Hamilton Amateur Astronomers

Event Horizon

June 2006 Volume 13 Issue 8

Chair's Report

by Glenn Muller

There must be something about this stretch of the solar system that gives me the urge to go camping, for whenever Earth travels this part of its orbit I start to think about star parties.

For the next four months, or 310,539,018 kilometers of Space, conditions are just right for playing under the stars and sleeping under the Sun, and to do so with hundreds of others who also thrive on such a bat-like existence.

For those who have camped before but never attended a star party I can offer the following tips:

- Make a list. There are many critical components to astronomical equipment that are not readily available at the nearby hardware store. Such things, if left at home, can easily kill a promising session.

- Since the main intention is to observe the sky your camping spot will likely be without natural shade, in which case a sun gazebo, or dining tent, will provide welcome relief from the heat.

- Hydro is often available, for computers and telescope drives, but connections may be a hundred feet away so bring an ample length of extension cord.

- If you've ever set-up a borrowed tent, at night, then you understand frustration. Assembling new astronomical equipment, after dusk, can be even more taxing. If possible, test your toys at home (where your tools are) and make sure that everything performs the way it should. An exception to the rule is when your Chinese scope only came with Cantonese instructions – in that case you'll find plenty of expertise at the star party, but keep in mind that "field surgery" is only recommended as a last resort.

- Since astronomers usually camp without fires and stay out well into the night, there is quite a temperature range to deal with. Events in early or late Summer can be most deceiving this way, so pack clothes suitable for both sweltering hot days and frosty nights. Even the Winter Star Party in the Florida Keys is not immune to this sort of fluctuation.

- Put ear plugs on your list. Like most star party attendees, you'll likely observe well into the night and then sleep in, but individual schedules often overlap. Ear plugs can help maintain your sunny disposition even after four days of what might have been a reality show.

- Which brings up my final point that star parties are for having fun. I've yet to attend one I didn't like and this is partly due to everyone's tolerance of the foibles of those around them. I find that minor irritations are easily solved with a time-out (nap) or a drink appropriate to the situation*. **Check star party rules for allowable beverages and please observe responsibly.*

Not a camper? Not a problem. Many locations are within a short drive of motels, B&B's, and restaurants. Early bookings are recommended, though, as the most amenable rooms are the first to go.

Many astronomers rate star parties as the best value in mini-vacations, and I'd have to agree. Check the listing found elsewhere in this issue and, hopefully, I'll see you and your scope at one soon.

Have a great Summer!

Glenn invites your comments on these topics or any aspect of the club. He can be reached via:

`chair@amateurastronomy.org`

Email Reminder notice

We send email reminders before each meeting which describes the location, time and topic of the general meeting.
If you're not on the list, make sure that you receive your reminder by sending a note to:
publicity@amateurastronomy.org

An Offer

Thinking of buying your first telescope but wondering what kind to get? Before you buy, consider this offer from Mike Spicer: a "loaner" 5 inch telescope with electronic alt-az controls. The scopes are lightweight, easy to set up and very easy to use. Mike is offering newer members of our club one of these telescopes to try out for a month or so. Interested? You can reach Mike by email at deBeneEsse2001@AOL.com or by phone at (905) 388-0602.

Articles submissions

The HAA welcomes your astronomy related writings for the Event Horizon newsletter. Please send your articles, big or small, to:
editor@amateurastronomy.org
The submission deadline is two days before each general meeting.

HAMILTON AMATEUR ASTRONOMERS

Event Horizon is a publication of the Hamilton Amateur Astronomers (HAA).
The HAA is an amateur astronomy club dedicated to the promotion and enjoyment of astronomy for people of all ages and experience levels.
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Submissions to the web site or newsletter are welcome, and may be edited for size & content.

Local Star Parties *by Glenn Muller*

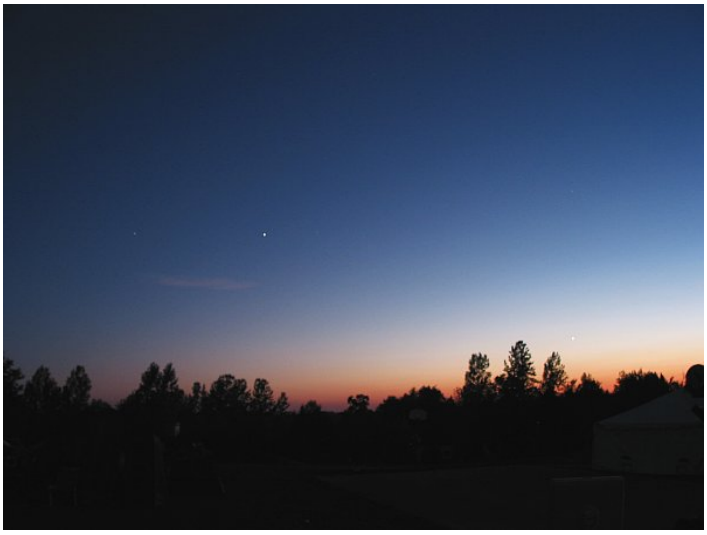


Photo by Sandy Maude from Starfest 2005

- **June 29-July 3 Stargazing Manitoulin**
  The Dark Sky Sanctuary in Gordon's Park, Manitoulin Island, Ontario.
  Contact: Rita Gordon, Manager
  Tel: 705-859-2470
  E-mail: rita@gordonspark.com
  www.gordonspark.com/astronomy.html

- **July 21-23 Gateway to the Universe Star Party**
  Munro Family Campground, 5 km. west of Powassan, Ontario.
  Contact: Merlin Clayton
  Tel: 705-472-1182
  E-mail: galaxy001@sympatico.ca
  www.gateway-to-the-universe.org

- **July 21-23 RocheSTARfest**
  Wolk Observatory, Ionia, NY.
  Contact: Eric Lockwood,
  Tel: 585-226-6216
  E-mail: info@rochesterastronomy.org
  www.rochesterastronomy.org

- **July 27-30 Huronia Star Party**
  Camp Saulaine, near Ivy (15 km. southwest of Barrie), Ontario.
  Contact: Gord Rife.
  E-mail: ssaa@cois.on.ca
  www.cois.on.ca/~ssaa

- **August 4-6 CAFTA 2006**
  Telescope makers' competition held at Parc des Iles,
  St-Timothée (near Valleyfield), Québec.
  Contact: Marjolaine Savoie
  Tel: 514-953-9038
  E-mail: marjos@ca.inter.net
  http://membres.lycos.fr/cdadfs/cafta.html

- **August 12 Muskoka Star Party**
  Three locations in the Musoka, Ontario area (near Bracebridge, Torrens Barrens Dark Sky Preserve and The Echo Valley Observatory in Huntsville).
  Contact: Joan Eaglesham
  Tel: (705) 645-7393
  www.muskokaheritage.org

