ever view of the universe, revealing 1,500+ extremely faint galaxies in various stages of their development</p> <p>01.b Sample galaxies from the same Hubble deep field</p> <p>02 The inner region of a warped dust disk around Beta Pictoris once hidden because of the star's glare</p> <p>03 An image of the Egg Nebula taken by WFPC2; it shows the emergence of mysterious searchlight beams from behind a dying star</p> <p>04 The first direct image of a star other than the Sun: Betelgeuse.</p> <p>05 In more detail than has ever been seen before, the process a star like the Sun goes through when it dies</p> <p>09.a In clear, detailed pictures the first ever images of Pluto's surface; four views</p> <p>09.b Pluto surface map</p> <p>10 Gravitational lens effect captures image of primeval galaxy</p> <p>11 Images of globular cluster Mayall II, consisting of 300,000 old stars, in orbit around the Andromeda galaxy</p> <p>13.a The Helix Nebula, NGC 7293 showing collision of gases near a dying star</p> <p>13.b Helix Nebula detail with cometary knots surrounding the dying star</p> <p>14 A view of Comet Hyakutake that focuses on the near nucleus region of the comet</p> <p>15 Three layers of Uranus's atmosphere</p> | <p>taken with infrared filters; both clear and hazy layers created by a mixture of gases</p> <p>16 Image taken of Saturn where its rings appear edge on because of the position of the Earth in Saturn's orbital plane</p> <p>17 A view of several star generations found in the central region of the Whirlpool Galaxy</p> <p>18.a A rare view of Saturn's rings seen just after the Sun had set below the ring plane</p> <p>18.b A series of 10 images of several small moons orbiting Saturn</p> <p>21.a NGC 1365, a barred spiral galaxy located in the Fornax cluster</p> <p>21.b NGC 4639, a spiral galaxy located in the Virgo cluster</p> <p>22.a The Crab Nebula and a detail of the pulsar in its center</p> <p>22.b Sequence of three images showing changes in the Crab Nebula pulsar</p> <p>23.a Huge, billowing pair of gas and dust clouds in Eta Carinae</p> <p>23.b Expansion of Eta Carinae debris</p> <p>25 Hubble's 100,000th exposure captures an image of a distant quasar</p> <p>27 A vast nebula, NGC 604, which is known for a great starbirth region</p> <p>29.a 18 gigantic star clusters which may be building blocks for a new galaxy</p> <p>29.b Blue sub galactic clumps which may be galaxies under construction</p> <p>30 Jupiter's moon Io passing above turbulent clouds</p> <p>31 Clusters of stars and a fishhook shaped cloud of gases found in NGC2366, a giant star forming region</p> <p>32 Changes in Jupiter's auroral emissions</p> <p>33 Views of weather on opposite hemispheres of Neptune</p> <p>34 A Martian dust storm around the edge of the north polar cap</p> <p>35.a A survey of quasar host galaxies</p> <p>35.b A quasar caught in the act of colliding with its companion galaxy</p> <p>36.a Supersonic comet like objects in the Cartwheel Galaxy</p> <p>36.b Cartwheel Galaxy composite image</p> <p>36.c Cartwheel Galaxy illustration</p> |
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# HST's Greatest Hits of '97

The Space Telescope Science Institute (STScI) provides slides of Hubble images to individuals within regional affiliates who arrange to duplicate and distribute them. At our 96 conference, I was designated to receive and coordinate STSci materials and make them available to SEPA members.

Below you'll find a brief description of all 40 images distributed in 1997. Numbers next to the descriptions are shortened versions of STScI press release numbers, e.g., 09a refers to PR 97 09a.

The entire set of 39 slides is \$48.75, including postage and handling. Send a check or purchase order to the address

