Star Gazer News

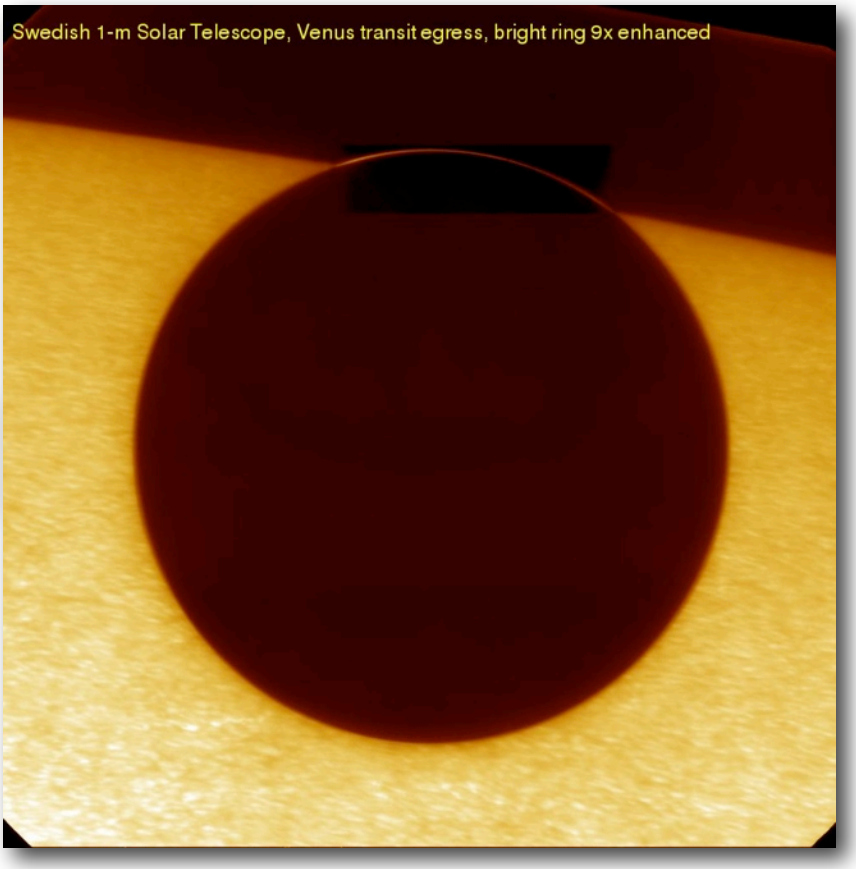
Astronomy News for Bluewater Stargazers
Vol 6 No. 7 July 2012

July 2012 Contents

Editor's Report

It has certainly been a busy spring and I have been enjoying the challenges of putting out the regular monthly SGN along with the Transit Special. The job has been made easier by the very fact that we have been busy. There is lots to report and the pages almost fill themselves especially with the great images and reports of the Venus Transit that were sent to me. So thanks once again to those who helped make the Transit Special a great edition.

This month, there is another item on the transit, -see Doug's Quetican Field of View. The reports and photos keep coming in and they are all interesting recollections of a historic event so I expect you will see more in future issues. Not surprisingly, my own journal of the event still has blank pages. My dad summed it up years ago when he said, "The folks who live next door to the church are always late for the service."



Venus at the Edge Credit: D. Kiselman, et al. (Inst. for Solar Physics), Royal Swedish Academy of Sciences**.**

Explanation: With Venus in transit at the Sun's edge on June 8th, astronomers captured this tantalizing close-up view of the bright solar surface and partially silhouetted disk. Enhanced in the sharp picture, a delicate arc of sunlight refracted through the Venusian atmosphere is also visible outlining the planet's edge against the blackness of space. The arc is part of a luminous ring or atmospheric aureole, first noted and offered as evidence that Venus did posses an atmosphere following observations of the planet's 1761 transit. The image was recorded using the 1-meter Swedish Solar Telescope located on La Palma in the Canary Islands. For the Institute for Solar Physics, Dan Kiselman, Goran Scharmer, Kai Langhans, and Peter Dettori were at the telescope, while Mats Lofdahl produced the final image. Excellent movies of the transit - including one of the emergence of Venus' atmospheric aureole - are available from the Dutch Open Telescope, also observing from La Palma.

"Point to the Pointer" A large group of Tai Chi lovers, amateur BAS members and visitors celebrated the Summer Solstice at Keppel Henge June 20. The class persevered even in the 30 C heat since a nice breeze kept things bearable. Photo by John H from atop the Transit Stone.

BAS July Calendar of Events

Jul 4	Wed	BAS Meeting	ES Fox Obs	7:00 pm
Jul 13	Fri	Night Sky Tour	Grey Roots	@dusk
Jul 14	Sat	BAS Viewing	ES Fox Obs	@dusk
Jul 20-22		Dark Sky Weekend at Bruce Peninsula National Pk Contact Joan Skelton for camping reservations		
Jul 30-Aug 3		Kids' Astronomy Day Camp 9 am to 3:30 pm kids 8 to 13, space still available	ES Fox Obs	
Jul 31	Tue	Summer Public Stargazing (#1 of 4) OEC 7:30 pm followed by stargazing weather permitting		
Aug 1	Wed	BAS Meeting	ES Fox Obs	7:00 pm

President's Report by Brett Tatton

It's nearly July and we are into the prime summer observing weather now. We've already seen a busy spring which included such highlights as the BAS events held for the May partial solar eclipse and the June 5th Venus transit. Last Tuesday a contingent of BAS members joined the folks at Keppel Croft gardens to mark the summer solstice at the stone henge.

The club observing night at the Fox observatory this past Saturday was the first of what we hope will be many club activities held there this summer. On that particular evening we had our first "video" astronomy night with not one but two Mallincam equipped telescopes running at the same time. Although this is still early days for us when it comes to video astronomy all those in attendance were impressed by the results. I was amazed when Frank Williams obtained a very presentable image of M31…impressed because at that point in the evening I wasn't able to see much of anything in that part of the sky for the clouds!

In the coming months expect more opportunities for observing at the Fox Observatory. I encourage everyone that hasn't already been out to one of these sessions to come and check things out. The next meeting is being held at the observatory and weather permitting I expect that the scopes will come out that night.

On another note I wanted to inform the membership that our partners at the Bluewater Outdoor Education Centre will be making some difficult adjustments for the coming school year. It appears that cuts in provincial funding will result in staff reductions board wide. As a result the staff at OEC will be reduced by two teaching positions for the following school year. The effect of this reduction is that they will not be able to handle the number students that they have had come to the site in recent years. I wanted to point that although this is most unfortunate for all involved it does not affect the clubs use of the Fox Observatory.

The Bluewater Outdoor Education Centre is operated almost exclusively with funds raised by the not-for-profit Bluewater Education Foundation. We can hope that ways will be found to restore the site staff levels back to those the board has provided in the recent past. Outdoor Education is a student experience that the community has enthusiastically supported for all these years. To me it seems a shame that the provincial cuts have reduced the capacity to fully benefit from this wonderful facility.