- **August 17-21 Manitoulin Star Party**
  The Dark Sky Sanctuary in Gordon's Park, Manitoulin Island, Ontario.
  Organizer: Gordon's Park.
  Contact: Rita Gordon, Manager
  Tel: 705-859-2470
  E-mail: rita@gordonspark.com
  www.gordonspark.com/astronomy.html

- **August 24-26 Starfest 2006**
  River Place Campground, near Mount Forest, Ontario.
  Contact: Tony Ward
  Tel: 905-668-8798
  E-mail: tonyward@rogers.com
  www.nyaa-starfest.com

- **September 22-24 Annual Algonquin Adventure**
  Mew Lake Campground, in Algonquin Provincial Park, Ontario.
  Contact: Robert or Lillian Chapman
  Tel: 705-386-7087
  E-mail: astronomers@sympatico.ca
  www.toronto.rasc.ca

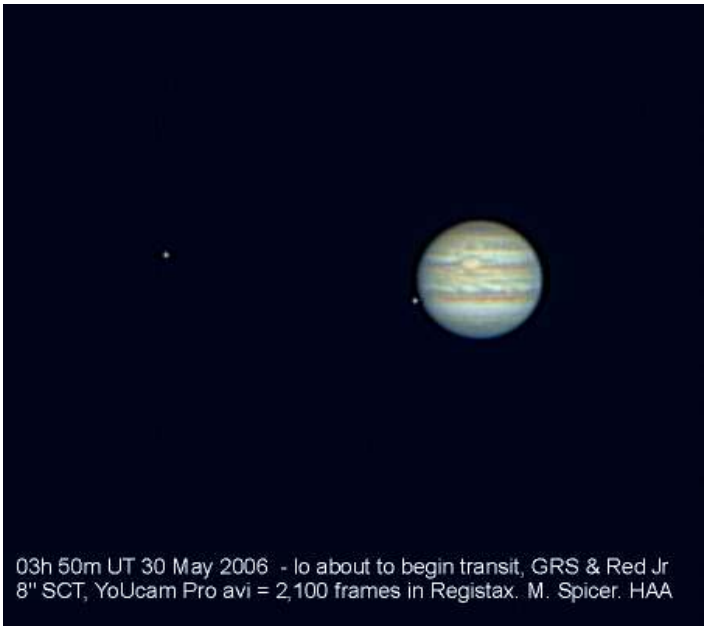
- **October 19-22 Frozen Banana Star Party**
  Munro Park, near Powassan, Ontario.
  Contact: Harold Healy
  Tel: 705-669-7750
  E-mail: hhealy@sympatico.ca
  www.gateway-to-the-universe.org

Observers Notes *by Mike Spicer*

May 29: All night observing in perfect conditions at Binbrook!

Another hot and hazy summertime day followed by absolutely perfect observing conditions all night at Binbrook. Several of us set up two telescopes at 10 pm on the hill - an 8" SCT for imaging and a new 6" S-N to try out its wide field possibilities.

The transparency was splendid and the 8" obtained some remarkable images of Io's transit of Jupiter while the Great Red Spot and Red Spot Jr. were on the disk. While imaging later on, I was able to process the first image, showing Io about to start its transit, here:



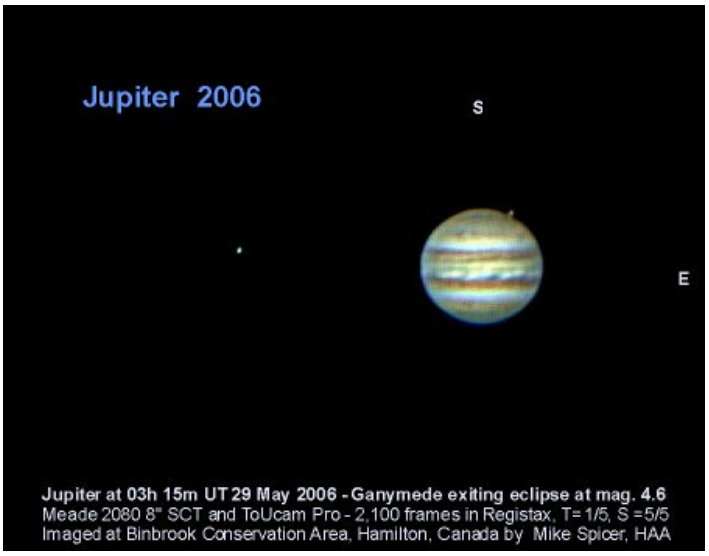
Jupiter from Binbrook by Mike Spicer

Heather tried out a new 6" Schmidt-Newtonian and found it much easier to use than the 5" Mak's high power and small field of view. The S-N tube was not much larger or heavier, was easy to balance and offered a much wider field of view with brighter images. Polar and star alignment was quick, painless and accurate! "It's a keeper, I'll write out the cheque right away", she declared. "M22 is fabulous and this S-N has the best views of Jupiter I have ever seen in a scope under 8". The Io transit was easy to follow in it."

With the milky way rising to the zenith and after observing a number of deep sky objects in Scorpius, Ophiuchus and Sagittarius, the dew started to overwhelm Heather's scope, my laptop batteries ran out, the portable hard drive was about full of avi files and the watch said it was after 4 a.m. - with work to do tomorrow!

May 28: Easily the best observing night of 2006 to date

Ah, late May! Hot, humid and hazy summertime days, but warm, comfortable observing nights. Sunday night at Binbrook was easily the best night of the year so far for observing and especially for imaging! Seeing better than 1 arc-second.



via ToUcam on an 8" SCT at Binbrook

I took a series of ToUcam avi files showing Ganymede emerging from eclipse at mag. 4.6 (see above photo), then entering the shadow of the planet and falling to mag. 8.6, then exiting the shadow and returning to mag. 4.6 - a great series for this unusual eclipse process! I took some ToUcam images of Saturn and DSI images of M57 using an 8" SCT while Ganymede was in the shadow of Jupiter.

Heather set up her 5" Mak with near-perfect polar alignment. After a two-star alignment, she enjoyed perfect go-to and excellent transparency all night. We used the telescopes to observe Jupiter and Saturn, but also to bag a number of DSO's: M57, M27 and globular clusters M4, M10, M12, M13, M22 and M92. Transparency was so good that Heather could easily split the 4 components of Epsilon Lyrae and observe the diffraction rings around them separately.

Hazy days... but great nights!

May 26: Triple transit of Jupiter Saturday 27 May

The Clear Sky Clock celebrated my birthday by giving us clear skies to observe a triple transit of Jupiter. What a gift!

To quote RASC member and retired college professor "cool hand" Geoff Gaherty, speaking in EDT for Space.com: "Jupiter is going to put on quite a show for us. The Great Red Spot will be transiting at 10:20pm, followed about an hour later [Ed: maybe half an hour] by Red Spot Junior [Ed: the Oval BA]. Europa's shadow will be half way across the disk around 10:15pm, and Europa itself will be coming off the disk at 10:25pm. This will give us the wonderful 3-D effect with the moon hanging just off the planet's limb and its shadow cast on the cloud deck below. The shadow will continue across the planet until 11:32pm."

