Back Bay Observer

The Official Newsletter of the Back Bay Amateur Astronomers
P.O. Box 9877, Virginia Beach, VA 23450-9877

EPHEMERALS - November 2006

DATE	WHEN	WHAT & WHERE
2	7:30p	October Meeting @ TCC Campus
8	2:00p	Transit of Mercury Across the Sun
10	Dusk	Skywatch @ Northwest River Park
11	Dusk	Cloverwatch @ Franklin Fairgrounds
11	7:00p	Cubs of the Caribbean @ Izaak Walton League Pa
18	Dusk	Nightwatch @ Chippokes Plantation
25	8:00p	Garden Stars @ The Norfolk Botanical Gardens
27	6:00p	Girl Scout Sky Search @ Believer's Church
28	6:00p	Greenbrier Middle School Lunar Festival

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LOOKING UP

Is It November Already?

Where did the summer go? Well, there are some advantages, now that we are into November. IT GETS DARK EARLIER, now that we are off of Daylight Saving Time, the bugs and mosquitoes are nowhere near as prevalent, and the humidity is lower, with clearer, darker, skies. The cool breezes sometime mess up the seeing, but the transparency is good.

If you had the privilege of attending the East Coast Star Party last weekend, 27-29 October 2006, you had a real treat. Kent Blackwell outdid himself, and although Friday 10/27 was a rainout, Saturday and Sunday were beautiful! The skies were clear and dark, after the Moon fully set below the horizon, and the air, though crisp and cold, was bearable. Saturday night's breeze kept the dew away nicely.

The crowd Saturday was unbelievable. Where did all those people come from? They must have smelled the food and just came on in. And the ECSP T-shirts, silk-screened by hand by Kent and Dr. Bob Hitt, were a real hit (pun intended). Thanks, Kent, for a stellar star party.

This month is the BBAA election of officers at the monthly meeting, Thursday, Nov 2. We need to elect a new president, since I have reached the limits of my two one-year consecutive terms. Nominations will be taken from the floor in Thursday's meeting. Dale Carey has thrown his hat in the ring, volunteering to run for prez. The offices of VP, Secretary, and Treasurer may be re-elected for another one-year term, or a new nominee could be proposed at the meeting for each post.

Some November sky highlights (“skylights"?) to look for are Nov. 8, the Transit of Mercury, Nov. 17 the Leonid meteor shower, and the return of Saturn to the night sky, according to the RASC Observer's Handbook 2006.

I hope to see EVERYONE at the meeting Thursday, and don't forget to

KEEP LOOKING UP!

George Reynolds

October's Meeting Minutes

The October meeting of the Back Bay Amateur Astronomers was called to order by President George Reynolds on Thursday October 5th, 2006 at 7:30 PM at the Tidewater Community College.

Members in Attendance: Twenty five members were in attendance, still climbing from the previous meeting's twenty one. The following members were present: Charles Allewelt, Rick Bish, Bruce Bodner, Kenny Broun, Dale Carey, Gerry Carver, Larry Channel, John Forrester, Ted Forte, Mark Gerlach, Steve Hamilton, Robert Harris, Chuck & Karen Jagow, Georgie June, Ben Loyola, Matt McLaughlin, Bob Page, Tom Pearson, George Reynolds, Chuck Rippel, Keith Smith, Kevin Swann, Kevin Weiner and Shelton Williams. We also had two guests Ron Burgess and Anna Maltseva - WELCOME!

Treasurer's Report: Barb Weiner was feeling ill and was unable to attend, Kevin reported that there was $5,386.34 in total funds. This included $1,401.44 for the scholarship fund and $3,984.09 in general funds.

Secretary's Report: Chuck Jagow reported that we had 116 members and eighteen folks were delinquent in paying their dues.

Astronomical League Correspondent's Report: The Astronomical League Correspondent, Georgie June, presented the Honorary Messier award to Larry Channel and Ted Forte completed the Herschel 2 program. Congratulations to Larry and Ted!

