

Southern Skies

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The deadline for the next issue of *Southern Skies* is April 1. Send submission either on a 3.5" disk or *via* email attached file to <dteague2@midsouth.rr.com> or <teagued1@k12tn.net>.

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President's Message

Greetings and Happy New Year

I'm actually writing this column on New Year's Eve, a traditional time to reflect on the past year and make resolutions to guide us through the year ahead. This day seems to be an appropriate time to take the first step of my term as SEPA President—writing the President's message.

While authoring the perfect column isn't as easy as I thought, I'm excited about the opportunity to serve this organization and to become better acquainted with you, the members. I'm open to any and all suggestions or comments you have about the direction of SEPA in the next two years and encourage you to participate actively by submitting news and information to *Southern Skies*, attending conferences, and maintaining contact with other members.

Please take time to join me in expressing appreciation to Dave Maness and Mike Sandras. Dave is rotating off the SEPA Council. He has served well over the past six years and has been a voice of reason during council discussions. Dave also worked to begin the SEPA Scholarship Fund which continues to be developed. I plan on using Dave and all past SEPA Presidents as my personal advisors! Mike Sandras moves into the position of Past President and will remain on Council. Mike has ably led SEPA while dealing with almost insurmountable health issues. His tenacity and positive attitude are without equal. Keep Mike in your thoughts as he faces additional surgery in the coming months.

Looking ahead to the future of SEPA, let me introduce Adam Thanz who was chosen President-Elect in Richmond at the conference in June. There is no doubt that Adam is extremely talented and dedicated (His second convention archives are included in this mailing). He has taken an active role in SEPA for many years and will bring a wide range of abilities to the Council.

John Hare, IPS representative, and Duncan Teague, Secretary-Treasurer, fill the remaining Council positions. I'm not sure if Council could function without these two men. Their combined experience and knowledge and their willingness to serve multiple terms provide continuity, information, and steady leadership which makes our organization one of the best in the country.

Recently, I was among several of our members who attended the Workshop for Informal Education Specialists (WIES) at Kennedy Space Center. This was an awesome experience! We were given behind the scenes tours, access to personnel from



Patsy Wilson
President
Margaret C. Woodson
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Salisbury, North Carolina

all the major NASA centers, loads of free information, and the opportunity to meet astronauts, engineers, flight surgeons, historians and more.

We were schooled in NASA's past, present, and its vision for the future. There was a definite air of excitement as final preparations are being made for the Return to Flight in May. We even got inside the Orbiter Processing Facility and saw Discovery, designated vehicle for the next STS mission. What was the price of participation? An action plan that will benefit and educate the community. (See NC news for more information on our proposal.)

This is an exciting time to be involved in planetarium work and astronomy in general. I recently became a Solar System Ambassador and feel honored to join this diverse group. I know that many of you participate in this volunteer effort to share current information and to generate excitement about the space program. I would be interested in hearing some of your presentation experiences. In fact, our organization could benefit from more sharing of ideas. Please consider writing a guest article for the journal and/or presenting a paper at conference. Your idea may seem of little consequence to you, but may be the impetus for a unique, rewarding new activity in another facility.

January will be a busy month for JPL. They will celebrate the first anniversary of the landings of Spirit and Opportunity, the launch of Deep Impact and the arrival of the Huygens probe at Titan.

It seems that new discoveries and mission successes are happening at a speed which leaves us struggling to keep up. But the importance of all this activity is, for the most part, missed by the general public. Our mission, to enhance and educate, becomes even more crucial. I salute the work you do.

IPS Report

John Hare
IPS Representative
ASH Enterprises

Results of the IPS elections are in. Treasurer is Shawn Laatsch, and Secretary is Lee Ann Hennig. Both ran unopposed. Susan Button won the office of President Elect. All assumed their duties on 1 January 2005. Martin George became President, and Jon Elvert became Past President. This year's voting was conducted by e-mail for the first time; 243 of 724 ballots sent were returned. This was a slight decline from previous elections conducted by postal mail but represented a tremendous savings in postage costs.

Invitations for the 2008 Conference were presented to Council at the meeting in Valencia, Spain this past July. Voting will take place at the next Council meeting scheduled for Beijing, China in September 2005.

Four sites are competing. All prospective hosts envisioned a summer time frame, and all presented the usual array of meeting facilities, transportation options, and area attractions. The winner must receive a simple majority of Council votes. Past selections have been decided by a single vote, so I urge you to give me your feedback so I can cast SEPA's vote accordingly.

Chicago, USA: Adler Planetarium; Paul Knappenberger, President; Zeiss IV; 20 meter dome; E and S Star Rider and Digistar II; 15m dome

Adler hosted the 1980 IPS Conference and has undergone major expansion and renovations.

Glasgow, Scotland, Glasgow Science Centre; Mario DiMaggio, Director; Zeiss Starmaster, 15m dome

Glasgow is a world-class city, but Mario DiMaggio mentioned some logistical concerns about the Science Centre's ability to host the conference.

Morelia, Mexico, Planetario de Morelia; Gabriel Munoz, Director; Zeiss IV; 20-meter dome

Morelia was slated to host IPS 2002 but had to withdraw their invitation. Munoz assured IPS that the bid and funding for 2008 were on solid ground.

Oakland, USA: Chabot Space and Science Center; Alexandra Barnett, Director; Zeiss Universarium; 21-meter dome

Barnett emphasized amenities Oakland offers. She mentioned possible tours of SETI and NASA facilities.

IPS 2006 will be in Melbourne, Australia, 24 – 27 July. The theme is Under the Southern Skies. Details are available at <www.ips2006.com>.

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: _____

Editor's Message: Better Late than Never

Other than one time an issue of *Southern Skies* didn't appear at all—over 20 years ago—this is the latest issue in memory. The winter 2005 issue didn't get composed until the first day of spring 2005.

Oh, the Council members, associate editors, state representatives, and regular submitters got all their reviews, news, and articles sent in by the published deadline. The editor's plate was simply too full to find the time to put together this issue.

Have you ever seen the movies *Meet the Parents* and *Meet the Fockers*? In both movies Robert DeNiro mentions planning a fabulous vacation on the island of Koh Samui, Thailand. That's where my daughter Christine married David Hughes of Liverpool.

The ceremony took place at sunset on top of a mountain setting called Peak Eye View. The location and the wedding party were beautiful/handsome. If you wanted to ride an elephant, one was available.

The wedding ceremony itself and the ensuing Memphis celebration kept us very busy, and life was wonderful. At one point during the week when we had both daughters, their husbands, and our two grandchildren all at the same dinner table, I paused for a moment and took it all in. How wonderful to have all our family together at the same time.

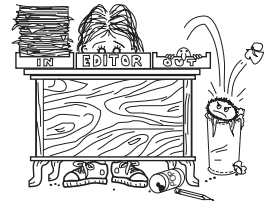
Christine and Dave are living in Liverpool now, and we plan to make an extended visit this summer. If I'm lucky, I'll get to visit Stonehenge for the summer solstice. Actually that's a ways down on my list of things to do on that trip. We have to visit at least one of the Beatle museums in the Liverpool area. We also need to get back to Paris to have our picture taken standing in front of the Eifel Tower and visit the Musee D'Orsay. We missed both of those opportunities last fall.

