Regulus

The Newsletter of the Royal Astronomical Society of Canada – Kingston Centre — 2007 June

Coming up…

RSC-KC Meetings

Stirling Hall Theatre A, Baader Lane, Queen's University Kingston, Ontario.

Regular Meetings:

June 8 Friday 7:30pm-9:30pm

July 14 Friday 9:00pm-10:30pm

Meetings are co-sponsored by Queen's Physics and include astronomy lectures open to the public.

KAON Public Observing:

Queen's Observatory Ellis Hall, 4th floor from 9:00 pm to 10:30 pm

June 9 Saturday 9:00pm-10:30pm

July 15 Saturday 9:00pm-!0:30pm

List of contents:

Buckhorn Observatory

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The second deck and pier to the right in the photo will be the home of BHO2 which will consist of a POD observatory (pick up in June) that will be a snug home to the Celestron refractor and Advanced GT mount.

(For further information please see pages 6, 7, 15, and 16)

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President's Tidbits, by Kim Hay

This is spring, right?? What is with the winter-like temperatures (frost in May), snow in Calgary on May 24, and temperatures in the low 30 C range in our neck of the woods? Nature is on a strange pattern this year. Well, if we can get the smog and humidity cleared out for some great observing, I'm all for cooler temperatures.

Lots of great things happened this month. Congratulations to Walter MacDonald, who finally got his first Super Nova. As you know, Walter is on the Puckett Survey Team for Super Novas and after scanning over 18,000 images in the last twelve months, here is the announcement:

SUPERNOVA 2007cf IN MCG +02-39-21
T. Puckett and W. McDonald report the discovery of an apparent supernova (mag 7.9) on an image (limiting mag 19.5) taken with a 0.60-m reflector at Ellijay, GA, on May 8.31 UT in the course of the Puckett Observatory Supernova Search. The new object, which was confirmed at mag 17.9 on an image (limiting mag 19.9) taken by T. Orff with a 0.60-m reflector on May 9.16, is located at R.A. = 15h23m07s.66, Decl. = +8o31'45".5 (equinox 2000.0), which is 3".3 east and 3".1 north of the center of MCG +02-39-21. Nothing is visible at this location on images taken by Puckett on Apr. 22 (limiting mag 19.7).

Further information was released in Telegram No. 958: Teams at the Harvard-Smithsonian Center for Astrophysics and University of California, Berkeley have determined (via spectroscopy) that this is a type-Ia supernova around one week past maximum light. The host galaxy is receding at 9873 km/s.

Congratulations Walter! from all of us at the RASC-Kingston Centre. For more information and images of Walter's Super Nova visit http://www.starlightccd.com/walter/logbook/2000s/2007/05/sn2007cf.htm

On March 31, 2007 the FLASF (Frontenac Lennox & Addington Science Fair) was held. This year we presented two awards in the Special Awards category, a 2007 Calendar and the Beginners Observing Guide as the first prize, and the second prize of a Beginners Observing Guide. Generally we give a youth membership, but it was decided this year to drop the membership from the awards. Most projects have two or more members and it is hard to give one membership to a group of students. We can supply a judge for our Award, since our criteria is "Best projects related to astronomy and related sciences". This year the Science Fair Committee provided the judge.

The winners of this year's 2007 Science Fair are as follows:

1st Place: Hassan Saleem and Bradon Whitley for "Global Warming: A disaster to Mankind" Centennial P.S.

2nd Place: Jacob Coy- "Signaling Out" – Loughborough P.S.

Congratulations to all the students who entered the Science Fair. If you ever want to become a judge at the Science Fair you can register by going to the website http://www.flasf.on.ca/

On another note, Librarian David Maguire has asked that I pass on to you the following:

"The National Library was going to get rid of some Library books, and made some room. Kingston Centre has expressed interest in a set of the bound copies of the *Journal*. Also the *Astronomy & Astrophysics Abstracts.* The members would find these of interest and usefulness in their various projects."

These books are still at the National Office but we are trying to arrange to get the books picked up and brought back. If anyone is going to Toronto, and would not mind picking up the books, or make arrangements to bring some of them back, please contact David at either email address- he is travelling these days david_maguire@rogers.com or dmaguire@kos.net

Also available in the Library is the new book *Atlas of the Moon,* by Antonín Rükl. Delivered to the Postal Box is the *Five Millennium canon of Solar Eclipses (-1999 to +3000 CE),* by Fred Espenak and Jean Meeus. Also the *August 1, 2008 Total Solar Eclipse,* by Fred Espenak and Jay Anderson.

Donated to the RASC-KC last week by Member Ruth Hicks is *The Cambridge Photographic Atlas of the Planets,* by G.A.Briggs and F.W.Taylor. Thank you Ruth, it's a great book to add to our library collection of fine books. If anyone wishes sign the books out, see David at one of the meetings, or contact him through at any of his email addresses listed above to reserve your book.

Our June meeting is going to feature Mark Coady from the Peterborough Astronomical Association and will be speaking on "**Reclaiming Our Night Skies: Fighting Light Pollution."** This should be a very interesting subject as it affects us all.

In conjunction with this, the International report on "Declaration in Defence of the Night Sky and the Right to Starlight - La Palma Declaration" was just received. You can read the report in detail at:
http://www.unescocan.org/starlight/pdf/StarlightDeclarationEN.pdf

Or, visit our local Light Pollution page http://130.15.144.99/rasc/Committees/lighting.php

Then take a stroll over to the National Light Pollution page www.rasc.ca/lpa to see what is going on across the country in the Light Pollution fight.

I hope that everyone had chance to get out on Saturday May 19 to see the Moon and Venus conjunction. We started watching the dance after 7:00 pm and finished up around 11:00 pm. Here are a few images that were taken (8:51 pm, 9:50 pm and 10:50 pm) to show the movement of the Moon and Venus. All images were taken by Kevin Kell and Kim Hay, with a Canon Power Shot A540 camera having 6 megapixels of resolution and a 4x optical zoom.

The sky is a marvellous place, take a few moments and look up, you may be surprised what you see. Till next time, clear skies and keep looking up!

Editor's note: Images have been cropped and resized to fit the page, using Adobe Photoshop, all the while maintaining the integrity of the relationship of Moon and Venus to the horizon, as represented in the original photographs..