It was a little foggy as I drove out to the Conservation Area for 9 pm and discovered the park had been taken over by Boy Scouts ringed around smoky campfires... so our alternate observing site beckoned. A train of H.A.A. members' cars followed me to the other end of the park, where we set up as darkness fell. Tim Philp had a brand new aluminum folding table to hold his telescope and imaging equipment ($50 at Fortinos) and Heather Neproszel had a smaller version - just as beautiful - from Canadian Tire ($30)that held her three astrocases.

Glenn and Gail had their 6" Newtonian, Tim Harpur set up his 8" SCT and digital imager, Tim Philp brought the 10" Schmidt Newtonian, I had an 8" S-N and set up a 5" Newtonian on a powered mount for Gary Sutton and Jackie Fulton; Don Pullen had his new refractor and smooth EQ-3 mount, Heather Neproszel set up her 5" Mak with binoviewer and Ron set up a 4.5" Newtonian at the park entrance. So there was great variety in telescopes to see through. A number of naturalist visitors also stopped by to observe with us and to share birthday cake thoughtfully provided by Glenn and Gail (thanks!).

It was hazy - the transparency was poor, though I could see 4th magnitude stars overhead but the air was very warm and still. Many reported the seeing to be excellent, with much detail on Jupiter and Saturn. I estimated the seeing at 10 pm to be about 3 arc-seconds.

While others imaged or observed Jupiter, I started with Saturn, falling into the western horizon. Over the next two weeks Saturn, being chased by Mars, is passing through M44 the beautiful Beehive open star cluster. In a low power eyepiece in the 8" S-N, one could see about 100 stars clustered loosely with a prominent yellow Saturn and bright Titan very close by. Higher power showed Tethys, Dione and Rhea stretched out in a line with Titan, small diamonds with very little twinkle in the stillness. The Cassini Division between Rings A and B was visible, too. There was more than the usual light scatter around the planet and Enceladus could not be seen, though it was less than 10" from Tethys.

Jupiter was the show of the evening, and various observers reported following the shadow of Europa across the planet's disk; by the time I looked at Europa the moon was just clearing the planet's disk, appearing like a white pimple! The Great Red Spot was very prominent on the disk, though a pinkish colour against the brown of the SEB, and several dark barges in the equatorial zone could be seen in moments of great seeing. Tim Harpur tried imaging Jupiter's disk with several planetary filters and reported dramatic improvements in belt contrast with blue and green wrattens.

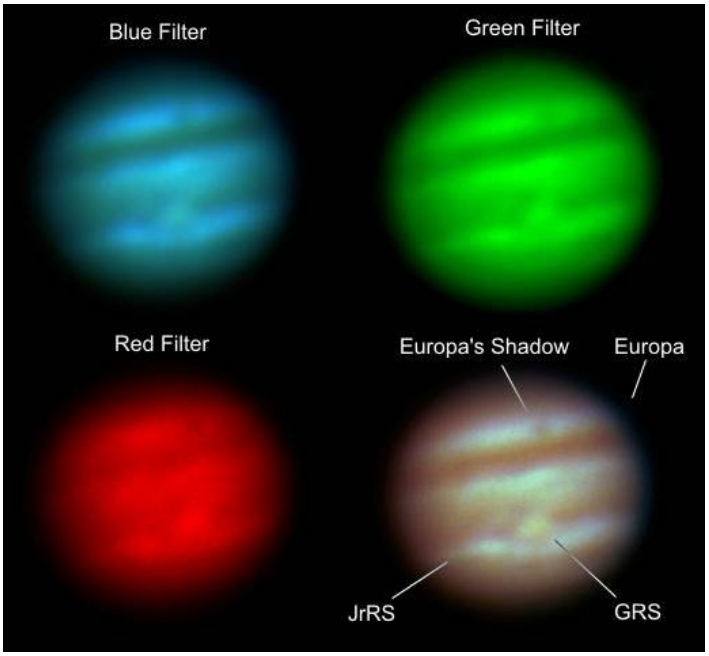


Photo by Tim Harpur

Experienced observers like Glenn looked at double stars (Gamma Leonis, not more than 5" separation) and I looked at Epsilon Lyrae to see that the seeing had improved by midnight, to under 2". More ambitious observers like Don searched Leo for galaxies while I took a peek to the East for M57 (alas! no comet 73P). We finally packed it in at 1 am when we discovered we were standing in a large fog bank.

All in all, a warm and interesting evening shared with many good friends.

May 19: Monday night imaging in the city

The tantalizing Clear Sky Clock predicted clear skies for the long weekend, then took it all back each day... by Monday at 8 pm we had overcast with thick grey cloud and high humidity.

Suddenly just after 9 pm... CLEAR SKIES! Very poor transparency, but at least an opportunity to observe the transit of Io across Jupiter, and to check how close Red Spot Jr. has come to the Great Red Spot. I was invited to use a great 8" Maksutov and to watch Steve K. image Jupiter with his new Orion Star Shooter CCD camera.

The transparency was so poor, the best image I was able to get with fast processing of ToUcam images was:

Toucam on a Big Mak in poor seeing

Io and its shadow are visible on the northern face of the planet; the GRS and Red Spot Jr. are within 10° far to the S. My image is poor. For much better images, you can check the Chris Go page for the impending "collision" of Red Spot Jr with the GRS:

`jupiter.cstoneind.com`

May 18: A new imager at H.A.A.

I was very pleased to hear that H.A.A. member Steve K. had ordered one of the new Orion "Star Shoot" colour CCD imaging cameras. He has a beautiful 8" Maksutov - a great imaging machine. I had hopes he would put the camera on display at our Imaging Clinic last weekend, but he was unable to attend.

Steve invited me over for a practice session at his house tonight. I had set up a scope early to look at Asteroid Lydia, so close to Jupiter. The sky was patchy with thick clouds so after seeing the asteroid, I drove to Steve's place where his scope was already set up for imaging. Imaging Jupiter through sucker holes, I noted how the Star Shoot camera collected such beautifully coloured images of the planet. The software that comes with the camera is a simple form of Maxim DL from Ottawa, but did very complex transformations while imaging.

Steve is now firmly in the astro-imaging group! We are waiting for a night of clear skies and good seeing to do some imaging at Binbrook!

May 9: Opportunities for advancement

Sunday night we had magnificent weather for imaging Comet 73P fragment "C" as it blew past M57. Tonight the next fragment, "B" will be within one degree of Epsilon, the famous "Double Double" star in Lyra - a spectacular opportunity to see and image that comet fragment.