Story's "Rant"

Former NASA astronaut Story Musgrave is neither happy nor excited about the current state of the space administrations commercial COTS (Commercial Orbital Transportation Services) program. He's not happy, and he's not afraid to say so.

"The whole thing is chaos and a cop out. The whole thing is a Washington failure," Musgrave bluntly stated to Examiner.com's Charles Atkeison in an interview this past weekend. http://www.examiner.com/article/legendary-astronaut-criticizes-nasa-and-it-s-future-goals

Musgrave was a NASA astronaut for over 30 years and was a crew member on six shuttle missions. He performed the first shuttle spacewalk on Challenger's first flight, was a pilot on an astronomy mission, was the lead spacewalker on the Hubble repair mission and on his last flight he operated an electronic chip manufacturing satellite on Columbia.

He has 7 graduate degrees in math, computers, chemistry, medicine, physiology, literature and psychology. He has been awarded 20 honorary doctorates and was a part-time trauma surgeon during his 30 year astronaut career.

And, according to Atkeison, Musgrave "feels the space agency has no true goals or focus today."

"We're not going anywhere… there is no where, there is no what, and there is no when," the former astronaut told Atkeison. "There is no Mars program, none. There is also no Moon program. There is no asteroid program… there's no what we're gonna do and no when we're gonna do it."

Neither does Musgrave put much faith in the value of the COTS program… which includes the upcoming launch of SpaceX's Dragon capsule.

This isn't the first time Musgrave has spoken out against NASA's direction, either; in June of 2011 Musgrave lambasted the administration for its failure to have a "next step" after phasing out the shuttle program.

"Why are we so poor in our vision and so poor in our project management that we come to a point where it's reasonable to phase out the current program and we have no idea what the next one is?" Musgrave said in 2011. "Washington has to stop doing that."

Story Musgrave, now 76, currently operates [three companies worldwide]. He is also a landscape architect, a design professor and a concept artist with Disney Imagineering. It's clear that Musgrave is a man who knows what vision is — and isn't. Still, he's always honored to have had the opportunity to be a part of NASA.

"I'm massively privileged to be part of the space program, and I never forget to say that," said Musgrave last year.

BAS Executive 2011-2013

President:	Brett Tatton	tattons@bmts.com
Vice-President:	John Hlynialuk	stargazer@wightman.ca
Secretary:	David Green	davgre@bmts.com
Treasurer:	Cheryl Dawson	cheryl.dawson@bell.net
Past-President:	Dan Gieruszak	hiddenwell@bmts.com
Membership:	David Skelton	dskel@golden.net
Public Outreach:	Joan Skelton	andromeda@gto.net

GREY ROOTS MUSEUM & ARCHIVES

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The Bluewater Education Foundation

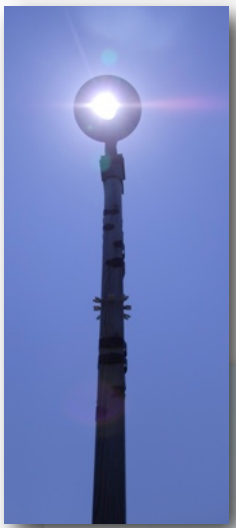
Ontario Trillium Foundation / Fondation Trillium de l'Ontario

Grey Roots Public Viewing May 11

The June Transit knocked this item to the July issue but it is worth reporting that a larger than normal crowd arrived for stargazing May 11 at the Grey Roots Museum. Dave G. who was keeping track of the number who viewed through his telescope reported 86 "lookers". There were several other scopes there as well, including the Webster-28 and a decent number of BAS members with their own scopes to share the view.

***Below**: Three of the six telescopes that were set up by BAS members.*

***Above**: Lorraine R. checks her phone? for star messages? A Starwatcher dob is surrounded by ghostly images of 2 viewers who moved during the exposure.The streak of light was a car moving along the highway -not the ideal dark sky site like the Fox Observatory, but readily accessible for the public and with convenient parking.*



Summer Solstice June 20

***Left**: The disk used to create an analema shadow pattern on the ground frames the sun in this image. Last year the sun was only faintly visible because of overcast, this year it was bright white orb in a bright blue sky.*

***Below:** The Tai Chi group exercizes among the monoliths while a solar scope tracks the sun. The shadows show it is not yet "high noon" when they fall exactly to the north of each stone. All the stones have names, for ex. the largest one below is called the Winter Solstice Stone. See www.steveirvine.com/henge.html for more interesting details.*

The "ghosts" finally stopped moving for a 15 second image around the telescope. Ophiuchus and Libra are above the viewers and the head of Scorpius is peeking out from behind Doc Amy on the right.

Tarantula Nebula, NGC 2070 Image Credit: NASA, ESA. Article by Ray Villard Space Telescope Science Institute, Baltimore, Md

Several million young stars are vying for attention in this NASA Hubble Space Telescope image of a raucous stellar breeding ground in 30 Doradus, located in the heart of the Tarantula Nebula. Early astronomers nicknamed the nebula because its glowing filaments resemble spider legs. 30 Doradus is the brightest star-forming region visible in a neighboring galaxy and home to the most massive stars ever seen. The nebula resides 170,000 LY away in the Large Magellanic Cloud, a small, satellite galaxy of our Milky Way. No known star-forming region in our galaxy is as large or as prolific as 30 Doradus. The Hubble can resolve individual stars, and though many small galaxies have more spectacular starbursts, the LMC's 30 Doradus is one of the only extragalactic star-forming regions that astronomers can study in so much detail. The star-birthing frenzy in 30 Doradus may be partly fueled by its close proximity to its companion galaxy, the Small Magellanic Cloud.

The composite image above comprises one of the largest mosaics ever assembled from Hubble photos and includes observations taken by Hubble's Wide Field Camera 3 and Advanced Camera for Surveys. The Hubble image is combined with ground-based data taken with the ESO's 2.2-meter telescope in La Silla, Chile.

Collectively, the stars in this image are millions of times more massive than our Sun. The image is roughly 650 light-years across and contains some rambunctious stars, from one of the fastest rotating stars to the speediest and most massive runaway star. The image reveals the stages of star birth, from embryonic stars a few thousand years old still wrapped in cocoons of dark gas to behemoths that die young in supernova explosions. 30 Doradus is a star-forming factory, churning out stars at a furious pace over millions of years. Hubble shows star clusters of various ages, from about 2 million to about 25 million years old.

The region's sparkling centerpiece is a giant, young star cluster (left of center) named NGC 2070, only 2 million years old with roughly 500,000 stars. The cluster is a hotbed for young, massive stars. Its dense core, known as R136, is packed with some of the heftiest stars found in the nearby universe, more than 100 times the mass of our Sun.

