Regulus

The Newsletter of the Royal Astronomical Society of Canada – Kingston Centre — 2008 March

Coming up…

RASC-KC Meetings

Stirling Hall Theatre ***"A",*** Baader Lane, Queen's University Kingston, Ontario.
Friday 14 March 7:30-9:30 pm
Friday 11 April 7:30-9:30 pm

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 7:30 pm to 9:30 pm
Saturday 8 March 7:30-9:30 pm
Saturday 12 April 9:00-10:30 pm

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Photos by Kevin Kell

Welcome to New Treasurer

Please welcome Kim Hay as the new RASC-KC Treasurer. Our elected (2007 November) Treasurer John Pilon submitted his resignation, for personal reasons, on 2008 January 31st. The Board of Directors of the RASC-KC met on Friday February 8th and appointed Kim Hay to replace John for the duration of his term. I would like to thank John for his time in service and to Kim for stepping forward at this time.

—Kevin Kell, RASC-Kingston Centre President

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Notes from the Prez by Kevin Kell

Greetings Centre Members!

Winter is always a little depressing. I was leafing through my Logbook... waitaminute... that's the same as it was in February.
This is a winter to remember... it doesn't seem to be ending anytime soon.

We did have the last Total Lunar Eclipse for three years last month (February 20) and it was not too bad at all. I hope to see a few article submissions from members in this Regulus or maybe the next one. We tried out some new techniques including video taping the event. It was a little cold and windy but the VCR and tape held out and did not snap or freeze up.

We are still working on the latest transition of Treasurers and that should be complete by the time this Regulus goes to press. See elsewhere in this issue for more information about that.

Last month I also talked about the 2008 General Assembly in Toronto. We all received an email Bulleting at the beginning of February that notes:

"This year's early-bird registration deadline is April 1 and regular registration will be available until June 15. Registration will open by mid-February and will be announced on the RASC eNews. The official GA Web site is at www.rasc.ca/ga2008."

As of today...still nothing online.

The space shuttle Atlantis (STS-122) landed and some members did get in some nice sightings of it docked to the Space Station. The next shuttle launch is very soon:
Date: March 11 +
Mission: STS-123
Launch Vehicle: Space Shuttle Endeavour
Launch Site: Kennedy Space Center - Launch Pad 39A
Launch Time: 2:28 a.m. EDT
Description: Mission STS-123 on Space Shuttle Endeavour will deliver the Kibo Japanese Experiment Logistics Module - Pressurized Section (ELM-PS) on the twenty-fifth mission to the International Space Station.

Always nice to see in the sky.

The Board of Directors/Executive of the Centre met on Friday February 8th, 2008 and passed a motion to cancel the July and August Regular meetings of the Centre.

This also includes Markfest, held in place of our August meeting. Declining attendance in these two months and the need to have a break for our volunteer base were the leading reasons for this decision.

Kevin Kell, RASC-Kingston Centre President;
Chairs: Equipment Loan Program, OAFTN, Observatory

Volunteer Hours Logging Project,

by Kevin Kell

One of the new things I have started is a detailed log of volunteer hours for the centre. This is based on a formalized concept from the Ontario Horticultural Association where they have detailed what is and is not a volunteer hour for each of their chapter organizations.

In general, it is a good method to track activity and is extremely useful when applying for grants or when making pitches.

In general, for each member of the Board of Directors, any activity you do is counted, eg, regular meeting prep, attending regular meetings, public talks, public outreach events, prep for those events, etc.

For regular members, this extends to again, public outreach activities, prep for those events but not actually attending a regular function like a meeting.

Pretty much common sense definitions for the most part.

So, I'm logging our activity since 2007 October and will report on it at regular intervals. Board members,

please submit any hours you have outside of Board Meetings and KAON (as I will already know those) once a month or so and regular members, whenever You participate as a volunteer in an event.