Due to the failure of new Celestron hand controllers, the Nexstar 11 has been out of commission. I have been using Meade telescopes - a S-N 8" for wide field views, and a 2080 SCT for planetary views. The 2080 has a clock drive with AC plug-in located in the bottom of the fork mount. I dusted off an old unused steel wedge and using a Dremel, I cut a hole for the plug-in through the 3/16" steel plate of this wedge - presto, a useful thing once again. So the 8" SCT is now on my home pier mount until Celestron sends the replacement handsets.

Thanks to Tim Harpur, Gary Sutton, Heather Neproszel and Harvey Garden for joining me out at Binbrook.

We were able to see 73P Fragment "B" clearly in the various telescopes: my own 8" S-N, Heather's 5" Mak and Gary's Nexstar 5. I was able to capture the comet as it neared Epsilon Lyrae, and the fragment "B" is now bright enough to see in a 50mm finderscope.

Unfortunately clouds - not predicted by the Clear Sky Clock - hindered observing and light from the nearly full Moon made the sky background an unpleasant grey colour for most of the evening.

OUR FIRST IMAGING CLINIC *by Mike Spicer*

OUR FIRST IMAGING CLINIC, Saturday 13 May

Following our successful telescope clinic in January, the H.A.A. held an imaging clinic at the Teamsters' Hall on Parkdale Ave. North. The clinic was held from 7:30 till 9:30 pm on Saturday evening, 13 May. Despite running through the dinner hours, it was very well attended.

Around the periphery of the Hall, many members had set up imaging equipment with film cameras, web cams, digital SLRs and even inexpensive electronic eyepieces on display. Bob Christmas had his Canon camera and telephoto lens on his Superpolaris mount, some of his outstanding photos on an adjoining table. Tim Harpur mounted his Digital Rebel afocally on a C8 / Advanced Series go-to mount bristling with guidescope and finder, a laptop and examples of his beautiful images nearby. Clyde Miller brought his table-top 80mm ST refractor and DSI complete with computer set-up.

Photo by Sandy Maude

Gail Muller made sure everyone had power and space to display the items. She made coffee and chatted with newcomers and members alike, making everyone feel at home. Ann and Bill Tekatch set a ToUcam web camera on their beautiful TeleVue Pronto and demonstrated stacking old video images into great Mars photos. Mike Jefferson brought spectroscopy equipment and examples of detailed imaging and its value to astronomy. Heather Neproszel set a 6" S-N on her LXD-55 mount with an electronic eyepiece setup, and a TV and ran video of a very beautiful Io transit of Jupiter taken some time ago.

There were a few dozen people in attendance, some new to astronomy like Jackie, others old hands at photography like Bill. A few members of other clubs in the region came in to see what H.A.A. is doing, and I heard one say he learned a few imaging tricks tonight! I was particularly happy to see that so many people wanted to know how each member actually captured the beautiful images that were on display. That kind of valuable openness and sharing is what makes HAMILTON AMATEUR ASTRONOMERS - A GREAT CLUB!

Ah, the May meeting of the H.A.A. *by Mike Spicer*

May, one of my favourite months. Recent summer-like weather and spectacular observing opportunities, now topped off by an almost-full auditorium for the monthly meeting of Hamilton Amateur Astronomers at the Spectator Building Friday night 12 May.

There were a lot of new faces in the crowd, some of whom I had met at our recent Public Observing night at Bayfront Park. Members and others who introduced themselves came from Oakville, Burlington, Brantford and Cayuga as well as from the local area. Several dozen friendly faces, books, photos, telescope equipment and information available at the back, while at the front of the hall...

Photo by Sandy Maude

...our Observing Director, Greg Emery with the Sky this Month, an excellent presentation of sky charts and digital photographs (some apparently taken by himself) showing the many beautiful constellations and celestial objects in May skies. If there was a preponderance of galaxies in the review, we can excuse Greg for being a deep-sky observer!

Photo by Sandy Maude

Last month's presentation on Comet S-W 73P challenged members to find the comet, and promised an update in May. Glenn elicited a positive response from more than a dozen members who had observed the comet. Tim Philp gave an excellent presentation on recent developments for this comet, with Hubble photos and images from local astronomers tied neatly together. Our monthly door prizes continue with several give-aways, including video and DVD of Hubble Space Scope achievements.

Photo by Sandy Maude

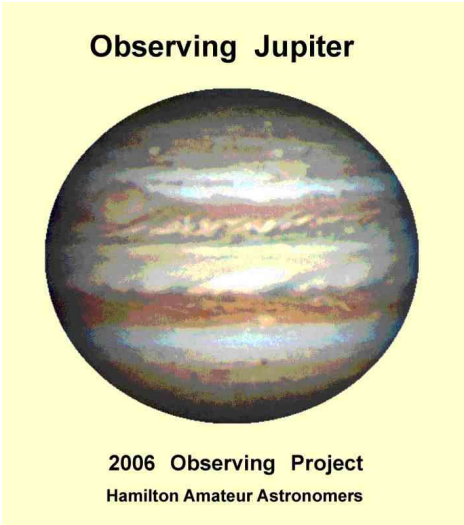
Jupiter has taken the main stage in May's skies. The final presentation of the night was on Observing Jupiter. Whether you use binoculars, a small refractor, or a big scope with imaging equipment, Mike's presentation covered your level of interest: Transits and eclipses of the moons, shadows, barges, bands and spots of all sizes and hues were mentioned. Special thanks to Chris Go for permission to use his outstanding images of Jupiter.

Photo by Sandy Maude

Members provided contact information to receive a copy of the 2006 project booklet, "Observing Jupiter" free of charge. If you want a copy, email Mike your contact info to: debeneesse2001 (at) AOL (dot) com. After the meeting, discussion, reviews of equipment, some purchases and sales, and then retiring to East Side Mario's on the outer reaches of Dundas for a fine repast amidst much laughter.

A great meeting of a great astronomy club!

Jupiter booklet available



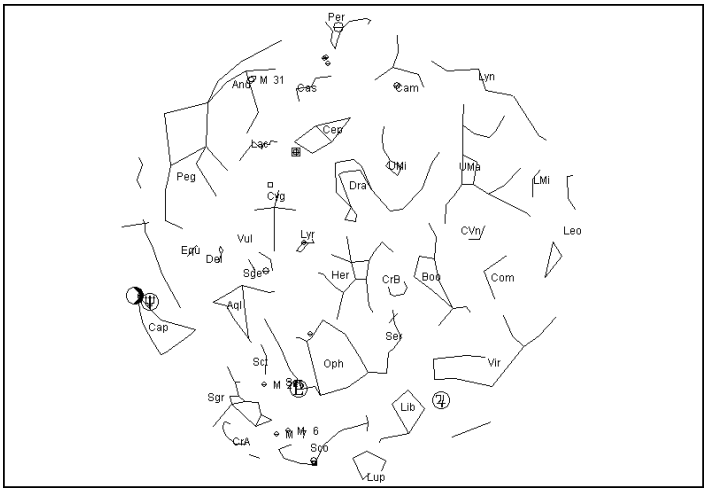
HAA members can download from the web site (or obtain a paper copy on request to Mike Spicer) of Observing Jupiter the club's 2006 observing project.