I was sick for the second half of February and the first half of March. Finally, after two visits to the doctor, I got some meds powerful enough to cure one of the aforementioned pachyderms.

Accompanying this issue is the SEPA archive for 2004. After squeezing all the information for 2003 on a single CD-ROM, Adam Thanz this year has utilized DVD technology to create a more expansive archive including the MAPSEPA conference in Richmond, Virginia. Thank you, Adam.

There's a farewell message from Mike Sandras, who now assumes the role of Past-President for our association. Thanks for your service, Mike.

I hope you'll think this issue of *Southern Skies* was worth the wait.



Duncan Teague
Secretary-Treasurer
Southern Skies Editor
Craigmont Planetarium

SEPA Membership Form

Please send your check for \$25 (or \$15 if outside the SEPA geographical region) to SEPA, c/o Craigmont Planetarium, 3333 Covington Pike, Memphis, TN 38128-3902

Name _____

Organization _____

Planetarium _____

Address _____

City _____

State _____ Zip Code _____

Voice Phone _____

Fax Phone _____

E-mail Address _____

Staff Position _____

IPS Member? Yes _____ No _____

Contribution to Scholarship Award Account: \$ _____

Elizabeth Wasiluk
Hedgesville High School
Planetarium
Hedgesville, West Virginia

SMALL T



TALK

During the SEPA conference I was involved in the Science Literacy Using Science Fiction Literature workshop being held at Tufts University. Last fall I attended the Great Lakes Planetarium Conference in Detroit, Michigan.

Conrad Jung from Chabot Observatory and Science Center in Oakland California also came, and we arrived from the airport in time to board busses to the Cranbrook Institute of Science. We were treated to an hors d'oeuvres reception and museum walk through. Some of us went to listen to vendor talks in the auditorium with Jeri Panek from Evans and Sutherland and George Fleenor from GeoGraphics Imaging and Consulting. There were also sessions to view at Cranbrook Planetarium with Audio Visual Imageering's Sky Lase Demonstration and Spitz's SciDome demonstration.

Sheldon Shafer did a Measuring Stellar Parallax and Inferring Stellar Diameter Under a Planetarium Dome. Since the planetarium in Cranbrook is small, we had to split into groups in to get everyone into the theater. Media Globe did a program for the second group instead of Sheldon giving his demonstration a second time and I was in the second group. Then we headed back to the Somerset Inn for the Hospitality Suites for those wanting to party, and what red blooded party animal, I mean, planetarium professional, wouldn't be willing to stay up and party?

There was a wonderful full breakfast buffet the following day. We had to eat and run, as the buses took us to the Detroit Science Center.

Todd Slisner, its director of Theaters & Space Science, welcomed us to the conference. Then Todd and his staff showed us their planetarium program called, *Blown Away* where, thanks to big fans strategically placed, we literally were.

A group of planetarians had a blast playing with disks and a spinning turntable hands-on display that looked easy to do, but turned out to be quite interesting.

At lunchtime, we boarded busses to go to Ann Arbor, and we split up to visit Detroit Observatory which most people found fascinating. Others toured Argus Planetarium located within a high school and equipped with a new Digistar projector which didn't look particularly good to the first group visiting. Jeri Panek explained it was due to some technical snafu. Others went to see the Exhibit Museum and Planetarium on self-guided tours. Their planetarium sported this unique cut away part of the dome that

resembled a 3-D sculpture of what the Apollo astronauts might have seen, looking over the limb of the Moon back at the Earth.

We had to separate since there were three places to visit and only time to see two.

We ended the day with a photo shoot of the GLPA crowd, dinner, and an amusing talk by Dr. Fred Adams of the University of Michigan. He was an astrophysicist who spoke amusingly of the "Long Term Fate of our Dying Universe."

Our last full day of the conference was packed with workshops, paper sessions, vendors, and portable planetarium demos. The highlight of the paper sessions had to be Chuck Bueter's presentation and round up of the Transit of Venus event complete with beer from a microbrewery who came up with a Sunrise Ale to celebrate the event. It is the first time in my memory of getting beer passed out at a paper session.

Awards were given to Jeanne Bishop of Westlake, Ohio and Gary Tomlinson, now retired from Chaffee planetarium in Grand Rapids but still busy planning next year's GLPA conference. SEPA's April Whitt gave the Armand Spitz Lecture after presenting a Mercury Messenger Workshop earlier that morning.

Back to hospitality, where I still got none of the woodchuck promised me from Todd Slisner.

Finally Saturday morning dawned to the bleary-eyed, sleep deprived participants. During the business meeting for states, I joined a lady from Texas, Conrad Jung from California and George Fleenor from GeoGraphics Imaging and consulting at a table, we dubbed the altered states table. We ate more breakfast while others conducted their state planetarium meetings over breakfast.

Door prizes were given and I won a beautiful bracelet made by Kathy Micheals, newly retired from the Maryland Middle School Plantarium in Cheektowaga, New York. This was quite appropriate as I did my student teaching under her in the planetarium there. I also received The Sky 6 planetarium software.

I went to lunch at the Brew Pub with a bunch of planetarium folks. The highlight of the dessert menu was deep fried Twinkies. We got lost on the way back and I got late for my flight back and had to take another to Washington, National and a cab to get to my car parked at Dulles. On the way, my cab driver told me about his brother who was an Arab-American who was fighting in Iraq—a sobering thought to think about over the holidays.

Everybody geared up for 2005? Is anyone going to have more than the half-hour slight nick out of the Sun at sunset partial eclipse upcoming in April? Is anyone going to see it in its total or annular splendor?

Astro Video Review

Hubble Source, 2004 Video Collection

Happy New Year, everyone. It is a brand new year. In the spirit of the post holiday season, the over limit credit cards and expense accounts drawn down, I thought I would search out something useful. More importantly, something that was free. HubbleSource 2004 Video Collection was just the ticket. Available free of charge through Space Telescope Science Institute (see contact information), this collection of Hubble clips and other animations pulls together much of what can be download from the website plus a little bit more. While many of you may already have this item in your library, for those of you who don't, it is worth the small effort of obtaining it.

The DVD begins with Hubble feature programs that cover some of what Hubble has been up to from its inception to 2004. The clips are short and adequate. It is not something that will blow your socks off but will be quite useful in a variety of circumstances. Also included are both NTSC and IMAX versions of *Hubble: Galaxies Across Space and Time*.

The video shorts section includes Comet Crash, the Shoemaker-Levy impact of Jupiter. This is a nice piece that shows Hubble's role in astronomy isn't limited to objects at the far reaches of space. I have found that often the general public thinks that Hubble is used only for looking at stuff that is "way out there." This segment highlights the contribution Hubble made to this amazing event by providing some fantastic views of the Shoemaker-Levy 9 impact. Looking Deep showcases the power of Hubble to expand our understanding of the universe, while A Star's Life explains the life cycle of stars.