The massive stars are carving deep cavities in the surrounding material by unleashing a torrent of ultraviolet light, which is etching away the enveloping hydrogen gas birth cloud. The image reveals a fantastic landscape of pillars, ridges, and valleys. Besides sculpting the gaseous terrain, the brilliant stars also may be triggering a successive generation of offspring. When the radiation hits dense walls of gas, it creates shocks, which may be generating a new wave of star birth. The colors represent the hot gas that dominates regions of the image, red is Hydrogen and blue, Oxygen. HST observations for this image were made in Oct 2011.

Credit: NASA, ESA, D. Lennon and E. Sabbi (ESA/STScI), J. Anderson, S. E. de Mink, R. van der Marel, T. Sohn, and N. Walborn (STScI), N. Bastian (Excellence Cluster, Munich), L. Bedin (INAF, Padua), E. Bressert (ESO), P. Crowther (University of Sheffield), A. de Koter (University of Amsterdam), C. Evans (UKATC/STFC, Edinburgh), A. Herrero (IAC, Tenerife), N. Langer (AifA, Bonn), I. Platais (JHU), and H. Sana (University of Amsterdam)

Surprise! NASA Gets Two 'Free' Hubble-like Space Telescopes

by NANCY ATKINSON *on* JUNE 4, 2012

NASA will be getting two unused space surveillance satellites from the US's National Reconnaissance Office, which could possibly be used to search for dark energy. In articles in the Washington Post and the New York Times, NASA and NRO officials revealed the two unused and not-fully-built satellites are available for NASA to use as they see fit. While the satellites don't have astronomical instruments and are still in a warehouse, they do have 2.4-meter (7.9 feet) mirrors, just like Hubble, with a wider field of view and a maneuverable secondary mirror that makes it possible to obtain better-focused images.

Reportedly, the NRO contacted NASA in 2011 about the two spy satellites. Since taking over as head of the NASA Science Directorate early this year, former Hubble repairman John Grunsfeld has been working with scientists and other NASA officials to quietly study the possibility of using the two satellites as "repurposed telescopes."

Originally designed to look at Earth for surveillance, the two telescopes could be turned to look at the heavens instead, as the National Reconnaissance Office said they no longer needed them for spy missions. Why two such spy telescopes were under construction and then scrapped is not clear.

Described as not fully built and some parts being in "bits and pieces," NASA will have to decide on how they should be used, build additional instruments, launch them, and support the operations.

Reportedly, Grunsfeld and his secret team have come up with a plan to turn one of the telescopes to investigate the mysterious dark energy that is speeding up the expansion of the universe.

NASA officials stressed that they do not have a program or a budget to launch even one telescope at the moment, and that at the very earliest, under favorable budgets, it would be 2020 before even one of the two gifted telescopes could be ready for a mission.

The Washington Post asked Grunsfeld whether anyone at NASA was popping champagne, and he answered, "We never pop champagne here; our budgets are too tight."

In the latest decadal survey (NWNH) the astronomical community had suggested a dark energy telescope (Wide Field Infra-Red Survey Telescope or WFIRST) as its top priority in astronomy and astrophysics, but the lack of funding – along with huge cost overruns by the James Webb Space Telescope — made it seem like such a telescope would be an impossibility.

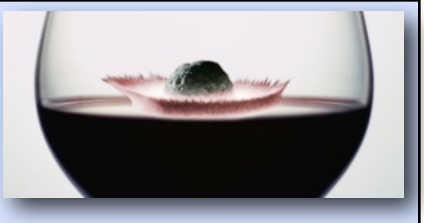
The two telescopes could possibly be used for the proposed WFIRST project, which seemingly was not going anywhere with the latest budget proposal or as a 'scout' for the JWST.

"It would be a great discovery telescope for where Webb should look in addition to doing the work on dark energy," Spergel said in the Washington Post.

Astronomers will be discussing the possibilities at a meeting at the National Academy of Sciences held on today in Washington, D.C. and how they could turn the two gifted telescopes into official missions.

More: http://www.universetoday.com/95623/surprise-nasa-gets-two-free-hubble-like-space-telescopes/#ixzz1xR9kMSaf

UK Astronomer Creates Meteorite Wine -Out of This World!



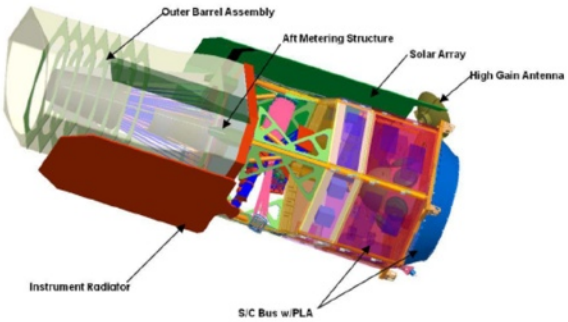
"Earthy", "floral", "oaky". Wine tasters are known for their rich vocabulary when describing different wines but now they can add "hints of meteorite" to their repertoire. That is because UK astronomer Ian Hutcheon has released a wine that is aged with a lump of 4.5-billion-year-old meteorite.

Dubbed **Meteorito**, the extraterrestrial wine was created at Hutcheon's Tremonte Vineyard in Chile using Cabernet Sauvignon grapes picked in April 2010. These underwent "malolactic fermentation" for 12 months in a wooden barrel containing the meteorite, before being blended with other batches.

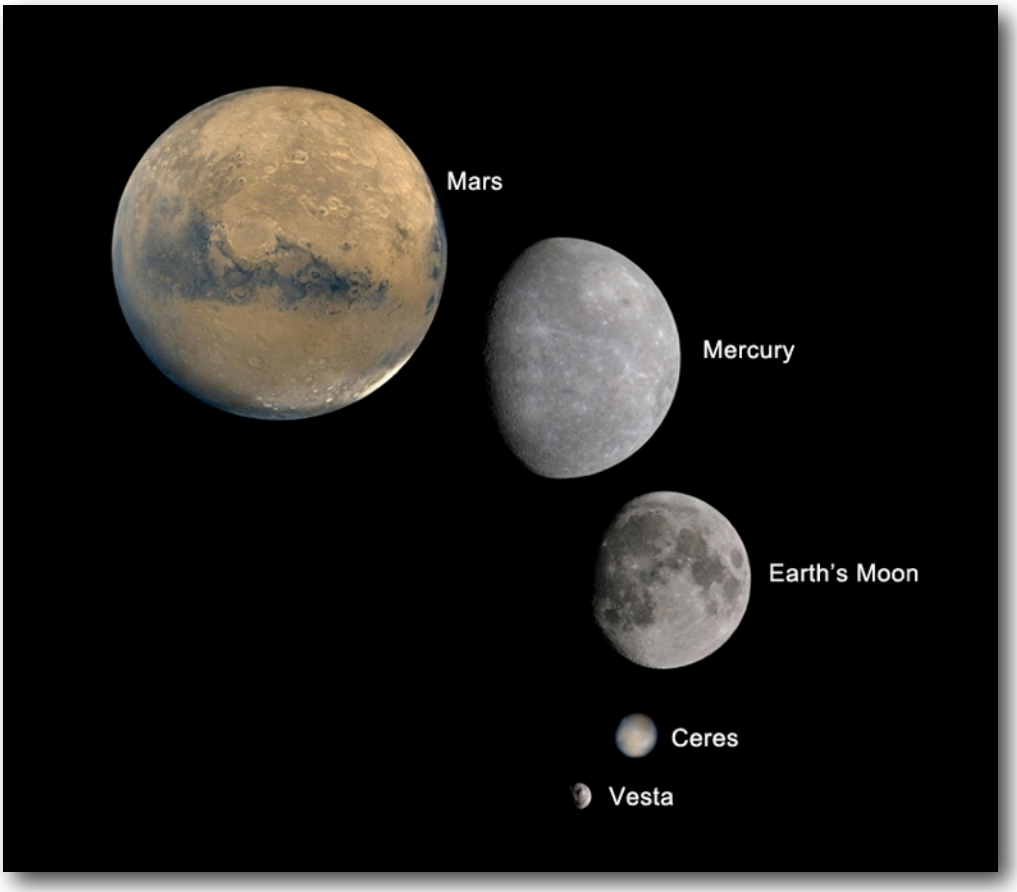
The three-inch meteorite apparently belongs to a US collector and is believed to have crashed into the Atacama Desert in northern Chile around 6000 years ago. About 10 000 litres of the meteor-aged wine have been made but if you want to get your hands on a splash, then you will need to make a trip to the Centro Astronomico Tagua in Chile – an observatory Hutcheon established in 2007.