Summer Skies 2006

by Greg Emery

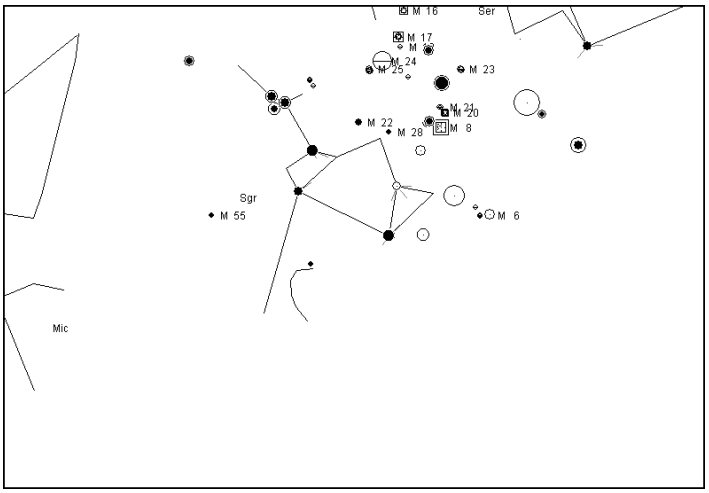
Summer astronomy offers many outstanding opportunities, unfortunately these must all be gazed upon in the shortest of times. Astronomical twilight varies from about 2300 to 2200 during the summer at this latitude (43°N). The late nights, mosquitoes, black flies are worth the sights however.

Before describing the skies I have a few notes on the insects. Apparently insect repellant with DEET in the formulation is marvelous at removing antireflective coatings from optics. You may want to apply it away from your optics. Also consider using your non-dominant hand to spread it around. I met someone at a star party a few years back who wore a latex glove to apply the insect repellant – I guess I am telling you to practice safe astronomy by remembering the latex! Tight fitting cuffs and collars on your clothes prevent the insects from finding a home in your clothes. Alternatives to DEET formulations are natural based repellants which tend to have citronella and the like – although some forms smell very similar to Pledge furniture polish. Skin so Soft from Avon actually seems to work as well for me as products containing DEET formulations – although spending three days alone in the woods a coming home smelling like Skin so Soft does require an understanding spouse!

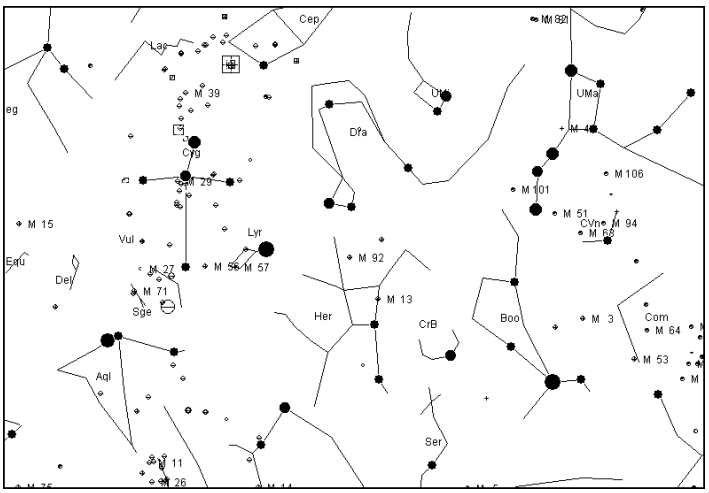


Skies in June, 0100 h (local time)

The night sky is dominated by the Summer Milky Way. During the Summer months our night time view is directed towards the center of our Galaxy, the Milky Way. The Milky Way can be traced from Cassiopeia in the North through Scutum and Sagittarius in the South. By far, one of my favourite constellations is Sagittarius. This constellation has a bit of everything, well almost everything. Sagittarius has several beautiful nebulae which can be viewed. The open cluster (NGC 6514)associated with the Nebula M20 is naked eye visible (Magnitude 5.6). Look for the cluster on the edge of the swath of stars in the Milky way. Sagittarius also boasts more open clusters and nebulae, as well as some globular clusters. The globular cluster M22, is beautiful (located east of the teapot lid) is one of the better globulars to be seen in the Northern Hemisphere.



Detail of Sagittarius.



Highlight of Overhead Summer Milky Way

The sky is not about Sagittarius alone. The Milky Way, directly overhead as it cuts through

Cygnus, is breath taking. My very first true experience with Astronomy was almost 5 years ago. I found myself out at Binbrook on August 11. After looking through some big scopes, and arranging to buy a piece of glass to make a telescope mirror I was taken aside and handed a pair of image stabilizing binoculars (with a higher replacement cost than the car I drove to Binbrook). The owner, and alleged expert on these matters, suggested that I just scan up and down the Milky Way from Cygnus to Aquila. I still take the time with my telescope, using the lowest power/widest field of view to do just that. With no objects in mind, nothing to find or check off from a list, just scan up and down the Milky Way. It is stunning.

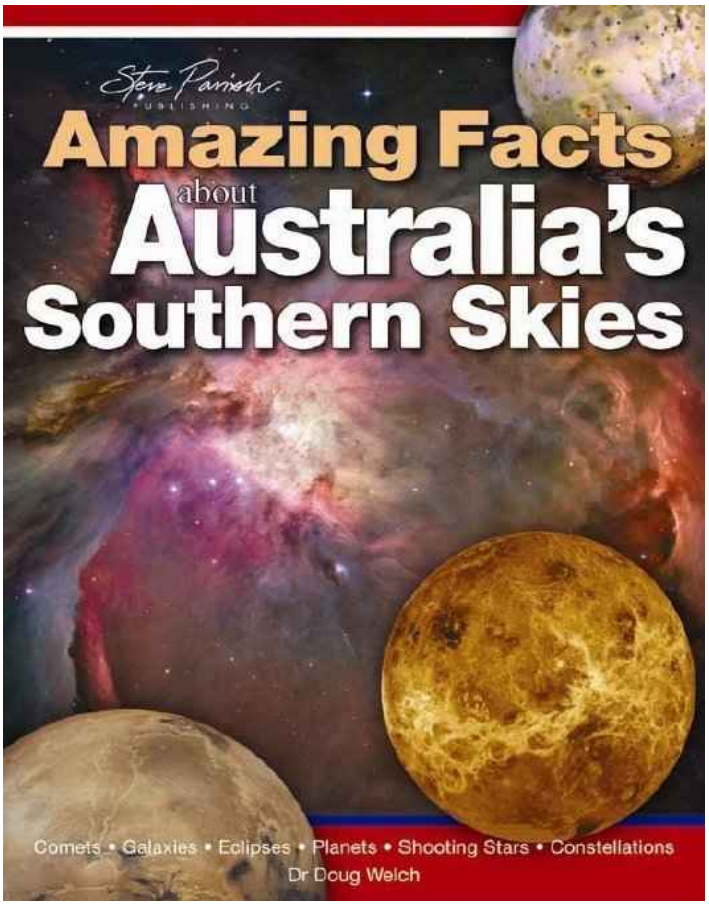
For those with target lists or who are more goal oriented, consider the open clusters M29 and M39 in Cygnus. The North American Nebula (NGC 7000) and the Veil Nebula (NGC 6992). While in Cygnus, don't forget to look at Alberio, the head of the swan (the bright star in Cygnus is Deneb and is located at the other end of the Swan). Alberio is a beautiful double star that is easily split. The one star is a nice blue while the companion is topaz. The colour contrast is wonderful, Another star you may want to consider splitting is the double-double in Lyra. The star is actually ϵ-Lyre and is located near the bright star Vega. Epsilon is, under low power, a double star. Each pair of the double is itself a double star. I have been taught/shown how to use these stars as a way to gauge the performance of my scope and the night sky. Under very good conditions with a properly aligned scope I know how the image should appear. After collimating my scope I can view the quartet of stars to get a feel for the current conditions of the sky.