- |  |   |
|--|---|
| <p>01 Central supermassive black holes in galaxies NGC 3377, NGC 3379, and NGC 4486B:</p> <p>03 SN1987A Fireball: One tenth light year long dumbbell structure expanding at six million miles per hour in supernova 1987A</p> <p>08 Changes in the nucleus of Comet Hale Bopp as it moves closer to the sun beginning in September 1995</p> <p>09.a Transition from spring and summer in Mars's northern hemisphere; photo taken shortly before opposition</p> <p>09.b Three photos of Mars taken six hours apart with 90° difference between images; photos taken shortly before opposition</p> <p>11 The Egg nebula in which stars are born and die violently; photo shows jets of gas being blasted into space</p> <p>12 A supermassive black hole located in galaxy M84</p> <p>13 NICMOS captures region of the Orion nebula filled with action as a center for the birth of new stars</p> <p>14 Supernova 1987A: different colors represent different elements in the ring</p> <p>15.a A view of Mars's cloud cover</p> <p>15.b Seasonal changes in Mars's north polar ice cap</p> <p>15.c Four views of Mars rotated 90° between images during summer in Mars's northern hemisphere</p> <p>16 The Cone Nebula: six baby sun like</p> | <p>stars surround their mother</p> <p>17 A collision between two spiral galaxies in the heart of galaxy Arp 220</p> <p>18 Fireworks near a black hole in the core of Seyfert galaxy NGC 4151</p> <p>19 STIS reveals an invisible high speed collision around a supernova</p> <p>20 Hubble pinpoints the optical counterparts of a gamma ray burst in a distant galaxy</p> <p>21 Hubble captures a volcanic eruption plume from Jupiter's moon Io</p> <p>22 A gamma ray burst blazes from a titanic explosion in deep space</p> <p>23 Hubble's look at Mars shows a canyon dust storm, cloudy conditions for Pathfinder's landing in July 1997</p> <p>24.a Dissipation of a large dust storm on Mars</p> <p>24.b Hubble shows dust and water ice clouds exhibit substantial daily variations</p> <p>25 Powerful telescopes discover the largest galaxy in the universe</p> <p>26 Hubble separates components in the Mira binary star system</p> <p>27 Hubble reveals huge crater on the surface of the asteroid Vesta.</p> <p>28 Hubble finds a bare black hole pouring out light.</p> <p>29 Hubble shows blobs of gas formed by some nova outbursts.</p> <p>30 Hubble keeps track of a fading gamma ray burst.</p> <p>31 Mars at the beginning of autumn in the Martian northern hemisphere.</p> <p>32 Hubble sees a neutron star alone in space.</p> <p>33 Hubble identifies what might be the most luminous star known.</p> <p>34.a Hubble reveals stellar fireworks accompanying galaxy collisions.</p> <p>34.b Detailed images of colliding galaxies.</p> <p>35 Hubble shows images of a blue straggler star.</p> <p>36.a Hubble tracks clouds on Uranus.</p> <p>36.b Hubble spots northern hemispheric clouds on Uranus.</p> <p>37 Hubble shows infrared view of moon, ring, and clouds of Jupiter.</p> <p>38.a Hubble sees supersonic exhaust</p> |
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- |      |   |      |   |
|------|---|------|---|
| 01   | COBE's infrared view of the Universe: three maps of the full sky seen in infrared light | 20   | Four of NASA's proposed designs for the Next Generation Space Telescope (NGST)                |
| 02   | Distant supernovae: light sources determine universe's expansion rate                   | 21   | Galaxy NGC 4314: bright ring of starbirth around the galaxy's core                            |
| 03   | Beta Pictoris: disk indicates planets, possible brown dwarf companion                   | 22   | NGC7052: galaxy with 300 million solar mass black hole in its center                          |
| 04   | Jupiter aurorae: a curtain of light extends several hundred miles beyond Jupiter's limb | 25   | N81 in the Small Magellanic Cloud: a celestial maternity ward                                 |
| 05   | Saturn's aurorae: curtains of light extend 1,000 miles above cloud tops                 | 26.a | Galaxy Cluster MS1054 03321: thousands of galaxies 8 billion light years from Earth           |
| 08   | Supernova 1987A: a collision between the expanding blast wave and circumstellar ring    | 26.b | Supernova 1996CL: a March 1996 exploding star in galaxy cluster MS1054 0321                   |
| 10   | Serendipitous asteroids: HST images show curved trails of asteroids                     | 27   | Distant galaxy clusters: left, in Virgo; upper right, in Andromeda; lower right, in Taurus    |
| 11.a | Planetary nebula NGC 7027: a brief stage in the evolution of a medium mass star         | 28   | NGC7742: a small Seyfert 2 active galaxy probably powered by a black hole in its core         |
| 11.b | Cotton Candy Nebula and Silkworm Nebula: phases of stellar burnout                      | 29   | Saturn: pastel yellows, browns, and greys distinguish cloud differences                       |
| 12   | Star birth in barred spiral galaxy NGC 1808 possibly due to interaction with NGC 1792   | 30   | Sagittarius Star Cloud: HST peers into the heart of the Milky Way                             |
| 14.a | Centaurus A: nearest active galaxy to Earth shows turbulent firestorm of starbirth      | 31   | NGC7635, the Bubble Nebula: an expanding shell of glowing gas surrounding a hot star          |
| 14.b | Centaurus A: tilted disk of gas at galaxy's core surrounds suspected black hole         | 32.a | Infrared views: left: faintest galaxies ever seen; right: objects 12 billion light years away |
| 15   | Stingray Nebula: Henize 1357, the youngest known planetary nebula                       | 32.b | Deep field galaxy: left: visible light areas of starbirth; right, infrared disk structure     |
| 16   | NGC 1818: globular cluster of over 20,000 stars in the Large Magellanic Cloud           | 34   | Neptune: a look at the eighth planet's stormy disposition                                     |
| 17.a | GRB 971214: gamma ray burst is most energetic event in the universe                     | 35   | Uranus, August 8, 1998: its four major rings and 10 of its 17 known satellites; false color   |
| 17.b | GRB 971214: gamma ray burst; comparison of Keck Telescope and HST views                 | 36   | NGC6210 planetary nebula described as looking like a turtle swallowing a sea shell            |
| 18   | Saturn: details of the clouds and hazes in atmosphere of ringed planet                  | 37   | Quasar PG1115+080 and gravitational lens effect   |
| 19   | Possible first extrasolar planet ever   | 38   | Nebula M1 67 around star WR124: gas ejected into space at 100,000 mph                         |
|      |   | 39   | NGC3132: southern hemisphere's Eight Burst or Southern Ring Nebula                            |
|      |   | 41.a | HST deep field south: thousands of  |