Gleanings From Regulus of 30 and 25 Years Ago
by Leo Enright

The four-page issue of the predecessor of Regulus, The QUAC-RASC Newsletter, which our members received thirty years ago, that is, in late May1977 and intended as the June1977 newsletter, was one which Doug Baker put together mainly to encourage our members to take part in the activities that some of us had planned for the coming summer months. With a club composed largely of Queen's students and staff, many of whom would be elsewhere for the summer, the attendance at regular meetings was bound to be very limited at that time of year, but for the enthusiastic core of the group, it would be a time to focus on informal activities. I contributed two pages as a survey of members to find out how may of them would be interested in four suggested outings: 1) a Holleford Crater picnic on Sunday June 5th, 2) "A Scintillating Celebration of the Summer Solstice on the Shimmering Shores of Sharbot Lake", at my place, on Sunday June 26th, 3) a Perseid Meteor Shower Observing Session also at Sharbot Lake on either Friday August 12th or Saturday August 13th, and 4) A 45th Parallel Outing (An Excursion and Picnic in North Frontenac) on Sunday August 28th. The issue also contained a one-page article condensed from Science Dimension on the topic Mars and Water. (NOTE: That is a topic that has, indeed, remained relevant for 30 years!)

The two subsequent issues of the newsletter showed that the Holleford Crater picnic had had only modest attendance, but those who came enjoyed the event on a beautifully warm and sunny day, and learned a considerable amount about the science of meteorite crater identification and verification. In arranging for the tour, I, too, had learned a lot from one of my very first conversations with Irvin Babcook, the owner of "Crater Farm", and a person with whom I have had so many interesting conversations over the subsequent thirty years. I think that my sentiment persists to this day: that many astronomy clubs just do not have such an opportunity, and they "would give an eye-tooth of the Big Bear to have a famous meteorite crater so close." The Solstice Celebration which I was pleased to host on June 26th featured frisbee-tossing and waterskiing as participants waited for darkness, with the team of Paul and Elwyn Brown being declared the first place winner in the latter competition and Doug Baker taking second place. In the yard beside my observatory, whose construction had not yet been completed, a row of three telescopes and one pair of tripod-mounted binoculars were set up. In spite of a visit from a large throng of mosquitoes during twilight, the guests had a great array of celestial objects to enjoy.

The last few days of June meant preparation for the 1977 General Assembly in Toronto. Our Centre would be represented by Paul Brown and me. It began on June 30th with our arrival at the University of Toronto residence. [More about that event in the next issue.]

Our newsletter also shows that in June, 1977, I had made an attempt to have the Whig-Standard carry a weekly astronomy column. Columns which I submitted were actually printed on June 4th and on June 11th, but shortly thereafter the newspaper staff "decided to discontinue it in deference to a monthly column devoted to astronomy." In spite of the fact that there had been only two regular weekly columns in a "quickly abbreviate series," we did have a gentleman from Hay Bay who began attending Centre meetings regularly, simply as a result of having read one of the columns and thereby finding out that an astronomy club existed in the area.

The newsletter of twenty-five years ago, that of June 1982, was actually the Regulus for June-July of that year. It described some of the many activities of a Centre that was now less reliant on Queen's staff and students than it had been just five years earlier.

To quote from the description of one astronomy outreach activity that month:"On June 5th, 1982, four of our members, Angelika, Terry, Ruth, and Leo headed out to Presqu'ile Provincial Park to put on an astronomy display and star night for a large gathering of Cubs. The event was called 'a Cubaree', but the weather for the occasion was far from cooperative with rain deluging the campsite for hours. In spite of the condition and lack of power for our slide show, the whole group of cubs and their leaders heard a talk on astronomy by Leo and at least saw what a telescope looks like."

Shortly after that experience, our Centre was again invited to provide a resource person at the Ontario Camping Association's Leadership Camp on June 15th. The event took place on the beautiful grounds of Camp Oconto near Tichborne with summer camp leaders from many parts of the province in attendance, but once again the evening had its pouring rain. Since observing was impossible, the entire evening was devoted to a talk on astronomy in general and celestial

events of the coming summer "as well as a slide show" given by Leo Enright.

It was noted that, for several events in addition to the pair just mentioned, the indoor alternative, offered because the outdoor conditions were inclement, proved to be very welcome and gave us a chance to meet various groups of people in this region of Ontario.

In late June, preparations were being made for the upcoming and unusually long total lunar eclipse on the night of July 5th - 6th. On the matter of eclipses, 1982, twenty-five years ago, was an unusual year, having seven eclipses, the most possible for any one year. It was also unusual for having three "eclipse seasons"—something that can occur only if the first such "season" happens in early January. In addition, in 1982 each of those three "seasons" had a total lunar eclipse, something that will not again occur until 2485, over five centuries since it last happened.

As alway, it is fascinating to reminisce about life in our Centre of 30 and 25 years ago through the pages of our newsletter, Regulus.

TARGET FOR TONIGHT by Susan Gagnon

When I started these lists in February 2006 I included Deep-Sky Challenge Objects. That lasted for one month and then I forgot about this list. I will attempt to correct this mistake by gradually including, for Deep-Sky Challenge (DSC) objects only, constellations previously covered in other lists.

Bootes/**DSC:** None. *Hercules*/**DSC:** None.

Ursa Major/**DSC:** None

Monoceros
DSC: IC 2177

Lyra
ETU: Vega, Epsilon, Zeta 6 and 7, Delta 11 and 12, Beta 10 Lyrae, RR Lyrae.
Messier: M54, M57.
Finest NGC: None
Levy List: None
DSC: NGC 6791

Libra
ETU: Alpha 1 and 2, and Beta,
Messier: None
Finest NGC: None
Levy List: None
DSC: NGC 5897

Equipment Donation to Loan Program

by Kevin Kell, Equipment Loan Coordinator

RASC-KC received an equipment donation from member Hal Boden in April 2007. Thanks Hal! This is an "Astral Observer FOTAR" 114mm (4.5") Newtonian reflector telescope on an equatorial mount and metal tripod. The focal length is 900mm (35.4") and an F-ratio of 7.9. It does have a Right Ascension drive motor and an instruction manual, but I haven't had time to try it out yet. Also included is a small finder scope.

This will be in the loan program sometime in May, giving us a chance to label it, put it into the inventory, prepare a carry bag kit, and a few other things.

Biography

John Crossen
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www.buckhornobservatory.com

John's real life began the moment he retired. It was then that he had enough spare time to devote to his hobby of astronomy. John particularly enjoys teaching astronomy and has done so in formal setting such as Class Connections in Peterborough, and in the relaxed, unstructured environment of his observatory.

His observatory is open to the public on nights when the Moon doesn't wash out the dark Kawartha night sky. During a typical visit he gives visitors sky tours of the constellations using a powerful laser pointer designed for astronomy. Like a giant light saber, it shoots a bright green beam nearly a mile into the sky which allows him to point out the stars that make up a constellation to large groups of people.

