Skynews

Royal Astronomical Society of Canada ✦ Victoria Centre

on the cover

John McDonald

NGC 7000, North America Nebula - May 9/10, 2007

I have been trying to refine my image processing and the North American Nebula is my deepest image to date so I am using it to try things on. The attached image show the best I have done so far As you will see, I have been able to tease out quite a bit more detail compared with my previous image (see below).

For anyone interested in the details, the main differences in processing are described below.

This image is the latest and was processed using some ideas from Ron Wodanski. Instead of using Digital Development in ImagesPlus, it uses a series of stretches using the “curves) routine in Photoshop. Wodaski’s technique is not as easy or automatic as Digital Development but it does seem to offer more control. I also used the “local Enhancement” routine from Astronomy Tools to provide some fine tuning to the contrast.

The image below used the same processing techniques that I have been using for recent images - ImagesPlus Digital Development routine to enhance the image and Photoshop to bring out the nebulosity.

Finally, A bit of smoothing of the darker parts and sharpening of the brighter ones has been applied to all of all the images using Photoshop.

I like the latest one best. The extra detail in the nebulosity is nice to see and the reds are not quite so overwhelming.

Details-
Location and date: Cattle point 2007-05-09/10
Camera: Canon 350D modified with Baader UV/IR filters by Hap Griffin
Lens: Canon 80-200 f2.8L operating at 200mm fl and f3.5
Mount: Skywatcher HEQ5
Exposure: 69-58sec light frames at ISO 800
Calibration: 23 Dark and 25 Flat frames
Processing: Stacking and digital development in Images Plus with some additional processing in Photoshop

this month

Gregory Poole

The Role of X-ray Astronomy in Modern Cosmology

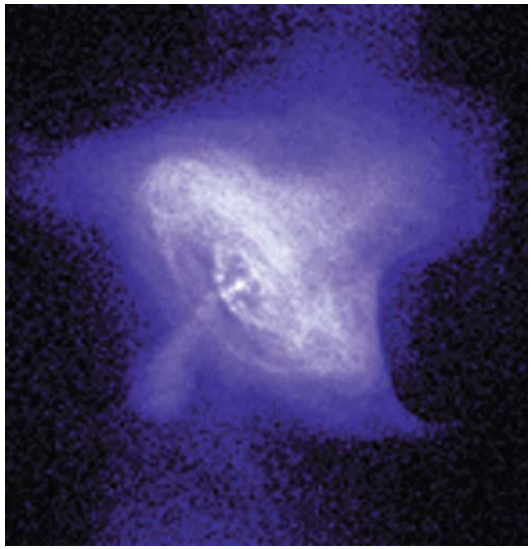
June 13th, 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic

Dr. Poole will be speaking about the role of X-ray astronomy in modern cosmology. In particular, what we can learn from the study of galaxy clusters at these wavelengths. In the process, he'll give a brief review of how X-ray telescopes work and what facilities astronomers have available to them at X-ray wavelengths.

Bio:
I grew-up and fell in love with astronomy under the dark skies of a small blue-collar farming community in southern Ontario.

I did a physics degree at the University of Waterloo where I studied the properties of interstellar dust grains for my undergraduate thesis.

I did my Masters in Astronomy at the University of Toronto where I studied the effects of strong gravitational fields on beams of light in general relativity.



X-ray image of the Crab Nebula, M1, by the Chandara X-ray Observatory. http://chandra.harvard.edu/photo/0052/

My PhD here at UVic won the Governor General's Gold Medal. I studied the effects of collisions on the structure of galaxy clusters.

