Southwest Florida Astronomical Society
SWFAS

The Eyepiece
May 2009

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A MESSAGE FROM THE PRESIDENT

May is starting off to be a potentially very busy month for us. Apparently a lot of people and groups are interested in taking part in the activities for the International Year of Astronomy 2009, and interest in astronomy has skyrocketed. We have an "Under the Stars" Star Party planned for May 1st out at the Mother of God, House of Prayer in Alva. I will be sending out a request for volunteers to support this event, and will provide directions to their site as soon as I firm them up. They are very excited about us providing a lecturer and some telescopes for their star party. We also have requests for our support from two other groups for which I have to obtain additional information.

We have set up a committee to look into establishing a Kid's Club for young people who can not join our regular club until they reach 18 years of age. We are getting a number of requests from parents regarding this, and SWFAS member Alice Mack is putting together a subcommittee to look into the feasibility of doing something for the upcoming generation of amateur astronomers. Anyone wishing to help Alice out in this effort can email her at Almak@embarqmail.com, or telephone her at 239-463-1693.

Planets in the evening sky for May consist of Saturn (in the south) and Mercury (in the northwest). Venus, Mars and Uranus (in the east), and Jupiter (in the southeast) can be viewed in the morning sky. The Eta Aquarid meteor shower peaks before dawn on May 6th.

A new circumpolar comet Yi-SWAN can be seen for most of April and May. The 8th-magnitude comet is moving across the constellations Cassiopeia and Perseus, and should be able to be seen in small telescopes. Further updates regarding the comet can be obtained at: http://www.skyandtelescope.com/resources/proamcollab/astroalert/.

Please remember to pay your dues for 2009. Dues can be paid at our monthly meeting, or mailed to our post office box i.e. Southwest Florida Astronomical Society, Inc., PO Box 100127, Cape Coral, Florida 33910. Your continued support is greatly appreciated.

May Meeting

Our May meeting will be at the Calusa Nature Center Planetarium at 7:30 pm on Thursday, May 7th. Our guest speaker for the evening will be Carol Stewart, SWFAS Life Member and former President. Carol is also a JPL/NASA Solar System Ambassador. She will be speaking on the recently launched Kepler Mission. Kepler is looking for Earthlike planets around other stars.

Spotless Suns

The sun has plunged into the deepest solar minimum in nearly a century. Sunspots have all but vanished and consequently the sun has become very quiet. In 2008, the sun had no spots 73% of the time, a 95-year low. In 2009, sunspots are even more scarce, with the "spotless rate" jumping to 87%. We are currently experiencing a stretch of 25 continuous days uninterrupted by sunspots--and there's no end in sight.

This is a big event, but it is not unprecedented. Similarly deep solar minima were common in the late-19th and early-20th centuries, and each time the sun recovered with a fairly robust solar maximum. That's probably what will happen in the present case, although no one can say for sure. This is the first deep solar minimum of the Space Age, and the first one we have been able to observe using modern technology. Is it like others of the past? Or does this solar minimum have its own unique characteristics that we will discover for the first time as the cycle unfolds? These questions are at the cutting edge of solar physics.

You can monitor the progress of solar minimum with a new "Spotless Days Counter" on spaceweather.com. Instead of counting sunspots, we're counting no sunspots. Daily updated totals tell you how many spotless days there have been in a row, in this year, and in the entire solar cycle. Comparisons to historical benchmarks put it all in perspective. Visit http://spaceweather.com for data.
- from Spaceweather.com.

Just How Well Can Hubble See?

Hubble's main cameras can see a dime from 10 miles away. And its Fine Guidance Sensors (FGS) can see that dime from 1000 miles away.
- Matt Benjamin, Education Programs Manager, Fiske Planetarium

Selene, A Lunar Geology Video Game

Would young people learn science better if it were packaged in a videogame? That's the question at the heart of the *Selene* project. Named after the Greek lunar goddess, *Selene* challenges players to learn the major geologic processes scientists believe formed the modern moon. Players create their own moon and then pepper it with impact craters and flood it with lava. The game offers a great opportunity for students to learn about lunar geology while helping researchers study some key videogame design principles.

The game is designed for students between the ages of 13-18 and takes about an hour to complete. But more time can be spent checking out *Selene*'s various resources about the moon. To play, participants must be enrolled by an adult recruiter to ensure parent or guardian consent for participation.