[The wine sells for about $11 USD so it is not up there on the top of the list as far as pricey is concerned. In fact, one might describe it as priced along with the wines charitably called "plonk". This is not to say that it is not good, because I recall a great bottle of Napa Valley red wine that cost me $2.

At least this article from Physics World magazine (www.physicsworld.co) correctly called it meteorite wine and not "meteor" wine. Several news agencies even had a picture of a shooting star (it looked like a Leonid) included in the article. -ed]



WFIRST observatory. *This is the JDEM-Omega design as specified by the NWNH Decadal Survey. It is a baseline design that is being studied and modified by the Science Definition Team (SDT). [WFIRST = Wide Field Infra-Red Survey Telescope, JDEM = ?, NWNH = New Worlds New Horizons (the NASA 10-yr mission plan). [NOTE that the diagram above is of the WFIRST design not the donated scopes as described in the article. No images were provided of those because of national security requirements. -ed]*



Vesta in Perspective

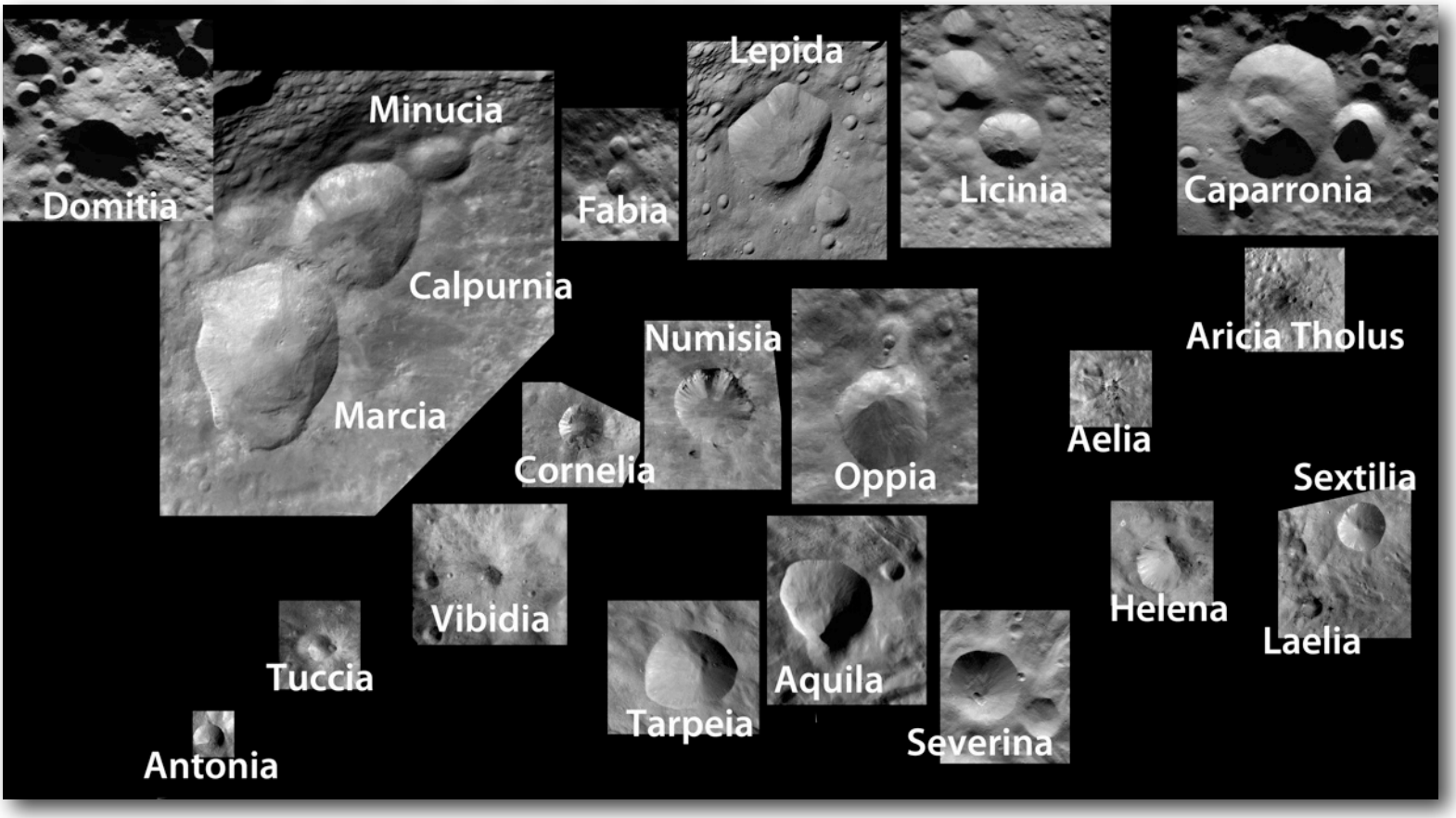
May 10, 2012 - PASADENA, Calif. -- The giant asteroid Vesta is shown here as the smallest body among other similar bodies in the solar system: Mars, Mercury, Earth's moon and the dwarf planet Ceres. With Dawn's findings, Vesta is the only intact layered planetary building block with an iron core known to be remaining since the early days of the solar system. This makes it more like terrestrial planets and Earth's moon than other asteroids.

The Dawn mission to Vesta and Ceres is managed by NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, for NASA's Science Mission Directorate, Washington. UCLA is responsible for overall Dawn mission science. The Dawn framing cameras were developed and built under the leadership of the Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany, with significant contributions by DLR German Aerospace Center, Institute of Planetary Research, Berlin, and in coordination with the Institute of Computer and Communication Network Engineering, Braunschweig. The framing camera project is funded by the Max Planck Society, DLR and NASA/JPL.