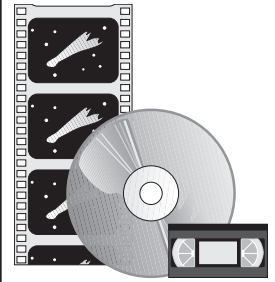
As planetarium production gears up for the new shows for a new year, the animation clips section is worth the time to request this video. The DVD includes all of the clips available online plus seven more that I couldn't find elsewhere on the site. Most of these clips are well done and would be a nice resource to pull from for creating shows, internal and external presentations, and kiosks. There is no audio with these clips and the entire DVD is set up for chapter access making it easy to plug and play for most planetarium

media control systems. Just be aware that the narrated clips are not licensed for broadcast but can be used internally for educational purposes. Other formats are available on line at <hubblesource.stsci.edu> along with background information on clips and much more. So if you have this resource on your shelf, don't forget to pull it down this year. If you don't have it, make a little room in your library for a little gem at a great price.

Contact Information

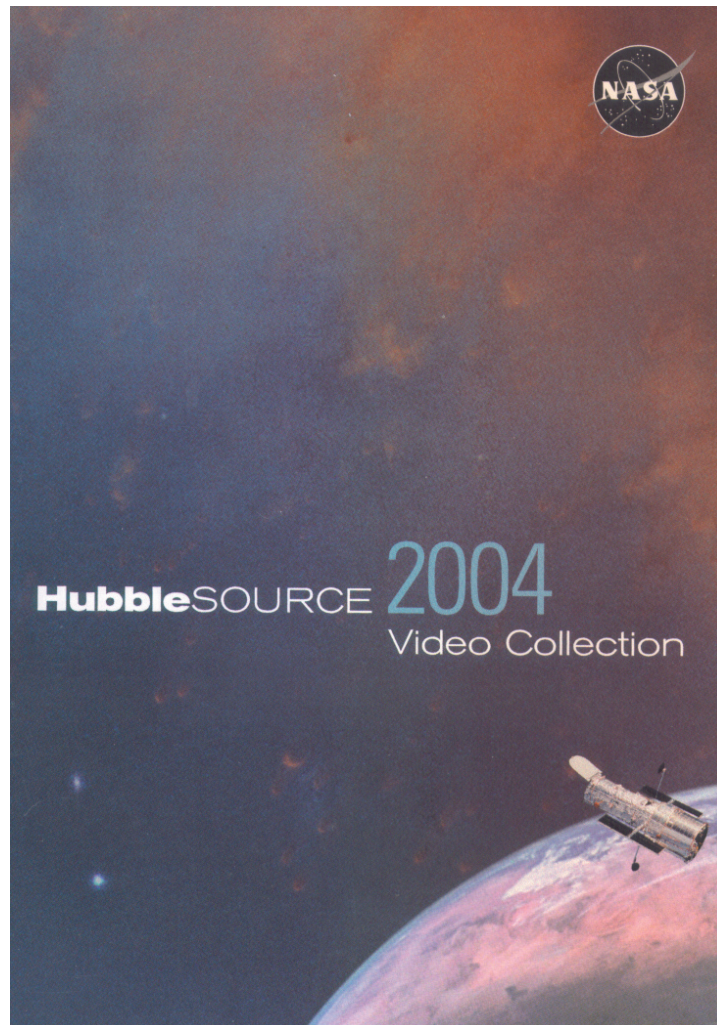
Thank you to Lucy Albert for providing SEPA members with a speedy, direct line request option straight to her desk. To Order HubbleSource 2004 she has asked us to contact her at <lalbert@stsci.edu> or call (410) 338-4857.

If you need a snail mail option you can write to her at Lucy Albert, Office of Public Outreach/Informal Science, Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218.



Priscilla Bernardo
Orlando Science Center
Planetarium
Orlando, Florida

*Hubble Source,
2004 Video Collection*



Digital Cosmos: *The Sky, Pocket Edition*



Paul Trembley
Orlando Science Center
Planetarium
Orlando, Florida

The Sky, Pocket Edition

Your local woodworking store is the last place that one would expect to find astronomy software much less a telescope. But while attending the December meeting of the Central Florida Woodturners Club, there was a gentlemen with two very interesting items.

The first was a beautiful wooden telescope that he had turned from Red Oak. Banded in brass and featuring a set of 40mm optics, it was as much a joy to look at as to look through. After the meeting we took it outside for a test run, and it was here that the second item appeared—*The Sky: Pocket Edition*. There on his HP Pocket PC was a virtually full fledged version of Software Bisque's *The Sky*.

So what exactly is *The Sky: Pocket Edition* (*TSPE*)? Essentially it is a baby brother version of one of the best astronomy software packages on the market today. Nor is it a crippled version; it is robust, and within limits can even control your robotic 'goto' scope. A version of the company's Tpoint tracking analysis software is also available.

First a heads up: *TSPE* is only available for Windows™ CE, Pocket PC, and Windows™ Mobile OS. Palm based PDAs are not compatible.

TSPE is available only through Software Bisque's Web site. For \$49.00 you get a software package that you can install on any of your mobile devices. After downloading and registering, you will receive a valid serial number that unlocks the package. The only unique thing is that you will need the installation program for your particular device. You also receive a PDF of the user's manual.

As far as requirements are concerned, you don't need much. It will fit on a standard 4 MB memory card, and so long as your OS was upgraded in the last couple of years, you will be fine.

But what can it do? About the only thing it can't do is display the wide range of visuals that the big brother versions can, and that is just a graphics and storage limitation. It can display all nine planets, and up to 100 comets and minor planets.

You can filter the view to limit not only what objects are displayed, but also what magnitude. You can precess objects for the current date, as well as account for such subtleties as aberration, nutation, and refraction.

There is a night vision mode as well, and this is one area where the software shows its limitations. The display will go to black with red objects... but... due to requirements of the OS, there are certain display elements that can not be removed. Software Bisque employs a nifty trick of hiding

these offending displays with black rectangles, but if your stylus grabs one, you can drag it out of position. This is a "feature" of the OS and not the fault of *TSPE*. In fact the solution is very clever.

The four moons of Jupiter can be displayed as can eight of Saturn. (In truth how many of us can spot more then this through our telescopes.) And of course Luna and all her phases is available for your viewing pleasure.

If you don't change any settings you get by default about 15,000 of the brightest stars (6th magnitude) and the NGC and IC Catalogs (about another 15,000 non-stellar objects). You can also download the entire SAO catalog (252,000 stars to 9th magnitude). This added to the aforementioned planets, comets, and asteroids gives a very nice database of objects.

Comet files can be downloaded and installed just like in the full desktop version, or you can enter the orbital elements yourself. Objects like the HST or ISS cannot easily be entered, but you can treat them like comets and get a close approximation of their orbits.

As is the case with all such programs running on the mobile OS, you can't print without the aid of a desktop or laptop computer, and printing isn't an option with *TSPE* anyway. Regular readers know that hard copy star charts are a major benchmark for me when it comes to software. In this case I can overlook that little detail since there is no attempt to make *TSPE* a clone of its large sibling.

It is not meant for use in a school setting (get *The Sky, Student Edition* instead), nor is it intended for orbital modeling and POV display. It is an electronic star chart—period. And it does a fantastic job.

So why in this age of laptops would anyone want something like this? Well it is a whole lot easier to carry a pocket PC device than it is a laptop. There are a lot of these beasts out there. And while it can run your scope, odds are most people don't use it for that.

The gentlemen at the club meeting likes to hike and camp. Guess what gets tossed in his backpack? Hint: it's not the laptop.