If you're an adult who'd like to help out, visit the *Selene* Web site and click on the Recruiter button. Recruiters help find players to play the game and take part in the study. Being a recruiter is simple and does not involve a lot of paperwork. The whole process involves getting oral consent from a parent or guardian, then forwarding *Selene* registration access to recruited players.

Selene: A Lunar Construction Game was created through NASA by the Center for Educational Technologies at Wheeling Jesuit University in Wheeling, WV, and its learning research continues through a National Science Foundation grant. To learn more about the game and how you can play, visit http://selene.cet.edu. If you have questions about this project, please e-mail your inquiries to selene@cet.edu.

New Star Atlas, Forwarded by Request

I'm writing to let you know that the new, visually-stunning Cambridge Double Star Atlas, co-authored by the famed celestial cartographer Wil Tirion and myself, has just been released by Cambridge University Press (see [http://www.cambridge.org/catalogue/catalogue.asp?isbn=9780521493437] for details).

There's not been anything like this since the original Norton's Star Atlas in the early 1900's, which also designated double and multiple stars on its maps. And like Norton's, it's an all-purpose atlas showing many other kinds of prominent deep-sky wonders - all color-coded by type.
- from Jim Mullaney, former editor, Sky and Telescope, arcturussj@aol.com

View Earth Live from Space

Google Earth and online mapping sites provide a bird's-eye view of Earth through satellite images. There's just one problem with mapping sites and Google Earth. The images aren't live. Updates are measured in years.

So, how does one get a live satellite view of Earth? By visiting NASA's site, that's how! NASA has just launched live streaming from the International Space Station. You'll see breathtaking views of Earth from an altitude of 220 miles. You'll also see exterior views of the ISS. And, when available, you'll hear audio communications between astronauts and Mission Control.

Unfortunately, communication channels between the ISS and Earth are limited. These are reserved during daily operations. That means the Webcams are only active when the crew is off-duty. That's usually between 1 p.m. and 1 a.m. At other times, you'll see a map of the ISS's current location. The map also shows the path of the space station. Visit the ISS's page to learn more about the space station. The link to the Webcam is somewhat hidden on the page. So, the link below will open directly into Windows Media Player.
Prepare to be wowed!

ISS page - www.nasa.gov/mission_pages/station/main/index.html
Webcam - www.nasa.gov/multimedia/isslivestream.asx
- Kim Kommando newsletter

NASA Spinoffs 2008 Available

Are Tang, Teflon, and Velcro NASA spinoffs? Did NASA invent the ever-popular memory foam found in many consumer applications? Did NASA invent cordless power tools? Did NASA invent barcodes, quartz clocks, or smoke detectors?

For more than 40 years, the NASA Commercial Technology Program has facilitated the transfer of NASA technology to the private sector, benefiting global competition and the economy. The resulting commercialization has contributed to the development of commercial products and services in the fields of health and medicine, industry, consumer goods, transportation, public health, computer technology, and environmental resources.

Since 1976, NASA's Spinoff magzine has featured between 40 and 50 of these commercial products annually. Spinoff maintains a searchable database of every technology published since its inception. The latest issue can be found at http://www.sti.nasa.gov/tto/Spinoff2008/index.html The searchable database is at http://www.sti.nasa.gov/spinoff/database

And, to get the answers to the questions posed above, the Mythbusters section on the Spinoff site sets the record straight on Tang, Velcro, MRI, cordless tools, etc. Visit http://www.ipp.nasa.gov/mythbusters.htm

How did Tycho Brahe Really Die?

Tycho, known by his first name was the custom of the epoch. He has gained scientific repute for his unparalleled bare-eye observations of the skies before telescope was invented and became the first astronomer to discover a supernova, as well to catalogue over thousand new stars.

The flamboyant aristocrat was also famous for his eccentric lifestyle and appearance: he is said to have lost his nose in a drunken duel as a student and used various prostheses of gold, silver and copper. His favourite pet was a moose that entertained the guests at his castle on the island of Hven off the Danish coast, accompanied by a supposedly clairvoyant dwarf named Jepp. The moose died after falling down the stairs following a dinner party when it was given too much beer to drink.

Danish researchers have now found evidence that Tycho, who was also revered as an astrologist and alchemist, was murdered on the orders of his king, Christian IV of Denmark, who instructed the astronomer's cousin to poison him with mercury.

The new leads derive from the diary of Count Eric Brahe, the alleged murderer and a distant relative to the astronomer, who travelled to Prague, where Tycho settled towards the end of his life, to meet Tycho days before his death.