With his two computerized telescopes he shows his guests celestial objects such as galaxies, globular star clusters, nebulae, planets and the Moon. During this portion of his astronomy show John delivers a running commentary on the objects being observed.

John also takes astronomy to school – or better put – schools. He has a 16' X 20' portable planetarium and motorized star projector which is very popular with students. On a typical visit he demonstrates how to find the North Star, celestial motion, and numerous constellations. As he is fond of saying, we never have a cloudy night (or day) in the planetarium.

John also backs up his planetarium show with a slide presentation that takes students on a tour of our galaxy and the solar system. Time and weather permitting, John brings along a portable telescope and can give the students a solar observing session during the day using a special filter. He also makes himself available during the evenings for tours of the night sky.

In addition to these astronomical pursuits, John is Past President of the Peterborough Astronomical Association and the Canadian Representative for a company in Argentina that manufactures star projectors and inflatable planetarium domes.

This year John has turned his hobby into a business, and thus far finds it much more relaxing and rewarding than the 35 years he spend as an advertising writer at major Canadian agencies such as Leo Burnett, McLaren, and Chiat Day.

Today John and wife Debbi live in Buckhorn on 16 acres of rolling land. The property was at one time a farm, so it has few trees. This makes it ideal for astronomy. They have no children, but have become parents and serving staff to six stray cats.

Debbi still works in the Public Relations business with Nokia in Europe and is the Buckhorn Reporter for the Peterborough Examiner's District News Section. The highlight of her year is Fiesta Buckhorn. She is the Show Director and can put her years of professional experience to work at a more relaxed pace. Deb also enjoys acting in the local theatrical troop.

John continues writing, but now he does a weekly astronomy column for the Lakefield Herald, contributes astro-photographs to the Peterborough Examiner, and pulls together monthly astro-articles for Kawartha Life Magazine, and the 507 Express.

My life didn't end with retirement. I simply started a new one. May it be long and full of laughter.

About Buckhorn Observatory

The observatory is open year 'round on nights that are clear, the Moon isn't too intrusive and someb ody wants in— $10.00 for big people, $5.00 for the short ones.

I do presentati ons to schools, scout groups, seniors homes, and have even been the guest speaker to the

Peterborough Engineers and The Kawartha Field Naturalists, as well as hosting a night at the observatory with Trent University Physics Club. All the aforementioned are for a fee, but that can be as little as a handful of Tim Horton's gift certificates as was the case at a school that was short on funds, but not on enthusiasm.

I frequently have old 60mm Peashooters given to me, or pick them up at the dump. These are cleaned up, rebuilt and outfitted with decent mounts/ tripods and eyepieces. I give them to schools and kids camps. BHO was also a sponsor of the first Holy Cross Science Fair this spring.

On-site gear includes an 11-inch NexStar GPS, a 6-inch Celestron Refractor, an 8-inch f4 Newt, and an 80mm W.O. Refractor. The observatory also stocks 8 pair of

binoculars for its guests and has a pair of 25X100 binos mounted on a pier outside. The second deck and pier in the exterior shot will be the home of BHO2 which will consist of a POD observatory (pick up in June) that will be a snug home to the Celestron refractor and Advanced GT mount.

P.S. A big Buckhorn "Howdy" to Leo Enright, Doug Angle, and Kim Hay. Also attached is a copy of the BHO monthly newsletter. Thanks for contacting me.

Here are the physical particulars on the main observatory (aka BHO1).

Dimensions: 16'X20' - exterior footprint.
Foundation - 5" concrete over gravel. No rebar.
Floor - 2"x4" wood under frame with 4'x8' 3/4" plywood sheets
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Warm/ computer room - approx 5' deep x 8' long
Gear room - approx 5' deep x 7' long
Pier - 8"x 8" Alt/Az set in 5" concrete & rebarred into rock. Isolated from main floor.

Due to the magnitude of the job (and my high klutz factor) the basic construction was professionally done by a local carpenter and foundation team. A friend and I did the wiring, then I finished off the interior floors, carpeting, painting, doors, shelving and burglar alarm systems. It is all to code and approved.

Things to think about:

-The roof must be snow raked in the winter time.
-Wall height is determined by height of neighbour's tree line not your wishes.
-Must blow snow away from sides for access to track covers in winter.
-Barndoor track isn't as reliable as "L" shaped angle iron. Trolley system can bind.

And there you have it. What started as a big observatory for astrophotography turned into a big observatory for public gatherings. Build it and they will come - like it or not. Happily I did.

A sky full of stars is a sky filled with dreams. visit www.darksky.org

John Crossen, Buckhorn Observatory (www.buckhornobservatory.com)

The Raised Dobsonian Mount, by Kevin Kell

We purchased a used Skywatcher brand 20 cm (8") f6 Dobsonian telescope last year, and just love it... with one exception. It's too short. Looking up at zenith, the eyepiece sits at 117 cm (46") from gradient, and at an attitude of 45 degrees, the eyepiece is at 109 cm (43"). My eyes stand at 165 cm (65"), Kim's a little lower. So you can understand that there is considerable bending over when observing most objects.

For the last year we have made use of a milk crate underneath the telescope base. It was lightweight and it did bring the scope up in overall height, but it had a few major flaws. First, a four-point stance made for an unstable platform. Second, the telescope did not perch atop the crate in a stable fashion either. Last, it was still too short.

So, with sore back in mind, we made some measurements of Kim's eye height and used that as a maximum height for the overall system, that being 150 cm (59"). 150 cm minus 117 cm gives us a new mount height of 34 cm. We used a 4' piece of 1" x 10", cut it into 5 pieces to get a pentagon shape (next time it will be six pieces in a hexagon shape), because you can't really mount three equally spaced legs on a square. Determining the angle at which to mitre the ends was the most difficult assembly step. Trial, error, and many cuts later solved that problem. Atop that was a ½" piece of circular Russian Baltic plywood with a diameter the same as the Dobsonian telescope base, approximately 50 cm (20"). Atop that is another circular ½" plywood piece with a slightly smaller diameter, so as to allow the Dobsonian's feet to sit astride. The final components of this base assembly were its three feet. We initially made these out of 1" x 2" mounted flush to the base, but testing revealed that these were not sturdy enough and did not provide enough of a stance. They were replaced with 2" x 4" mounted on the short side, and the ends cut down to provide only ½" of surface contact with the ground. They were positioned so as to bring the entire system up to a 34 cm height and attached from the inside with glue and 2.5" screws.