More information about the Dawn mission is online at: http://www.nasa.gov/dawn.

Image credit: NASA/JPL-Caltech/UCLA

Vesta Craters "Cheat sheet"



NASA / JPL / UCLA / MPS / DLR / IDA / montage by Emily Lakdawalla

A non-exhaustive visual catalog of some of Vesta's distinctive-looking craters. They're all shown to scale (100 meters per pixel, at full size) and are approximately oriented to have north up. They are only very loosely geographically arranged, somewhat ordered from north at top to south at bottom and west to east. For actual geography, check out the website here:

http://planetarynames.wr.usgs.gov/images/vesta.pdf

"This Star Journey"

"I am part of all that I have met;
Yet all experience is an arch wherethrough
Gleams that untravelled world, whose margin fades
For ever and forever when I move.
"Ulysses" Alfred Lord Tennyson

From a poetic perspective, Tennyson certainly gets it right and I am a big fan of his poetry. The one constant in my life over the past 48 years is my wonderful wife, Paula. It is no understatement to say that we experience most of life's boundless treasures together and this applies certainly to our astronomy adventures. This should come as no surprise to the readers of my column, "the Quetican Field of View" as I frequently include our shared experiences in my monthly musings. On June 3rd, 2012, Paula and I travelled to the big island of Hawaii and joined David Eicher, editor of Astronomy Magazine, and Alex Filippenko, astrophysicist with the University of California, Berkeley, to observe the Transit of Venus. Paula keeps a trip Journal and, for this month, I want to share our Transit experience through my camera and Paula's descriptions and phrases from her Journal.

You know who, you know where...

"Awoke at 6:00 AM Transit Day. Surf all night ... it sounds worse than it really is.
We had a wonderful breakfast on the patio overlooking the Pacific Ocean. We met Rod and Suzanne McKay from Lethbridge, AB and introduced ourselves to Alex Fiippenko as he walked past our table. The transit lectures were in the lounge from 8:00 AM until 9:15 AM and they were interesting but covered information we already knew. We boarded the bus at 9:45 AM and we sat in the right front seat .. the bus left at 10:10 AM. The average age of the participants seems to be 70. A long drive along the coast to our observing site at Mahukona Beach Park on the NW of the island. Lava, lava, lava ... everywhere! Ride to the site was not filled with excitement like a solar eclipse.

My initial reaction to our observing site was great disappointment. It was not what I had been led to expect as described by the trip organizer, Melita. Where was our great sand beach? We arrived about 11:30 AM, and were rushed to set up, just about 40 minutes before first contact. Doug had trouble placing the Sun in the Pronto because it was directly overhead and clouds kept moving past the Sun. It cleared for first contact at 12:10 HST and Venus appeared at about 8:00 in my 12 x 36 Canon IS binoculars. No one hollered out in excitement ... unlike during the diamond ring of a solar eclipse .. surprising! The second contact occurred by my watch, and through the binoculars, at 12:35 PM, and the black drop effect was observed by a number of our participants.

The view through my eclipse glasses was the same as through my binoculars.

***Perez** [Reuben]**, from Uruguay, a veteran of 11 total solar eclipses, asked me to take his photograph with his camera. We had lunch of chicken and salad at 2:10 PM and ate it sitting on lava rocks. The winds shifted about 3:00 PM and big waves came close to our rocky shore. My Pronto fell over in a huge gust of wind at 3:20 PM, but, aside from cosmetic damage to the Ethos and Pronto, Doug says the Ethos is still giving wonderful views. Perez Ruben described to us the best solar eclipse he ever witnessed. It was a horizon eclipse in southern Argentina and his photo was published in the July, 2011 issue of Sky and Tel."** (that was the same eclipse we saw from Easter Island).*

"The afternoon weather was very changeable ... clear, clouds, sprinkles, in rotation. I had a chance to view the transit through both Coronado and Lunt solar scopes. I liked the Coronado best. Surprising to me that these transit chasers were so blase'. Not much excitement from the viewers (as happens at a solar eclipse) ... no hollering .. nothing. Third Contact approached and clouds came in so we didn't see it. The good news was that the Sun dropped into a clearing and we saw 4th contact as Venus left the disk of the Sun. No ink drop effect was seen by me, either at ingress or egress.

I'm glad I saw this rare event because I'm certain I'll not see Venus crossing the Sun in December, 2117.

The long bus ride back to Kona was very quiet and we arrived back to our resort at 8:30 PM. Doug went to the ABC store to get some food for us while I had a shower."

Doug continues:
Finally, our good friend, Mike Mah, joined Sky and Telescope and journeyed to Mauna Kea where, at 14,000 ft, he observed the first phases of the transit. He then travelled back to sea level and captured the transit end from his Kona resort. The main lesson I take away from this transit experience is that, if you wish to increase your chances of observing a rare astronomical event, then be mobile !!!

Checking out the viewing glasses

Checking out the H-alpha view

"EXTREMELY LITTLE" TELESCOPE DISCOVERS PAIR OF ODD PLANETS

by Pam Frost Gorder (Ohio State) and David Salisbury (Vanderbilt University)

Though the KELT North telescope in southern Arizona carries a lens no more powerful than a high-end digital camera, it's just revealed the existence of two very unusual faraway planets. One planet is a massive, puffed-up oddity that could change ideas of how solar systems evolve. The other orbits a very bright star, and will allow astronomers to make detailed measurements of the atmospheres of these bizarre worlds.

Ohio State University doctoral student Thomas Beatty and Vanderbilt University research scientist Robert Siverd reported these discoveries for the KELT-North team at the American Astronomical Society national meeting in Anchorage, Alaska.

One planet is located in the constellation Andromeda. Dubbed KELT-1b, it is so massive that it may better be described as a 'failed star' rather than a planet. A super hot, super dense ball of metallic hydrogen, KELT-1b is located so close to its star that it whips through an entire "yearly" orbit in a little over a day - all the while being blasted by six thousand times the radiation Earth receives from the sun. What's more, the planet appears to have been jostled in the past by a previously unknown distant binary companion star that is orbiting the KELT-1 solar system. In short, the planet "resets the bar for 'weird,'" said Scott Gaudi, an associate professor of astronomy at Ohio State and a member of the research team.

The other planet, KELT-2Ab, is located in the constellation Auriga, and is typical of many previously discovered extrasolar planets in that it much resembles our own Jupiter. But its parent star is very bright - so bright that astronomers believe that they will be able to directly observe KELT-2Ab's atmosphere by studying the starlight that shines through it and the infrared heat that radiates from it - using telescopes located not only in space, but also on the ground. "Normally, we would need a space telescope to do all that, but in this case the host star is so bright that we can make many of these measurements from the ground," Beatty said.

KELT is short for "Kilodegree Extremely Little Telescope." Astronomers at Ohio State and Vanderbilt University jointly operate KELT North and its twin, KELT South, in order to fill a large gap in the available technologies for finding extrasolar planets.