"The diary contains the details of the attack and, indirectly, the murderer's confession," said Professor Peter Andersen, a specialist on literature and history of the Danish renaissance, who found the lost diary last year.

Professor Andersen claims that King Christian IV ordered the murder of Tycho because of rumours that the astronomer had a liaison with his mother, Queen Sophie, and could even have been his father. He even believes that Shakespeare was aware of the rumour and that he might have used it as inspiration for the plot of Hamlet, which was written around the time of Tycho's death.

Historians have so far been unable to explain why King Christian IV turned against Tycho, who was Denmark's most popular scientist, and forced him to flee to Prague and take up service with the Habsburg Emperor Rudolph II. An analysis of hair from Tycho's beard kept in a Czech museum has confirmed that he ingested a large and probably lethal dose of mercury on the day before his death, when he was visited by his cousin.

An international team of archaeologists and forensic experts headed by the Danish archaeologist Jens Vellev from the University of Aarhus have now filed a request to exhume Tycho's remains from the ancient vault in the Tyn Cathedral in central Prague. A popular legend has so far indicated that Tycho died after his bladder burst at a banquet organised by a German baron in Prague because he was too polite to excuse himself from the festive occasion.
- from http://www.telegraph.co.uk/news/worldnews/europe/denmark/4322720/400-year-old-murder-mystery-of-astronomer-to-be-solved.html

Spirit Resumes Driving While Analysis of Problem Behaviors Continues

NASA's Mars Exploration Rover Spirit drove on April 23 for the first time since April 8, acting on commands from engineers who are still investigating bouts of amnesia and other unusual behavior exhibited by Spirit in the past two weeks.

The drive took Spirit about 5.6 feet toward destinations about 500 feet away. The rover has already operated more than 20 times longer than its original prime mission on Mars. This week, rover engineers at judged that it would be safe to send Spirit commands for Thursday's drive. They also anticipated that, if the rover did have another amnesia event, the day's outcome could be helpful in diagnosing those events.

Three times in the past two weeks, Spirit has failed to record data from a day's activity period into non-volatile flash memory. That is a type of computer memory where information is preserved even when power is off, such as when the rover naps to conserve power.

"We expect we will see more of the amnesia events, and we want to learn more about them when we do," said JPL's Sharon Laubach, chief of the rover sequencing team, which develops and checks each day's set of commands.

The team is also investigating two other types of problems Spirit has experienced recently: failing to wake up for three consecutive communication sessions about two weeks ago and rebooting its computer on April 11, 12 and 18. Engineers have not found any causal links among these three types of events. After checking last week whether moving the rover's high-gain antenna could trigger problems, routine communication via that dish antenna resumed Monday.

Spirit has maintained stable power and thermal conditions throughout the problem events this month, although power output by its solar panels has been significantly reduced since mid-2007 by dust covering the panels.

"We decided not to wait until finishing the investigations before trying to drive again," Laubach said. "Given Spirit's limited power and the desire to make progress toward destinations to the south, there would be risks associated with not driving."
The team has made a change in Spirit's daily routine in order to aid the diagnostic work if the rover experiences another failure to record data into flash memory.

To conserve energy, Spirit's daily schedule since 2004 has typically included a nap between the rover's main activities for the day and the day's main downlink transmission of data to Earth. Data stored only in the rover's random-access memory (RAM), instead of in flash memory, is lost during the nap, so when Spirit has a flash amnesia event on that schedule, the team gets no data from the activity period. The new schedule puts the nap before the activity period. This way, even if there is a flash amnesia event, data from the activity period would likely be available from RAM during the downlink.

Spirit and its twin, Opportunity, completed their original three-month prime missions on Mars in April 2004 and have continued their scientific investigations on opposite sides of the planet through multiple mission extensions. Engineers have found ways to cope with various symptoms of aging on both rovers.
- NASA News, April 24, 2009

Radio Storms on Jupiter

On April 11th, an amateur radio astronomer in New Mexico heard loud pops and crackles coming from the loudspeaker of his shortwave receiver. The sounds resembled terrestrial lightning, but the source was not on Earth. It was a radio storm on Jupiter.

