COWICHAN VALLEY STARFINDERS ASTRONOMY CLUB

Clear Skies

Volume 13, Issue 7 November 2008

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Categories

Quick Links

Greetings!

Welcome to the Cowichan Valley StarFinders Astronomy club's "Clear Skies" monthly newsletter.

At our last meeting we had a lot of fun exercising our secretariat rule that was passed at the last AGM. As some of you may recall we did not have a representative for secretariat at the AGM and it was therefore suggested and passed that the last member to come to the meetings would undertake the secretariat responsibilities for that particular meeting. Well it was a close call for Chantal who thankfully was overthrown by Robert Deane ☺. Thanks Robert for playing along. Enjoy Robert's minutes in the *Meeting Highlights, Minutes* section.

Aside from all the joking and kidding going around, it was a great meeting with a wonderfully unexpected visit by Gail Robertson who brought copies of SkyNews for anyone wishing to take them home. It was nice to see Gail again, she's keeping busy with her photography and assures us, she will be back to photograph next years Island Star Party (ISP).

Another great idea spawned from our last meeting was our first ever LISTSERVE contest! Dave Polster recently took a picture of the night sky and wanted to know what a certain group of stars were. So we had a LISTSERVE contest to "*Name the Mystery Constellation*" the first correct guess was Ed Nicholas. Congratulations Ed and thanks to our all the other participants and to Gerry who was the deciding factor (Judge) in the contest. You can see Dave's famous photo in the *Cool Pics* section. Ed, I will have your winning prize waiting for you at the meeting. For those of you who do not want to miss out on a future LISTSERVE contest, subscribe to the LISTSERVE by by clicking on the link below (remember you must be a paid and/or life member of the society to join) clearsky@islandeyepiece.com For more information about the LISTSERVE click on the link http://www.starfinders.ca/observ.htm.

The club has gained a new addition! Thanks to a generous donation by Trudy Thorgeirson we now have a114 mm Sky Watcher - eq 1 complete with a telrad-colimator ,10mm Plossil, a 25 mm and Barlow. The new telescope will complement our our other two Dobsonian telescopes designed for club use and the school loaner program. We are told that it shows "*great moon views*", thank you Trudy for your donation. As you probably know as a benefit of your membership you have access to the club's telescopes which you can use at anytime for your personal use. To participate in the *Club Telescope Loner Program* email vice-president@starfinders.ca.

Many thanks to this month's contributers: Dave Polster, Robert Deane, Moe Raven and Bryon Thompson

Freda Eckstein

"Shoot for the moon. Even if you miss, you'll land among the stars". ~Les Brown

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Meeting Highlights

Meetings are held on the **4th Wednesday** of each month at the home of Bryon and Freda. See the website for a map or follow these directions.

Island Hwy, Mill Bay

Turn on Frayne Rd towards ocean (Serious Coffee is on the corner)
Turn right on Huckleberry Rd
3rd house on the left across from Springbank road and Mail boxes.
Look for the STAR sign
Please park on Huckleberry or Springbank Rd's.
Call Brian 743-6633 if you need directions

Our November meeting will be held at 7:30 on WEDNESDAY November 26th.
Hope to see you all there.

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Minutes - September

By Robert Deane

Our September meeting started with a lively discussion of many topics, including the availability of Velcro cable ties for telescope wiring, and useful batteries, at both eBay and the Dollar Store. Then we viewed two interesting video presentations supplied by Moe.

The first was about the HET (Hobby-Eberly Telescope) and other space telescopes and probes. A brief history was given of the early problems of the Hubble optics and the final successful, and by now well known, superb images later obtained. Then on to the planets with Voyager, and the discoveries of Saturn's ring variations, and the ice layers on Triton, which is a moon of the last planet of the Solar system.

Next we saw the Kuiper Telescope, which is mounted on an aircraft that can be flown high in the Earth's atmosphere to avoid most of the light absorption. This telescope has been extensively used to study stellar nurseries is places such as the Great Nebula in Orion, specifically using polarized light. A notable success was also the discovery of the rings around a planet while monitoring a star occultation by the planet Uranus. Despite slight flight risk, that flight was extended a further 30 minutes to catch the same star occulted by the rings on the other side of Uranus. The telescope also monitored water ice on Comet Hale, while other studies looked for evidence of the black hole at the galactic centre. Join us for our next meeting on Wednesday, Oct 22.

For more information about upcoming meeting dates go to Starfinders Meetings

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Upcoming Events

A Star To Steer By - **Now to November 2nd** at the Maritime Museum of BC, Victoria
The exhibit explores the evolution of celestial navigational and pays homage to the ancient mariners who expanded human culture around the world. The museum is open from 9:30 – 4:30, admission is $10 Adults, $8 Student/Seniors for more information call the museum at 250-385-4222 or see the link
http://www.tourismvictoria.com/Content/EN/436.asp?id=6793