The results in so far:

2007 October	44 manhours
2007 November	58 manhours
2007 December	53 manhours
2008 January	50 manhours
2008 February	49 manhours
year to date subtotal	254 manhours

Kevin Kell, RASC-KC President

The Last Total Lunar Eclipse, by Kevin Kell

It was a good eclipse Wednesday evening, 20 February 2008. A little cold but clear. The forecast 5 days previous was calling for snow snow snow. I think we can depend on the Environment Canada weather forecast for 5 days out will always be wrong :)

One new thing Kim & I did for this eclipse was to make an attempt to video tape it. The low light video camera arrived just a few days before and we were attempting to piece together the necessary parts to attach this to the telescope, along with cabling, adapters and a VCR. In the end, it worked and we have about 4 hours of tape of the event. Sometime soon this will be recorded to DVD, digitized and edited into something a little shorter.

We used our digital consumer camera, a Canon Powershot A540 (x4optical, x6mp) and took tripod mounted 15 second exposures at wide angle for the scenery and max zoom telephoto for the eclipse parts. The zoomed in images did not turn out too well. You need considerably more than x4 optical zoom on what starts off as a wide angle lens to get anywhere. Remember that in a telescope about x50 will get you a 1/2 degree field of view, maximizing the moon or sun in your field of view.

Image 20080220-014 shows a 15 second wide angle exposure of the eastern horizon, almost looking like daylight, with an airplane trail at left.

So we also took images handheld up to the eyepiece of our 20cm Dobsonian telescope "Starbuck". It is a 1200mm focal length scope with an eyepiece of around 24mm to give a x50 view. Most of the digital images were shot with the camera lens in the wide angle setting and exposures ranged from 1/500 second all the way up to about 1 or 2 seconds, the most we thought it could be held steady for. Turns out that was too long... the best of the long exposures turned out to be about 0.5 seconds.

Image 20080220-074 is just before total eclipse at 21:48 EST (1/2 second exposure) and image 20080220-107 was taken at 22:02 EST, just after the start of the total eclipse (1/2 second exposure).

Another experiment was to take a 15 second exposure of Orion pre-eclipse and during the eclipse. The sky was noticeably darker during the eclipse.

The last imaging system was the allsky camera, still under development for meteor detection. There is a large (7mb) animated .GIF at http://starlightcascade.ca/concam/ that starts before the eclipse and progresses through it to the end, showing the lighting effects.

Some lessons learned in the past but forgotten: Always set up and test your equipment well before the event, to save time trying to make things work as the event deadline fast approaches. Pens don't work in subzero weather... have a lot of sharpened pencils at the ready! People and equipment performance decrease over a long period event...so get a lot of stuff done at the front end as by the back end your back will be sore, all of your body parts will be cold, the equipment will start failing, the optics will be fogged over, and you will find yourself falling asleep at the eyepiece. Most digital camera images from total eclipse on turned out to be very soft focus, probably due to telescope fogging (no heaters were used); many images were blurred due to tripod altitude lock slipping.

The last image (20080220-156 taken 23:05 EST for 15 seconds, zoomed in and cropped) of this article shows the gorgeous placement of Regulus (upper right) and Saturn (left) along with blurring and fogging :)

For the next eclipse watch the website http://www.mreclipse.com/ for details on the 2010 Dec 21st total lunar eclipse. By that time the RASC will have live telescopic video feeds on the Internet, from across Canada, coast to coast, to make this event available to those with bad weather.

Kevin Kell

Total Lunar Eclipse

These images show the Moon in various stages of eclipse. The screen-captured images were taken during a recent lunar eclipse on 20 February 2008 from a remote feed supplied to Slooh.com from Argentina by the "Asociación Argentina Amigos de la Astronomia," as the watermark on each photo states. The time stamp is in Universal Time (UT). To make the process comprehensible, start from the bottom image and work upwards. —*Ed.*

Moon will remain in penumbra, which is invisible to the eye, for another hour.

Last (scheduled) contact with umbra; entry into full contact with penumbra.

The Moon begins re-entry into partial eclipse, from the shadow of total eclipse.

The total eclipse is not central; any lunar part near shadow's edge appears brighter than rest of Moon.

The Moon had been moving into Earth's curved shadow for nearly an hour during this partial eclipse phase.

Digital camera image of moon in total eclipse with Regulus above and Saturn at lower centre. Eta and gamma Leo are faintly visible along top margin of photo. —*Ed.*

Updates from the Treasurer, by Kim Hay

As stated in the President's Report, I have come forward to fulfil the duties of the Treasurer's term, which is up for re-election in November 2009.

