



MARCH 2009

Newsletter of the
San Angelo Astronomy
Association est. 1962

SAN ANGELO www.AngeloAstronomy.com ASTRONOMER

New Display at ASU Planetarium

Dr. Mark Sonntag at the ASU Planetarium unveiled a new display celebrating the International Year of Astronomy this past Friday, Feb. 27. The club joined him in setting up telescopes in the parking lot for a special viewing of the crescent moon and Venus.

The display is two new mural-sized images taken by NASA's Hubble Space Telescope, Spitzer Space Telescope and Chandra X-ray Observatory. Following the unveiling, guests attended a program in the Planetarium theater.



The murals each contain stunning photographs of the Messier 101 spiral galaxy. A six-foot-by-three-foot image shows three striking, full-color images that showcase the galaxy's features in the infrared light observed by Spitzer, the visible light observed by Hubble and the X-ray light observed by Chandra. The images show details of the grand design spiral



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NETWORK

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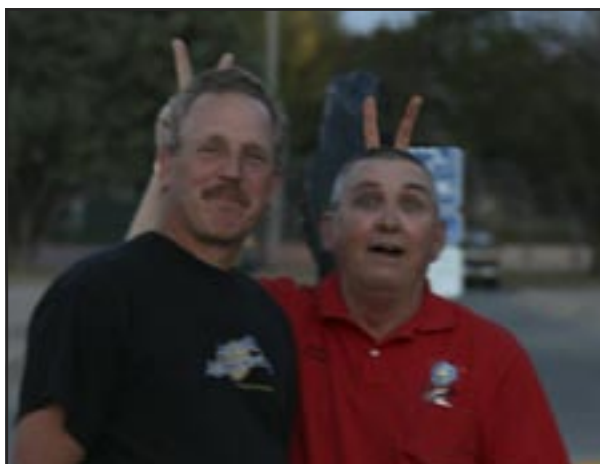
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structure for which the galaxy is famous, the underlying giant clouds where stars are born and the hidden locations of black holes and exploded stars.

The other 3' x 3' image of Messier 101 combines the views from all three telescopes into an amazing composite. It has been compared to seeing the galaxy with your eyes, night vision goggles and X-ray vision all at once.

The International Year of Astronomy 2009 celebrates the 400th anniversary of Galileo first using a telescope to study celestial bodies. From Galileo's first spyglass, telescopes

have grown ever-larger and more powerful and have moved to mountaintops and to space. NASA's great observatories represent the achievements of astronomy four centuries later and are honoring this legacy with this national image unveiling. The ASU Planetarium was selected by the Space Telescope Science Institute to present these images to the San Angelo community.

The new images will be on permanent display in the Planetarium lobby, which is open daily from 8:30am to 4:30pm.



Where Did All These Gadgets Come From?

by Dr. Tony Phillips



Ion propulsion.

Artificial intelligence.

Hyper-spectral imagers.

It sounds like science fiction, but all these technologies are now flying around the solar system on real-life NASA missions.

How did they get there? Answer: the New Millennium Program (NMP). NMP is a special NASA program that flight tests wild and far-out technologies. And if they pass the test, they can be used on real space missions.

The list of probes that have benefited from technologies incubated by NMP reads like the Who's Who of cutting-edge space exploration: Spirit and Opportunity (the phenomenally successful rovers exploring Mars), the Spitzer Space Telescope, the New Horizons mission to Pluto, the Dawn asteroid-exploration mission, the comet-smashing probe Deep Impact, and others. Some missions were merely enhanced by NMP technologies; others would have been impossible without them.

"In order to assess the impact of NMP technologies, NASA has developed a scorecard to keep track of all the places our technologies are being used," says New Millennium Program manager Christopher Stevens of the Jet Propulsion Laboratory.