These devices hold a charge for quite a while, and while boasting of impressive computing power for such a small package, they don't use much in the way of power. *TSPE* is not meant to replace your desktop installation of *The Sky* version 6; rather it is a useful companion when out in the field and you don't want to lug the laptop with you. And it's at a price that you can't beat.

MAPSEPA Conference 2004 DVD Archive

Enclosed in this issue of *Southern Skies* is a DVD that includes an archive of the year 2004 for both the SEPA and MAPS organizations. The majority of the archive covers the joint conference that was held in Richmond, Virginia in June 2004. The other part includes official documents for both SEPA and MAPS.

Aside from the usual by-laws and related documents, there are copies of the SEPA journal for the year. All documents included are in PDF format so anyone can read or print the files regardless of availability of special software. A free PDF viewer is all that is needed. Also, there are three PDF documents that you can print that include the SEPA members, MAPS members, and additional conference attendees. These include name, address, phone number, e-mail, *etc.*, and if available, a high-res image of the person. They are very good address books for you to use.

When archiving the conference, I tried to record most of the presentations. Concurrent sessions were an obvious hurdle. I only had one DV camera. If I

was able to record a presentation, then the images and audio were included in a slideshow format on the DVD. If I was able to get the original Power Point file from a presenter, then those images were substituted for my video-based ones. This provided a much cleaner image. There are also some true video files on the DVD. Since there was about 16 hours of video recording and almost 600 still images taken by Gary Meibaum, John Hare, Toshi Yasuda, and myself, it was a challenge to include all the material I had collected. I think the video compression came out good due to the space available.

The DVD works like any other movie-style DVD. Use it in a DVD player or your computer with a DVD drive. The menus will guide you through the conference activities. The photos and documents are accessed by your computer through the DVD-ROM part of the disc. Make sure you don't miss these extra goodies. I hope you enjoy this DVD. If you have any comments or ideas, let me know. I'll be doing the same for 2005.

Adam Thanz
President-Elect
Bays Mountain
Planetarium
Kingsport, Tennessee

Farewell from Mike Sandras

By the time you read this I will no longer be SEPA President. Your new President, Patsy Wilson, is going to do an excellent job.

This organization has been fortunate that so many talented people give their time and talent to make this association work. I have been fortunate to have a talented SEPA Council and volunteers to work with committees, hold conferences, and do all the things that allow SEPA to exist. I sincerely thank these people for their hard work.

I would like to have done more as SEPA President, but unfortunately I have had some serious medical problems over the past couple of years. I want to thank those who offered me encouragement and friendship during some very trying times. My experience as SEPA President has in many ways been the highlight of my professional career. In addition to the professional aspect of this position, it has also allowed me to make friends and acquaintances that will last me a lifetime. During my tenure, I do believe some positive things were accomplished and overall that past two years has been relatively "smooth sailing." Now I am Past-President, and I hope to continue my participation in this organization.

Issue after issue I have asked people to submit articles to *Southern Skies*. Please consider submitting

something. This is a volunteer organization; please step forward and help out. Help comes in many forms such as serving as an officer or chairing a paper session at a conference.

The City of Kenner finally opened its 50' planetarium on December 10, 2004. I have been working on this project for 13 years and could literally write a book on what can go wrong during planetarium construction. If anyone has questions concerning the building of a new planetarium please feel free to contact me. I will gladly share my experiences.

After the opening of this facility the one thing I have found enlightening is the same old thing that people want to know: What's in the sky? I mention this because of the continuing controversy between digital and conventional planetariums. I want to remind everyone that no matter what format your facility uses, your purpose is to enlighten people about what is going on in the heavens and allow them to enjoy it just a little bit more.

Several years ago I would have never believed that I would have held the position of SEPA President, and now my term as such has ended. I want to thank everyone again for having the confidence in me to elect me to this position, and I hope I didn't fail too badly. Thanks again.

Mike Sandras
Past President
Kenner Planetarium
Kenner, Louisiana

News from SEPA States



Jon Elvert
Pennington Planetarium
Baton Rouge, Louisiana

Lafayette Natural History Museum and Planetarium, Lafayette

David Hostetter reports: The planetarium has had a busy fall with great school attendance (in no small part because our museum is hosting two excellent traveling exhibits: A T. Rex Named Sue and Eyes on the Earth). Public attendance for constellation programs and *Oceans in Space* has also been good, and we find that our new Saturday program schedule is very popular (including our first Saturday morning children's program, *Rusty Rocket's Last Blast*). We will nearly set a public attendance record for our planetarium in 2004.

Our annual October star party featured more clouds than stars, but the skies cleared a few days later in time for a successful lunar eclipse party.

We look forward to more attendance growth in 2005.

In January we are planning our usual post-holiday telescope class, but that will be followed by a rare January star party featuring Comet Machholz in addition to the usual celestial objects.

In February, the museum will open the traveling exhibit *Dragon Skies* from Chabot (an exhibit about Chinese imperial astronomy), and the planetarium will run the companion star show through April. Of course, we are also making plans for public solar eclipse viewing in April.

Finally, 2005 will be the World Year of Physics, and we are making plans to emphasize astrophysics a little more in our programming, particularly during summer and fall.



Patsy Wilson
Woodson Planetarium
Salisbury, South Carolina

Ingram Planetarium, Sunset Beach

A new show, *Child of the Universe*, will premier soon. This show covers a wide gamut of astronomical information—a trip through time and space, a meeting with Galileo, star evolution, a view of the night sky, and positions of the planets. Audiences will have an opportunity to learn a great deal of astronomy.

Rik Zawadzki continues to run a wide selection of school and public programs.

NC Association of Planetarium Educators (NCAPE)

This brand new organization is a direct result of the Workshop for Informal Education Specialists (WIES) in November at Kennedy Space Center. Ken Brandt, Rik Zawadzki and Patsy Wilson comprised a NC planetarium team for that event. The resulting action plan will attempt to create an organization targeting small to mid-size planetaria and science centers. This organization will provide opportunities for peer evaluation, networking, sharing and support. The first meeting is tentatively planned for June at Robeson Planetarium in Lumberton with a fall follow-up meeting in Sunset Beach. All persons associated with astronomy education (planetarium, science center, classroom or other) in NC and SC are invited to contact one of the above for more information.

Morehead Planetarium and Science Center, Chapel Hill

Star of Bethlehem ran for an amazing 55th season this year. This is one of the most popular shows in the Morehead's lineup. Several years ago, the show got a facelift which incorporated new visual technology and new research.

A Lego® lab opened in November. This interactive exhibit, open weekends only, is for kids ages 5 – 99. Participants learn basic physics and engineering principles while building with Legos® of varying levels of difficulty.

Adults may participate in the Discover Astronomy Series, a monthly lecture that includes topics like: Measuring the Universe, Navigating with the Sky, That Star is not on the Chart, and Cosmology. Saturday programs relating to astronomy and natural science are offered to pre-K through 8th grade children.

The Morehead is a very busy place and has one of the best Websites available. It is easy to navigate, informative, and visually interesting without taking an inordinate amount of time to load. Check it out.

PARI (Pisgah Astronomical Research Institute), Rosman

Bob Hayward reports: Things are moving along well and he is busy with the StarLab. Lynn Clark, curriculum coordinator for Henderson County Schools, received a grant to pay for PARI's StarLab in all 20 of their schools. Hurricane Frances and Ivan played havoc with some of the scheduling, but things are pretty much back to normal.