Librarian's Report: Gerry Carver reminded everyone that we have a good sized library of books that anyone can check out and borrow, the list is on the Internet. Just contact Gerry with what title you would like and he will bring it to the next meeting for you.

Old Business: The PST has been shipped, however the case is back ordered. Some discussion broke out concerning liability for damage if someone was hurt while using the PST. The discussion was quite animated, enough so that a motion was made & seconded and voted in to form a four person committee to come up with a "liability-plan". The members of the committee are Steve Hamilton, Chuck Jagow, Dale Carey and Ben Loyola.

New Business: The election for new BBAA officers will take place at the November BBAA meeting. BBAA officers hold office for one year, but may be re-elected for a second term. The office of President is the only seat that must be filled this fall.

George Reynolds discussed the upcoming month's calendar of events.

Rapid Response Robotic Telescope Project Report: The mirror is still waiting to be ground. The building of the observatory is going out for a third round of bids. The software for the CCD camera control is shifting to DC3 from ACP.

Observer's Corner: Ted reported that many clouds were observed at the No Frills Star party.

Ben says his AP mount is ready to go!

Steve says there is a comet near Saturn, nobody could prove it though.

Kevin visited the South Florida Everglades and was blown away by the darkness of the skies there.

Steve reports they are soon to be pouring concrete for his observatory.

Chuck reported on VAAS.

Kevin gave a product review for the new Starry Night Pro version 6 and indicated it was quite the disk swine.

Presentation: Ted Forte provided a very informative presentation on the Sun Spotter's Club Observation program from the Astronomical League.

In Conclusion: The meeting was adjourned at 9:09 PM.

Chuck Jagow

NASA's Space Place

The Planet in the Machine

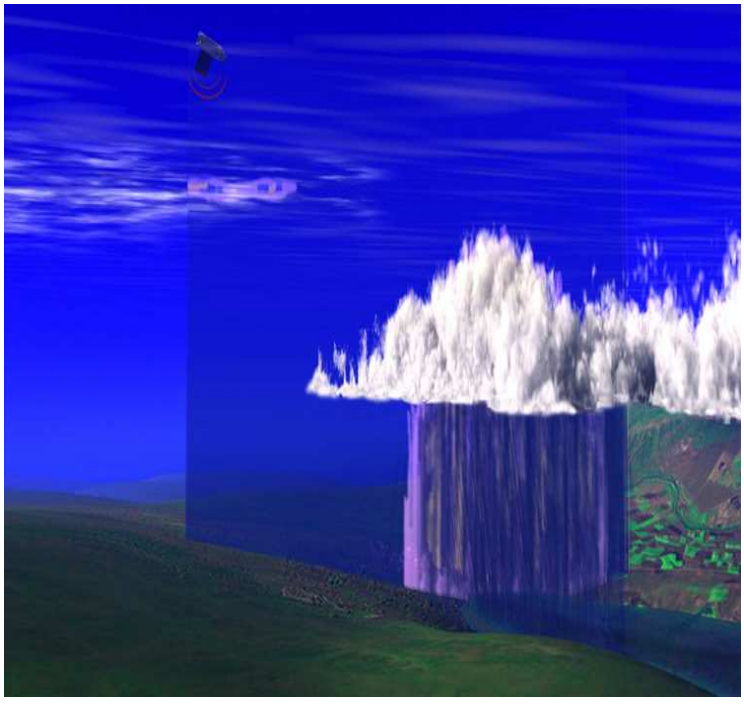
By Diane K. Fisher and Tony Phillips

The story goes that a butterfly flapping its wings in Brazil can, over time, cause a tornado in Kansas. The "butterfly effect" is a common term to evoke the complexity of interdependent variables affecting weather around the globe. It alludes to the notion that small changes in initial conditions can cause wildly varying outcomes.

Now imagine millions of butterflies flapping their wings. And flies and crickets and birds. Now you understand why weather is so complex.

All kidding aside, insects are not in control. The real "butterfly effect" is driven by, for example, global winds and ocean currents, polar ice (melting *and* freezing), clouds and rain, and blowing desert dust. All these things interact with one another in bewilderingly complicated ways.