This summer I will be going to the University of Swinburne in Melbourne, Australia to participate in a large galaxy survey designed to study the evolution of dark energy in the universe.

coming up

Sunday Sun Day

June 17, Noon - 2 pm, Gonzales Observatory, end of Dennison Road, Oak Bay.
Scott Mair will be hosting a solar observing event as part of his CRD Parks job at the observatory in Gonzales Hill Regional Park. Any RASCals that would like to join in with their telescopes and solar filters would be very welcome. For more info contact Scott at 478-3344 or smair@crd.bc.ca

Cowichan Valley Starfinders 12th Annual Star Party

July 20th & 21st, Victoria Fish and Game Protection Association, Holker Road (opposite Whittaker Road turnoff to Spectacle Lake)
For more information see: http://starfinders.ca/starparty2007.htm

6th Annual RASCals Star Party

August 24 - 26, Victoria Fish and Game Protection Association, Holker Road (opposite Whittaker Road turnoff to Spectacle Lake)
For more information see: http://victoria.rasc.ca/events/StarParty/Default.htm

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address change? information incorrect

Contact the National Office

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Fax - 416.924.2911
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Post - RASC, 136 Dupont Street, Toronto, ON M5R 1V2
General enquiries - natonaloffice@rasc.ca

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contact us on-line

Web Site	www.victoria.rasc.ca
New Members	newmembers@victoria.rasc.ca
General Inquiries	info@victoria.rasc.ca

President's Report

President's Message

The School Telescope Program is run by our 1st Vice President Sid Sidhu, and represents our public outreach to schools. If you are an active observer, Sid coordinates a dedicated group of Victoria Centre volunteers to setup telescopes and invite school aged kids to look at the Moon, planets and the brighter objects in the night sky. This year Sid reports many cancellations and rescheduled school telescope events. I'm sure I don't have to tell you the weather for the last six months has not lent itself to observing, and yet we have successfully staged a few school telescope events.

The latest event was a "Beaveree" held for the Beavers at Camp Barnard on Saturday, May 26th. We had a good turnout of Beavers (5-7 year olds), and we certainly had wonderful support from our volunteers. Up until lunch time we thought the cloudy skies would beat us, but after lunch the sky cleared and we all setup our telescopes for solar observing, including the Victoria Centre's Coronado Ha scope. Some of us even found Venus in the daytime sky. We all went home happy that we helped the Beavers and their leaders to observe the Sun, and tell them a little bit about astronomy by using our solar system model, some display astrophotographs, and Steven Courtin's ecliptic calendar. Many thanks to our members who volunteered for this event - Scott Mair, Steven Courtin, David Lee, Constantine Thomas, Mark Wheen, Bill Weir, Sandy Barta, Dave Bennett, Bruno Quennville, Sid Sidhu, and Joe Carr.

At the last Victoria Centre Council meeting, we decided in principal to purchase a good robotic-capable equatorial mount to put in the observatory on Observatory Hill (which we expect to be built this year). The BC Gaming Commission did not grant us adequate funds to purchase a whole robotic telescope system, but we feel if we have a good mount, it will serve us well into the future. Council realized that if we combined the funds the Gaming Commission granted us for this year's proposal along with funds we have in our regular bank account, we could purchase a top quality robotic equatorial mount which could handle many different telescopes our members might wish to use, in addition to the 16" scope we plan to acquire next year. Several possible robotic telescope configurations were considered. The criteria was governed by our

proposal to the BC Gaming Commission, which stated:
"*Providing an internet enabled portal to the stars for British Columbians enables everyone access to the beautiful and enriching world of astronomy. For many members of our community this is currently not possible: many people with physical disabilities find it difficult to look through a normal telescope comfortably or get to good observing sites; many seniors are no longer are able to get around as they once could, especially on cold, damp evenings; and in a climate of challenging education budgets field trips for many schools are no longer an option. Using our current equipment (video projector and astro vid camera) and the resources we could acquire with support of this grant application we could connect all British Columbians directly to the night sky in real-time. With a 16 inch telescope (to ensure exquisite images) located in a dark sky location (DAO) and with remote computer control, anyone could control the telescope via the internet, take pictures and enjoy them on their computer screen.*"

At our May 16th Council Meeting, the two Vice Presidents and myself presented our recommendation for the purchase of the Software Bisque Paramount ME robotic equatorial mount over other options. Council carefully analyzed our budget and available gaming funding, and concluded we could handle this purchase (estimated at $16,200 depending on US$ exchange rate). I would like to make clear, we are still providing for this year's budget ($1,650 to end of year), so programs we planned for will not be jeopardized by this proposed purchase. We realize this is probably the largest single purchase Victoria Centre has ever made in its history, so we want to ensure members are well-informed about the process we followed. As I stated at our May 9th general meeting, if any members have feedback or opinions you wish to share, Council members would be happy to hear from you. We plan to hold a special Council meeting June 20th to formally vote on this proposed purchase. As always, any member of Victoria Centre is welcome to attend this or any other Council meeting.