# JPL '98 Slides

NASA JPL has sent us the following slides for the Galileo Mission and others. Slides are \$1.25 each.

P 35036B	Launch of Galileo on STS 34 Atlantis	P 47935	Io Glowing in the Dark
P 35213	Deployment of Galileo and IUS	P 47961	Ganymede s Nippur Sulcus
P 37218	Venus Colorized Clouds	P 47970	Ganymede Color Global
P 37327	Moon: Western Hemisphere	P 47971	Io in front of Jupiter
P 37539	Infrared Image of Low Clouds on Venus	P 47972	Changing Volcanoes on Io
P 37593	Earth: Ross Ice Shelf, Antarctica	P 48035	Stereo View of Ganymede s Galileo Region
P 37630	Global Images of Earth	P 48040	Natural and False Color Views of Europa
P 40449	Gaspra: Highest Resolution Mosaic	P 48063	Thunderheads on Jupiter
P 41383	Gaspra Approach Sequence	P 48112	Ganymede Uruk Sulcus High Resolution Mosaic Shown in Context
P 41432	Moon: North Pole	P 48113	Ganymede Galileo Regio High Resolution Mosaic Shown in Context
P 41474	Earth: Northeast Africa and the Arabian Peninsula	P 48114	Jupiter s Great Red Spot
P 41493	Earth: False Color Mosaic of the Andes	P 48122	Two views of Jupiter s Great Red Spot
P 41508	Earth: Moon Conjunction	P 48127	Ridges on Europa
P 42501A	South Polar Projection of Earth	P 48145	Io: Volcanically Active Regions
P 42964	Asteroid Ida: Five Frames Mosaic	P 48188	The Main of Ring of Jupiter
P 44130	Asteroid Ida: Limb at Closest Approach	P 48231	Callisto Crater Chain at High Resolution Shown in Context
P 44131	Ida and Dactyl: Enhanced Color	P 48236	Europa: Ice Floes
P 44297	High Resolution View of Dactyl	P 48293	Callisto: Scarp Mosaic
P 44520	Asteroid Ida Rotation Sequence	P 48294	False Color Mosaic of Jupiter s Belt Zone Boundary
P 44542	Comet Shoemaker Levy 9 Fragment W Impact on Jupiter	P 48299	Asgard Scarp Mosaic
P 47058	Ganymede: Comparison of Voyager and Galileo Resolution	P 48445	True Color Mosaic of Jupiter s Belt Zone Boundary
P 47065	Ganymede: Mixture of Terrains and Large Impact Crater in Unuk Sulcus Region	P 48496	Color Global Mosaic of Io
P 47162	Full Disk Views of Io (Natural and Enhanced Color)	P 48526	Europa Ice Rafts
P 47179	Three Views of Io	P 48527	Closeup of Europa s Surface
P 47182	Jupiter s Great Red Spot	P 48532	Mosaic of Europa s Ridges, Craters
P 47183	Dark Bands on Europa	P 48584	Io s Sodium Cloud
P 47194	Live volcano on Io	P 48698	E4 True and False Color Hot Spot Mosaic
P 47196	False Color Great Red Spot	P 48700	Jupiter Equatorial Region
P 47903	NIMS Ganymede Surface Map	P 48952	Jupiter s White Ovals, True and False Color
P 47905	Five Color Views of Io	P 48954	Ancient Impact Basin on Europa
P 47906	Europa In Color	P 48956	Active Volcanic Plumes On Io
		P 48439A	The Mars 98 Lander
		P 48440A	The Mars 98 Lander
		P 48494A	The Mars 98 Orbiter/Lander
		P 48495A	The Mars 98 Orbiter/Lander
		P 48567	Dr. Peter Tsou holds Aerogel
		P 48589	Stardust Spacecraft
		P 48691	Deep Space 1 Spacecraft