Robeson Planetarium and Science Center, Lumberton

Ken Brandt reports: The Robeson Planetarium has undergone a face lift. Visitors are now treated to new carpet and seats. The planetarium plans to

celebrate the Huygens touchdown this month and continues interactive school programs featuring those outstanding robots, Spirit and Opportunity. In the coming months, the focus will shift to teacher training and astronomy education.

Margaret C. Woodson Planetarium, Salisbury

Patsy Wilson reports: Seven visitors from a neighboring county came to the Woodson Plane-

tarium to ask questions, poke around and generally get a feel for the equipment and technical setup. These men are working to create a new facility to be located in an old school which also houses administrative offices. The planetarium will be fitted into the old school auditorium. The local Rotary Club is sponsoring this project in recognition of their 100th anniversary. Patsy will continue to serve as consultant for their efforts.



Patsy Wilson
Woodson Planetarium
Salisbury, South Carolina

Dupont Planetarium, Aiken

The Dupont Planetarium had a very successful Christmas season with the showing of the Christmas favorite, Tis the Season. We opened the planetarium two evenings each week during the month of December and presented two shows on each evening. During the last half of the month we showed Digistar Virtual Journey after the Christmas shows were over. Digistar Virtual Journey is a light and sound show with high entertainment but minimal educational value. Fortunately, we do explore some interesting astronomical information before the show. The Bechtel Telescope in the Ruth Patrick Science Education Center observatory was open to the public after the planetarium shows. The observing sessions were quite successful with clear skies and only one evening of partly cloudy skies. Our new store called, The Science Store opened on November 20. It was open during the month of December for our public patrons and for students who visited the Ruth Patrick Science Education Center on school field trips. Our patrons have been very satisfied with the store and its merchandise. While the store did not provide us with complete financial independence, it has provided a welcome service to our visitors.

We are delighted to introduce a new, part time, planetarium presenter to the Dupont Planetarium. Monica Dainer started at the Dupont Planetarium

in mid January. Monica has a strong science background and has been involved in informal education for a number of years. We welcome her to our team and look forward to her providing quality astronomy education to our stakeholders.

In January, we presented, In My Backyard, from the Calgary Science Centre during our public planetarium shows. Our school groups were able to choose from In My Backyard; Journey Into the Living Cell from the Carnegie Science Center and Buhl Planetarium; or Cruising Through the Constellations, which is one of our own productions.

For the general public, we will show, Follow the Drinking Gourd by the New Jersey State Museum Planetarium and the Raritan Valley Community College Planetarium in February. In March we will show, More than Meets the Eye by Lochness Productions.

School groups may choose the above shows with some additions. In February, school groups may also choose to see, The Explorers of Mauna Kea produced by the Bishop Planetarium in Hawaii. In March they may also choose to see, Larry Cat in Space by Lochness Productions.

We are looking forward to some activities related to the partial solar eclipse on April 8, 2005. Of course, we have big plans for National Astronomy Day on April 16.



Glenn Dantzer
Settlemyre Planetarium
Rock Hill, South Carolina

Position Available in Georgia

I have been retired for a decade from Fernbank, but Young Harris College called me back to fill in for Kent Montgomery since he has moved on to a little school out west of here, Texas A & M. They were unable to find a replacement and asked me to take an interim position for this semester at least.

My boss here wants me to ask around before they start advertising the position. It is for Planetarium Director and observatory (director or whatever) and teaching one section of astronomy. It is not a tenure track position. They want a Planetarium person.

The planetarium has the GOTO Chronos star projector in a 40 foot dome. The observatory has a 16-inch telescope, CCDs, and other trimmings.

It's a nice place, and it has a great faculty and a terrific administration. Beautiful scenery abounds. If anyone wants to know more, please contact me:

Young Harris College, Young Harris, GA 30582. Phone 800-241-375, email <jburgess@yhc.edu>. Learn about the college at <www.yhc.edu>.

Please pass the word to the SEPA membership before the news hits the academic community. They want a planetarian, not necessarily a researcher or primarily a teacher.

John Burgess
formerly of
Fernbank Planetarium
Atlanta, Georgia

HST's Greatest Hits '96

Duncan Teague
D T Publishing
8858 Carriage Creek Road
Arlington, Tennessee
38002-8972

The Space Telescope Science Institute (STScI) provided slides of Hubble images to individuals within regional affiliates who arranged 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 \$50.00, including postage and handling. Send your check or purchase order to the address at the left.

- 01a___Hubble's deepest ever view of the universe, revealing 1,500+ extremely faint galaxies in various stages of their development
- 01b___Sample galaxies from the same Hubble deep field
- 02___The inner region of a warped dust disk around Beta Pictoris once hidden because of the star's glare
- 03___An image of the Egg Nebula taken by WFPC2; it shows the emergence of some mysterious searchlight beams emanating from behind a dying star
- 04___The first direct image of a star other than the Sun: Betelgeuse.
- 05___In more detail than has ever been seen before, the process a star like the Sun goes through when it dies
- 09a___In clear, detailed pictures the first ever images of Pluto's surface; four views
- 09b___Pluto surface map
- 10___Gravitational lens effect captures image of primeval galaxy
- 11___Images of the globular cluster Mayall II, consisting of 300,000 old stars, in orbit around the Andromeda galaxy
- 13a___The Helix Nebula, NGC 7293 showing the collision of gases near a dying star
- 13b___Helix Nebula detail with cometary knots surrounding the dying star
- 14___A view of Comet Hyakutake that focuses on the near-nucleus region of the comet
- 15___Three layers of Uranus's atmosphere taken with infrared filters; both clear and hazy layers created by a mixture of gases
- 16___Image taken of Saturn where its rings appear edge-on because of the position of the Earth in Saturn's orbital plane
- 17___A view of several star generations found in the central region of the Whirlpool Galaxy
- 18a___A rare view of Saturn's rings seen just after the Sun had set below the ring plane
- 18b___A series of 10 images of several small moons orbiting Saturn
- 21a___NGC 1365, a barred spiral galaxy located in the Fornax cluster
- 21b___NGC 4639, a spiral galaxy located in the Virgo cluster
- 22a___The Crab Nebula and a detail of the pulsar in its center
- 22b___Sequence of three images showing changes in the Crab Nebula pulsar
- 23a___Huge, billowing pair of gas and dust clouds in Eta Carinae
- 23b___Expansion of Eta Carinae debris
- 25___Hubble's 100,000th exposure captures an image of a distant quasar
- 27___A vast nebula, NGC 604, which is known for a great starbirth region
- 29a___18 gigantic star clusters which may be building blocks for a new galaxy
- 29b___Blue sub-galactic clumps which may be galaxies under construction
- 30___Jupiter's moon Io passing above turbulent clouds
- 31___Clusters of stars and a fishhook-shaped cloud of gases found in NGC2366, a giant star forming region
- 32___Changes in Jupiter's auroral emissions
- 33___Views of weather on opposite hemispheres of Neptune
- 34___A Martian dust storm around the edge of the north polar cap
- 35a___A survey of quasar host galaxies
- 35b___A quasar caught in the act of colliding with its companion galaxy
- 36a___Supersonic comet-like objects in the Cartwheel Galaxy
- 36b___Cartwheel Galaxy composite image
- 36c___Cartwheel Galaxy illustration
- 38a___M8, the Lagoon Nebula showing giant "twisters" and star wisps
- 38b___M8, the Lagoon Nebula detail showing eerie funnels and twisted-rope structures

HST's Greatest Hits '97

The Space Telescope Science Institute (STScI) provided slides of Hubble images to individuals within regional affiliates who arranged 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 39 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 at the right.