Astronomers have long known that Jupiter produces strong shortwave radio bursts detectable from Earth; the fact of Jupiter's "radio activity" is not news. However, now may be the best time in decades to listen to the giant planet. The sun is in the pits of a century-level solar minimum. Low solar activity increases the transparency of Earth's atmosphere to shortwave radio waves, allowing signals from Jupiter to more easily and clearly reach the ground. At the same time, terrestrial radio interference subsides (another side-effect of solar minimum), so Jupiter bursts are easier to identify.

2009 is going to be a good year for Jupiter. The planet is moving away from the sun and may now be seen shining brightly in the eastern sky before dawn. Students, teachers and amateur scientists who wish to try listening as well as watching should consider building their own radio telescope. Kits are available from NASA's Radio JOVE program: http://radiojove.gsfc.nasa.gov/

The Swiss Army Knife of Weather Satellites

Spotting volcanic eruptions, monitoring the health of crops, pinpointing distress signals for search and rescue teams.

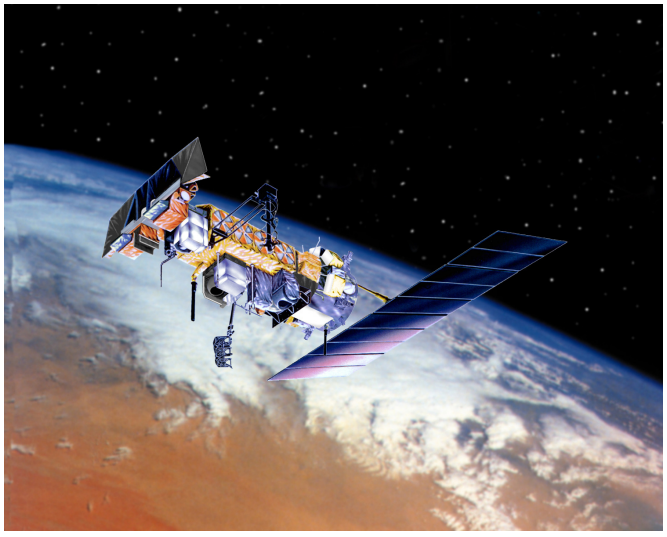
It's not what you might expect from a weather satellite. But these are just a few of the abilities of NOAA's newest polar-orbiting weather satellite, launched by NASA on February 6 and turned over to NOAA for full-time operations on February 26.

Formerly called NOAA-N Prime and now renamed NOAA-19, it is the last in its line of weather satellites that stretches back almost 50 years to the dawn of the Space Age. Over the decades, the abilities of these Television Infrared Observation Satellites (TIROS) have gradually improved and expanded, starting from the grainy, black-and-white images of Earth's cloud cover taken by TIROS-1 and culminating in NOAA-19's amazing array of capabilities.

"This TIROS series has become quite the Swiss army knife of weather satellites, and NOAA-19 is the most capable one yet," says Tom Wrublewski, NOAA-19 Satellite Acquisition Manager at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

The evolution of TIROS began in 1998 with NOAA-K. The satellites have carried microwave sensors that can measure temperature variations as small as 1 degree Celsius between Earth's surface and an altitude of 40 kilometers—even through clouds. Other missions have added the ability to track large icebergs for cargo ships, monitor sea surface temperatures to aid climate change research, measure the amount of ozone in Earth's protective ozone layer, and even detect hazardous particles from solar flares that can affect communications and endanger satellites, astronauts in orbit, and city power grids.

NOAA-19 marks the end of the TIROS line, and for the next four years it will bridge the gap to a new series of satellites called the National Polar-orbiting Operational Environmental Satellite System. NPOESS will merge civilian and military weather satellites into a single system. Like NOAA-19, NPOESS satellites will orbit Earth from pole to pole, circling the planet roughly every 100 minutes and observing every location at least twice each day.



Caption:
The new NOAA-19 is the last and most capable in the long line of Television Infrared Observation Satellites (TIROS).

NPOESS will have yet more capabilities drawn from its military heritage. Dim-light sensors will improve observations of the Earth at night, and the satellites will better

monitor winds over the ocean — important information for ships at sea and for weather and climate models.

"A lot more capability is going to come out of NPOESS, improving upon the 161 various environmental data products we already produce today," Wrublewski says.

Not even a Swiss army knife can do that many things, he points out.
For more on the NPOESS, check out http://www.npoess.noaa.gov. Kids can find out about another NOAA satellite capability—tracking endangered migrating species—and play a fun memory game at http://spaceplace.nasa.gov/en/kids/poes_tracking.