Other telescopes were designed to look at very faint stars in tiny sections of the sky, and at very high resolution, Beatty explained. The KELTs, in contrast, look at millions of very bright stars at once, over broad sections of sky, and at low resolution. "Our stars are so bright, these 'more powerful' telescopes can't even look at them," Beatty said. The KELT team scans those bright stars, and watches to see if the starlight dims just a little - an indication that a planet has crossed in front of the star. The technique is called the "transit method," and takes advantage of situations such as the recent transit of Venus across the face of the sun in our own solar system. It's a low-cost means of planet-hunting, using mostly off-the-shelf technology; Whereas a traditional astronomical telescope costs millions of dollars to build, the hardware for a KELT telescope runs less than $75,000.

Joshua Pepper, a research assistant professor and fellow of the Vanderbilt Initiative in Data-Intensive Astrophysics, built KELT North when he was a doctoral student at Ohio State. Study co-author Robert Siverd further developed and enhanced the instrument before he went to Vanderbilt. There, they work with Keivan Stassun, professor of physics and astronomy, who hired them to build KELT South. "Exoplanets like KELT-1b and KELT-2Ab that pass directly in front of very bright stars are extremely important, but extremely rare, because

KELT-North searches the northern sky for exoplanet candidates. The scope recently made some big finds despite its small stature. Joshua Pepper photo

there just aren't that many very bright stars in the sky," said Stassun. "The KELT-North and KELT-South partnership gives us the advantage of hunting for these rare gems from both hemispheres, doubling the hunting grounds."

KELT North covers the northern sky, while KELT South, located near Cape Town, South Africa, covers the southern sky. Both newly discovered planets were found using KELT North. After KELT detected these new astronomical objects, a collaboration of KELT with astronomers at Harvard, Swarthmore, the University of Louisville, Las Cumbres Observatory, and even amateur astronomers helped to confirm the identities of these objects with additional observations. According to Pepper, "The KELT project has benefited from the dedication of a great team of astronomers, and represents an enormous scientific return on a relatively small investment."

This work was funded by the National Science Foundation, NASA, and Vanderbilt University.

A Personal Connection:

As I scan my astronomy links for interesting items for SGN, the above item caught my eye for two reasons. First, doing some advanced research with a small telescope always appeals to me. While I was still teaching, two local high school astronomy clubs collaborated on some real scientific research involving grazes of stars across the limb of the moon -something like an eclipse but with a star much farther than our Sun. Doug C. in Lion's Head had the other club and we actually succeeded in getting some important information about the profile of the moon on one memorable occasion involving Aldebaran.

The other reason is that my oldest son, Christopher, works at Ohio State (at least until Aug) and both he and his wife, Ang are keenly interested in astronomy. There have been several occasions when they have come back to the darker skies of Ang's home (and even the Fox Observatory) and we have shared views of Saturn and other planets, clusters like M13 and M11 and the many nebula of the Milky Way. Both Chris and Ang have wanted to return home to Canada and after a two year stint at OSU, they finally have their wish. They are in the process of taking up positions in Saskatoon (one at the University and the other for Ag Canada) where presumably, they will be able to find dark skies for some serious stargazing. We hope to visit them soon, check out the skies and maybe catch an auroral show or two. -ed

SGN Featured Constellations: Scorpius (the Scorpion)

Scorpius (Sco)

α Scorpii - Antares	ε Scorpii - Wei	λ Scorpii - Shaula
β Scorpii - Graffias	θ Scorpii- Sargas	ν Scorpii - Jabbah
δ Scorpii - Dschubba	κ Scorpii - Girtab	σ Scorpii - Al Niyat
	υ Scorpii - Lesath	

Scorpius is a very conspicuous zodiacal constellation with many bright stars lying just south of Ophiuchus. It is the most aptly named of all the constellations, bearing considerable resemblance to a giant scorpion with its stinger poised to strike. Antares, a giant red star, is the brightest star in the constellation with a magnitude of 1.2, making it the 16th brightest star in the sky. It is a supergiant star; if it were in the sun's position, its diameter (6,400,000,000 km) would engulf the orbits of the asteroids between Mars and Jupiter. Its density is very low; on Earth, it would be considered a vacuum. There are many objects worth observing with binoculars in this constellation; it lies in the Milky Way and is rich in countless stars. M 6 [Butterfly Cluster] and M 7 [Ptolemy Cluster] are open clusters visible to the naked eye and are striking when viewed with fieldglasses. ν Scorpii is a fieldglass double; μ Scorpii is a fine wide double visible to the naked eye.

DOUBLE STARS

	Mag.	Sep (s)	Location	Remarks
α	1.2-5.2	3	162726	Red-Green.
β	2.8-5.0-9.7	1-14	160320	Yellow-Green; striking contrast.
ν	4.3-6.5-7.0-8.0	1-41-2	160919	Quadruple; called the most beautiful in the sky.
ξ	4.2-7.2	8	160111	White-Grey; multiple.
σ	2.8-8.5	20	181825	White-Blue.

MESSIER OBJECTS

	Mag	Location	Remarks
M 4	6.4	162226	Globular Cluster. [See image lower left]
M 6	5.3	173732	Open Cluster. Beautiful; visible to naked eye. [Butterfly Cluster see image below]
M 7	---	175135	Open Cluster. Visible to naked eye; two 5th magnitude doubles also in this field. [Ptolemy Cluster]
M 80	7.7	161423	Globular Cluster. Very beautiful.

Other Objects of Interest

H 12	Open Cluster.	Location	165341
NGC 6124	Open Cluster	Location	162240.
NGC 6231	Open Cluster	Many doubles and triples in this field. Location 165142.	