I hope all Victoria Centre members enjoy our summer weather, and take time to get outside and observe. There are two local star parties being held: the Island Star Party July 20-21, 2007, and our own RASCALS Star Party Aug 24-26, 2007. Both of these events are held at the Victoria Fish and Game Association located on the Malahat, so please plan to attend these fun events that are located so close to us. Impromptu observing sessions will no doubt happen locally on Observatory Hill, Cattle Point, and Pearson College, so stay tuned to our email lists for the latest observing information. Last but not least, please stay tuned for our annual picnic, which is always held at Pearson College Observatory - date to be announced. Please have a safe, fun, and happy summer!

Standing in the foot-prints of a giant and I saw the moons of Jupiter

by D. Colin Wyatt

*Accordingly, on the seventh day of January of the present year 1610, at the first hour of the night, when I inspected the celestial constellations through a spyglass, Jupiter presented himself. And since I had prepared for myself a superlative instrument, I saw (which earlier had not happened because of the weakness of the other instruments) that three little stars were positioned near him--small but yet very bright. Although I believed them to be among the number of fixed stars, they nevertheless intrigued me because they appeared to be arranged exactly along a straight line and parallel to the ecliptic, and to be brighter than others of equal size. And their disposition among themselves and with respect to Jupiter was as follows: East * * O * West*

On January 7 1610, Galileo Galilei saw Jupiter and its moons as never before observed by human eyes using his new telescope. On May 17 2007, with a replica of his telescope, I was also able to see the moons of Jupiter. Although Jupiter was not in a favourable position, it was finally high enough to penetrate the dense lower atmosphere and the light in the night sky from the City of Victoria.

It is almost 400 years since Galileo Galilei turned his home made telescope to the skies and saw in greater detail more than anyone else had seen before. This included the craters on the Moon, stars in the Milky Way, the moons of Jupiter and the rings of Saturn.

It would be very difficult to experience just what it was like to be in that time and replicate how he observed and interpreted what he saw. Nontheless, I have used the replica of Galileo's telescope that I built for Astronomy Day, and I have observed the night sky to experience how it would have appeared to Galileo. My replica telescope is based on one Galileo made with a plano-convex objective lens, 40mm diameter with a 980mm focal length, stopped down to 16mm. The ocular lens of -47.5mm focal length gives it a magnification of 20.6. My replica has a 1000mm objective and -50mm ocular lens yielding a magnification of about 20. The objective lens of my replica shown at the 2006 Astronomy Day was of poor quality, so I felt it did