Upon coming into the job, there was an announcement from our National Office, that due to changes in the Income Tax Act concerning Charities. National Office was no longer permitted to write donation tax receipts for centre donations.

RASC-Kingston Centre had 11 members donate to the centre in 2007. I wish to thank you all for your donations. These donations (if not specified) are automatically placed into our Observatory Fund. Since February 29th is the deadline to send out the tax receipts, for donations in 2007, these have been completed and mailed out. All donors should have them by the time they receive this newsletter. If you do not receive them or have any questions, please send me a note at cdnpooky@persona.ca

The RASC-Kingston Centre does fulfil its requirements for the CRA charitable donation requirements by spending funds on our Outreach Programs, which include our KAON sessions, the local Science Fair, school and guide/scouts visits and Astronomy Day Events.

On another note, monies that are sent from National Office to the centres, for Life Members ($22.00-based on the centre portion of the membership fee) will be held at National Office for the time being. Any money that would be distributed to applying centres from the Centre Project Fund Grant will also be on hold until further notice. There are issues on the distribution of these funds as well, to charitable and non-charitable centres. The Executive and National Office is awaiting word from our legal representation on how to proceed bringing these areas online without breaking any laws. There are also some other centre transfers that will be handled differently. All the above serious topics will be discussed at the upcoming National Council meeting on Sunday March 30.

RASC-Kingston Centre is a Federal Charitable Centre, and we can provide tax receipts for our members who wish to donate. Until further notice, if you wish to donate to the Kingston Centre, you can do this directly, as this option has been removed from the online E-store renewal process.

2009 International Year of Astronomy

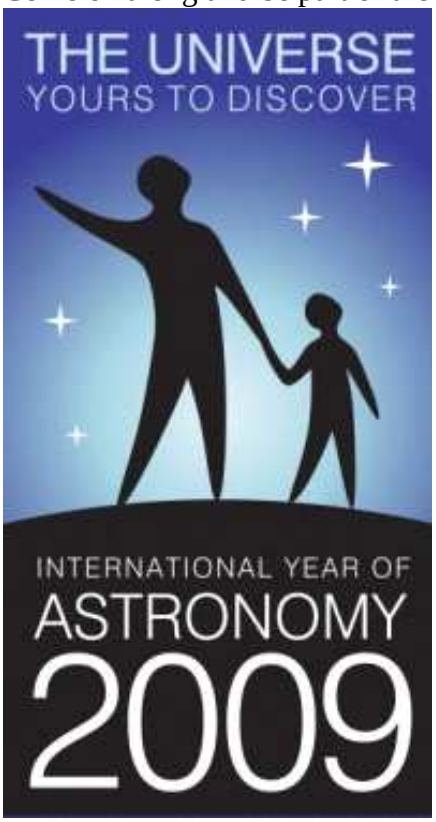
Kim Hay (chair of the 2009IYA-KC Committee)

2009 is the International Year of Astronomy and astronomers all over the
RASC are getting excited. This is where we can all shine in helping to promote Astronomy to everyone! It is also the celebration of 400 years since Galileo first used the telescope….and we have come along way!

The RASC has funding available this year (2008) and again in (2009) for Astronomical projects that will promote astronomy to all age groups.
February 29 was the deadline for these projects and it will be exciting to see what comes forth.

Locally, we are still in the planning phases, but some ideas have come forth, to help promote 2009 IYA. If you wish to be part of the team to help organize events, or just want to help out at an event, please let me know at kim@starlightcascade.ca with IYA2009 in the subject line.

We can use 2008 and its Astronomical events to springboard into 2009!
Come on along and be part of the excitement!