Three coats of white exterior grade paint, and three coats of exterior polyurethane later, and we have a sturdy, strong, and stable mount that can be left outdoors.

You can see the telescope rests solidly on the base and promises to see more use. It was, in fact, used that very same night, decked out for the first time with its Kendrick dew heater system.

Total project cost, approximately $25; total time, about 5 hours.

Kevin Kell at Starlight Cascade
Observatory and Gardens
Outside Yarker Ontario Canada
www.starlightcascade.ca

Observing on Friday, May 18 by Kevin Kell

So...how many people took a peek at the sky yesterday?

Solar sunspot #956 is a nice complex group working it's way across the sun. During evening twilight the Crescent Moon was gorgeous in the northwest along with Venus, and if you looked closely, Mercury as well. Earthshine on the moon showed up wonderfully.

We were trying out our new stand we made for our 20 cm Dobsonian scope. It brought the telescope up another 34 cm in height, and worked great. A previous test the night before had us saw five additional cm off the feet, as the eyepiece was a little too high at times, depending on ground topography. So great that we routinely went up from x49 (with a 26 mm super plossl eyepiece) to a x133 (with a 9 mm eyepiece) and the views were great, and rock steady, unlike the last year of using a milk crate. Having a 3-point balance is completely superior to a 4-point, or 4-side, like the milk crate.

Then we turned to Saturn, high overhead. At x133, it too was great. Wow, I'm using the word “great” a lot today. The only thing not great was that we had been doing yard work all day and we were sore, tired and exhausted. Not to mention that the mosquitoes were out for the first time. At least the black flies were almost gone.

Saturn showed nicely, with easily seen ring shadows on the planet face and planet shadow on the rings in behind. The Cassini division popped out once in a while, depending on the air conditions. So we popped in a x2 barlow to ramp up to x266, but I was a little disappointed. Resolution and contrast dropped so much I thought the x133 view without the barlow was superior.

While waiting for Jupiter to rise around 21:56 we took in a -1 Iridium flare at 22:24. The neat thing about this was that two minutes previously, we had seen another Iridium satellite on the same orbital path, but it did not flare for us.

Jupiter was taking it's time to clear our southeast horizon so we went hunting for Comet Lovejoy, just off the Little Dipper and Kochab. I could not see a thing and Kim found it a few minutes later. I still couldn't see it. Very faint and diffuse, perhaps Mag 11, with no discernible tail, she says. I looked again; still nothing. Arrgg.

Jupiter finally cleared the horizon, but was still less than ten degrees up and didn't show well at all, due to all of the air we were looking through, right over Kingston's light dome as well.

Called it a night, packed up the scope and left the stand outside to see how it weathers.

Last night was also the first night we have had dew heaters on the scope. The Telrad heater worked well with the Kendrick controller but the eyepiece heater wasn't doing anything. This was a homemade one we put together one year at Starfest some 10 years back. We will test it out today to see what went wrong. The power source for this was a Canadian Tire portapack battery system with a built in 300w inverter. It seemed to work quite well.

Clear skies ! Try to get out tonight (Saturday) cause Sunday is looking pretty bad, cloud wise.

Observing on Saturday, May 19 by Kevin Kell

The Venus-Moon conjunction Saturday night was great! Still a little chilly... we are still running into frost out here in Yarker.

But we took a lot of digital camera images, some of which can be found on the RASC-KC image gallery: http://130.15.144.99/rasc/gallery2/main.php?g2_itemId=21

This is with a Canon Powershot A540 6mp, x4 optical zoom. This series (Powershot A) can do 15 second exposure along with a dark frame and some limited noise reduction.

About Time Signals by Kevin Kell

We have a tiny little handheld shortwave radio that we use to try and pick up a shortwave time signal. We would prefer to use the nearer Canadian CHU but can’t get it. It broadcasts at 3.330, 7.335, and 14.670 MHz

The only other signal we sometimes pick up is WWV at 10MHz. Nothing came in last night at 15MHz and the radio doesn't do the 5MHz or 2.5MHz band.

So, has anyone had better luck? Perhaps with a bigger, better radio and antenna?

We need a good portable system as it is used outside during asteroidal occultations, so a fixed system with an antenna up a pole or on the roof will not work :)

Kevin Kell at Starlight Cascade Observatory and Gardens outside Yarker Ontario Canada
www.starlightcascade.ca

OAFTN Course Announcement

Observational Astronomy for the Novice (OAFTN) is a nine week course, running on Monday evenings from September 17th to November 12th, 2007, from 6:30-8:30pm.

OAFTN will teach the novice:
* How to get around the night sky
* The use of star maps
* Introduce the constellations
* Teach basic telescope principles.
* Moons & Eclipses
* Solar Systems & Stars
* and much much more...

As part of the course you will complete the RASC "Explore the Universe" Certificate.

The cost of the course is $150 ($90 for members without renewal). This includes:
* a one year membership in the RASC Kingston Centre (which includes the RASC Observer's Handbook, a one year subscription to Skynews, and a one year e-subscription to the RASC Journal
* the Beginner's Observing Guide

The Observational Astronomy for the Novice Course registration form is now available and online at http://130.15.144.99/rasc/Observing/courses.php

This is our 4th annual course and we encourage you to think about signing up, or at least keeping it in mind to tell your friends! For more information contact Kevin Kell or the instructors Doug Angle and Brian Hunter.

The Effect of Heat on Equipment by Kevin Kell

A short note to those with computers in observatories: it gets darn hot! We hit 34deg Saturday outside and the computers were hitting 60+... so they all got shut down for now.

I wonder if we build an insulated pletier cooled box for all of them together if that would work? How much heat would they generate (up to 300 watts) and how much can a peltier cooler get rid of?

In other news, I've setup one of the new Intel Core 2 Duo processors running at 1.8GHz and boy.. do they ever run cooler than the P4-1.8Ghz systems I have now. Also bigger heat sinks and larger fans running slower than 2krpm rather than the 3-4krpm of the older ones. This means less noise as well. Overall they do seem to be cooler but I haven't measured that yet.

In other other news: does anyone have a broken video camcorder that they would like to part with? I am looking for videocams that have working optics, ccd and usb port capabilities, ie enough to use as a better quality webcam than what I have now. If the tape or mechanical components are broken.. that's ok. I've checked at all of the local shops but one and no luck.

Kevin Kell at Starlight Cascade

Update on Arlyne by Kim Hay

Yesterday while on another mission in Belleville, we stopped by to see Lee & Arlyne Gillespie, & picked up the Fall N Stars materials.