- 01___ Central supermassive black holes in galaxies NGC 3377, NGC 3379, and NGC 4486B:
- 03___ SN1987A Fireball: One tenth light year long dumbbell structure expanding at six million miles per hour in supernova 1987A
- 08___ Changes in the nucleus of Comet Hale-Bopp as it moved closer to the Sun beginning in the September of 1995
- 09a___ Transition from spring and summer in Mars's northern hemisphere; photo taken shortly before opposition
- 09b___ Three photos of Mars taken six hours apart with 90° difference between images; photos taken shortly before opposition
- 11___ The Egg nebula in which stars are born and die violently; the photo shows jets of gas being blasted into space
- 12___ A supermassive black hole located in galaxy M84
- 13___ NICMOS captures a region of the Orion nebula filled with action as a center for the birth of new stars
- 14___ Supernova 1987A: different colors represent different elements in the ring
- 15a___ A view of Mars's cloud cover
- 15b___ Seasonal changes in Mars's northern polar ice cap
- 15c___ Four views of Mars rotated 90° between images during summer in Mars's northern hemisphere
- 16___ The Cone Nebula: six baby sun-like stars surround their mother
- 17___ A collision between two spiral galaxies in the heart of galaxy Arp 220
- 18___ Fireworks near a black hole in the core of Seyfert galaxy NGC 4151
- 19___ STIS reveals an invisible high-speed collision around a supernova
- 20___ Hubble pinpoints the optical counterparts of a γ -ray burst in a distant galaxy
- 21___ Hubble captures a volcanic eruption plume from Jupiter's moon Io
- 22___ A gamma-ray burst blazes from a titanic explosion in deep space
- 23___ Hubble's look at Mars shows a canyon dust storm, cloudy conditions for Pathfinder's landing in July 1997
- 24a___ Dissipation of a large dust storm on Mars
- 24b___ Hubble shows dust and water ice clouds that exhibit substantial daily variations
- 25___ Powerful telescopes discover the largest galaxy in the universe
- 26___ Hubble separates components in the Mira binary star system
- 27___ Hubble reveals a huge crater on the surface of the asteroid Vesta
- 28___ Hubble finds a bare black hole pouring out light
- 29___ Hubble shows blobs of gas formed by some nova outbursts
- 30___ Hubble keeps track of a fading γ -ray burst
- 31___ Mars at the beginning of autumn in the Martian northern hemisphere
- 32___ Hubble sees a neutron star alone in space
- 33___ Hubble identifies what might be the most luminous star known
- 34a___ Hubble reveals some stellar fireworks accompanying galaxy collisions
- 34b___ Detailed images of colliding galaxies
- 35___ Hubble shows images of a blue straggler star
- 36a___ Hubble tracks clouds on Uranus
- 36b___ Hubble spots northern hemispheric clouds on Uranus
- 37___ Hubble shows infrared view of a moon, the ring, and the clouds of Jupiter
- 38a___ Hubble sees a supersonic exhaust from a nebula
- 38b___ Hubble's planetary nebula gallery

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HST's Greatest Hits '98

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Below you'll find a brief description of all 40 images distributed in 1998. Numbers next to the descriptions are shortened versions of STScI press release numbers, *e.g.*, 26a refers to PR 98-26a.

The entire set of 40 slides is \$50.00, including postage and handling. Send your check or purchase order to the address at the left.

- 01___ COBE's infrared view of the Universe: three maps of the full sky seen in infrared light
- 02___ Distant supernovae: light sources determine the universe's expansion rate
- 03___ Beta Pictoris: disk indicates planets, and possible brown dwarf companion
- 04___ Jupiter aurorae: a "curtain" of light extends several hundred miles beyond Jupiter's limb
- 05___ Saturn's aurorae: "curtains" of light extend 1,000 miles above cloud tops
- 08___ Supernova 1987A: a collision between the expanding blast wave and its circumstellar ring
- 10___ Serendipitous asteroids: HST images show curved trails of asteroids
- 11a___ Planetary nebula NGC 7027: a brief stage in the evolution of a medium mass star
- 11b___ The Cotton Candy Nebula and The Silkworm Nebula: phases of stellar burnout
- 12___ Star birth in barred spiral galaxy NGC 1808 possibly due to interaction with NGC 1792
- 14a___ Centaurus A: nearest active galaxy to Earth shows the turbulent firestorm of starbirth
- 14b___ Centaurus A: tilted disk of gas at the galaxy's core surrounds suspected black hole
- 15___ Stingray Nebula: Henize 1357, the youngest known planetary nebula
- 16___ NGC 1818: globular cluster of over 20,000 stars in the Large Magellanic Cloud
- 17a___ GRB 971214: γ -ray burst; most energetic event in the universe
- 17b___ GRB 971214: γ -ray burst; comparison of Keck Telescope and HST views
- 18___ Saturn: details of the clouds and hazes in the atmosphere of the ringed planet
- 19___ Possibly the first extrasolar planet ever to be imaged orbiting about a newborn binary star
- 20___ Four of NASA's proposed designs for the Next Generation Space Telescope (NGST)
- 21___ Galaxy NGC 4314: bright ring of starbirth around the galaxy's core
- 22___ NGC7052: galaxy with 300 million solar mass black hole in its center
- 25___ N81 in the Small Magellanic Cloud: a celestial maternity ward
- 26a___ Galaxy Cluster MS1054-03321: thousands of galaxies eight billion light years from the Earth
- 26b___ Supernova 1996CL: a March 1996 exploding star in galaxy cluster MS1054-0321
- 27___ Distant galaxy clusters: left, in Virgo; upper right, in Andromeda; lower right, in Taurus
- 28___ NGC7742: a small Seyfert 2 active galaxy probably powered by a black hole in its core
- 29___ Saturn: pastel yellows, browns, and greys distinguish cloud differences
- 30___ Sagittarius Star Cloud: HST peers into the heart of the Milky Way
- 31___ NGC7635, the Bubble Nebula: shows an expanding shell of glowing gas surrounding a hot star
- 32a___ Infrared views: left: faintest galaxies ever seen; right: objects 12 billion light years away
- 32b___ Deep field galaxy: left: visible light areas of starbirth; right, infrared disk structure
- 34___ Neptune: a look at the eighth planet's stormy disposition
- 35___ Uranus, August 8, 1998: its four major rings and 10 of its 17 currently known satellites; false color image
- 36___ NGC6210 planetary nebula described as looking like a turtle swallowing a sea shell
- 37___ Quasar PG1115+080 and the gravitational lens effect:
- 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
- 41a___ HST deep field south: thousands of galaxies in Tucana, near the South Celestial Pole
- 41b___ HST deep field south: infrared, visible light, and ultraviolet views of distant galaxies
- 42___ NGC253 galaxy: edge-on spiral galaxy just beyond our Local Group

HST's Greatest Hits '99

The Space Telescope Science Institute (STScI) provided slides of Hubble images to individuals within regional affiliates who arranged 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 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.