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# HST's Greatest Hits of '99

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Below you'll find a brief description of all 42 images distributed in 1999. Numbers next to the descriptions are shortened versions of STScI press release numbers, e.g., 43a refers to PR 99 43a.

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- 01 M57 Ring Nebula: the sharpest view yet of this planetary nebula
- 02 Combined deep view of infrared and visible light galaxies
- 03 HD 141569: stellar dust rings of a star in the constellation Libra
- 04 SNH1987A: self destruction of a massive star in Large Magellanic Cloud
- 05.a Six images of a young stellar disk found in the constellation Taurus
- 05.b Four images featuring disks around various young stars in Taurus
- 06 NGC 1316: silhouette of dark clouds against a glowing nucleus of an elliptical galaxy
- 07 Mars: visible, infrared light images; evidence of water bearing minerals
- 08 Proxima Centauri: a detailed image of the Sun's nearest stellar neighbor
- 09 GRB990123: fading visible light fireball in a gamma ray burster
- 10 Six images showcasing different views of spiral galaxies
- 12 Tarantula Nebula: multiple generations of stars in the brilliant cluster of Hodge 301
- 13 Jupiter: images of the volatile moon Io sweeping across Jupiter's face
- 14 Copernicus: the 58 mile wide (93 km) impact crater on the Moon
- 16 NGC 4650A: a polar ring galaxy
- 18 Rings, arcs, and crosses as seen in

- Hubble's top ten gravitational lens effect images
- 19 NGC 4603: magnificent spiral galaxy associated with Centaurus cluster
- 20 NGC 3603: various stages of the life cycle of stars in a giant galactic nebula
- 21 AB Aurigae: a swirling disk of dust and gas surrounding a developing star
- 22 Mars: a colossal polar cyclone
- 23 N159: a turbulent cauldron of starbirth in Large Magellanic Cloud
- 25 NGC 4414: magnificent details in the dusty spiral galaxy
- 26 NGC 6093: a stellar swarm in a dense globular cluster
- 27 Mars: the red planet at opposition during April-May, 1999
- 28 MS 1054-03: galaxy collisions in distant clusters
- 29 Jupiter: an ancient storm in its atmosphere (The Great Red Spot)
- 30 Giant star clusters near the galactic center
- 31 HCG 87: a minuet of four galaxies
- 32 HE 2-104: small, bright nebula embedded in the center of a larger nebula
- 33.a R136 in 30 Doradus: a grand view of the birth of stars
- 33.b R136 in 30 Doradus: two detailed views of a highly active region of star birth
- 34.a NGC 1365: a barred spiral galaxy reveals a bulge in its center
- 34.b Eight different views of the central bulges of spiral galaxies
- 35 HH 32: a magnificent example of a Herbig Haro object
- 36 NGC 2261: Hubble's variable nebula illuminated by R Monocerotis (R Mon)
- 37 NGC 2346: a butterfly shaped nebula
- 38 NGC 2440: planetary nebula ejected from a dying star
- 39 OH 231.8+4.2: the rotten egg nebula
- 40 M32: hot blue stars deep inside a dwarf elliptical galaxy