The list of targets and possibilities in the summer are long and exhausting, so I will wind up with two final suggestions. The open cluster M11, in Scutum is a beautiful open cluster, sometimes referred to as the Wild Duck Cluster. The second suggestion is with a wide field of view look at the area to the west of the spout of the teapot in Sagittarius (between M8 and M6). You are looking at the center of the galaxy, enjoy!

Greg Emery has been an amateur astronomer for a few years. Besides being optimistically ambitious, Greg enjoys observing deep sky objects. He can be reached for comment by email at `Greg.Emery@MohawkCollege.ca`

Amazing Facts about Australia's Southern Skies

a book by Dr. Doug Welch



This excellent book written by Dr. Doug Welch for children and adults is loaded with pictures and facts about the planets and many other sites in the night sky.

"Amazing Facts about Australia's Southern Skies" is available at Titles Bookstore at McMaster University for $14.95 (plus GST and shipping if needed). It is shelved under both "Science" and "Mac Authors". ISBN: 1740218353. Orders via email to: `bookstr@mcmaster.ca`. By phone: toll free 1-800-238-1623 ask for ext 22632 or 905-525-9140 ext 22632.

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Inspiring Innovation and Discovery

News Release

HAMILTON, ON. June 8, 2006 Massive star supernovae have been major "dust factories" ever since the first generations of stars formed several hundred million years after the Big Bang, according to an international study published in Science Express today.

The scientific team trained their telescopes on Supernova 2003gd, which exploded in the NGC 628 spiral galaxy 30 million light-years from Earth. The light from the 2003gd first reached Earth on March 17, 2003. At its brightest, it could be seen in an amateur astronomer's telescope. While many supernovae are discovered each year, this particular one stood out because it was relatively nearby and could be followed for a longer-than-usual time by the specialized infrared detectors of the Spitzer Space Telescope, and by a spectrograph on the Gemini North telescope.

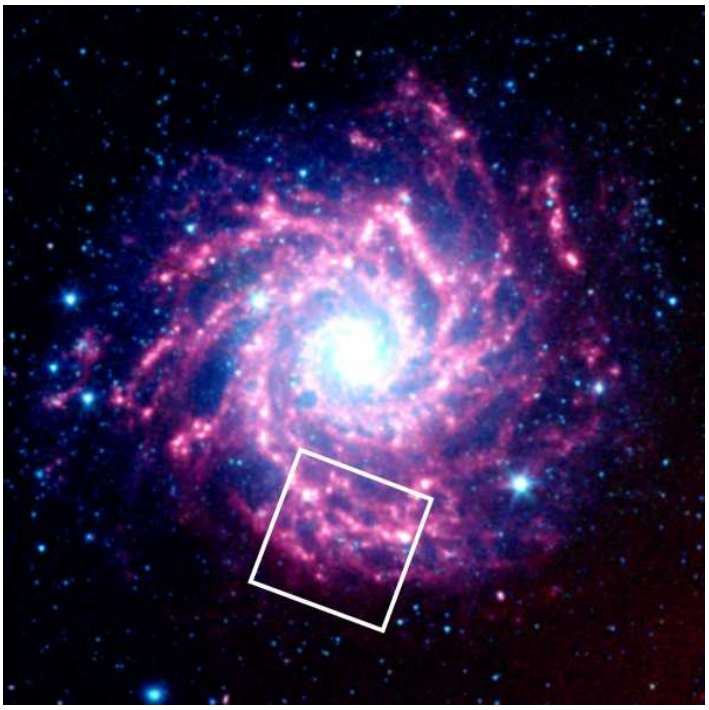
"2003gd is, quite literally, the smoking gun," says Doug Welch, professor, physics & astronomy at McMaster University, and one of 17 astronomers involved in the study. "These carbon and silicon dust particles which form from the supernovae blast make possible the many generations of high-mass stars and all the heavy elements they produce. These are elements which make up the bulk of everything around us on Earth, including you and me."

Welch and co-author Geoff Clayton of Louisiana State University, visited the Gemini North telescope in Hawaii to take spectra of ancient massive star supernovae in their hunt for the formation of dust.

Making space dust requires elements heavier than hydrogen and helium - the only elements in existence after the Big Bang. Once dust is available stars form much more quickly and efficiently. Up until now, the efficiency and rapidity of the creation of dust by massive star supernovae has been unknown.

"We have finally shown that supernovae could have been major contributors to the dust present in the early Universe," said Ben Sugerman, of the Space Telescope Science Institute in Baltimore, MD. "Until now, the available evidence has pointed to the contrary."

Supernovae expand and dissipate into space quickly, so scientists require extremely sensitive telescopes to study them even a few months after the initial explosion. Dust does not begin to form until two years after an explosion, so while astronomers have suspected that most supernovae do produce dust, their ability to confirm this stellar dust production in the past was limited by the available technology.



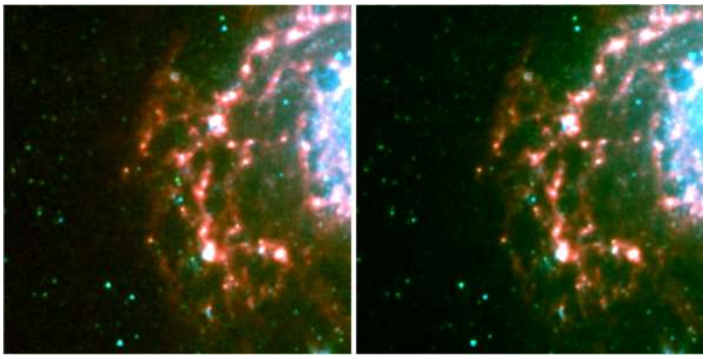
This is a mosaic of images from the Spitzer Space Telescope covering the entire galaxy NGC 628 on July 28, 2004. Normal stars appear blue, hot dust (about 200 deg Celsius) appears green, and cooler dust appears red. NGC 628 is 30 million light years away from Earth. The white box shows the area enlarged in the other images. The green object at the centre of the white box is the supernova 2003gd.