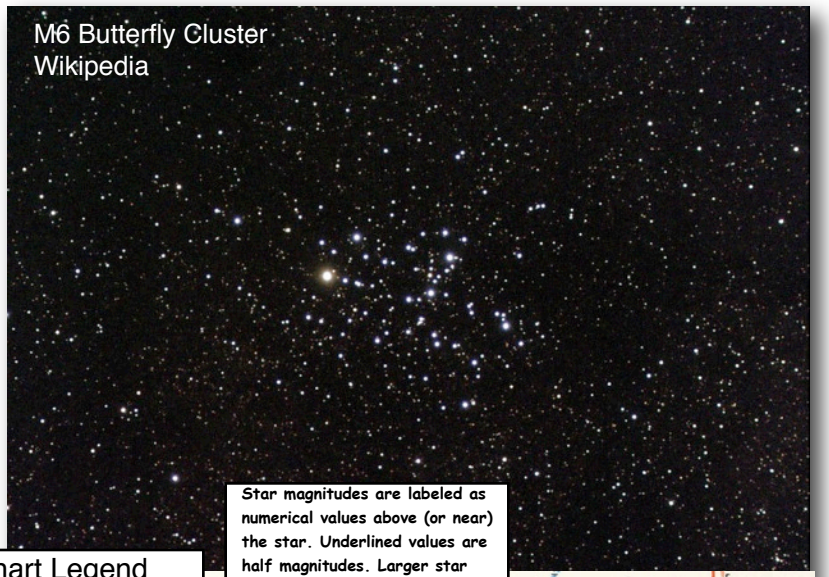
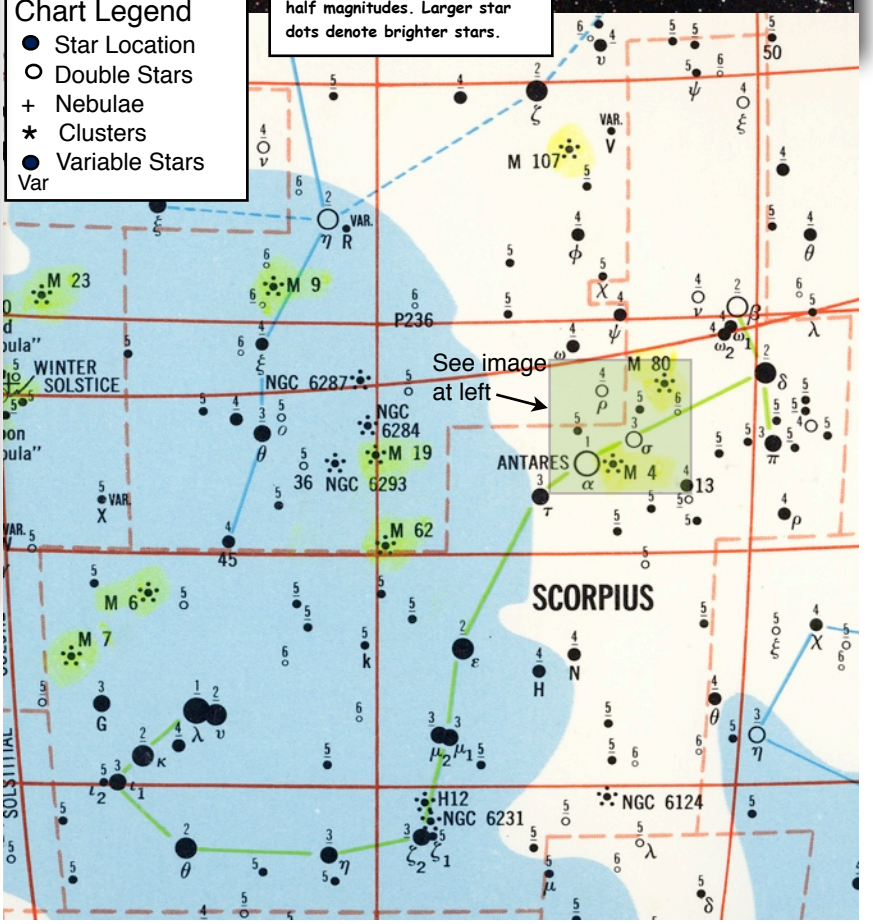


Image above taken by Aaron Dittrich from Atacama Lodge in the Atacama Desert (Apr, 2011). Antares is the bright reddish star at left and σ-Sco (Al Niyat) is at centre. M4 aka "The Cat's Eye" is a nice globular cluster that (like M22 in Sag) would be a better appreciated in Canada if it was higher in the sky. It is spectacular viewed through the dry air of Atacama at 50° elevation! It barely gets 20° of altitude at its best in our latitude in Canada. Another globular M80 is top right. This area around Antares has some beautiful bright and dark gas clouds that show up in longer exposures. Canon 5D, 135 mm lens at f/2.8 ISO 1600, exp = 120 s. Image area is the green square in map at right.



Sky Calendar — July 2012

compiled by John Hlynialuk (**stargazer@wightman.ca**) using the Observer's Handbook 2012(RASC), Sky and Telescope and Sky News magazines. Please contact the editor if you notice any errors.

Jul 1 Mercury greatest eastern elongation (26°)
Jul 3 Full Moon (Thunder Moon) rises at 9:02 pm DST
Mercury 2° S of Beehive Cluster (M44)
Jul 9 Venus 0.9° N of Aldebaran (morning sky)
Jul 10 Last Quarter Moon rises at 12:31 am DST
Jul 12 Venus greatest illuminated extent (mag -4.7)
Jul 14 Jupiter 0.5° S of Moon (Moon=22% lit)
Double satellite transit on Jupiter
Jul 15 Venus 4° S of Moon
Jul 17 Double satellite transit on Jupiter
Jul 19 New Moon rises at 5:30 am DST
Jul 20 Mercury 0.5° N of Moon (Moon=1% lit)
Jul 21 Double Satellite transit on Jupiter (two sets)
Jul 24 Mars 4° N of Moon (Moon=27% lit)
Double Satellite transit on Jupiter (two sets)
Jul 25 Spica 1.2° N of Moon (Moon=37% lit)
Saturn 6° N of Moon (Moon=37% lit)
Jul 26 First Quarter Moon rises at 1:26 pm DST
Jul 28 Double shadow transit on Jupiter
Double satellite transit on Jupiter
Southern δ-Aquarid meteors peak (20/h, Moon 78%)
Jul 30 Double satellite transit on Jupiter

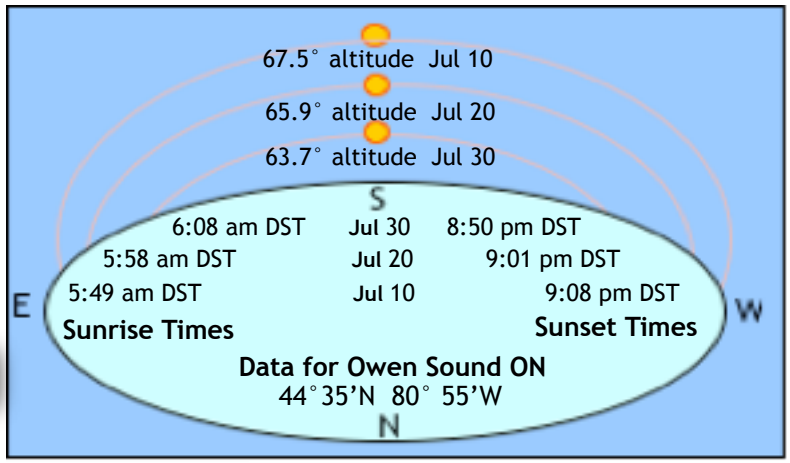
BAS Events

Jul	**4**	Wed	BAS Meeting	ES Fox Obs	7:00 pm
Jul	**13**	Fri	Night Sky Tour	Grey Roots	@dusk
Jul	**14**	Sat	BAS Viewing	ES Fox Obs	@dusk
Jul	**20-22**		Dark Sky Weekend at Bruce Peninsula National Pk		
			Contact Joan Skelton for camping reservations		
Jul	**30-Aug 3**		Kids' Astronomy Day Camp	ES Fox Obs	
			9 am to 3:30 pm, kids 8 to 13, space still available		
Jul	**31**	Tue	Summer Public Stargazing (#1 of 4) OEC		7:30 pm
			followed by stargazing weather permitting		
Aug	**1**	Wed	BAS Meeting	ES Fox Obs	7:00 pm