They are both doing well, Arlyne just got back from her 2nd treatment and is very tired, but still up and moving, though slow. Her appetite is so-so, but eating.

She is so overwhelmed by all the cards and notes that she has received from all her friends & family, and the bouquet of flowers that the Centre sent. She said it was so big and beautiful that it made her feel really good and happy.

She said to say hi to everyone, and if you can, keep her in your thoughts and prayers. She is a tough woman, and she will get through this.

Lee is helping out and now is doing a lot of gardening. Their daughter is getting married this year at the farm, so things are shaping up. Lots of friends and church women are stopping by to help out where they can.

We told them if there is anything they need, let us know, we would be there, no matter what.

So, keep Arlyne in your thoughts and prayers.

Observing LPV Stars, by Walter MacDonald

(Conclusion of a 4-part series)

Decoding the AAVSO Bulletin

Let's say you have chosen a star, downloaded and printed the chart(s), and have a clear night to observe. It would be nice to know if the variable is going to be bright or faint, especially if its faintness at minimum would make it invisible in your size of telescope. No point wasting valuable observing time looking for an invisible star! This is where the real value of the Bulletin lies—it gives us a prediction of brightness through the course of 14 months for many variables!

Although it looks daunting at first, "decoding" the Bulletin information for a star is really quite easy. As an example, let's look at Y Per: * Y Per is at minimum around Jan 31 and Oct 6 (2006) * Y Per is at maximum around Jun 8, 2006 and Feb 11, 2007.

Additionally, the "+" symbols denote times where a variable is brighter than magnitude 11.0 while the "-" symbols denote times where a variable is fainter than magnitude 13.5. Where no symbol is present, the variable is between magnitude 11 and 13.5. So we note that Y Per is always brighter than 11.0. Also, the "<" and ">" surrounding the range of magnitudes means that these values are the brightest and faintest observed max/min from 1961 to the present.

Going after a variable for the first time is easiest if it is at or near maximum brightness—especially for Miras which have a distinct red colour to them. In Figure One, you can see that Y Andromedae is also currently at maximum. In fact, if you peruse the Bulletin, you will see that there are always at least a few variables near maximum at any time of the year. This is another winning strategy for easing your way into the universe of variable star observing—every advantage helps when you are just starting out!

Now you may be wondering how stars are selected for inclusion into the Bulletin. Elizabeth Waagen explained this too:

"There are a great many Miras and semiregulars having data in the AAVSO International Database in addition to those included in the Bulletin. They have been added, mostly by observers deciding on their own to begin observing them. Many of these stars have extremely scanty data, but we have not pushed for more observations of them - it is essential that the current Bulletin stars not be neglected, and if the observer base is spread too thin, the longterm coverage of the Bulletin stars will suffer. For some of these non-Bulletin stars, there might be enough data over enough years in the archives to consider adding them to the Bulletin star list. Looking into these stars to study them and decide whether they are 'predictable' is a project we will tackle at some time in the future."

Concluding Thoughts

Visual observers are not out of business yet, so get out there and try your hand at a few Long Period Variables! Since stars suffer less from light pollution than extended objects like nebulae and galaxies, variable stars offer an opportunity for some pleasant urban backyard observing. Not only can you observe something in the sky that actually changes, but as a bonus, your observations even have scientific value!

Using the tools that the AAVSO provides free of charge to everyone makes getting started in variable star observing easier than ever!

Figure One: A sample portion of AAVSO Bulletin 69 for 2006/7. AAVSO's web page for the Bulletin is at http://www.aavso.org/publications/bulletin/

Official Announcement of Supernova 2007cf Discovery

by Walter MacDonald

Benderavage wrote:
Congratulations on your supernova discovery. Is MCG +02-39-21 a Seyfert galaxy? How does Tim Puckett deserve a share of the discovery? Details appreciated. Thank you.

Thanks. I don't know if it is a Seyfert galaxy, but that is possible. Tim deserves a share of the discovery because it is his telescope that took the images (at his site, using his cameras and computers) and he puts an enormous amount of time and energy into running the systems (he has 4 scopes in Georgia). He also checks candidates, arranges for reshoots, and composes the discovery report to CBAT. His share is well-deserved indeed! Jack Newton also provides a scope in Arizona for shooting galaxies, as does Dave Lane in Nova Scotia. Most of the people who scan the images are Canadian, interestingly enough.

I am in the process of making a small webpage about the discovery, but am somewhat hobbled by a sick computer right now -- it is running in Safe Mode With Networking only for the moment which limits my ability to get things done! Hopefully I can repair it tomorrow (I'm sure it's a corrupted file problem somewhere in the depths of Win XP).

This is the official discovery announcement:

Electronic Telegram No. 954
Central Bureau for Astronomical Telegrams
INTERNATIONAL ASTRONOMICAL UNION
M.S. 18, Smithsonian Astrophysical Observatory, Cambridge, MA 02138, U.S.A.
IAUSUBS@CFA.HARVARD.EDU or FAX 617-495-7231 (subscriptions)
CBAT@CFA.HARVARD.EDU (science)
URL http://www.cfa.harvard.edu/iau/cbat.html

SUPERNOVA 2007cf IN MCG +02-39-21

T. Puckett and W. McDonald report the discovery of an apparent supernova (mag 17.9) on an image (limiting mag 19.5) taken with a 0.60-m reflector at Ellijay, GA, on May 8.31 UT in the course of the Puckett Observatory Supernova Search. The new object, which was confirmed at mag 17.9 on an image (limiting mag 19.9) taken by T. Orff with a 0.60-m reflector on May 9.16, is located at R.A. = 15h23m07s.66, Decl. = +8o31'45".5 (equinox 2000.0), which is 3".3 east and 3".1 north of the center of MCG +02-39-21. Nothing is visible at this location on images taken by Puckett on Apr. 22 (limiting mag 19.7).

NOTE: These 'Central Bureau Electronic Telegrams' are sometimes superseded by text appearing later in the printed IAU Circulars.