For example, ion propulsion technology flight-tested on the NMP mission Deep Space 1, launched in October 1998, is now flying aboard the Dawn mission. Dawn will be the first probe to orbit an asteroid (Vesta) and then travel to and orbit a dwarf planet (Ceres). The highly efficient ion engine is vital to the success of the 3 billion mile, 8 year journey. The mission could not have been flown using conventional chemical propulsion; launching the enormous amount of fuel required would have broken the project's budget. "Ion propulsion was the only practical way," says Stevens.

In total, 10 technologies tested by Deep Space 1 have been adopted by more than 20 robotic probes. One, the Small

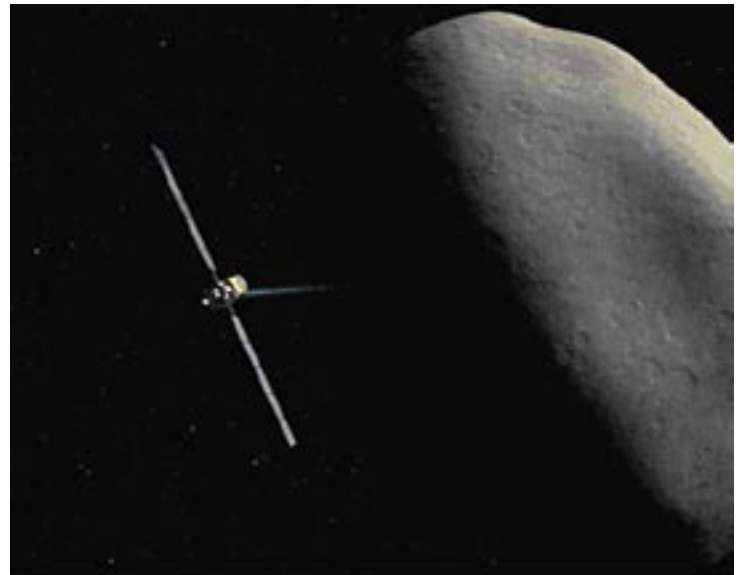
Deep Space Transponder, has become the standard system for Earth communications for all deep-space missions.

And Deep Space 1 is just one of NMP's missions. About a half-dozen others have flown or will fly, and their advanced technologies are only beginning to be adopted. That's because it takes years to design probes that use these technologies, but Stevens says experience shows that "if you validate experimental technologies in space, and reduce the risk of using them, missions will pick them up."

Stevens knew many of these technologies when they were just a glimmer in an engineer's eye. Now they're "all grown up" and flying around the solar system. It's enough to make a program manager proud!

The results of all NMP's technology validations are online and the list is impressive: nmp.nasa.gov/TECHNOLOGY/scorecard/scorecard_results.cfm. For kids, the rhyming storybook, "Professor Starr's Dream Trip: Or, How a Little Technology Goes a Long Way" at spaceplace.nasa.gov/en/kids/nmp/starr gives a scientist's perspective on the technology that makes possible the Dawn mission.

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



Dawn will be the first spacecraft to establish orbits around two separate target bodies during its mission—thanks to ion propulsion validated by Deep Space 1.

Points of Interest, SAAA Activities and Upcoming Events - March 2009

Mar 2 - 4 ... Dark Energy Conference, Galileo Institute, Florence, Italy

The observation of dark energy demonstrates that our well established theories of particle physics and gravity are incomplete if not incorrect. This conference will bring together theorists, phenomenologists, observers and experimentalists to discuss optimal ways to probe the dark side of the universe.

Key questions to be discussed include: - What mechanism is driving the acceleration of the universe?

- Is gravity purely geometry as envisaged by Einstein? - Is there evidence for extra dimensions and varying couplings?

- Which local and astrophysical probes are optimal to answer the above?



Tue, March 3 ... Regular Club Meeting at ASU, 7pm

Mar 4 - 8 ... Texas Space Week in Austin

+++ March 4 ... Texas Memorial Museum on UT campus in Austin, Texas

NASA is launching its Space Week Texas 2009 deep in the heart of Texas at the Texas Memorial Museum on the UT campus. Come out on March 4 and experience NASA's Driven to Explore mobile exhibit where visitors can touch a 3 billion-year-old moon rock brought back aboard Apollo 17. Astronauts will be there to talk about life in space and sign autographs. Special appearances by NASA's Moonwalkers street team are also scheduled.