And then there's the human race. If a butterfly can cause a tornado, what can humans cause with their boundlessly reckless disturbances of initial conditions?



Understanding how it all fits together is a relatively new field called Earth system science. Earth system scientists work on building and fine-tuning mathematical models (computer programs) that describe the complex inter-relationships of Earth's carbon, water, energy, and trace gases as they are exchanged between the terrestrial biosphere and the atmosphere. Ultimately, they hope to understand Earth as an integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

NASA's Earth System Science program provides real-world data for these models via a swarm of Earth-observing satellites. The satellites, which go by names like Terra and Aqua, keep an eye on Earth's land, biosphere, atmosphere, clouds, ice, and oceans. The data they collect are crucial to the modeling efforts.

Some models aim to predict short-term effects—in other words, weather. They may become part of severe weather warning systems and actually save lives. Other models aim to predict long-term effects—or climate. But, long-term predictions are much more difficult and much less likely to be believed by the general population, since only time can actually prove or disprove their validity. After all, small errors become large errors as the model is left to run into the future. However, as the models are further validated with near- and longer-term data, and as different models converge on a common scenario, they become more and more trustworthy to show us the future while we can still do something about it—we hope.

IMAGE CREDITS / CAPTION

CloudSat is one of the Earth observing satellites collecting data that will help develop and refine atmospheric circulation models and other types of weather and climate models. CloudSat's unique radar system reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun's energy in the atmosphere.

BBAA INFO

The BBAA meet the first Thursday of every month. While school is in session we meet at the VA Beach TCC campus in the Pungo building. Summer meetings are usually held at the Chesapeake Cox campus. The November meeting will be on Thursday November 2nd at 7:30 PM at the Va. Beach TCC campus in Virginia Beach.

WHERE IS THE MEETING?

TIDEWATER COMMUNITY COLLEGE CAMPUS

The TCC Campus is located in Virginia Beach off of Princess Anne road. The following should help you locate the campus.

FROM Interstate I-64:

Proceed to the I64 / I264 junction and take I264 East .
Take the S. Independence Exit, 17A, right hand lane (.000000048134 AU).
Turn LEFT onto Princess Anne road (.000000010322 AU).
Turn LEFT onto Community College Place (.000000002131 AU).
At the Stop Sign turn right and follow the road around to the left and park in one of the parking lots.

The meeting is held in the Pungo Building which is on the right hand side of the pathway that splits the two major parking lots. The Astronomy classroom is in the far back right hand corner of the building.

COX COMMUNICATIONS CAMPUS

The COX Communications Campus is located in Chesapeake's Greenbrier section. The following should help you locate the facility.

FROM Interstate I-64:

Take exit 289B (between the Indian River & Battlefield exits).
South on Greenbrier Parkway (.7382 miles).
Turn RIGHT onto Eden Way West (.9231 miles).
Turn RIGHT on Crossways Blvd (.88901 miles).
Turn Right into the Cox Campus

The meeting is usually held in the Silver room located on the North side of the facility. Enter and tell the guard that you are with the BBAA and they will issue a badge and direct you to the room.

BBAA INTERNET LINKS

BBAA WEB SITE
http://groups.hamptonroads.com/bbaa/

YAHOO GROUP
http://groups.yahoo.com/group/backbayastro

BBAA OBSERVER NEWSLETTER
http://www.backbayastro.org/newsletters/newsletter.shtml

President
George Reynolds
757.497.0755
pathfinder27@yahoo.com

Treasurer
Barb Weiner
757.548.4936
Barb.weiner@cox.net

Vice President
Kevin Weiner
757.548.4936
Kevin.weiner@cox.net

Secretary
Chuck Jagow
757.547.4226
Chuck@jagowds.com

ALCOR
Georgie June
doublestarjune@msn.com

Librarian
Gerry Carver
popcarg@aol.com

Web Master / RRRT Coordinator
Ted Forte
twforte@cox.net

Scholarship Coordinator
Ben Lyola
benito@loyola.com

What do you want to do?