The entire set of 42 slides is \$52.50, including postage and handling. Send your check or purchase order to the address at right.

- 01___M57 Ring Nebula: the sharpest view yet of this planetary nebula
- 02___Combined deep view of infrared and visible light galaxies
- 03___HD141569: stellar dust rings of a star in the constellation Libra
- 04___SNH1987A: the self-destruction of a massive star in the Large Magellanic Cloud
- 05a___Six images of a young stellar disk found in the constellation Taurus
- 05b___Four images featuring disks around various young stars in Taurus
- 06___NGC1316: the 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 fire ball in a γ -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___NGC4650A: a polar ring galaxy
- 18___Rings, arcs, and crosses as seen in Hubble's top ten gravitational lens effect images
- 19___NGC4603: magnificent spiral galaxy associated with the Centaurus cluster
- 20___NGC3603: 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 the Large Magellanic Cloud
- 25___NGC4414: magnificent details in the dusty spiral galaxy
- 26___NGC6093: a stellar swarm in a dense globular cluster
- 27___Mars: the red planet at opposition during April – May, 1999
- 28___MS1054-03: 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___HE2-104: small, bright nebula embedded in the center of a larger nebula
- 33a___R136 in 30 Doradus: a grand view of the birth of stars
- 33b___R136 in 30 Doradus: two detailed views of a highly active region of star birth
- 34a___NGC1365: a barred spiral galaxy reveals a bulge in its center
- 34b___Eight different views of the central bulges of spiral galaxies
- 35___HH32: a magnificent example of a "Herbig-Haro object"
- 36___NGC2261: Hubble's variable nebula illuminated by R Monocerotis (R Mon)
- 37___NGC2346: a butterfly shaped nebula
- 38___NGC2440: planetary nebula ejected from a dying star
- 39___OH231.8+4.2: the "rotten egg" nebula
- 40___M32: hot blue stars deep inside a dwarf elliptical galaxy
- 41___NGC2207 and IC2163: two spiral galaxies passing by each other
- 42___M20: Trifid Nebula reveals stellar nursery torn apart
- 43a___M87: the jet near the galaxy's central black hole

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JPL's Best Images of '98

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

- P-35036B _ Launch of Galileo on STS-34 Atlantis
- P-35213 ___ Deployment of Galileo and IUS
- P-37218 ___ Venus Colorized Clouds
- P-37327 ___ Moon: Western Hemisphere
- P-37539 ___ Infared Image of Low Clouds on Venus
- P-37593 ___ Earth: Ross Ice Shelf, Antarctica
- P-37630 ___ Global Images of Earth
- P-40449 ___ Gaspra: Highest Resolution Mosaic
- P-41383 ___ Gaspra Approach Sequence
- P-41432 ___ Moon: North Pole
- P-41474 ___ Earth: Northeast Africa and the Arabian Peninsula
- P-41493 ___ Earth: False Color Mosaic of the Andes Mountains
- P-41508 ___ Earth: Moon Conjunction
- P-42501A ___ South Polar Projection of Earth
- P-42964 ___ Asteroid Ida: Five Frames Mosaic
- P-44130 ___ Asteroid Ida: Limb at moment of Closest Approach
- P-44131 ___ Ida and Dactyl: Enhanced Color
- P-44297 ___ High Resolution View of Dactyl
- P-44520 ___ Asteroid Ida Rotation Sequence
- P-44542 ___ Comet Shoemaker-Levy 9 Fragment W Impact on Jupiter
- P-47058 ___ Ganymede: Comparison of Voyager and Galileo Resolution
- P-47065 ___ Ganymede: Mixture of Terrains and Large Impact Crater in Unuk Sulcus Region
- P-47162 ___ Full Disk Views of Io (Natural and Enhanced Color)
- P-47179 ___ Three Views of Io
- P-47182 ___ Jupiter's Great Red Spot
- P-47183 ___ Dark Bands on Europa
- P-47194 ___ Live volcano on Io
- P-47196 ___ False Color Great Red Spot
- P-47903 ___ NIMS Ganymede Surface Map
- P-47905 ___ Five Color Views of Io
- P-47906 ___ Europa In Color
- P-47935 ___ Io Glowing in the Dark
- P-47961 ___ Ganymede's Nippur Sulcus
- P-47970 ___ Ganymede Color Global
- P-47971 ___ Io in front of Jupiter
- P-47972 ___ Changing Volcanoes on Io
- P-48035 ___ Stereo View of Ganymede's Galileo Region
- P-48040 ___ Natural and False Color Views of Europa
- P-48063 ___ Thunderheads on Jupiter
- P-48112 ___ Ganymede Uruk Sulcus High Resolution Mosaic Shown in Context
- P-48113 ___ Ganymede Galileo Regio High Resolution Mosaic Shown in Context
- P-48114 ___ Jupiter's Great Red Spot
- P-48122 ___ Two views of Jupiter's Great Red Spot
- P-48127 ___ Ridges on Europa
- P-48145 ___ Io: Volcanically Active Regions
- P-48188 ___ The Main of Ring of Jupiter
- P-48231 ___ Callisto Crater Chain at High Resolution Shown in Context
- P-48236 ___ Europa: Ice Floes
- P-48293 ___ Callisto: Scarp Mosaic
- P-48294 ___ False Color Mosaic of Jupiter's Belt-Zone Boundary
- P-48299 ___ Asgard Scarp Mosaic
- P-48445 ___ True Color Mosaic of Jupiter's Belt-Zone Boundary
- P-48496 ___ Color Global Mosaic of Io
- P-48526 ___ Europa Ice Rafts
- P-48527 ___ Closeup of Europa's Surface
- P-48532 ___ Mosaic of Europa's Ridges, Craters
- P-48584 ___ Io's Sodium Cloud
- P-48698 ___ E4 True and False Color Hot Spot Mosaic
- P-48700 ___ Jupiter Equatorial Region
- P-48952 ___ Jupiter's White Ovals, True and False Color
- P-48954 ___ Ancient Impact Basin on Europa
- P-48956 ___ Active Volcanic Plumes On Io
- P-49344 ___ Arizona-sized Io Eruption
- P-49434 ___ Europa: Ice Rafting View
- P-49435 ___ High Resoultion Mosaic of Ridges, Plains, and Mountains on Europa
- P-49436 ___ Regional Mosaic of Chaos and Gray Band on Europa
-
- 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