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Web News

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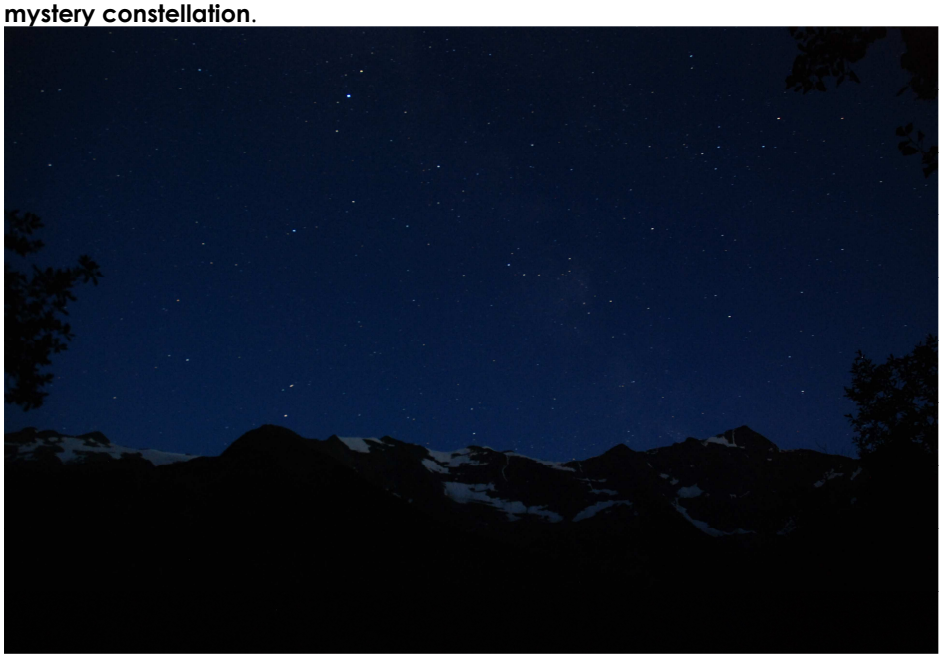
Cool Pics

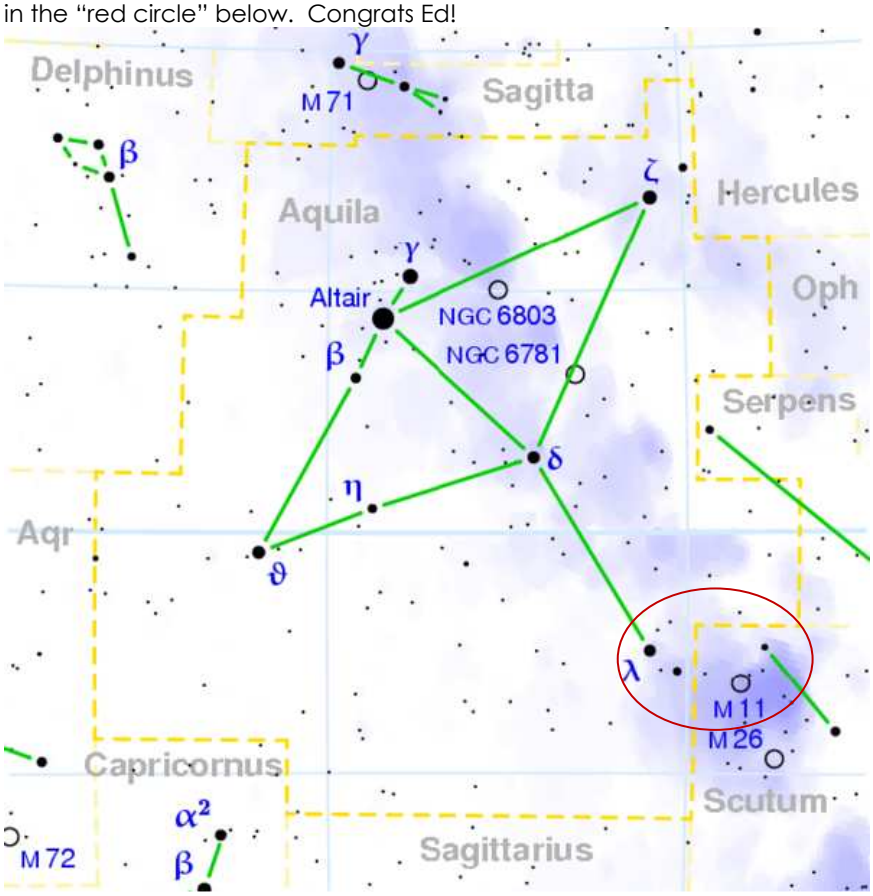
Want to show off your latest pics? Well here's your chance; email the editor at My Cool Pics and we will try to post them in the next edition of "Clear Skies".

Here are a couple of great pictures from Dave Polster who in his own words has "*just started taking photos of other worldly objects in the spring*" (He must have attended one of John's Astrophotography talks). Good job.

Taken August 08 overlooking Lanezi Lake and Ishpa Mountain in the Bowron Lake region using ISO-800, F/3.5 and Exposure 30 sec. Dave had a question regarding what constellation is the upside down "C" shape of stars just right of center in the photo. So we thought it would be fun to hold a "listserve" contest to **name the mystery constellation**.



Ed Nicholas had the first correct answer as an "*asterism that straddles the Constellations Aquila and Scutum*". Auquila (Vulture) and Scutum (Wild Duck) are shown below courtesy of Wikipedia. Our mystery upside down "C" shape is shown in the "red circle" below. Congrats Ed!



Here is another great photo by Dave:

Taken July 08 through his telescope (10" Dob) using ISO-200, F/0, Exposure 1/400 sec.