OBSERVER INFO

The BBAA Observer is published monthly, the monochrome version is mailed to members who do not have Internet access. Members who do have Internet access can acquire the full color version on the Internet at:

http://www.backbayastro.org/newsletters/newsletter.shtml

Please submit articles and items of interest no later than the 20th of November for the December issue. Please submit all items to:

ObserverBBAA@cox.net

OR

BBAA Observer
P.O. Box 9877
Virginia Beach, VA 23450-9877

HUBBLE LIVES!

I watched NASA-TV on 10/31/06 and heard the word on NASA giving the go-ahead for a repair and servicing mission to the Hubble Space Telescope. Here are some of the highlights:

Goddard Space Flight Center Director Dr. Ed Weiler introduced NASA Administrator Mike Griffin, who announced that NASA has approved a servicing mission to repair and upgrade the Hubble Space Telescope. He spoke for about 15 minutes on the background and rationale for how it was initially canceled, and now resurrected. (my choice of terms). He said that safety is paramount, but that the answer to the role of safety at NASA cannot be "no, because...", but that it must be, "yes, if...".

Senator Barbara Mikulski, the ranking Democrat on the Appropriations Committee Subcommittee on Commerce, Justice and Science, spoke after Mike Griffin made his announcement and the reasoning for it. She has been a proponent of the Hubble Space Telescope for a long time. She stated that after the Challenger accident in 1986 Congress appropriated special funds for the refurbishment of the shuttle fleet, but after Columbia, NASA was initially supposed to pay for similar upgrades out of its budget. She said that she and Sen. Kay Bailey Hutchinson sponsored a bill for a special allocation of federal funds to repair the shuttle fleet, so it would not have to come out of NASA's pocket. That gave the HST repair mission a new chance economically.

She also made the point that this announcement today marks a great day for science, a great day for discovery, and a great day for inspiration and science education. She said that she challenged former NASA administrator O'Keefe's cancellation on budget grounds, and said she wanted an opinion from the scientists and engineers, and not the accountants, on whether the HST could be safely repaired. She also said that she believes that we should never play politics with science.

She said that with the new batteries, new gyroscopes, and new science cameras and equipment, "We'll get essentially a 'New Hubble' when we get it 're-juiced'". She also stated the great value of Hubble's exploration; that 60% of current research and discovery of space has come as a result of Hubble discoveries and science.

Asked when the mission is expected, Griffin said it was on the schedule for May 2008. With the repairs the space telescope is expected to last well into 2013. Griffin stated that the current gyros and batteries are expected to keep the HST doing active science until the repair mission. But just in case, Goddard Space Flight Center has come up with new methods to keep Hubble safe even if the two remaining active gyroscopes fail. They have come up with a "no-gyro" control system to fly and protect HST "manually" until we can get up there to fix it. There would probably be no science going on if that happened, but the HST would be protected from de-orbiting and failing in other ways.
All concerned emphasized that the safety of our astronauts was to be primary. As for a robotic mission to repair HST, it could not have been done in the time frame needed for Hubble to keep working.

For safety, there will be another shuttle on the neighboring launch pad to perform a rescue mission if it were needed. That shuttle mission is intended for ISS service, but would be re-routed for rescue if need be. The crew of astronauts to repair the HST has been chosen, but I did not get their names.

Sen Mikulski ended her remarks with these words for the folks there at Goddard, and those tuned in around the country and around the world: "Thank you, God bless you for all the work you have done, and 'May the Force be with us."