+++ March 5 ... Space Day at the Texas Capitol

NASA takes over the Texas Capitol for the day and offers visitors a chance to experience the excitement of space exploration through a variety of exhibits, presentations and much more. Make sure to come by and touch a 3 billion-year-old moon rock in NASA's Driven to Explore mobile exhibit. Exhibits available 8am to 5pm throughout the Capitol grounds. Other activities include: * Educational presentations for students * Special recognition from the Texas Legislature

* Astronaut autograph sessions * Appearances by NASA's mascot Cosmo * Space giveaways throughout the day

A.C.E.S. Building on the UT Campus in Austin, Texas

Former NASA Johnson Space Center Director General Jefferson Howell serves as moderator for 90 minutes of lectures and Q&A focused on how space matters to Texas. The event is hosted by the UT Department of Aerospace Engineering & Engineering Mechanics and runs from 3:30-5 p.m.

+++ March 6-8 ... LBJ Library and Museum in Austin, Texas

Space Week continues at the LBJ Library and Museum in Austin. Come out and take a tour through NASA's Driven to Explore mobile exhibit where you can touch a piece of the moon brought back aboard Apollo 17. Visitors can also see a special salute to NASA called To the Moon: The American Space Program in the 1960s. On March 7, the University of Texas will open its entire campus to the public for Explore UT. Visit www.utexas.edu/events/exploreut/ for more details. This special event kicks off with an astronaut autograph session and space movie at the LBJ library and museum.

Sun, March 8 ... Daylight Saving Time begins -- set your clocks forward 1 hour

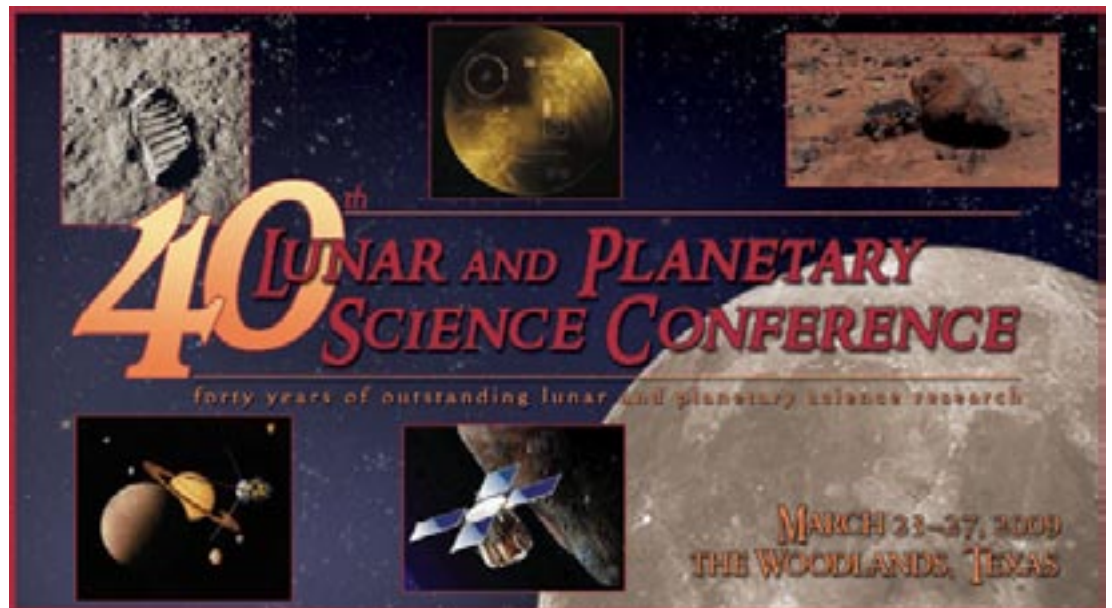
March 9-12 ... Bush Library and Museum in College Station, Texas

NASA's next stop is the Bush Library and Museum in College Station where visitors will have a chance to tour NASA's Driven to Explore mobile

exhibit and see a special tribute called Beyond the Moon: NASA's Continuing Journey. Visit <http://bushlibrary.tamu.edu/> for more details. An astronaut autograph session and a space movie screening are also scheduled.