Check out our Photo gallery on the website where you can find pics from the Island Star Party (ISP). Quick link is http://starfinders.ca/photos.htm

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Featured Articles

Articles

RETURN TO CATEGORIES

1. Mars Misplaced Polar Cap
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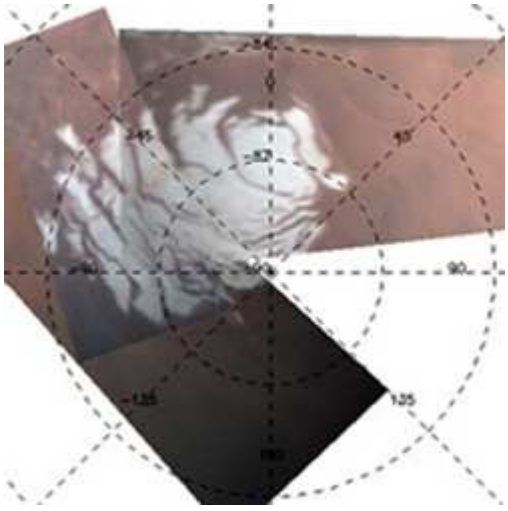
Mars Misplaced Polar Cap- September 23/08 Credit ESA News

Scientists are now able to better explain why Mars residual southern ice cap is misplaced, thanks to data from European Space Agency's (ESA) Mars Express spacecraft — the martian weather system is to blame. And so is the largest impact crater on Mars — even though it is nowhere near the south pole.



Like Earth, Mars has frozen polar caps, but unlike Earth, these caps are made of carbon dioxide ice as well as water ice. During the southern hemisphere's summer, much of the ice cap sublimates, a process in which the ice turns straight back into gas, leaving behind what is known as the residual polar cap. The problem is that while the winter cap is symmetrical about the south pole, the residual cap is offset by some three to four degrees. This misplacement, which has puzzled planetary scientists for years, was solved by scientists in 2005, but now, thanks to ESA's Mars Express, new information is available to explain the misplacement.

Marco Giuranna of the Istituto di Fisica dello Spazio Interplanetario CNR (IFSI), Rome, and colleagues have used the Planetary Fourier Spectrometer (PFS) onboard Mars Express to measure the temperature of the martian atmosphere from the ground up to an altitude of 31.1 miles (50 km) above the south polar region.

The team used the profiles to chart the way the atmosphere changes in temperature and other characteristics over more than half a martian year. They monitored the way carbon dioxide builds into the southern ice cap as the martian autumn turns into the martian winter. "It is not a straightforward process. We found that two regional weather systems developed from mid-fall through the winter," says Giuranna.

These weather systems are derived from strong eastward winds that characterize the martian atmospheric circulation at mid-altitudes. They blow straight into the Hellas Basin, the largest impact structure on Mars with a diameter of 1,429 miles (2,300 km) and a depth of 4.3 miles (6.9 km). The crater's depth and the steep rise of the walls deflect the winds and create what are called Rossby waves on Earth. These waves reroute the high altitude winds on Mars and force the weather system towards the south pole. In the western hemisphere of Mars, this creates a strong low-pressure system near the south pole, and a high-pressure system in the eastern hemisphere, again near the south pole.

Giuranna found that the temperature of the low-pressure system is often below the condensation point for carbon dioxide, so the gas condenses and falls from the sky as snow and builds up on the ground as frost. In the high-pressure system, the conditions are never appropriate for snow, so only ground frost occurs. Thus, the south polar cap is built by two different mechanisms.

The areas that have extensive snow cover do not sublimate in the summer because they reflect more sunlight back into space than the surface frost. Frost grains tend to be larger than snow grains and have rougher surfaces. The ragged texture traps more sunlight, driving the sublimation. So the western area of the southern polar cap, built of snow and frost, not only has a larger amount of carbon dioxide ice deposited but also sublimates more slowly during the summer, while the western area built of frost disappears completely. This explains why the residual cap is not symmetrically placed around the south pole.

"This has been a martian curiosity for many years," says Giuranna. Thanks to Mars Express, planetary scientists now understand a new facet of this amazing, alien world.

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Hubble Problem Delays STS-125 Launch- September 30/08 Credit Science@NASA

Due to the significant Hubble Space Telescope malfunction that occurred September 27-28 affecting the storage and transmittal of science data to Earth, NASA will evaluate the investigation results before fully determining the impact to the launch of the STS-125 servicing mission.

Under consideration is the possibility of flying a backup replacement system as part of the payload, which could be installed during the servicing mission. The backup unit will need to be checked out and tested at Goddard Spaceflight Center in Greenbelt, Maryland. As a result, it won't be ready for delivery to Kennedy Space Center in Florida until the first week in January 2009.
NASA now will fly space shuttle Endeavour's STS-126 mission to the International Space Station first, with the STS-125 servicing mission moving into 2009. Endeavour is targeted to launch November 16. Managers are looking into moving the target date up a couple of days if possible.

The malfunctioning system is Hubble's Control Unit/Science Data Formatter - Side A. Shortly after 8 P.M. Saturday, September 27, the telescope's spacecraft computer issued commands to safe the payload computer and science instruments when errors were detected within the Science Data Formatter. An

attempt to reset the formatter and obtain a dump of the payload computer's memory was unsuccessful.
Additional testing demonstrates Side A no longer supports the transfer of science data to the ground. A transition to the redundant Side B should restore full functionality to the science instruments and operations. The transition to Side B operations is complex. It requires that five other modules used in managing data also be switched to their B-side systems. The B-sides of these modules last were activated during ground tests in the late 1980s and/or early 1990, prior to launch. The Hubble operations team has begun work on the Side B transition and believes it will be ready to reconfigure Hubble later this week. The transition will happen after the team completes a readiness review. Hubble could return to science operations in the immediate future if the reconfiguration is successful.

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How Round is the Sun?- October 2/08 Credit Science@NASA

Scientists using NASA's RHESSI spacecraft have measured the roundness of the sun with unprecedented precision, and they find that it is not a perfect sphere. During years of high solar activity the sun develops a thin "cantaloupe skin" that significantly increases its apparent oblateness. Their results appear the Oct. 2nd edition of Science Express.