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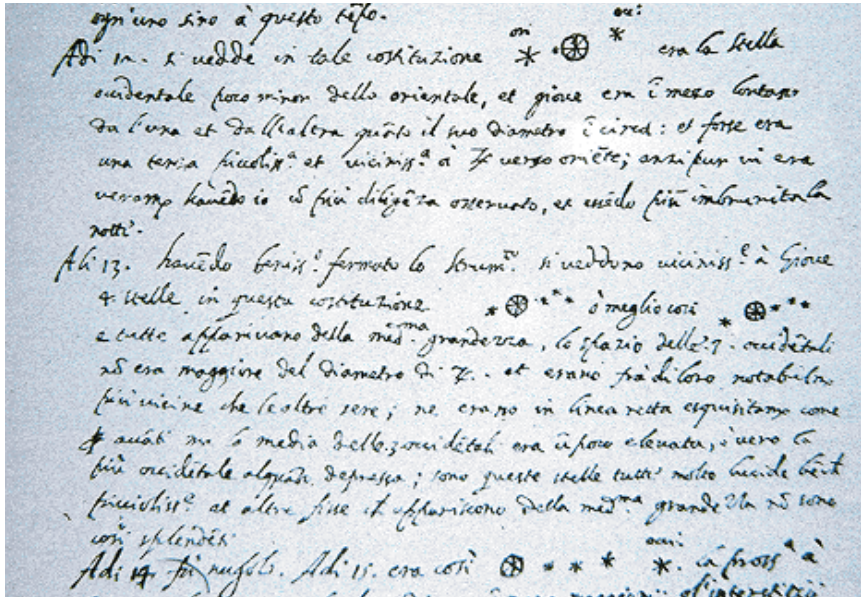
not perform as well as Galileo's design. I recently replaced this lens, and I have used it to observe stars, the Moon and Saturn, which appeared to me to more closely replicate Galileo's description. I have been waiting to try this telescope on Jupiter, however the few times the weather or time permitted, the seeing was poor.

On May 17 around midnight Jupiter rose to only 11° 23' above the horizon. Looking through the illuminated haze I was able to see two sparkling star like objects near and to the left of Jupiter. These turned out to be Ganymede and Europa, appearing thusly * * O , Io was too close to Jupiter to be observed. I was unable to see Callisto, although it was far to the right of Jupiter and should have been visible.



Notes by Galileo on his observations of Jupiter by telescope

When Galileo saw Jupiter it was 48° 56' above the horizon and the sky was not lit up with electric lights, but regardless, I feel I have gained some idea of the impression these observation may have had on him. I hope when I'm in a darker place and Jupiter is higher in the sky I will truly see Jupiter and it is moons in the way Galileo saw them.

On May 24, I observedthe Moon with this telescope. The wealth of details visible is so far above that which can be observed with the naked eye that I suppose Galileo would have been astounded. *The mountain ranges, the craters , and other lunar details are very clearly defined - so much so, I could see the central peak in the crater Azachel, the crater Hell and the faint crater just above.*

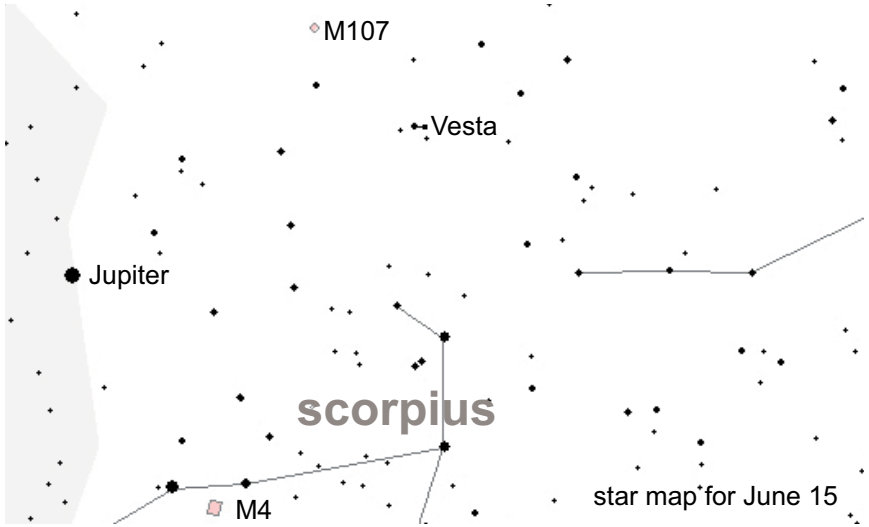
Visible Vesta

by Malcolm Scrimger

Here is your chance to find one of the brightest asteroids in the sky, Vesta. Vesta is the second most massive object in the asteroid belt, with a mean diameter of about 530 km and an estimated mass 9% the mass of the entire asteroid belt. Its size and unusually bright surface make Vesta the brightest asteroid, and the only one ever visible to the naked eye from Earth besides Ceres.