2007 May 9 (CBET 954) Daniel W. E. Green

A further announcement was issued giving some information gleaned by professional astronomers in their initial observations of the supernova:

Electronic Telegram No. 958

Central Bureau for Astronomical Telegrams
INTERNATIONAL ASTRONOMICAL UNION
M.S. 18, Smithsonian Astrophysical Observatory, Cambridge, MA 02138, U.S.A.
IAUSUBS@CFA.HARVARD.EDU or FAX 617-495-7231 (subscriptions)
CBAT@CFA.HARVARD.EDU (science)
URL http://www.cfa.harvard.edu/iau/cbat.html

SUPERNOVA 2007cf IN MCG +02-39-21

S. Blondin, M. Modjaz, R. Kirshner, and P. Challis, Harvard-Smithsonian Center for Astrophysics report that a spectrogram (range 350-740 nm) of 2007cf (cf. CBET 954), obtained by W. Peters on May 10.29 UT with the F. L. Whipple Observatory 1.5-m telescope (+ FAST), shows it to be a type-Ia supernova around one week past maximum light. Cross-correlation with a library of supernova spectra indicates that 2007cf is most similar to the subluminous type-Ia supernova 1999by at 8 days past maximum. Adopting a recession velocity of 9873 km/s for the host galaxy (from Smith et al. 2004, A.J. 128, 1558), the maximum absorption in the Si II line (rest 635.5 nm) is blueshifted by roughly 9500 km/s. Assuming that the galaxy is in the Hubble flow and the supernova suffers negligible extinction, the discovery magnitude of 17.9 corresponds to an absolute magnitude of roughly -17.8, which confirms the subluminous nature of the event.

J. M. Silverman, T. N. Steele, and A. V. Filippenko, University of California, Berkeley, report that inspection of CCD spectra (range 330-1020 nm), obtained on May 10 UT with the Shane 3-m reflector (+ Kast spectrograph) at Lick Observatory, shows that 2007cf is a type-Ia supernova approximately 1 week past maximum brightness. Removing the host-galaxy recession velocity of 9873 km/s (Smith et al. 2004, A.J. 128, 1558), the minimum of the Si II 635.5-nm absorption feature is found to be blueshifted by about 9300 km/s.

NOTE: These 'Central Bureau Electronic Telegrams' are sometimes superseded by text appearing later in the printed IAU Circulars.

2007 May 10 (CBET 958) Daniel W. E. Green

Hopefully this is enough info to at least get you started!

--

Walter MacDonald II [MDW]
Winchester Observatory
Winchester, Ontario, Canada.

Steven R. Coe "Nebulae and How to Observe Them" published by Springer-Verlag, London 2007 (156 pages, US 29.95)

Reviewed by Jan Wisniewski, RASC-Kingston Centre, Rockville, MD

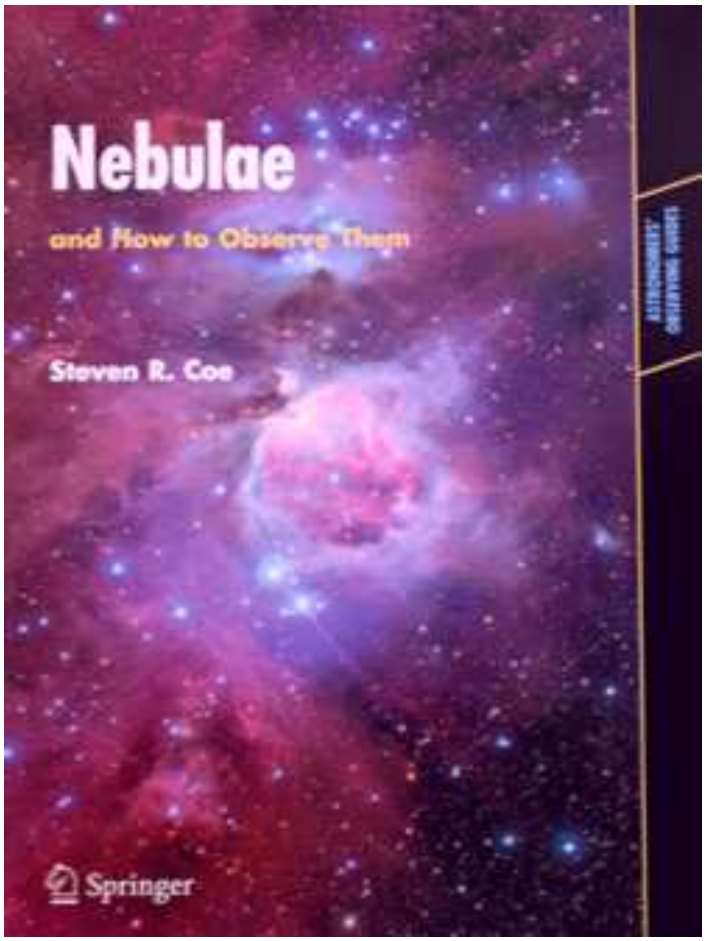
This second volume of "How to Observe Them" guides from Springer offered me the opportunity to read more about the favourite targets of so many observers. In particular, I looked forward to "discover" on its pages some new objects to add to my "Need to see them" list. And in that respect I was not disappointed. While "Nebulae and How to Observe Them" is a rather skinny volume, it turned out to be worthwhile addition to my library.

The book starts with five short chapters containing author Coe's thoughts and recommendations regarding everything from optical instruments through "staying warm," preparing an observing list, and keeping notes to eventually improve observing skills. While way too general for weathered observers, those chapters offer the novice some insight into the complexities involved in planning and executing a deep sky observing session.

Only in chapter 6 ("Nebula Knowledge") do we get to discover some of the secrets of those intriguing objects. Coe leads us quickly through the usual lineup, briefly describing properties of emission, reflection, planetary, dark and SNR nebulae. In a volume dedicated to those objects, I would expect some mention of the less common types as well, but unfortunately there is no word here about bipolar nebulae, WR "bubbles" or transient "light echoes". In the same chapter, the author also discusses spectral characteristics of emission nebulae and presents a very useful overview of "nebular filters" (the term I prefer myself as well ;-). This valuable information is further enhanced by colour plates illustrating spectral profiles of some of those filters.

The remainder of the book (chapters 7-12) describes observational targets. Coe divided his selection by season and constellation, thus making initial planning a little bit easier. Each object is described in detail, including its apparition in smaller instruments (when applicable) and is accompanied by b/w photos (taken by different instruments, including professional telescopes). Almost one hundred nebulae are described and many more are listed in the Appendix at the end of the book. I find the author's choice of objects well balanced. It ranges from easy, showcase objects (Lagoon and Trifid), through well known but a bit difficult targets (Helix) to ghostly giants (Witch Head, IC1848). There is a good selection of large HII regions (Orion Nebula, Rosette), mixed emission/reflection nebulosity (IC405), WR bubbles (Thor's Helmet), SNRs (IC443, Veil) etc. Typical planetary nebulae (Eskimo, M27), as well as large, faint planetaries (Jones 1, Medusa) and its star-like cousins (IC2003) are well represented also. I like to see NGC2818A there – this planetary embedded into open cluster would be a highlight of any Canadian star party if not for its quite southern location and early springtime culmination. One can also read description of exotic, far-south objects, like weird planetary NGC 5189 in Musca. The cake is topped with the inclusion of extragalactic nebulae in the Large Magellanic Cloud and in M101—although a detailed finder chart would be helpful.