"The sun is the biggest and smoothest natural object in the solar system, perfect at the 0.001% level because of its extremely strong gravity," says study co-author Hugh Hudson of UC Berkeley. "Measuring its exact shape is no easy task." The team did it by analyzing data from the Reuven Ramaty High-Energy Solar Spectroscopic Imager, RHESSI for short, an x-ray/gamma-ray space telescope launched in 2002 on a mission to study solar flares. Although RHESSI was never intended to measure the roundness of the sun, it has turned out ideal for the purpose. RHESSI observes the solar disk through a narrow slit and spins at 15 rpm. The spacecraft's rapid rotation and high data sampling rate (necessary to catch fast solar flares) make it possible for investigators to trace the shape of the sun with systematic errors much less than any previous study. Their technique is particularly sensitive to small differences in polar vs. equatorial diameter or "oblateness."

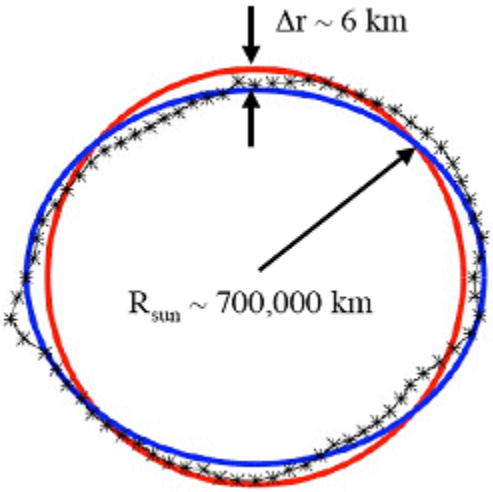
Above: "Cantaloupe ridges" on the sun. The glowing white magnetic network is what gives the sun its extra oblateness during times of high solar activity. Los Angeles astronomer Gary Palmer took the picture in July 29, 2005, using a violet calcium-K solar filter.

"We have found that the surface of the sun has rough structure: bright ridges arranged in a network pattern, as on the surface of a cantaloupe but much more subtle," describes Hudson. During active phases of the solar cycle, these ridges emerge around the sun's equator, brightening and fattening the "stellar waist." At the time of RHESSI's measurements in 2004, ridges increased the sun's apparent equatorial radius by an angle of 10.77 +- 0.44 milli-arcseconds, or about the same as the width of a human hair viewed one mile away.

"That may sound like a very small angle, but it is in fact significant," says Alexei Pevtsov, RHESSI Program Scientist at NASA Headquarters. Tiny departures from perfect roundness can, for example, affect the sun's gravitational pull on Mercury

and skew tests of Einstein's theory of relativity that depend on careful measurements of the inner planet's orbit. Small bulges are also telltale signs of hidden motions inside the sun. For instance, if the sun had a rapidly rotating core left over from early stages of star formation, and if that core were tilted with respect to its outer layers, the result would be surface bulging. "RHESSI's precision measurements place severe constraints on any such models."

The "cantaloupe ridges" are magnetic in nature. They outline giant, bubbling convection cells on the surface of the sun called "supergranules." Supergranules are like bubbles in a pot of boiling water amplified to the scale of a star; on the sun they measure some 30,000 km across (twice as wide as Earth) and are made of seething hot magnetized plasma. Magnetic fields at the center of these bubbles are swept out to the edge where they form ridges of magnetism. The ridges are most prominent during years around Solar Max when the sun's inner dynamo "revs up" to produce the strongest magnetic fields. Solar physicists have known about supergranules and the magnetic network they produce for many years, but only now has RHESSI revealed their unexpected connection to the sun's oblateness.



Right: In this diagram, the sun's oblateness has been magnified 10,000 times for easy visibility. The blue curve traces the sun's shape averaged over a three month period. The black asterisked curve traces a shorter 10-day average. The wiggles in the 10-day curve are real, caused by strong magnetic ridges in the vicinity of sunspots. "When we subtract the effect of the magnetic network, we get a 'true' measure of the sun's shape resulting from gravitational forces and motions alone," says Hudson. "The corrected oblateness of the non-magnetic sun is 8.01 +- 0.14 milli-arcseconds, near the value expected from simple rotation." "These results have far ranging implications for solar physics and theories of gravity," comments solar physicist David Hathaway of the NASA Marshall Space Flight Center. "They indicate that the core of the sun cannot be rotating much more rapidly than the surface, and that the sun's oblateness is too small to change the orbit of Mercury outside the bounds of Einstein's General Theory of Relativity."

Further analysis of RHESSI oblateness data could also help researchers detect a long-sought type of seismic wave echoing through the interior of the sun: gravitational oscillations or "g-modes." The ability to monitor g-modes would open a new frontier in solar physics—the study of the sun's internal core. "All of this," marvels Hathaway, "comes from clever use of data from a satellite designed for something entirely different. Congratulations to the RHESSI team!"