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

Just like you, the Astronomical Society of the Pacific (ASP) believes in improving science literacy through the enjoyment of astronomy. To keep up-to-date on activities, events, and resources provided by the ASP, sign up for free monthly notifications here: http://www.astrosociety.org/pubs/newsletter.html
- Marni Berendsen, Kenneth Frank and Vivian White, Night Sky Network Administrators

SWFAS Minutes – April 2, 2009

7:30 – Meeting called into session by President Bob Francis.
Introduction and welcome to new members and visitors. March was a very active month for events.

March 6th we held an event at the Cape Coral Rotary Club. It was a very nice event, with approximately 150 people attending. Bob received an email from an attendee at the event stating he had a fabulous time! The letter will be printed in the newsletter.

March 13th – A viewing at the Christa McAuliffe Elementary School. Approximately 155 people attended. We had lots of scopes set up and a lot of children attended. The children really enjoyed the event! Frank Mraz held a question and answer session in the Cafeteria. The Club received a nice Thank You from Nancy Dunn. $200.00 was contributed to SWFAS for doing this event. There was also a bake sale. All the proceeds went for the graduation class to go to Cape Kennedy. Bob expressed his thank you to everyone who supported these events.

The club received another request for Friday night, May 1st at Mother Of God House Of Prayer in Alva. A request to give a lecture on the constellations to the young people and set up scopes. This location is on Rt. 78, about 45 minutes from South Ft. Myers. Bob will send out information mid April.

SWFAS is trying to set up a Junior Astronomical Society for children 18 years and under. Cape Coral Elementary School requested this. Alice has taken on the responsibility to

looking into starting this up and getting a committee together. Bob usually received items and literature from NASA to give to the kids.

Membership dues is due by our next meeting in May. If dues is not paid by June, you will no longer be a member.

Alice Mack – Vice President: Alice brought in a book and showed it to club members. Alice also held a small viewing at her condo on Ft. Myers Beach. More than a dozen people attended. It was a very enjoyable event! Alice also presented an Astronomical Calendar 2009 and 400 years ago Galileo's Telescope.

Karen Nichols – Secretary: Secretary's report is in the newsletter. February's report is in last month's newsletter too.

Stewart Rorer – Treasurer: Treasurer's report read.

A note about St. Pete's Astronomical Society was presented by Brian Risley. The Orange Blossom Star Party was spoken about along with the Mars Group. This event is the same time as the Winter Star Party. The event is about 6 miles East of Dade City on Rt. 301. This is about 3 hours away from Ft. Myers. Camping is $10 a day.

Carole Holmberg – Newsletter: The club has 3 telescopes to lend out to its members.

Chuck Pavlick – Viewing Coordinator for the FAK: Saturday's viewing was cloudy at first but cleared up when he left! Chuck & Tony Heiner will send out emails to club members to let everyone know when they will be going to the FAK. The location is on Rt. 29, about 1 hour from Ft. Myers.

Jon Martin – Caloosahatchee Regional Park Coordinator: Jon also sends club members an email when he is planning to view at the park. If you are planning to go to CRP, please contact Jon by 5PM that Saturday. Jon also going during the week too. Remember, there is an electronic gate at the park, so you will need to arrive before the gate locks.

Maria Dorilag – Librarian: Bob Francis & Don Franks have been cleaning up the Library. The club has a lot of old books and magazines. Everything is presently being separated by year. After the separation is completed, items will be put outside on a rack and will be free to members. Steve Nelson's wife has donated a lecture series of 15 – 20 VHS tapes to the club.

Danny Secary – Historian: Not present.

Dan Fitzgerald – Webmaster: Not present.

Sanders Lewallen – Equipment Coordinator: Not present.

Bob Francis: April 18th is the next scheduled viewing at the FAK.

Rick Piper from the Everglades Astronomical Society was our guest speaker.

Bob: Meeting adjourned – 9:10.

Calendar of Events
Friday, May 1st, dusk, **"Under the Stars" Star Party** at Mother of God, House of Prayer in Alva

Thursday, May 7th, 7:30 pm, **Meeting** at the Calusa Nature Center Planetarium, Speaker: Carol Stewart

Saturday, May 23rd, dusk, **Observing at Caloosahatchee Regional Park**

Thursday, June 4th, 7:30 pm, **Meeting at the Calusa Nature Center Planetarium**

Saturday, June 27th, dusk, **Observing at Caloosahatchee Regional Park**

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www.theeyepiece.org