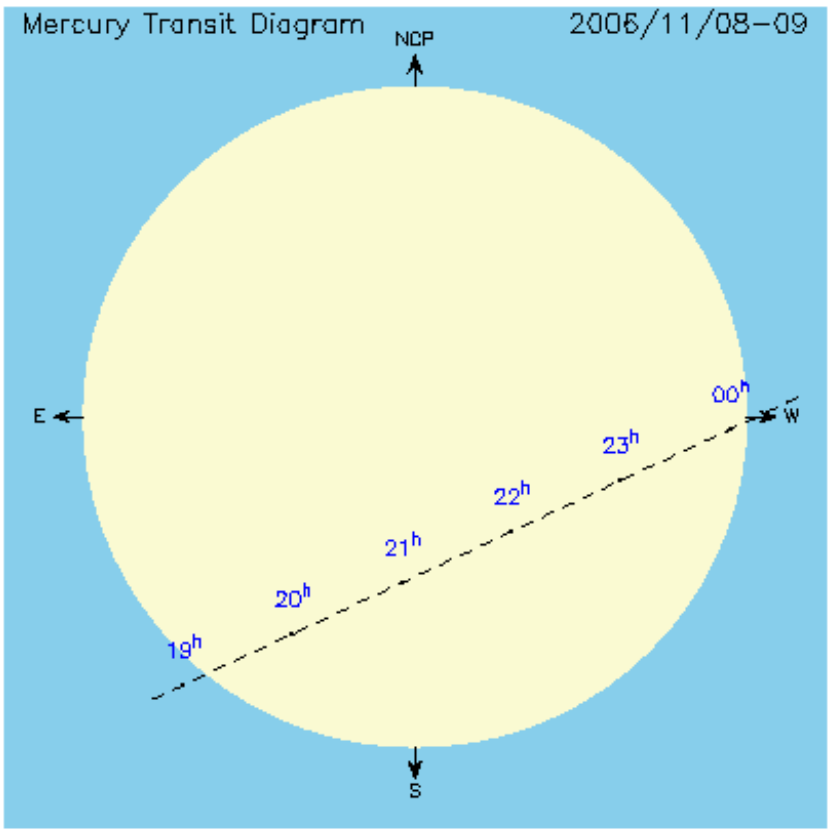
George Reynolds

2006 MERCURY TRANSIT

By Dr. Tony Phillips

Mark your calendar: On Wednesday, Nov 8th, the planet Mercury will pass directly in front the Sun. The transit begins at 2:12 pm EST (11:12 am PST) and lasts for almost five hours. Good views can be had from the Americas, Hawaii, Australia and all along the Pacific Rim: visibility map.

What will it look like? A picture is worth a thousand words:



Geocentric Circumstances

Exterior ingress on	2006/11/08	at 19h12m03s8 UT
Interior ingress on	2006/11/08	at 19h13m56s7 UT
Minumum separation on	2006/11/08	at 21h41m03s8 UT of 422"9
Interior egress on	2006/11/09	at 00h08m15s7 UT
Exterior egress on	2006/11/09	at 00h10m08s6 UT

During the transit, Mercury's tiny disk-jet black and perfectly round-will glide slowly across the face of the Sun. Only a speck of the Sun's surface is actually covered, so the Sun remains as dangerous as ever to look at. But with a proper filter and a little imagination, the Transit of Mercury can be a marvelous experience.

There are many ways to safely observe the Sun, e.g., through eclipse glasses or by means of a pinhole projector. In this case, nothing beats a telescope equipped with a sun-safe H-alpha filter. H-alpha filters are narrowly tuned to the red glow of solar hydrogen. They reveal the Sun as a boiling inferno, cross-crossed by dark magnetic filaments and peppered with sunspots. Warning: The sight of Mercury navigating this starscape could be mind blowing.

Teachers, call your local astronomy club and ask if they have such a solar telescope. Amateur astronomers love to show off the heavens, and someone will probably volunteer to bring their 'scope to your classroom for the transit. (You can also view the transit online at the SOHO web site--no telescope required.)

Right: Mercury, photographed by Mariner 10. [More] Here's something to think about while watching the transit: Mercury is fantastically mysterious. More than half of the planet is unknown to us. When Mariner 10 flew by in the mid-70s, it managed to photograph only 45% of Mercury's cratered surface. What lies on the other side? More craters? Or something totally unexpected? You're free to speculate, because the next spacecraft to visit Mercury, NASA's MESSENGER probe, won't enter orbit until 2011.