It was discovered by the German astronomer Heinrich Wilhelm Olbers on March 29, 1807. He allowed the prominent mathematician Carl Friedrich Gauss to name the asteroid after the Roman virgin goddess of home and hearth, Vesta.

Vesta will be at its brightest for this year in May and is ideally placed and easily found. It will be just 10 degrees higher in altitude from Jupiter in the Eastern sky at 12pm PDT at approximately 5th Magnitude in brightness which - with an eagle eye - can be seen under a dark sky without optical aid. In binoculars however, it can be easily seen just 3 degrees lower in the sky from Han, Ophiuchus. The best method to find Vesta in binoculars is to place Jupiter, which will be the brightest object in the Eastern Horizon in the bottom field-of -view of 7 x50 binoculars and then pan up one complete field-of-view until Han, Ophiuchus (Magnitude 2.5) is at the top of the field-of-view. Vesta will be in the centre at 5th Magnitude.



star map for June 15

When Galaxies Collide, Our Solar System Will Go For A Ride

Science Daily — For decades, astronomers have known that the Milky Way galaxy is on a collision course with the neighboring Andromeda spiral galaxy. What was unknown until now: the fate of the Sun and our solar system in that melee. New calculations by theorists T.J. Cox and Avi Loeb (Harvard-Smithsonian Center for Astrophysics) show that the Sun and its planets will be exiled to the outer reaches of the merged galaxy. Moreover, the collision will take place within the Sun's lifetime, before it becomes a burned-out white dwarf star.

"You could say that we're being sent to a retirement home in the country," said Cox. "We're living in the suburbs of the Milky Way right now, but we're likely to move much farther out after the coming cosmic smash-up."

Computer simulations by Cox and Loeb show that big changes are coming in only 2 billion years, when the Milky Way and Andromeda experience their first close pass. A viewer on Earth would see the night sky evolve from a strip of stars (the Milky Way seen edge-on) to a muddled mess as Andromeda's powerful pull flings stars from their stately orbits. At that time, the Sun will still be a hydrogen-burning main-sequence star, although it will have brightened and heated enough to boil the oceans from the Earth.

The two galaxies will swing around each other a couple of times, intermingling their stars as gravitational forces stir them together.
About 5 billion years from now, Andromeda and the Milky Way will have completely combined to form a single, football-shaped elliptical galaxy. The Sun will be an aging star nearing the red giant phase and the end of its lifetime. It and the solar system likely will reside 100,000 light-years from the center of the new galaxy -- 4 times further than the current 25,000 light-year distance.

Any descendants of humans observing the future sky will experience a very different view. The strip of Milky Way will be gone, replaced by a huge bulge of billions of stars. Future scientists may look back on today's research as the first prediction of things to come. "This is the first paper in my publication record that has a chance of being cited five billion years from now," joked Loeb.

for sale

On consignment: Meade ETX 90mm EC, in like-new condition, with a Meade 4000 26mm eyepiece, erect image diagonal, right-angle diagonal, 8x21mm viewfinder, tripod and a camera t-adapter. Best offer. Contact Bill Almond 478-6718 or fwalmond@shaw.ca.

observers group

RASC Victoria Centre and the NRC have signed a License to Use Land Agreement which gives members of Victoria Centre expanded access to NRC property on Observatory Hill.

If you are a member in good standing of Victoria Centre RASC, consider yourself an “active observer”, and wish to take advantage of this opportunity, please send an email to the 1st or 2nd Vice President. More information on this program see: http://victoria.rasc.ca

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New Member Liaison
Sandy Barta
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this month

monday nights

Astronomy Cafe
Is suspended for the summer. Join us again in September.

Call John at 250.480.0928 for information.

second wednesday of the month

Monthly Meeting
7:30 PM, Elliott Lecture Theatre, Rm 060, UVic.

as sky and interest dictate

New Observers Group
Hosted by Sid Sidhu.
1642 Davies Road, Highlands.
Call 391-0540 for information and directions.

by email

Observer/CU Volunteers/ Members email lists
Contact Joe Carr to subscribe to these email lists for important, timely, member-related news.