Overall, "Nebulae and How to Observe Them" deserves attention of every deep sky observer. Steven Coe's compilation of diverse nebulous targets offers solid starting point help for those interested in visual enjoyment of nebulae.



Buckhorn Observatory Newsletter for June 2007

Hello everyone. If you're a new subscriber, welcome to your first issue of the BHO News. I hope you'll enjoy it and find that it makes your appreciation of the night sky even greater.

June's skies hold plenty to see for those who love observing the planets. The evening sky will be home to Saturn, Venus and Mercury in the southwest as Jupiter rises in the east/southeast. We'll be seeing the last of the winter and spring constellations Auriga, Gemini, Corvus and Leo as they plummet beneath the twilight horizon. And we welcome Scorpius, Ophiuchus, Cygnus, Lyra, and Aquila as the skies of summer finally arrive.

June will once again see two Full Moons if your calendar's maker uses EST instead of GMT as the basis for determining dates. According to my calendar we'll have a Full Moon on June 1st and again on June 30th. The second Full Moon for the month is also called a Blue Moon, but it won't really turn blue. Two Full Moons in one month is a rare occasion. So while the phrase "once in a Blue Moon" applies, you won't see blue.

I'll cover the night sky in more detail at the end of this newsletter. Right now let's get on with what's in the news and happening overhead.

Walter Shirra had the right stuff to be the only astronaut to serve in the Mercury, Gemini and Apollo missions. On May 3, 2007 Wally Shirra died at the age of 84. Wally was one of the "Original Seven" NASA astronauts. If you were around during the 60's or saw the film The Right Stuff, you'll recall him as a key member of America's team that not only went into space, but did the all-important public relations job of selling the American public on the importance of space travel and the race to the Moon. He was the fifth man to slip the bonds of gravity and journey beyond Earth into space.

His Mercury 8, Gemini 6, and Apollo missions all were technically perfect flights. Consider this: Schirra's first flight lasted 9 hours; his final one, just 6 years later, carried three times the crew and lasted 29 times longer. Schirra never made the trip to the Moon, but had it not been for the work of himself and the other members of the original NASA astronaut team, Neil Armstrong may never has set foot on the Lunar surface.

Walter Schirra—NASA

Shirra wasn't shy about his feelings towards the intensive medical examinations the astronauts were subjected to. He openly spoke of them as being invasive, embarrassing and humiliating. He was once quoted as saying "…these are sick doctors working on well people."

Walter Shirra's achievements speak magnificently of and for him. If there is an astronaut heaven may it have a great view of the Earth and be a doctor-free zone.

The brightest stellar explosion ever recorded was observed in early May. Scientists used NASA's Chandra X-ray Observatory to make the discovery. Working in conjunction with ground-based telescopes, the orbiting Chandra recorded the violent explosion of an extremely massive star. Call it a sort of super Supernova, the exploding star was about 150 times the mass of our Sun and may have been one of the first generations of stars in our universe.

The Supernova is now known as SN2006gy and was not only brighter than any previously observed stellar explosion, but lasted much longer. SN2006gy is in a galaxy known as NGC1260 which lies at a distance of 240million light years from our own Milky Way galaxy. A light year equals the distance a beam of light would travel in one year-about 10 Trillion Km.

In our own galaxy a similar event may be in the process of transpiring. The star eta Carina is a supernova just waiting to happen. In fact it may

already have happened, but eta Carina is about 7,500 light years away. Given the intense gamma rays given off by such a massive supernova, even that distance might be too close for comfort. If it blows up tonight, we'll know 7,500 years from now. If it blew up 7,500 years ago, well…there might not be a tomorrow.

Three hundred feet beneath Earth's surface scientists are getting ready to see the universe born again - thirty million times per second in case you missed it during the first nanosecond.

They are crawling into cable-filled shafts, huddling in electronics-crammed rooms and scuttling about in hardhats, kneepads, and safety harness. In this subterranean labyrinth snaked with thousands of miles of electronic wires and containing a few billion of the finest brain cells on planet Earth, physicists will be shooting subatomic particles around a 17-mile underground racetrack hoping for a crash.

Welcome to the European Centre of Nuclear Research (CERN) near Geneva, Switzerland. This is home to the Large Hadron Collider which as been under construction for the past 13 years. It will be turned on for the first time this summer and physicists from around the world will be giving it their undivided attention.

If all goes well and the subatomic particles crash into each other to produce primordial flashes of energy, scientists will be able to recreate the conditions that prevailed when the universe was less than a trillionth of a second old. This will recreate a period in time in which the current laws of physics no longer apply. It will be an almost impossibly ancient time when the universe was differentiating itself and evolving from a state of potential into the forces and particles that constitute modern reality.

It is in this state that we may find the answers to dark matter, dark energy, the mysterious Higgs that is thought to endow other particles with mass and even new dimensions of spacetime.

If they see nothing, then for the last 30 years physicists have been talk through their chapeaus, be they felt fedoras or hard hats they wear today as the final touches go into the giant question mark of life.

I send my thanks to the New York Times, Dennis Overbye, and George Bryant for their background information that went into this article.

The June sky in further detail continues with Venus being the first star visible after sunset. Mercury pops out a bit later and is just 10º above the horizon on June 1st. If you have a treeless view to the west, you will see Mercury about a fist-width at arm's length above the horizon. On June 2nd Mercury reaches its greatest distance east of the Sun, a position called greatest eastern elongation. At that point it will be 23.4 degrees from our star – the Sun.

If you have a small telescope, have a look at Mercury. It will appear as a 37-percent crescent shape on June 1st and will slim down to a 20-percent crescent by June 10th. If only I could do the same. Here's the rest of the month's events:

June 1 – The Full Moon passes just 1º beneath planet Jupiter.
June 7 – Jupiter is at opposition, meaning it will rise at sunset and be visible all night.
June 8 – Last Quarter Moon rises in the early hours of morning.
June 12 – The Moon will be at perigee (361,977 km), its closest point from Earth.
June 14 – New Moon (no Moon) means it's a great night for stargazing.
June 19 – The Crescent Moon passes 0.4º north of Saturn.
June 21 – Calling all Druids, it's Summer Solstic at 2:06 p.m. EDT.
June 22 – First Quarter Moon is great for observing craters
June 24 – Moon is at apogee (402,192 Km) its farthest point from Earth.
June 30 – Full Moon – turn the TV back on and watch the summer reruns.