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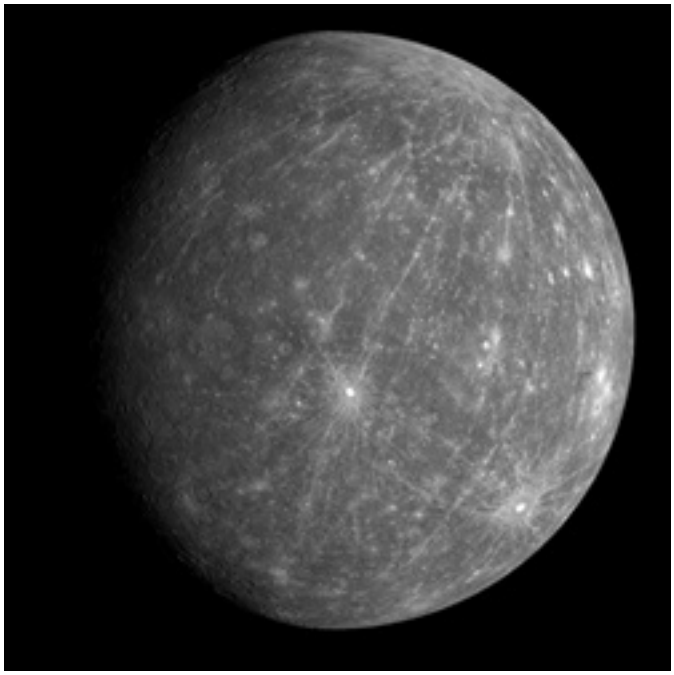
Stunning Images from MESSENGER's Second Mercury Flyby–

October 8/08 Credit NASA and JHU APL.

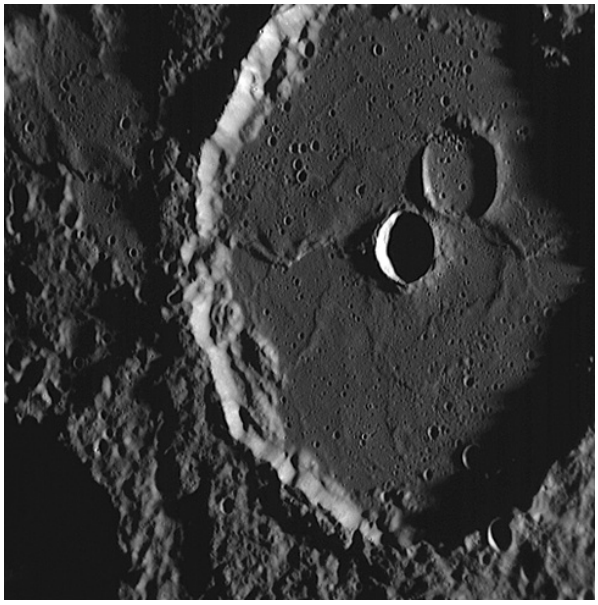
MESSENGER made its second flyby of the innermost planet October 6, and it's already sending back stunning images of never-before-photographed features.

The spectacular image shown here is one of the first to be returned and shows a WAC image of the departing planet taken about 90 minutes after the spacecraft's closest approach to Mercury. When Mariner 10 flew past Mercury three times in 1974 and 1975, the probe imaged less than half the planet. In January, during MESSENGER's first flyby, its cameras returned images of about 20 percent of the planet's surface missed by Mariner 10. On October 6, at 4:40 a.m. EDT, MESSENGER

successfully completed its second flyby of Mercury, and its cameras captured more than 1,200 high-resolution and color images of the planet — unveiling another 30 percent of Mercury's surface that had never before been seen by spacecraft.



On October 7, at about 1:50 a.m. EDT, MESENGER turned to Earth and began transmitting data gathered during its second Mercury encounter. These spectacular images are the first to be returned — was snapped by the Wide Angle Camera (WAC), part of the Mercury Dual Imaging System (MDIS) instrument, about 90 minutes after MESSENGER's closest approach to Mercury, when the spacecraft was at a distance of about 17,000 miles (27,000 kilometers). The bright crater just south of the center of the image is Kuiper, identified on images from the Mariner 10 mission in the 1970s. For most of the terrain east of Kuiper, toward the edge of the planet, the departing images are the first spacecraft views of that portion of Mercury's surface. A striking characteristic of this newly imaged area is the large pattern of rays that extend from the northern region of Mercury to regions south of Kuiper.



This image shows an amazing new view of Machaut taken during MESSENGER's second flyby of Mercury. Machaut is the name of a crater, approximately 60 miles (100 kilometers) in diameter, first seen under high-Sun conditions by Mariner 10 in the 1970s. The crater is named for the medieval French poet and composer Guillaume de Machaut.

"The MESSENGER team is extremely pleased by the superb performance of the spacecraft and the payload," said MESSENGER Principal Investigator Sean Solomon of the Carnegie Institution of Washington. "We are now on the correct trajectory for eventual insertion into orbit around Mercury, and all of our instruments returned data as planned from the side of the planet opposite to the one we viewed during our first flyby. When these data have been digested and compared, we will have a global perspective of Mercury for the first time." At the time of the October 6 flyby, MESSENGER will have traveled 2.9 billion miles (4.7 billion kms) since its August 2004 launch. By the time MESSENGER goes into orbit around Mercury in March 2011, it will have travelled 4.9 billion miles (7.9 billion kms) since launch.

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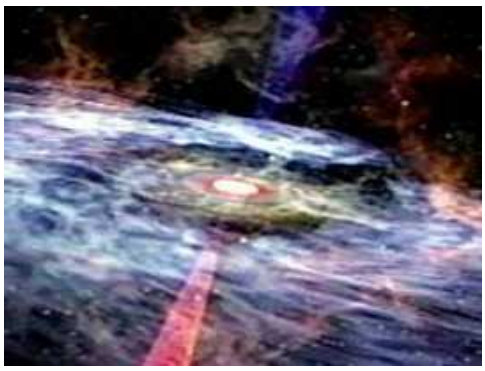
Gamma-ray Bursts: The Mystery Continues October 15/08 Credit Science@NASA.

People of the 'Deep South' love a good story and they're about to get a doozy. It begins next week when researchers from 25 countries converge on Huntsville, Alabama, to share the latest findings on the biggest explosions since the Big Bang itself. The 6th Huntsville Gamma-ray Burst Symposium 2008 convenes Oct. 20th and the talking won't stop for four straight days.