Mar 14, 1879 ... Albert Einstein's Birthday

Mar 21-27 ... >>>>>>>



Food For Thought...

"If astronomy is the oldest of sciences, surely amateur astronomy may rightfully claim to be the oldest of the scientific hobbies. No one can date that remote epoch when astronomy "began" - we can say only that the fascination of the heavens is as old as man's ability to think, as ancient as his capacity to wonder and to dream. And in company with most of the enchantments of human life, the unique appeal of astronomy is incommunicable, easily understood through direct experience, but not to be precisely defined or explained. Nor should any explanation be thought necessary.

The appeal of astronomy is both intellectual and aesthetic; it combines the thrill of exploration and discovery, the fun of sightseeing, and the sheer pleasure of first hand acquaintance with incredibly wonderful and beautiful things. But it also offers the privilege, not to be taken lightly, of adding something to the knowledge and understanding of man.

There is one other factor which I think deserves comment. An amateur, in the true and original meaning of the word, is one who pursues a study or interest for sheer love of the subject; and in this respect the division between professionals and amateurs is indeed indefinite. We are all impelled by the same wonder and curiosity; we are all exploring the same universe, and we all have the enviable opportunity of contributing to the store of human knowledge.

Now I should like to phrase one of these considerations in a somewhat less conventional manner, at the risk of being accused of undue whimsicality by the sternly serious minded. Considered as a collector of rare and precious things, the amateur astronomer has a great advantage over amateurs in all other fields, who must content themselves with second and third rate specimens. For example, only a few of the world's mineralogists could hope to own such a specimen as the Hope Diamond, and I have yet to meet the amateur fossil collector who displays a complete tyrannosaurus skeleton in his cabinet.

In contrast, the amateur astronomer has access at all times to the original objects of his study ... the masterworks of the heavens belong to him as much as to the great observatories of the world. And there is no privilege like that of being allowed to stand in the presence of the original.

Yet it sometimes happens, perhaps because of the very real aesthetic appeal of astronomy and the almost incomprehensible vastness of the universe, that the more solidly practical and duller mentalities tend to see the study as an "escape from reality" ... surely one of the most lopsided views ever propounded. The knowledge obtained from astronomy has always been, and will continue to be, of the greatest practical value. But, this apart, only the most myopic minds could identify "reality" solely with the doings of man on this planet. Contemporary civilization, whatever its advantages and achievements, is characterized by many features which are, to put it very mildly, disquieting. To turn from this increasingly artificial and strangely alien world is to escape from unreality. To return to the timeless world of the mountains, the sea, the forest and the stars is to return to sanity and truth."

Robert Burnham, Jr.
Flagstaff, Arizona
October 1976

*Found in Burnham's Celestial Handbook, his Introduction to the 3 volume set.
Thanks, Ted, for sending that in!*

VOTE EARTH – YOUR LIGHT SWITCH IS YOUR VOTE 8:30pm, Sat March 28, 2009 www.EarthHour.org

This year, Earth Hour has been transformed into the world's first global election, between Earth and global warming. For the first time in history, people of all ages, nationalities, race and background have the opportunity to use their light switch as their vote – Switching off your lights is a vote for Earth, or leaving them on is a vote for global warming. WWF are urging the world to VOTE EARTH and reach the target of 1 billion votes, which will be presented to world leaders at the Global Climate Change Conference in Copenhagen 2009.

This meeting will determine official government policies to take action against global warming, which will replace the Kyoto Protocol. It is the chance for the people of the world to make their voice heard.