Wanna see an asteroid naked eye? You can do it this month if you have good dark skies and are looking southeast near the constellation Ophiuchus. Near the bottom of the constellation known as "the snake bearer", and above a bright redish star named Antares in Scorpius you'll be able to view asteroid Vesta glowing at magnitude 5.5. It will be very slowly moving east towards Scorpius. Try it with binoculars first, then go for Vesta naked eye. Being bright enough to see with the naked eye only happens with Vesta every 4 years as it reaches its closest approach to the Sun and Earth reaches its farthest point from dear old Sol.

That's it for this month's edition of the BHO News. I hope it launches you into a great summer filled with starry nights and sunlit days.

Astronomy Day 2007 Photos by Norman Welbanks

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I can take most common formats, although I prefer plain text. Pictures should be sent as image files in attachments separate from the articles. Please avoid the use of capitals, asterisks etc for formatting, as I use the publishing software's formats for this kind of emphasis.

E-mail: lbenderavage (at) sympatico (dot) ca

2007 Publication Deadlines

For the month	(Deadline)
July	(June 22)
August	(July 27)

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********* SolObs 2007/06/05 5:13:42 AM
Solar data from: HAYK (Kim Hay) For the month of: May 2007
Instrument: SCT; Method: Direct; Filter: 1000 Oaks Solar Filter; Aperture: 100; EP: 26 mm plossel

Day	seeing	UT	g	s	W	ng	sg	ns	ss	Obs.	Remarks
02	E	1615	2	9	29	0	2	0	9	HAYK	
03	E	1635	1	6	16	0	1	0	6	HAYK	AR10954 GONE
04	FAIR	1630	1	6	16	0	1	0	6	HAYK	AR10953 SPLITTING
05	E	2135	1	3	13	0	1	0	3	HAYK	
06	E	2135	1	3	13	0	1	0	3	HAYK	
07	E	1642	1	1	11	0	1	0	1	HAYK	
08	POOR	1616	0	0	0	0	0	0	0	HAYK	
11	FAIR	1645	1	9	19	0	1	0	9	HAYK	AR10955
14	FAIR	2018	2	9	29	1	1	7	2	HAYK	AR10955 AND AR10956
15	FAIR	1411	1	7	17	0	1	7	0	HAYK	
17	POOR	1512	1	8	18	1	0	8	0	HAYK	
18	FAIR	1645	1	9	19	1	0	9	0	HAYK	
19	E	1730	1	12	22	1	0	12	0	HAYK	
20	POOR	1354	1	5	15	0	1	0	5	HAYK	
21	E	1419	1	4	14	0	1	0	4	HAYK	AR10956 DISSIPATING
23	E	1615	0	0	0	0	0	0	0	HAYK	
24	FAIR	1650	0	0	0	0	0	0	0	HAYK	
25	POOR	1610	0	0	0	0	0	0	0	HAYK	
26	FAIR	1627	0	0	0	0	0	0	0	HAYK	
29	E	1618	1	1	11	1	0	1	0	HAYK	NEW SPOT NOT IDENTIFIED
30	FAIR	1615	1	1	11	0	1	0	1	HAYK	NEW SPOT DISSIPATING
31	POOR	1640	0	0	0	0	0	0	0	HAYK	

Kim Hay

Kingston Cosmic & Events Calendar, June & July 2007, by Kim Hay

Date & Time Events

June 2 Saturday Mercury at greatest elongation E (23°) favourable evening view, as well as the past week
June 5 Tuesday Jupiter at opposition
June 8 Friday Last Quarter Moon (7:43)
June 8 Friday Regular Meeting Guest Speaker: Mark Coady from PAA Topic "Reclaiming Our Night Skies: Fighting Light Pollution"
June 8 Friday Venus at greatest elongation e (45°)
June 9 Saturday KAON Observing Session- Ellis Hall Queen's Observatory ** 9:00-10:30 p.m.
for more information visit http://130.15.144.99/rasc/Observing/kaon.php ** Note New Time **
June 12 Tuesday Venus 1° N of M44—visible soon after dark
June 14 Thursday New Moon 23:13
June 18 Monday Moon occults Venus in daylight visible in part of the NE of N.America (9:00 am)
June 18 Monday Cresent moon between Saturn and Venus 8:00 pm
June 19 Pluto at opposition- Cresent moon occults Regulus visable in parts of SW of N.America (10:00pm)
June 21 Thursday Summer Solstice 2:06 pm
June 22 Friday First Quarter moon 9:15
June 28-July 3 Thursday to Tuesday- RASC General Assembly in Calgary, joint event with AAVSO http://www.aavso.org/ and ALPO http://www.lpl.arizona.edu/alpo/
June 28 Thursday Moon 1.3° S of Antares best in W of N.America 4:00 am
June 30 Saturday Full Moon 9:49
June 30 Saturday Venus 0.7° below Saturn visible in evening twilight

Planets in June: Mercury very low in WNW in evening twilight early in June, Venus very low in West after dark. Mars low in East at dawn. Jupiter low in SSE afer dark, low in SW at dawn, and Saturn is very low in the West after dark. It sets in WNW near midnight.

July 6 Friday Earth at aphelion (152,097,100 km) at 8:00 pm
July 7, Saturday Last Quarter Moon 12:54
July 12, Thursday Venus at greatest brilliancy
July 13, Friday Regular Meeting Guest Speaker: Walter MacDonald Topic "AstroImaging"
July 14, Saturday KAON Observing Session- Ellis Hall Queen's Observatory ** 9:00-10:30 p.m.
for more information visit http://130.15.144.99/rasc/Observing/kaon.php ** Note New Time **
July 14, Saturday New Moon 8:04
July 20, Friday Mercury at greatest elongation W (20°)
July 21, Saturday-Sunday- The Dam Star Party, Fredericton, NB see www.rascmonton.ca
July 22, Sunday First Quarter Moon 2:29
July 29, Sunday Full Moon 20:48

Planets this month: Mercury very low in ENE in morning twilight, Venus very low in West in evening twilight, lost near the end of July. Jupiter in the South after dark, sets in WSW near 3 am. and Saturn is very low in the West in evening twilight, early in July.

For more detailed information, please refer to the RASC 2007 Calendar, and the RASC 2007 Observers Handbook. Available from our Treasurer or http://www.store.rasc.ca/