One speaker after another will take the audience on a wild ride from the edge of the observable Universe, where gamma-ray bursts so often occur, to our own back yard in the Milky Way galaxy, where a few supermassive stars may be ticking bombs ready to produce bursts too close for comfort. The underlying causes of gamma-ray bursts, their "twitching corpses," and the oddball galaxies that so often host the explosions--those are just a few of the topics on the agenda.

The Symposium kicks off with a lecture for non-specialists, "Black Holes: From Einstein to Gamma Ray Bursts," in which NASA astrophysicist Neil Gehrels describes how every gamma-ray burst may herald the birth of a black hole. Members of the public are invited to attend his talk on Monday, Oct. 20th, 7:30 p.m., at the U.S. Space & Rocket Center's Davidson Center Auditorium in Huntsville.



Right: A gamma-ray burst heralds the birth of a black hole--an artist's concept.

Gamma-ray bursts were discovered in the 1960s during the Cold War. US satellites keeping an eye out for Soviet nuclear testing detected intense bursts of gamma radiation. The bursts weren't coming from the Soviet Union, however, but from space.

Immediately, astronomers had a century-class mystery on their hands. The explosions seemed to pack more energy than a supernova, and they were totally unpredictable, coming from any and all parts of the sky at random and unexpected times. Furthermore, they were brief, some lasting just a split-second. By the time observers swung their telescopes in the direction of a blast--it was gone! One Sunday morning comic of the 1990s showed a dizzy astronomer grasping his telescope for support while a gamma-ray burst went off overhead.

It was a humorous time. While many researchers were convinced gamma-ray bursts came from deep space, millions to billions of light years away, others contended that the explosions were happening right here in the Solar System. And no one could prove them wrong! Experts were free to entertain the wildest theories their imaginations could concoct.

Astronomers needed more data. The first wave came from an instrument named "BATSE" onboard NASA's Compton Gamma-ray Observatory. In the mid-1990s BATSE recorded thousands of bursts and mapped their distribution on the sky. The explosions were not confined to the plane of the Solar System; neither were they bounded by the plane of the Milky Way galaxy. Whatever they were, gamma-ray bursts were not local.

Above: The Compton Gamma-ray Observatory and its BATSE sensors proved that gamma-ray bursts were far outside the Solar System.

Meanwhile, NASA and other space agencies were working on a new generation of satellites able to pinpoint the first flash of gamma-rays and transmit coordinates to Earth quickly enough for follow-up observations with ground-based telescopes. This would, astronomers hoped, reveal what kind of galaxies hosted the ferocious explosions (if indeed, the explosions occurred within galaxies) and how far away they were located.

On Feb. 28, 1997, BeppoSAX made a breakthrough. The Dutch-Italian satellite pinpointed a burst and directed astronomers to it in time for them to photograph an optical afterglow. Hubble was brought to bear on the fading explosion and, lo and behold, there was a faint galaxy … far, far away.

Next came NASA's Swift spacecraft, which could not only pinpoint gamma-ray bursts and transmit their coordinates within seconds, but also train its own X-ray, UV and optical detectors on the blasts. Swift was a one-satellite armada of space telescopes! Launched in 2004, Swift has detected hundreds of bursts, monitored their glowing debris at multiple wavelengths, and measured their distances (the current record-holder: 12.8 billion light years, near the edge of the observable Universe). These were the kind of data everyone had been waiting for.

It turns out there are two kinds of gamma-ray bursts, short (< 2 seconds) and long (> 2 seconds). The long ones are widely thought to be "supernovas on steroids," cataclysmic explosions signaling the end of stars 50 to 100 times more massive than the sun. When such a behemoth star explodes, it leaves behind a black hole and beams the news across the cosmos on a wave of gamma rays. The underlying physics was first put forth and developed by University of California physicist Dr. Stan Woosley, and his "collapsar model" is now regarded as the leading explanation for long gamma-ray bursts. The short ones are more puzzling. They're on-and-off too quickly to be supernovas, and the energies involved don't add up to an exploding star. Many researchers believe they are caused instead by collisions between ultra-dense neutron stars or, maybe, neutron stars colliding with black holes. In either case, the end result is another black hole. The jury is still out, however, and debates at the Symposium are sure to be lively.

There are other mysteries, too. For instance, all types of galaxies contain at least a sprinkling of supermassive stars poised to explode. So, astronomers expect to see gamma-ray bursts coming from spiral galaxies, elliptical galaxies, barred galaxies—the whole gamut. Yet the bursts seem to prefer oddball irregular galaxies over all the others. No one knows why. Another example: The first waves of star formation after the Big Bang should have produced an abundance of supermassive stars primed for gamma-ray bursting. Yet there seems to be a dearth of explosions at redshifts (distances) corresponding to that early epoch. Where are

the missing gamma-ray bursts?

NASA's newest observatory, the Fermi Gamma-ray Space Telescope, launched in 2008, is on a mission to answer that question and others like it. Breaking results may be revealed at the Symposium. Stay tuned to **Science@NASA Oct. 20-23 for daily coverage.**

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Interstellar Boundary Explorer (IBEX) is in Orbit – October 19/08 Credit NASA

After a smooth countdown and climb toward space, NASA's IBEX spacecraft is in orbit.

NASA's Interstellar Boundary Explorer mission, or IBEX, successfully launched from the Kwajalein Atoll in the Pacific Ocean at 1:47 p.m. EDT, Sunday. IBEX will be the first spacecraft to image and map dynamic interactions taking place in the outer solar system.