The study utilized Hubble Space Telescope data as well as new observations from the Spitzer Space Telescope (currently trailing the Earth along its orbit) and the Gemini North telescope of the Gemini Observatory on Mauna Kea, Hawaii.

"This work demonstrates the enormous value of working in different parts of the spectrum and the critical need for both ground-based and space-based facilities," says Welch.

Funding for the research was provided in part by the Natural Sciences and Engineering Research Council. Canada's participation in the Gemini Observatory is funded by the National Research Council of Canada's Herzberg Institute for Astrophysics.

McMaster University, a world-renowned, research-intensive university, fosters a culture of innovation, and a commitment to discovery and learning in teaching, research and scholarship. Based in Hamilton, the University, one of only four Canadian universities to be listed on the Top 100 universities in the world, has a student population of more than 23,000, and an alumni population of more than 115,000 in 128 countries.

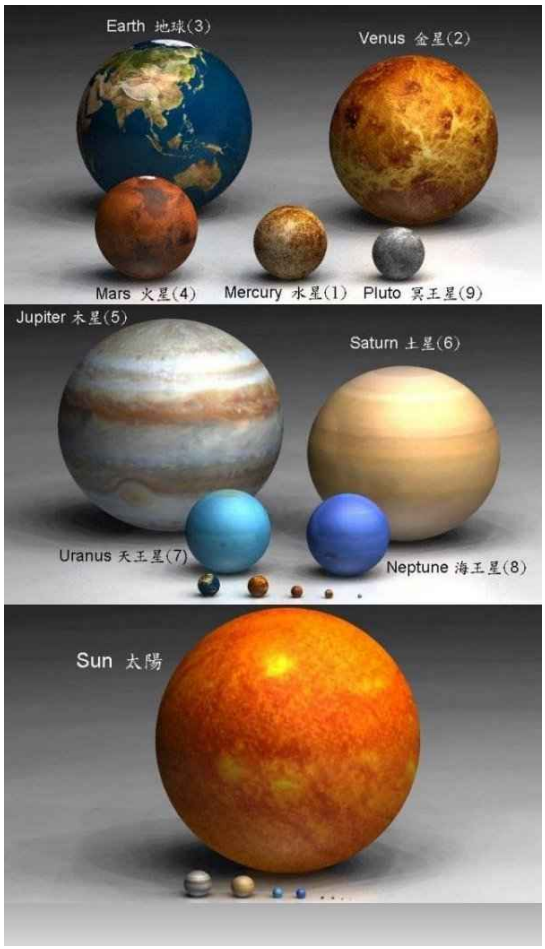


This pair of false colour images of the spiral galaxy NGC 628 was obtained with the Spitzer Space Telescope. Each was produced by combining images at three different infrared wavelengths. Stars of any sort appear blue, hot dust appears green and cool dust appears red. Supernova 2003gd is near the centre of each frame. The left image was taken on Jul 28, 2004 when its dust had a temperature of about 200 deg Celsius. In the right image, taken on Jan 15, 2005, the dust has cooled below detection limits. The centre of NGC 628 is at the right. A spiral arm containing cool dust can be seen sweeping from upper right through the central part of the image.

See `http://physwww.physics.mcmaster.ca/~welch/ngc628_sn2003gd.gif` for the same pair of images as seen above, but embedded in an animated GIF so that the change in the supernova relative to the surrounding galaxy is obvious.

Web Watch

Submitted by Stewart Attlesey



- Beautifully computer rendered images of the planets and the Sun in our Solar System for size comparison to each other: www.comagz.com/webmagazine/story/proportions_how_small_we_are
- NOVA: The Elegant Universe by PBS: `www.pbs.org/wgbh/nova/elegant/program.html`
- Stellarium, an impressive free planetarium program: `www.stellarium.org`
- World Sunlight Map `www.opentopia.com/sunlightmaprect.html`
- Space newsletter and other astronomy related merchandise available here: `www.tritonfun.com`

Shopping for folding tables *by Heather Neproszel*

Finding these tables that are so ideal for imaging is not easy!

I spotted a folding table at Fortino's that would be great for imaging. It is made of aluminum, the top works like Mike Spicer's folding wooden table. It is larger than Mike's table, I think it is 42" x 30" approximately. It folds down and fits into a nylon carrying bag. It fits in the trunk of Mike's car, no problem. So, like Mike's table, but longer and made of metal. It costs $50. There might be some left at the Fortino's beside Limeridge Mall. I found the tables where they sell seasonal/outdoor goods, like patio furniture. I know there are quite a few left at the Fortino's on Plains Road in Burlington near my house.

I also found a folding metal table at a Canadian Tire in Burlington. It is 30" x 30" and is just like Mike's wooden table, except of course it is aluminum. It also folds down and fits into a nylon carrying bag. It was in the aisle with camping gear. This one costs $30. I bought the last one at this store. The computer indicated a few (like between 1-4 Qty.) still available at other Canadian Tires in the Burlington/Hamilton area, including Hamilton Mountain stores.

Heather Neproszel of Burlington has been interested in astronomy for many years. She has owned refractors, Newtonian reflectors, Maksutov telescopes and is at Binbrook every chance she gets. She has recently taken up planetary imaging. A past board member of the RASC Hamilton Centre, Heather joined the H.A.A. in 2004.

Unexpected Interruption of Astro-pursuits at Mike Spicer's

The convenience of backyard observing is so great that astronomers end up installing at least an observing pad in the back yard. That works for a few years, until the need for a permanent pier becomes overwhelming. In the final stage of an astronomer's "backyard observing" life, a little observatory with roll-off roof or small dome appears in the backyard, often disguised as a gardening shed.

I installed a concrete slab patio about seven years ago and it has worked well for me. A large TAL pier mount was sunk into the backyard and the patio was built around it. This summer I decided to install a concrete support for the pier. Tearing down the patio wasn't light work, but it only took an hour or so.

The commotion disturbed a local resident who came by to have a closer look. His appearance was heralded by a lot of chirping noises which in my ornithological ignorance, I took to be a nearby bird. I was surprised to see a very large brown animal ensconced under my patio stones!

Halting work immediately, I ran inside for the camera. This fellow, a very large groundhog, was inspecting my work.