Winchester Observatory—2007 Report, Part 2, by Walter MacDonald

In February, after some chance discussions in the AAVSO Chat Room, I decided to add over 300 Miras to my regular variable star observing program. Many Miras are under-observed and I figured that with a robotic observatory there was no excuse for allowing that situation to continue! After some experimentation I decided to go with 20-second exposures for these stars. This allows me to cover the brightness range from 10th to 15th magnitude. I did some extra programming so that my system can adjust the number of exposures based on how bright these stars are (just as it has been doing with the cataclysmic variables I monitor). Since many of these Miras tend to be bright (10th-12th magnitude), the system can often get sufficient signal to noise ratio with only a couple of 20-second exposures. Needless to say, the scope can really bomb around the sky when it is doing these bright stars -- much faster than with the multiple 2-minute exposures necessary for the faint cataclysmic variable stars that I like so much. This makes the “Live Session” page a little livelier, and has contributed to a doubling of the "efficiency" of my imaging setup -- to an average of 91 stars per night in the autumn of 2007 -- though that's a somewhat seasonal effect due to the high concentration of Miras clustered in the summer Milky Way constellations of Cygnus, Aquila, and Delphinus. There is an added dimension of interest in working with images of stars that I have observed (and in some cases, still observe) visually. It is yet another way in which CCD imaging can dovetail so nicely with visual observing and this only adds to the pleasure of the whole enterprise.

One side-effect of expanding my program so dramatically was that I had to build some spreadsheet-based software to manage my imaging list and build the observing plans for each session. Using Excel, this system keeps track of what stars I am actively following, when I last imaged them, and what the latest AAVSO Quick Look data says they are doing. Basically, if recent AAVSO observations show any of "my" variables to be brighter than 10th magnitude, they get temporarily dropped from my list since they are likely too bright from which to obtain a proper brightness measurement. This system is not quite an exact science, but it is better than nothing. Also, Miras don't need to be observed more often than every 7-10 days, so the spreadsheet helps prevent that from happening too. Along with real-time exposure adjustment, this helps keep the telescope fully and productively occupied each night. Without it fewer stars could be monitored, since efficiency would be lower -- not to mention the extra time and effort that would be required on my part to administer things. Anytime I can find an opportunity to get computers working for me (rather than the other way around), I take it!

In March, the scope was limping along. With the RA tracking problem that had developed, I was throwing away about a quarter of the images due to trailing, but fortunately the impact of that on my output was minimal. In visiting the website of Mike Simonsen (a prolific variable star observer from Michigan who owns TWO(!) 12" LX-200s), I discovered that he had already had one of his scopes rebuilt by Dr. Clay with his "SuperCharge" service and Mike was highly recommending it. In the AAVSO Chat Room (yes, I'm there quite often at times!) I soon discovered a few others who had also taken advantage of Dr. Clay's services. Finally, on April 5th, the scope was shipped off to the good doctor, torn down, cleaned up, rebuilt, and returned to Ottawa by the 13th. The Universe unfolded particularly well at this time since I was able to image on five consecutive nights immediately prior to shipping out the scope and missed only one clear night while it was away! It is too bad that good fortune like this cannot be planned!

In May I had some nice observing with the 17½" in the backyard. Along with the C8, it has given many years of great observing, though the last few years this has been confined (at least in the case of the 17) to the warmer months of the year since it is stored indoors in a heated room (I must get around to remedying this unfortunate situation). The thrill of observing visually while the rooftop observatory creates images automatically has still not worn off, and it seems quite likely now that it never will!

—Part three of this three-part series appears next month

RASC Kingston Centre Promotional Items

(If you wish to order, and have the items come to a meeting for pickup or wish to order and it mailed, please send a note to kingston@rasc.ca). Make cheque payable to: RASC-Kingston Centre

*Expanding Their Universe 2nd Edition - The Ontario Teacher's Companion for Grade 9 Astronomy 164 pgs; 2002 $3000 ($24.00) SALE $15.00

*Worlds to Discover 1st Edition
Astronomy for Elementary School -154 pgs; 2000 $15.00 ($12.00) SALE $10.00

Keepsake *RASC Kingston Centre GA Logo lapel pins $5.00 ($3.00) SALE $2.00
*Madoc Rock 4 coaster set with RASC-KC Logo $30.00 ($24.00)
Baader Solar Filter Film Price: $0.30 per square inch.
4"x4" = $5 6"x6"=$11
8"x8"=$20 10"x10"=$30