The spacecraft separated from the third stage of its Pegasus launch vehicle at 1:53 p.m. and immediately began powering up components necessary to control onboard systems. The operations team is continuing to check out spacecraft subsystems.

"After a 45-day orbit raising and spacecraft checkout period, the spacecraft will start its exciting science mission," said IBEX mission manager Greg Frazier of NASA's Goddard Space Flight Center in Greenbelt, Md.

Just as an impressionist artist makes an image from countless tiny strokes of paint, IBEX will build an image of the outer boundary of the solar system from impacts on the spacecraft by high-speed particles called energetic neutral atoms. These particles are created in the boundary region when the 1-million mph solar wind blows out in all directions from the sun and plows into the gas of interstellar space. This region is important to study because it shields many of the dangerous cosmic rays that would flood the space around Earth.

"No one has seen an image of the interaction at the edge of our solar system where the solar wind collides with interstellar space," said IBEX Principal Investigator David McComas of the Southwest Research Institute in San Antonio. "We know we're going to be surprised. It's a little like getting the first weather satellite images. Prior to that, you had to infer the global weather patterns from a limited number of local weather stations. But with the weather satellite images, you could see the hurricanes forming and the fronts developing and moving across the country."

IBEX is the latest in NASA's series of low-cost, rapidly developed Small Explorers spacecraft. The Southwest Research Institute developed the IBEX mission with a team of national and international partners. Goddard manages the Explorers Program for the Science Mission Directorate in Washington.

For more information about the IBEX mission, visit: http://www.nasa.gov/ibex

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Buy and Sell

Here's your chance to clean out the closet and find a home for your slightly used treasures. Post your buy and sell items by emailing the Editor with your details.

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Ask an Expert

Have you been thumbing through the Astronomy or Sky and Telescope magazine and have some questions on the latest and greatest in astronomy gear? Or maybe you're narrowing down your search for just the right telescope and want

to know the difference between Dobsonians, Schmidt-Cassegrains, Reflector and Refractors. Well wonder no more, email Brian Robilliard our resident expert to get the "inside scoop" on what's hot or not in astronomy gear.

Are you seeing double or unable to focus? Chances are you need to collimate your scope. Are you looking for a good eyepiece? Why do you need to know the focal length of your telescope's mirror and how do you determine the focal length? For answers to these and other telescope questions email Ed Maxfield our expert on telescope tips, hints and suggestions.

Are you new to astronomy? Want to know the how to find objects in the sky? Or just wondering what that bright object in the evening sky is? Well wonder no more; email Bryon Thompson our Public Outreach Officer and master of Astronomy 101 basics.

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Kids Korner

For the younger astronomers. We want your input on what you would like to see happening at the club. Tell us a bit about yourself and why you love astronomy. Email the Editor with your submissions. For the older folks, if you have any ideas that might spark the interest of a young upcoming astronomer, please send your submissions to the editor.

Here's something cool to participate in.

The Great World Wide Star Count

Schoolchildren, families and citizen scientists around the world will gaze skyward after dark from **Oct. 20 to Nov.3, 2008**, looking for specific constellations and then sharing their observations through the Internet.

The Great World Wide Star Count, now in its second year, helps scientists map light pollution globally while educating participants about the stars. The event, which is open to everyone who wants to participate, is organized by the Windows to the Universe project at the University Corporation for Atmospheric Research (UCAR) in Boulder, Colo., in conjunction with planetariums and scientific societies across the country and abroad. For more information see their website: http://www.windows.ucar.edu/citizen_science/starcount/

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RASC News

Royal Astronomical Society of Canada, Victoria Centre http://victoria.rasc.ca

Meetings

Meetings are held on the second Wednesday of each month except July and August downstairs in the Elliot Bldg at U of Vic.

Astronomy Café

The Astronomy Café Meets on Monday evenings at Sir James Douglas School on Fairfield Road.

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The Sky This Month

By Bryon Thompson

Observing Site: **Duncan, 48.783°N, 123.700°W**

November holds a special treat that won't be repeated so well for the next few years….the conjunction of the two brightest planets Venus and Jupiter builds throughout November. Starting at 30° apart the planets move closer together until they reach only 2° or 4 moon widths by month's end. These two bright

performers usually meet 2 times per year. This past February there were closer, only 1° apart, but were also quite close to the horizon. This encounter provides a good naked eye, binocular or telescope view. Try looking at both planets with the same eyepiece to get a good impression of the immensity of Jupiter. It lies 5 times Venus' distance and yet will appear to be 2 times bigger in your scope. Venus too will be seen to grow in diameter somewhat throughout the month as it closes the gap between us. Right now our own magnitude -4.0 sister planet is behind us in its orbit around the sun but it's smaller orbit and much shorter year, 255 Earth days, will cause it to move slightly closer and appear to grow from 14" diameter to 16" by month end. The whole show is still hampered by thick atmosphere as the two are still quite low on the horizon.

If any of you plan to visit our founder Frank in Saskatchewan this month and there are clear skies there you may be able to see Ganymede pass into Jupiter's shadow on November 16th. Frank may have another chance to see Jupiter's big moon appear from behind the Gas Giant only to be swallowed up by its shadow an hour later. Ganymede will move out from behind Jupiter at 3:49 PM PST and at 4:42 PM PST will wink out as it passes into the biggest shadow in the solar system. Jupiter reached "Quadrature" last month when the angle between itself, us and the sun reaches 90 degrees. When this happens Jupiter's shadow extends furthest from the planet from our perspective and events such as Ganymede will put on are visible to us. Although this event favours eastern observers the rest of us here on the coast (still in daylight) will have to be satisfied with the Venus Jupiter conjunction. That is, unless someone can twist Frank's arm for picture or two….How about a short report Frank!