Earth Hour began in Sydney in 2007, when 2.2 million homes and businesses switched off their lights for one hour. In 2008 the message had grown into a global sustainability movement, with 50 million people switching off their lights. Global landmarks such as the Golden Gate Bridge in San Francisco, Rome's Colosseum, the Sydney Opera House and the Coca Cola billboard in Times Square all stood in darkness.

In 2009, Earth Hour is being taken to the next level, with the goal of 1 billion people switching off their lights as part of a global vote. Unlike any election in history, it is not about what country you're from, but instead, what planet you're from. VOTE EARTH is a global call to action for every individual, every business, and every community. A call to stand up and take control over the future of our planet. Over 74 countries and territories have pledged their support to VOTE EARTH during Earth Hour 2009, and this number is growing everyday.

We all have a vote, and every single vote counts. Together we can take control of the future of our planet, for future generations.

VOTE EARTH by simply switching off your lights for one hour, and join the world for Earth Hour.

San Angelo Astronomy Association Meeting Minutes For February 3, 2009

Submitted by Andy Oliver

The meeting was called to order at 7:05 pm by president Jim Fisher. Nine members were present with no guests.

Awards for participation in the Night Sky Network were presented to several club members by Fred and Andy. Those receiving the certificate and NSN pins were Walt Goldys, Susie Lowery, Brian Maluchnik, Bruce McKowen, Billy Morrison, Fred Johnson & Andy Oliver.

The club also received some material and giveaways from NSN for the International Year of Astronomy (IYA). Andy gave out some of the pins to those present and shared some of the other material. He also shared some coming events, EarthHour at 8:30pm on March 28 & 100 Hours of Astronomy, April 2-5.

Mark shared with us some of his plans for IYA 2009, including the upcoming unveiling of two photographs from NASA's Great Observatories, part of a national event. The unveiling will take place on Fri, Feb 27.

Other events planned for this year include the Epsilon Aurigae Observing project on March 9.

Mark also discussed the probability of getting ASU's remote telescope operational, and possibly making it available for club members.

After Mark's presentation, we held our annual elections. Andy shared some of Susie's concerns about the secretary's position, which was discussed. Andy then made a motion that the positions for Secretary/Treasurer, currently held by Susie Lowery; Public Affairs/News Director, held by Andy Oliver; and Observing/Equipment Director, held by Fred Johnson, be filled by the current persons, since there were no opponents for the positions. Frances seconded the motion. The motion carried unanimously.

At that point, a discussion was started about building club membership. Items discussed included bumper stickers and half price trial memberships. There was also discussion about finding another club viewing area on the east side of town toward Wall or Paint-rock.

Meeting adjourned at 8:55 pm.

San Angelo Astronomy Association Schedule For Scopes at ASU Planetarium

Thur, March 5th, 7pm

These are the dates we have scheduled to be at the Planetarium. We will also set up a table or two inside the hallway by the Planetarium. We'll have handouts and Night Sky Network toolkits to demonstrate.

Let's celebrate 2009, the International Year of Astronomy, and try to draw in some new members this year!

Thur, April 2nd, 7pm

Editorial Information

SAN ANGELO ASTRONOMER is the monthly newsletter of the San Angelo Astronomy Association.

Publication date is the last day of each month. Deadline for the submission of articles is the Tuesday before that day. Please submit articles via e-mail or on disk (.rtf, .doc, or .txt files). Rich text format (.rtf) is preferred. Preferred image files are .JPG.

Address all newsletter correspondence to:
editor@AngeloAstronomy.com

The San Angelo Astronomy Association was founded in 1962. Membership is open to anyone. For membership information contact any of the officers or visit our monthly meetings at the ASU Planetarium.

Club Mailing Address:
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San Angelo, TX 76906

Meeting Schedule

March 3rd --- April 7th



Meetings are conducted at the Angelo State University Planetarium located in the Physical Science building or in a nearby classroom. Meetings begin at 7:00pm on the first Tuesday of each month. No food, drink or tobacco in the planetarium, please.

Got any news items or articles to contribute?
Anything to buy, sell or trade? Write to us!

**Deadline for next newsletter
is Tuesday, Mar 24th.**