One of Mercury's greatest secrets is the mystery-material at its poles. Radars on Earth have pinged Mercury and received a strong echo from polar craters. A favorite explanation is ice. While Mercury's day lit surface heats up to 400o C, the temperature in deep, dark polar craters dips below -200o C. If an icy comet landed in one of those craters (or made one of those craters), the comet's ices, vaporized by impact, might re-freeze and stick around. As skeptics like to say, however, "it's just a theory," one of many that MESSENGER will check.

Another puzzle is Mercury's wrinkles. Geologists call them "lobate scarps." Like wrinkles on a raisin, the scarps are thought to be a sign of shrinkage. Mercury may actually be collapsing in on itself as its massive iron core cools and contracts. To check this idea, MESSENGER will map Mercury's magnetic field, which springs from the core. If the core is collapsing, the collapse may leave telltale signs in the planet's magnetism. MESSENGER will also look for lobate scarps on the uncharted side of Mercury to see if this is truly a global phenomenon.

The answers are years away. Meanwhile, we watch and wonder, and Nov. 8th is a good day for that.

STRONG LEONID SHOWER EXPECTED

By Joe Rao

If you live in Western Europe or eastern North America, put a big circle on your calendar around Saturday, Nov. 18. If that night is clear, bundle up warmly and head outside because you may be able to catch a glimpse of an intense, albeit brief display of Leonid meteors.

The Leonids are composed of the dusty debris that has been shed by the comet Temple-Tuttle, a small celestial body that orbits the Sun at 33-year intervals. In those years during and then for several years after the comet has swept through the inner solar system, it has had a propensity for producing spectacular meteor displays; meteors falling by the hundreds, if not thousands per hour.

These "shooting stars" all apparently emanate from the constellation of Leo, the Lion. Hence the name "Leonids."

The great years

The comet last passed the Sun and Earth in 1998, and from that year through 2002, the Leonids produced showers in which meteors fell at rates of more than a thousand per hour—displays that astronomers call meteor storms.

Since 2003, however, with Temple-Tuttle having receded back into the far reaches of the solar system, the Leonids have been disappointing, barely producing more than 10 meteors per hour.

It appeared that the chances of any more spectacular Leonid displays were over for many years to come. But that might not be case, if the calculations of several reputable meteor scientists prove to be correct.

Prediction for 2006

Apparently, a rather narrow but dense ribbon of dust was shed by comet Temple-Tuttle when it passed the Sun in 1932. When the Earth interacted with that dusty trail back in 1969, it produced a brief bevy of some 200 to 300 meteors in less than hour.

In 2006, Earth will be nearly twice as far away from the comet as opposed to 1969, but expectations are that as many as 100 to 150 Leonids may streak across the sky in only an hour's time as we interact with that decades-old ribbon of debris again.

The expected time of peak activity is 11:45 p.m. EST on the night of Nov. 18.

Where to watch

For those living in eastern North America, the constellation of Leo will be rising in the eastern sky. Unfortunately, those living across the central and western parts of the United States and Canada will be out of luck, since Leo will not yet have risen and the expected peak of the display will be over when Leo finally comes above the horizon.

Skywatchers in Western Europe will have ringside seats: The peak is due early on Sunday morning, Nov. 19 at 4:45 GMT. Leo will be high in the southeast sky, just before sunrise affording the very best Leonid views.

Meteor watching is easy. Simply find the darkest location you can with a clear view of the eastern horizon. Then go out and look up. Binoculars and telescopes are of no use.

Editor's Note: The Leonids coincide with our Nightwatch at Chippokes this month, so dress warmly and lets all watch for the fire from the sky!

Image was taken by Ame Danielsosen 2002

NOVEMBER 2006

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2 BBAA MEETING @ TCC	3	4
5 Full Moon 	6	7	8 MERCURY TRANSITS THE SUN	9	10 SKYWATCH @ NWRP	11 CLOVERWATCH @ FRANKLIN
12 Last Qtr 	13	14	15	16	17	18 NIGHTWATCH @ CHIPPOKES
19	20 New Moon 	21	22	23 T U R K E Y D A Y	24	25 GARDENSTARS @ NORFOLK BG
26	27	28 First Qtr 	29	30		