JPL's Best Images of '99

JPL-19-12	___	NASA/JPL	P-48505AC	___	Huygens probe
JPL-25125	___	Model of Sojourner	P-48505BC	___	Huygens probe
JPL-27089AC	___	Cassini arrival and orbit	P-48565	___	Titan IV launch
JPL-27089BC	___	Cassini interplanetary trajectory	P-48597	___	Cassini ready for shipment
JPL-27748	___	Thermal vacuum testing	P-48630	___	Saturn tour trajectory
JPL-28046BC	___	High-gain antenna	P-48664	___	Cruise stage at KSC
JPL-28162AC	___	Cassini assembly	P-48702	___	Pathfinder on Mars
MGS-001	___	Scientists assemble MGS	P-48707	___	Cruise stage, spacecraft
MGS-002	___	Scientists assemble MGS	P-48753	___	E.D.L. sequence
MGS-003	___	MGS configuration	P-48824	___	Sojourner and Pathfinder
MGS-004	___	MGS orbit around Mars	P-48827	___	The airbags by Sojourner
MGS-005	___	Launch of MGS	P-48841	___	Sojourner touchdown
P-23062	___	Saturnian clouds	P-48842	___	APXS studies "Barnacle Bill"
P-23209	___	The Saturn System	P-48845	___	"Twin Peaks"
P-23925	___	Saturn ring spokes	P-48847	___	The rock "Yogi"
P-41101	___	Huygens descent profile	P-48866	___	"Barnacle Bill" mosaic
P-42810AAC	___	Huygens, exploded view	P-48871	___	Rover's APXS at work
P-42810AC	___	Huygens probe interior	P-48877	___	"Wedge" and "Flattop"
P-43538	___	Saturn: Rings and Moons	P-48878	___	Near "Barnacle Bill"
P-43560	___	Mars global view	P-48889	___	"Barnacle Bill" and "Yogi"
P-43836	___	Scientists' home countries	P-48891	___	360° b&w panorama
P-43862	___	Pathfinder landing	P-48893	___	"Yogi" and rover tracks
P-43966AC	___	Spacecraft, country flags	P-48894	___	Sagan Memorial Station
P-44233	___	Mars landing area	P-48901	___	Sojourner wheelie on "Yogi"
P-44293Ac	___	Cruise stage	P-48902	___	Rover's view of rocks, lander
P-45424	___	Huygens probe release	P-48908	___	The "Rock Garden"
P-45893AC	___	Saturn, Titan's landscape	P-48909	___	Martian terrain, "Wedge"
P-46225AC	___	Mapping Titan	P-48911	___	Sojourner, "Wedge"
P-46278	___	The Cassini mural	P-48912	___	Forward ramp Twin Peaks
P-46356	___	Cassini with Huygens	P-48913	___	The "Rock Garden"
P-46427	___	Petal deployment, Mars Yard	P-48914	___	A closer view
P-46428	___	Airbag inflation test	P-48915	___	The rover petal
P-46506AC	___	Saturn as seen from Rhea	P-48916	___	Twin Peaks
P-46507	___	Saturn orbit insertion	P-48917	___	Martian terrain
P-46507AC	___	Cassini enters Saturn orbit	P-48918	___	"Barnacle Bill," "Yogi," "Couch"
P-46586	___	Cassini orbital tour	P-48919	___	Sojourner, "Barnacle Bill"
P-46620	___	Pathfinder landing	P-48920	___	"Couch" on the horizon
P-46655	___	Science targets	P-48921	___	The rock "Yogi"
P-46656	___	Enceladus and Iapetus	P-48922	___	Airbags, petal, and "Yogi"
P-46898BC	___	Cassini's trajectory	P-48923	___	Martian landscape
P-47340AC	___	Propulsion module	P-48924	___	"Calvin" and "Hobbes"
P-47936CC	___	Huygens probe installation	P-48925	___	"Calvin" and "Hobbes"
P-47991	___	Pathfinder arrival at KSC	P-48926	___	Martian terrain
P-47992Ac	___	Cruise stack arrival at KSC	P-48927	___	Petal and terrain
P-47992Bc	___	Sojourner checking at KSC	P-48928	___	"Little Matterhorn"
P-48012DC	___	Transporting Cassini	P-48931	___	New 360° gallery panorama
P-48045BC	___	Cassini fully assembled	P-48970	___	North Twin Peak
P-48045CC	___	Ready for transport	P-48982	___	The forward ramp
P-48154Bc	___	Pathfinder mated to rocket	P-49025	___	Airbag bounce marks
P-48155Ac	___	Launch 12/4/96, 2:11 a.m.	P-49026	___	Airbag roll marks
P-48155Bc	___	Petal closing at KSC	P-49028	___	Classes of Martian rocks
P-48156	___	Full stack mated to booster	P-49029	___	Classes of Martian rocks
P-48313BC	___	Cassini in the space center			

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Southern Skies Writers' Submission Guidelines

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It's time consuming to have to edit submissions to *Southern Skies* for issues of formatting, typography, style, and consistency before I compose each journal. Effective October 1st, unless these guidelines are followed, submissions will be returned for compliance.

- *Never* double space after punctuation or in any other instance. This is the only rule that has no exception.
- Don't use quotation marks around anything that isn't a direct quote from a speaker. The names of star shows are italicized in *Southern Skies*. Don't put star show names inside quotation marks.
- When you **do** use quotation marks, punctuation goes *inside*, not outside quotation marks.
- Italicize foreign words and any punctuation that immediately follows an italicized word.
- Use italics or bold characters to show emphasis instead of capitalizing words. *Italics* shouts a little bit. **Bold** shouts a lot.
- The general rule for whether to capitalize a word is the following: if you're not sure, don't.
- For consistency, capitalize Sun, Moon, and Earth when referring to our solar system's star, Earth's natural satellite, and our home planet.
- Do **not** capitalize seasons or cardinal directions.
- Only very rarely should one use an exclamation point and never multiple instances of exclamation points. One cannot use this punctuation mark as a substitute for good, strong writing.
- Use the typographically correct symbols for double and single quotes, not the marks that mean feet and inches. Your word processor can do it. Learn how. The typographically correct symbols are "curly," not "straight;" e-mail messages do not transmit the typographically correct symbols, so send submissions as attachments, not in the body text of an e-mail.
- Use the *en dash* for a series of events, and use a space before and after the *en dash*, e.g., Monday – Friday; September – October; 8:00 – 9:00. The **en dash** (–) is not a hyphen (-). Learn how to type the *en dash* with your word processor.
- Use the *em dash*, without spaces, to show an abrupt change of thought. The *em dash* (—) isn't two hyphens (--). Learn how to type the *em dash* with your word processor.
- Use the correct *ellipsis* character: ... This is *not* three periods with or without spaces between.
- Learn the difference between *it's* and *its*. Learn the difference between *there* and *their*. Learn the difference between *then* and *than*. Learn the difference between *from* and *than*.
- The nouns that name decades of time use a leading apostrophe to indicate the missing numerals that refer to the century. They're not possessive. '80s is correct; 80's and '80's are incorrect.
- Spell out numbers from one to ten. Use numerals for numbers greater than ten.
- Note the format for state news submissions and follow that format. Provide the name of the facility and the city. Don't include the state name after the city. It's unnecessary.
- Don't use the tab key to indent. When your text imports into my template, the template will automatically indent the first line the proper amount as long as you have merely formatted the first line of the paragraph to be *indented*. If there's a *tab* marker present in that text, the first line will indent the distance I have already established in my template **plus** the extra distance of any tabs in your text.
- Don't skip a line between paragraphs.
- Graphic files included with your article should be in a generic, cross-platform format. Don't use some file format proprietary to a special software program you use. Acceptable graphic file formats include the following: .eps, .gif, .jpg, .psd (Photoshop), and .tif.
- Text files should be created from a widely used word processor, e.g., Microsoft Word (.doc), or rich text format (.rtf), or plain text (.txt).
- If you want images to be included with your column or article, send them. Don't ask me to go to some Website and download them myself. If you don't have time, neither do I.