Len's Pen (to clean the dust off the optics) $5.00

Beginner's Observing Guide 5th Edition (Leo Enright) $20.00 $20.00

RASC 2008 Observer's Handbook (Ed: Patrick Kelly) $20.00 $20.00

RASC 2008 Observer's Calendar (Ed: Dave Lane) $15.00 $15.00
Sale** 5.00

RASC Toque (one size fits all) $15.00
RASC Skyways Astronomy Handbook for Teachers English $20.00 ($16.00)
(English/French) - 2003 (Mary Lou Whitehorne) French $22.00

RASC Stainless Steel Coffee Mug (RASC new logo) $15.00 $15.00

RASC Lapel Pin (new logo)
$5.00
RASC Sticker (new logo)
$3.00

RASC Planisphere (40-50 deg North Latitude)
$15.00
IK Williamson Lunar Certificate Program
$10.00

Handling (Packaging and shipping) - $6.00
no charge if picked up in person

RASC- Kingston Centre, P.O. Box 1793, Kingston, Ontario K7L 5J6

—Kim Hay, Treasurer

Walter MacDonald recently has been working on converting old issues of the RASC's National Newsletter into PDF form. He came across this article that is “just as relevant as when it was originally written and would be good to include in Regulus.” The article originally appeared in an October 1988 issue of the RASC's National Newsletter.

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Intimidated

by Dennis Ryan, Montreal Centre

To begin with, the fact that you are reading the Newsletter means that your interest in astronomy is strong enough to have committed yourself to at least a year’s membership in the RASC and that’s great.

But here’s a blunt question. Are you, in reality, intimidated by the tremendous surge in the technology that has affected the sciences, including astronomy? Are you really a “non-technical” person whose fascination with the skies stems perhaps from some “metaphysical” reason and while you might find reading about the latest in the physics of black holes interesting, you don’t begin to comprehend the mathematics involved?

Welcome to the club. When I became interested in astronomy twenty years ago, the technology that astronomy uses today was still in its infancy. As the technology developed, I learned, but I would be the first to admit that my knowledge remains at a rather basic level and that if I would have become a member today, I would feel intimidated too. But even if you are just starting out, don’t feel that your lack of knowledge means you must remain on the outer edges of astronomy if you want to get more involved.

The first step to greater involvement is simply to learn the language. Any hobby you might engage in has its own vocabulary, its phrases and terms, and astronomy is no different. Astronomy has its own language, and fortunately, there are a number of basic books currently available that can ease you into astronomical language and terminology so that you can engage in a decent conversation with a basic background.

And remember, Centre members are not there to intimidate you either, and the active ones will certainly bend over backwards to help you to learn, and become a more involved astronomer.

But amateur astronomers are not mind readers, and they can’t help you to learn if you don’t ask. I have known situations where people have joined a Centre for a year and then not renewed. In some cases I had met these people when they had first paid their fees and I had got the impression, if they themselves had not admitted it, that they felt overwhelmed by the amount of knowledge in astronomy.

How does one get more involved? I got deeply involved by becoming a member of the Montreal Centre’s Board of Directors and the editor of its newsletter. That implies deep involvement, and it is. For me, being the Centre’s newsletter editor is especially satisfying. And actually getting out to observe the skies is a thrill all its own.

By the way, you might be wondering how a non-technical person like myself can be editor of a Centre newsletter, when articles in that newsletter might contain some technical terminology and/or mathematical equations. The answer is that I have two able assistants who proofread each month’s edition, offering suggestions, correcting mistakes, and making numbers more palatable.

As one who has little involvement in the technological side of astronomy except for a broad understanding of how everything works, I understand the feelings of those who do feel intimidated. It is a natural feeling. But whether by helping out on a Centre newsletter, or one of the other projects a Centre might have planned, or putting typing skills to work when they are needed, or offering to help lift telescopes out into the open sky, the resources are there for you to learn, and to become an involved amateur. That’s why the RASC exists.