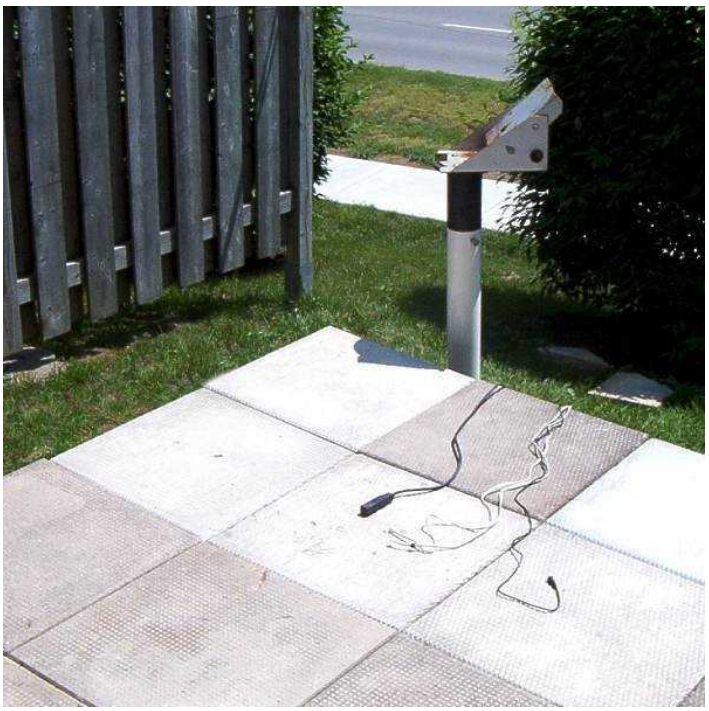
Perhaps rearranging the underground wiring distressed him, or maybe it was the shock and noise of roof removal. He wanted to know what was going on and did a thorough inspection from several vantage points.

Timbers of treated wood support my patio. I thought at first my neighbour might be a beaver, since he had a beaver's noble face and very sleek fur. I watched for the tell-tale tail to show itself.

Not a flat tail at all. . . so it was a groundhog, a woodchuck, not a beaver. The size of a dog! Inside, the Wikipedia provided updated info – groundhogs are not to be fooled with, dangerous when cornered with vicious claws and large, sharp teeth. They have bested dogs. I went outside to negotiate a settlement of this possible confrontation. Before I could make any offer, the fellow loped under the property fence and away.

I found no burrowing under my patio stones as I replaced them. The fellow came back while I was working. The cool way he loped back toward me and his sudden appearance startled me and I remarked at it. Alas, the sound (or sight of me) so frightened the groundhog that he turned and scampered off.

The patio is now reassembled and awaiting installation of the pier.



Refinished Patio with Pier ready to be installed.

Michael Spicer, a Hamilton attorney, and past HAA councilman, is an avid observer/imager who owns various telescopes and also published various "observing projects" on: double stars, variable stars, Saturn, Jupiter, globular clusters and planetary nebulae.

deBeneEsse2001@AOL.com

For Sale by Mike Spicer
deBeneEsse2001 at AOL.com
or 905-388-0602

NASA's Space Place

Not a Moment Wasted

by Dr. Tony Phillips

The Ring Nebula. Check. M13. Check. Next up: The Whirlpool galaxy.

You punch in the coordinates and your telescope takes off, slewing across the sky. You tap your feet and stare at the stars. These Messier marathons would go much faster if the telescope didn't take so long to slew. What a waste of time!

Don't tell that to the x-ray astronomers.

"We're putting our slew time to good use," explains Norbert Schartel, project scientist for the European Space Agency's XMM-Newton x-ray telescope. The telescope, named for Sir Isaac Newton, was launched into Earth orbit in 1999. It's now midway through an 11-year mission to study black holes, neutron stars, active galaxies and other violent denizens of the Universe that show up particularly well at x-ray wavelengths.

For the past four years, whenever XMM-Newton slewed from one object to another, astronomers kept the telescope's cameras running, recording whatever might drift through the field of view. The result is a stunning survey of the heavens covering 15% of the entire sky.

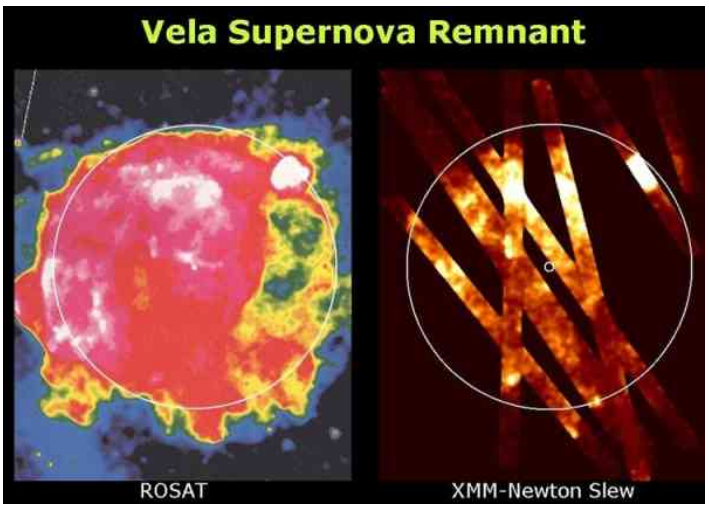
Sifting through the data, ESA astronomers have found entire clusters of galaxies unknown before anyone started paying attention to "slew time." Some already-known galaxies have been caught in the act of flaring—a sign, researchers believe, of a central black hole gobbling matter from nearby stars and interstellar clouds. Here in our own galaxy, the 20,000 year old Vela supernova remnant has been expanding. XMM-Newton has slewed across it many times, tracing its changing contours in exquisite detail.

The slew technique works because of XMM-Newton's great sensitivity. It has more collecting area than any other x-ray telescope in the history of astronomy. Sources flit through the field of view in only 10 seconds, but that's plenty of time in most cases to gather valuable data.

The work is just beginning. Astronomers plan to continue the slew survey, eventually mapping as much as 80% of the entire sky. No one knows how many new clusters will be found or how many black holes might be caught gobbling their neighbors. One thing's for sure: "There *will* be new discoveries," says Schartel.

Tap, tap, tap. The next time you're in the backyard with your telescope, and it takes off for the Whirlpool galaxy, don't just stand there. Try to keep up with the moving eyepiece. Look, you never know what might drift by.

See some of the other XMM-Newton images at `sci.esa.int`. For more about XMM-Newton's Education and Public Outreach program, including downloadable classroom materials, go to `xmm.sonoma.edu`. Kids can learn about black holes and play "Black Hole Rescue" at The Space Place, `spaceplace.nasa.gov`, under "Games."



The image on the left is the Vela Supernova Remnant as imaged in X-rays by ROSAT. On the right are some of the slew images obtained by XMM-Newton in its "spare" time.

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

Council meetings

All club members are welcome to attend the council meetings. Contact `info@amateurastronomy.org` for details.