Planets

Nice planet grouping July 15

MERCURY,(0.4 dimming to 3.2) makes a poor showing in the West in the first 2 weeks of July. It closes back on the sun by mid-month. **VENUS,** (-4.6), is a Morning Star and stays less than 7° from Jupiter in a pretty part of Taurus with the Hyades and Pleiades in the background. The waning crescent moon is nearby from July 14 to 16. **MARS** fades to magnitude 1.0 by the end of July and the disc shrinks to only 6.0". It closes on Saturn, changing from 28° away to less than 8° by month-end. In mid August it will thread the gap between Spica and Saturn! **JUPITER**, (-2.1) stays equally spaced from the Pleiades and Venus all month as both planets move eastward in step with each other. Jupiter, the crescent Moon, Venus, M45 and the Hyades are grouped together nicely from July 14 to July 16. **SATURN,** (mag 0.8), sets in the West at 2 am at the start of July and before midnight by the end. Ring tilt at the end of this month at 13°. **URANUS,** (5.9) in Cetus and **NEPTUNE,** (7.9) in Aquarius, straddle the meridian at 4 am DST. Two asteroids, Pallas (9.4) and Juno (9.8) can be found with suitable maps. (See your favourite astronomy magazine website). **PLUTO** (mag. 14) is highest around midnight and may be found with accurate charts and large telescopes.
The diagram below gives the sunrise/sunset times and the sun's altitude on three dates this month. We are past the Summer Solstice and nights are lengthening. The calendar below the sun chart shows the moon phases for this month. Times of moonrise for NM, FQ, FM and LQ are in the Sky Calendar listing at left.



Special Events

Dawn Grouping July 15

Jupiter and Venus meet up again with the crescent moon on July 15, but this time in the dawn sky. However, to compensate for the need to rise early, there are two background clusters in the same view to make your day! You have the Hyades with its bright red primary Antares, along with the Seven Sisters, -the most beautiful open cluster in the northern sky. What more could you ask for in a celestial gathering? Look July 14 for the moon near M45 and July 16 for the moon to the left of Venus.

July 2012

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3 FM	4	5	6	7
8	9	10 LQ	11	12	13	14
15	16	17	18	19 NM	20	21
22	23	24	25	26 FQ	27	28
29	30	31				

By permission
University of Texas
McDonald Observatory

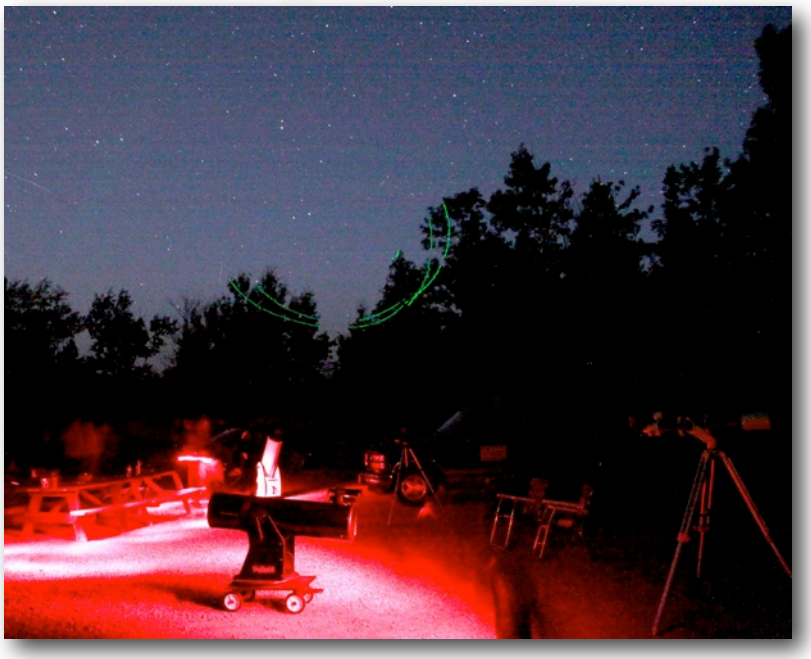
ELECTRIC-BLUE NOCTILUCENT CLOUDS: Data from NASA's AIM spacecraft show that noctilucent clouds (NLCs) are like a great "geophysical light bulb." They turn on every year in late spring, reaching almost full intensity over a period of no more than 5 to 10 days. News flash: The bulb is glowing. Flying photographer Brian Whittaker photographed these NLCs over Canada on June 13th:

"I was very happy to see my first noctilucent clouds of 2012," says Whittaker. "They were visible to the north for about 3 hours as we flew between Ottawa and Newfoundland at 35,000 feet."

These electric-blue clouds are hanging 85 km above Earth's surface, at the edge of space itself. Their origin is still largely a mystery; various theories associate them with space dust, rocket exhaust, global warming--or some mixture of the three. One thing is sure. *They're baaack* ... for the summer of 2012.

Observing tips: NLCs favor high latitudes, although they have been sighted as far south as Colorado and Virginia. Look west 30 to 60 minutes after sunset when the Sun has dipped 6° to 16° below the horizon. If you see luminous blue-white tendrils spreading across the sky, you may have spotted a noctilucent cloud.

Calling ALL Campers!



Update on Rental Scopes

Both 12-inch Dobs now out on loan.

Both 12-inch telescopes have been loaned out for the summer, but if you would like to use an 8-inch dobsonian, we may be able to do something for your. Contact Brett T. or John H. if you are interested.

If you had your heart set on a 12-inch, one will become available in September. Call now to reserve.

For Sale: HUTECH part # 3101 Single Arm Compact Fork Mount Head,

Can be used in Alt-Az as well as Equatorial mode with lightweight Scope (I have used it with PRONTO on Manfrotto 128RC Photo-tripod). Has Slo-Mo knobs (flexible shafts can be added to it - not included)
1/4 - 20 thread on base Size: 3" x 3" x 6".
Asking $ 200.-- Firm

Anton VanDijk 519 376-9912
e-mail: ravand@rogers.com

Review/pictures can be found here: http://www.cloudynights.com/item.php?item_id=798

FOR SALE: Televue Pronto

2 element E.D. Refractor, 2.7" / 70mm diameter. f.l. 480mm, f/6.8. with 1-1/4" Star Diagonal, with 45 degree Prism diagonal (for terrestrial viewing), with TeleVue Red dot finder, complete with TeleVue Soft Case. Asking $ 700.-- Firm Anton VanDijk 519 376-9912 ravand@rogers.com

BPNP Dark Sky Weekend The National Park on the Bruce Peninsula is offering BAS a free camping weekend for July 20-22 again this year. We have reserved Group Campsite 3 for our club members who wish to take part. The group site is a tents-only site, however, so trailers must be parked in the parking lot nearby. Also we are obliged to do a star tour or two with our telescopes for the public, weather permitting. We hope to have the Webster 28 for the event. Pre-registration is a must. Contact Joan at the soonest possibility before July 12 and get the registration form to her asap.