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

RASC-KC Board of Directors

President: Kevin Kell
Vice President: Susan Gagnon
Secretary: Steve Hart
Treasurer: Kim Hay
Librarian: David Maguire
Editor: Joseph Benderavage
National Council Rep: John Hurley

2007-2008 Committee Chairs/Coordinators:

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Amateur Telescope Makers: Doug Angle
Awards: Kevin Kell
Banquet: vacant
Education: vacant
Equipment Loan: Kevin Kell
Fall 'N' Stars: vacant
KAON: Susan Gagnon
OAFTN Instructors: Doug Angle, Brian Hunter
Observing: vacant
Publicity: vacant
Relay for Life: vacant
Responsible Lighting: Kim Hay
Sky Is the Limit: vacant

The Royal Astronomical Society of Canada—Kingston Centre

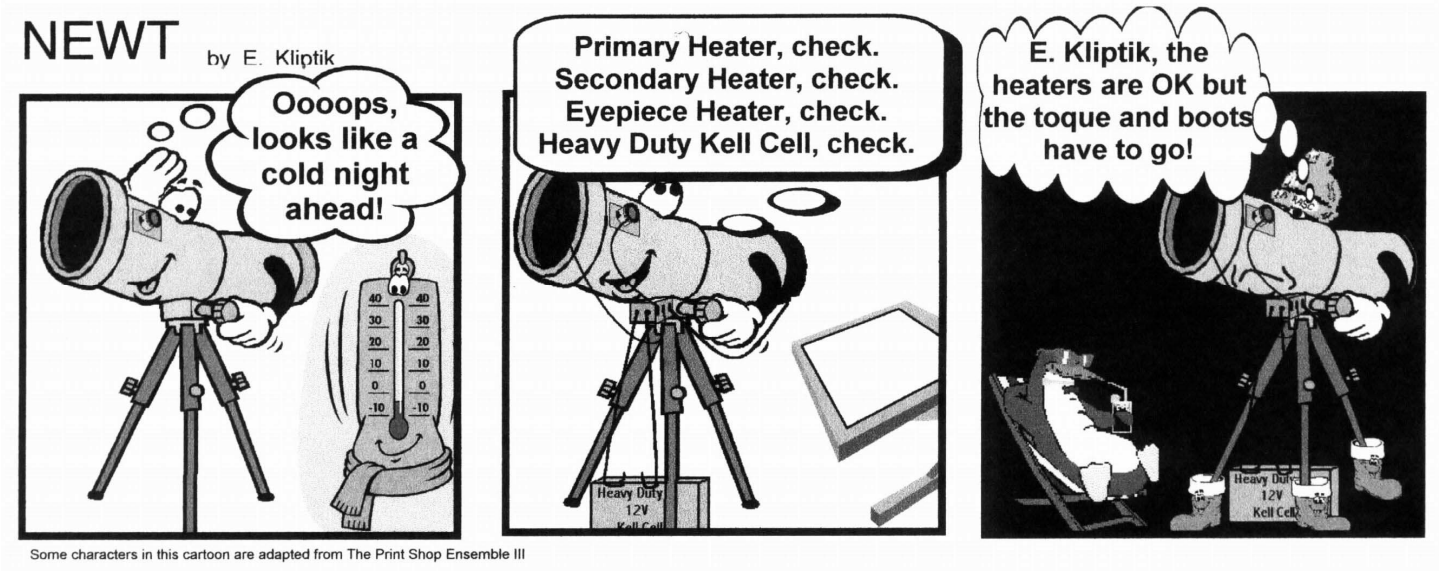
Newsletter Submission Info:

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
Post: Joseph Benderavage, 147 Braemar Road, Kingston, Ontario, Canada K7M 4B7

2008 Publication Deadlines

For the month	**(Deadline)**
April	(March 28)
May	(April 18)

Subscriptions: Members of the Kingston Centre receive Regulus as a benefit of membership. Advertisements are free to members of the Centre. Commercial advertising is $20/quarter, $40/half page, $100/ full page and should be in electronic format. Contributions are more than welcome. Submitted material may be edited for brevity or clarity.