# JPL '99 Slides

JPL 19 12	NASA/ JPL	P 48045CC	Ready for transport
JPL 25125	Model of Sojourner	P 48154Bc	Pathfinder mated to rock et
JPL 27089AC	Cassini arrival and orbit	P 48155Ac	Launch 12/ 4/ 96, 2: 11 a.m.
JPL 27089BC	Cassini interplanetary trajectory	P 48155Bc	Petal closing at KSC
JPL 27748	Thermal vacuum testing	P 48156	Full stack mated to booster
JPL 28046BC	High gain antenna	P 48313BC	Cassini in the space center
JPL 28162AC	Cassini assembly	P 48505AC	Huygens probe
MGS 001	Scientists assemble MGS	P 48505BC	Huygens probe
MGS 002	Scientists assemble MGS	P 48565	Titan IV launch
MGS 003	MGS configuration	P 48597	Cassini ready for shipment
MGS 004	MGS orbit around Mars	P 48630	Saturn tour trajectory
MGS 005	Launch of MGS	P 48664	Cruise stage at KSC
P 23062	Saturnian clouds	P 48702	Pathfinder on Mars
P 23209	The Saturn System	P 48707	Cruise stage, spacecraft
P 23925	Saturn ring spokes	P 48753	E.D.L. sequence
P 41101	Huygens descent profile	P 48824	Sojourner and Pathfinder
P 42810AAC	Huygens, exploded view	P 48827	The airbags by Sojourner
P 42810AC	Huygens probe interior	P 48841	Sojourner touchdown
P 43538	Saturn: Rings and Moons	P 48842	APXS studies Barnacle Bill
P 43560	Mars global view	P 48845	Twin Peaks
P 43836	Scientists home countries	P 48847	The rock Yogi
P 43862	Pathfinder landing	P 48866	Barnacle Bill mosaic
P 43966AC	Spacecraft, country flags	P 48871	Rover s APXS at work
P 44233	Mars landing area	P 48877	Wedge and Flattop
P 44293Ac	Cruise stage	P 48878	Near Barnacle Bill
P 45424	Hugens probe release	P 48889	Barnacle Bill and Yogi
P 45893AC	Saturn, Titan s landscape	P 48891	360 b&w panorama
P 46225AC	Mapping Titan	P 48893	Yogi and rover tracks
P 46278	The Cassini mural	P 48894	Sagan Memorial Station
P 46356	Cassini with Huygens	P 48901	Sojourner wheelie on Yogi
P 46427	Petal deployment, Mars Yard	P 48902	Rover s view of rocks, lander
P 46428	Airbag inflation test	P 48908	The Rock Garden
P 46506AC	Saturn as seen from Rhea	P 48909	Martian terrain, Wedge
P 46507	Saturn orbit insertion	P 48911	Sojourner, Wedge
P 46507AC	Cassini enters Saturn orbit	P 48912	Forward ramp Twin Peaks
P 46586	Cassini orbital tour	P 48913	The Rock Garden
P 46620	Pathfinder landing	P 48914	A closer view
P 46655	Science targets	P 48915	The rover petal
P 46656	Enceladus and Iapetus	P 48916	Twin Peaks
P 46898BC	Cassini s trajectory	P 48917	Martian terrain
P 47340AC	Propulsion module	P 48918	Barnacle Bill, Yogi, Couch
P 47936CC	Huygens probe installation	P 48919	Sojourner, Barnacle Bill
P 47991	Pathfinder arrival at KSC	P 48920	Couch on the horizon
P 47992Ac	Cruise stack arrival at KSC	P 48921	The rock Yogi
P 47992Bc	Sojourner checking at KSC		
P 48012DC	Transporting Cassini		
P 48045BC	Cassini fully assembled		

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NASA JPL has sent us the following slides for the Mars Pathfinder and Cassini/Huygens missions. Slides are \$1.25 each



This photograph, taken by SEPA's immediate Past President George W. Fleenor, shows the partial eclipse of the Sun that occurred last year on December 14. The eclipse took place around 4:00 p.m. Eastern Standard Time just before sunset for this observer on the west coast of Florida. Nice composition, George.

## 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: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Southern Skies

VOLUME 22, NUMBER 1

JOURNAL OF THE SOUTHEASTERN PLANETARIUM ASSOCIATION

WINTER 2002

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**SAVE THE PLANETARIUM!**  
Citizens for rebuilding the Bishop...better than ever!

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