Neptune makes a good Binocular object at magnitude 8 in Capricornus. You can find it four moon widths (2 ½ fingers width at arm's length) or 4° NNW of Gamma Capricornii. This blue-grey giant stops its retrograde motion early this month and slowly resumes its eastbound trek across the night sky. East of Capricornus is Aquarii and the November home for Uranus. At magnitude 5.8 the big blue-green planet is a rewarding naked eye object from a dark clear sky and an easy binocular find. Look 2° (four moon's widths again or 2 ½ fingers) NE of Phi Aquarii. Uranus too, stops it retrograde motion by November 27th when it can be found 6' from 96 Aquarii.

After midnight Saturn rises to show its dim 1.1 magnitude face and nearly knife-edge rings. By the end of the month the rings plane will be tilted a paltry 1.1° to our line of sight. Early 2009 they will disappear from view and offer us a clear look at the full disc of the gas giant. Remember to check out Saturn's definite bulge. It is 2" wider than tall due to Saturn's fast axial rotation of 10.7 hours. This means that if you were able to ride the cloud tops of this giant you would enjoy daylight for only a little more than 5 hours before plunging into a 5 hour long cloudy night.

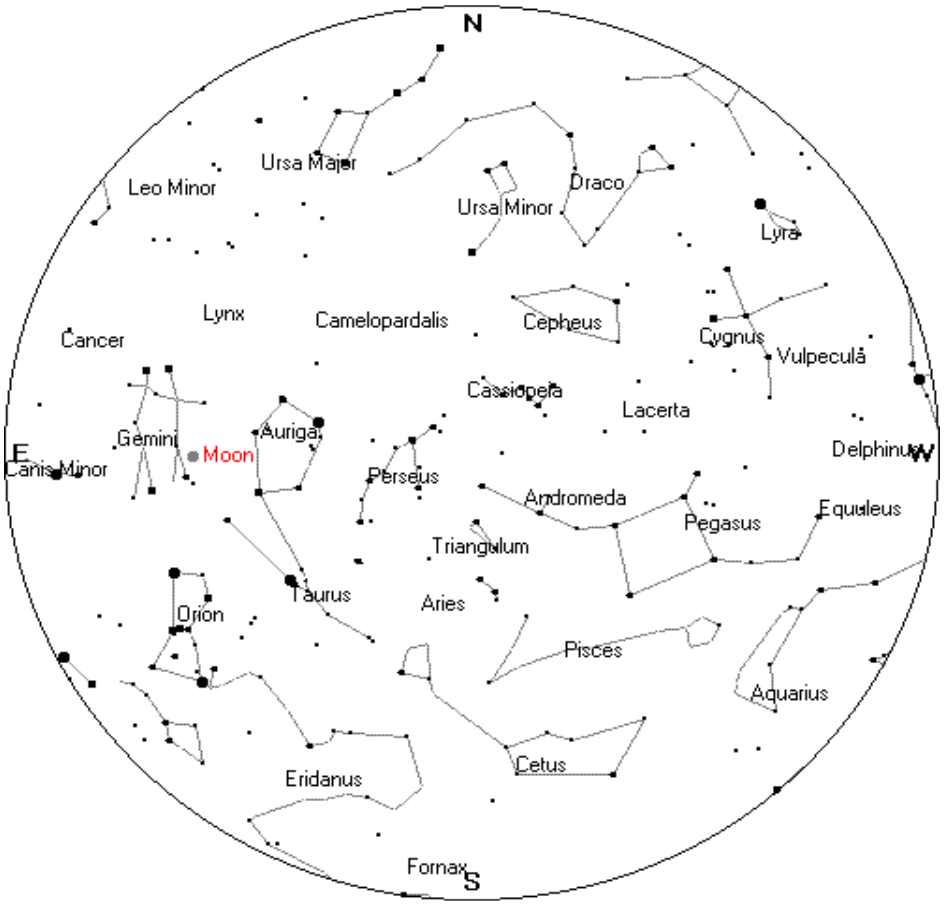
Mercury is November's morning star rising 75 minutes before the sun gets up on November 1st and shining at magnitude -0.9. Enjoy its early show while you can. By November 9th it will lose the solar stage to the morning glare of the real "star" of the show.

November could be a good month for meteors. Peaking on November 5th the southern Taurids may produce an early morning swarm of slow moving bright meteors and a few fireballs fed by comet 2P/Enke. The moon co-operates setting after midnight and offering up a dark sky to search in. The other shower finds the moon less cooperative. The Leonids on November 17th are hampered by a bright moon that washes out most all but the best fireballs. Still a fireball seen roaring across a moonlit sky is a sight to behold! Keep your fingers crossed and your eyes up. Till next month, remember Astronomy is looking up!

November 5	early am	Southern Taurids Meteor shower peaks
November 5	08:04pmPST	First Quarter Moon
November 6	11:00pmPST	Moon 1.1° North of Neptune
November 13	10:17pmPST	Full Moon
November 17	early AM	Leonids Meteor shower peaks
November 19	01:3pmPST	Last quarter Moon

November 25 09:00amPST Mercury in superior conjunction
November 27 08:55amPST New Moon
November 30 early evening Venus and Jupiter 2° apart

Sky Chart —Here's your mid-November midnight sky chart. In order to use the sky chart properly remember the centre of the chart is the sky directly above your head (or the Zenith). Turn the chart so that the direction you are facing is at the bottom of the chart (or pointed toward your toes). The star field directly in front of you will be between the bottom of the chart and the centre.



Sky Chart Courtesy of Heavens-Above

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