Kingston Cosmic & Events Calendar, **March—April 2008,** by Joseph Benderavage

Date *Events* *Time*

MARCH 2008

01 - ***Jupiter*** 4° N of Moon 20:00; ***Mercury*** at descending node.
03 - ***Mercury*** at greatest elongation W 6:00 (27°)
05 - Crescent Moon near ***Venus*** and ***Mercury,*** visible in morning twilight, best in W of N. America; ***Neptune*** 0.2° N of Moon 17:00
07 - New Moon 12:14; Double shadow transit on ***Jupiter*** 10:05
08 - ***KAON*** Observing, Ellis Hall Queen's Observatory 7:30-9:30 pm. Spkr: Kyall Lake, "Black Holes,etc"
08 - ***Neptune*** 0.6° to left of ***Venus*** visible in morning twilight; ***Uranus*** in conjunction with the Sun 15:00; ***Mercury*** 0.9° S of ***Neptune*** (27° W) 21:00
09 - Daylight saving time begins 2 a.m.;
10 - ***Mars*** 1.7° N of M35 13:00; Moon at perigee (366298 km) 18:00
14 - **Regular Meeting** Stirling Hall "A" 7:30-9:30 pm. Spkr: Dr Joseph.Buckley, RMC, "Radarsat 2."
14 - First Quarter Moon 6:46; Moon 1.2° N of ***Mars*** 11 p.m.
17 - Moon 0.3 deg N of Beehive (M44) 10:00
19 - Moon 1.1° SW of Regulus, best in W of N. America 3:00; ***Saturn*** 3° N of Moon 11:00
20 - Spring Equinox, 1:49 a.m.
21 - Full Moon 14:40
23 - ***Mercury*** 1.0° S of ***Venus*** (21° W) 6:00, visible with difficulty in morning twilight only in S of N. America; **Zodiacal Light** readily visible in N lat. in W after evening twilight for next two weeks.
27 - Moon 1.1° S of Antares, best in W of N. America 5 a.m.; ***Mercury*** 1.7° S of ***Uranus*** (19° E) 5 a.m.
28 - ***Venus*** 0.7° S of ***Uranus*** (19° W) 13:00
29 - Last Quarter Moon 17:47; Double shadow transit on ***Jupiter*** 00:22
30 - ***Jupiter*** 3° N of Moon at 13:00, visible at mag. -2.1 in daylight

PLANETS for March: ***Mercury*** low in ESE in morning twilight first week of month; ***Venus*** low in ESE in morning twilight early in month; ***Mars*** high in SW after dark, sets in NW by 4 a.m.; ***Jupiter*** rises in ESE three hours before dawn, very low in SE at dawn; ***Saturn*** in ESE after dark, very low in W at dawn.

APRIL 2008

02 - ***Neptune*** 0.0° S of Moon 5:00
04 - ***Venus*** 5° S of Moon 21:00
05 - New Moon 23:55; Two shadows on ***Jupiter*** visible in E of N.America, best in NE 2:59
08 - Moon 1° N of Pleiades (M45) 22:00
11 - **Regular Meeting** Stirling Hall "A" 7:30-9:30 pm. Members Night.
12 - ***KAON*** Observing, Ellis Hall Queen's Observatory ***9:00-10:30 pm***.
12 - First Quarter Moon 14:32; Moon 0.5° N of ***Mars,*** best in W of N.America 2:00
13 - Moon 0.1° N of Beehive (M44) 16:00
15 - Regulus 0.9° N of Moon 10:00; Saturn 3° N of Moon 14:00
20 - Full Moon 6:25
22 - Lyrid Meteors (ZHR=20) 00:00
23 - Antares 0.3° N of Moon, 13:00
26 - Double shadow transit on ***Jupiter*** 16:29
27 - ***Jupiter*** 3° N of Moon 01:00
28 - Last Quarter Moon 10:12; ***Mars*** 5° S of Pollux (75° E) 15:00
29 - ***Neptune*** 0.3° S of Moon 15:00

PLANETS for April: ***Mercury*** very low in WNW in evening twilight for last few days of April; ***Venus*** not easily observed; ***Mars*** high in WSW after dark, sets in NW near 2:30 a.m.; ***Jupiter*** rises in ESE near 2:30 a.m., low in SE at dawn; ***Saturn*** high in S after dark, sets in WNW about two hours before sunrise.

RASC *Observer's Handbook 2008* contains more info & is available from http://www.store.rasc.ca/