



# Regulus



*The Newsletter of the Kingston Centre of the Royal Astronomical Society of Canada – March 2006*

## Coming up...

### RASC Regular Meetings

Queen's University  
Stirling Hall Theatre A  
(note room change)

March 10 7:30-10:00  
Dr. Bryce Bennett- Topic:  
"Copernicus, Kepler and the  
Mystery of the Analemma"

April 14 7:30 - 10:00  
Peter McMahon from the  
Discovery Channel

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

### KAON Public Observing

Queen's Observatory  
Ellis Hall  
Saturday Mar 11 7:30 - 9:30  
Saturday Apr 8 9:00 - 11:00

### AstroYak

March 24 7:00  
At the home of Kevin Kell and  
Kim Hay.

### Members Observing

March 20-30 Lemoine Point  
Contact Ken Kingdon for  
notification.

## Kingston Centre Members Receive Service Awards

Mark Kaye and Kevin Kell have recently received RASC service awards. See page 3 for more.



Kevin Kell in a rare moment in front of the camera. He is usually the one taking the pictures.



Mark Kaye helps a young astronomer reach the eyepiece.

Kingston Centre of the Royal Astronomical Society of Canada  
Box 1793 Kingston Ontario K7L 5J6  
<http://www.rasc.ca/Kingston>  
infoline: 613-377-6029  
email: [kingston@rasc.ca](mailto:kingston@rasc.ca)



## President's Tid Bits

Kim Hay

Believe it or not there are stars up there, though the weather has not really cooperated this month, again.

Astronomy can be frustrating at times, but hey we're tough, and we will wait out the clouds. There is always reading those Astronomy magazines that show up and that are still in their plastic covers. How about that new book you bought 6 months ago, it's a good time to crack it open and read it, or maybe even prep yourself for the next observing session.....it will come.

We have a great speaker for March, Dr. Brice Bennett and in April we are confirming Kingston Centre member, Peter McMahon of Port Hope. The Executive just had a meeting, which we worked on a Strategic Plan for this year and a plan for the next five years. This plan was also talked about at the February regular meeting, and I thank everyone who made suggestions on the sheets and by email. This will help us immensely for making the Kingston Centre what you want it to be.

There is a telescope training session for Kingston Members on the 16" Telescope at the Queen's Observatory on March 14 7:00 pm. If interested please drop me an email at [kim@starlightcascade.ca](mailto:kim@starlightcascade.ca) for a spot on the list.

Later on in Regulus you will hear about the presentation of new bylaws, and a Special Meeting which will remove one more hurdle for the end goal of the flexibility of donations, grants and the ownership of land for the ultimate goal of an observatory.

We will be Sponsoring a Special Award at the Frontenac Lennox & Addington Science Fair this year on the weekend of April 7 & 8. Kingston will need a judge to judge any Astronomy Related projects. If interested please contact [kingstonexec@lists.rasc.ca](mailto:kingstonexec@lists.rasc.ca)

Our Astronomy Day is coming up in May, and we continue to provide the KAON sessions for the public in collaboration with the Queen's Observatory.

Remember those clouds are up there now but they will part so we can do some Messier Observing for March.....



## Book Review

Joe Benderavage

Cosmic Butterflies, by Sun Kwok, 2001, Cambridge University Press, Cambridge, UK is currently available for loan in our club library. This is a beautiful and exciting tome. I found I could not put it down, over the course of two days, until I had finished it.

One of the early chapters contains a scenario of our sun becoming a planetary nebula: what would it be like inside an expanding planetary nebula, Kwok asks rhetorically. The answer is surprising, and worth reading.

Kwok deals with symmetrical nebulae in the major portion of the book. Vital statistics of a typical planetary nebula (PN) come in following chapters.

PN origins lie in stars called "asymptotic giant branch" stars that are redder and more luminous than the usual red giant stars. In 1977, at a farm in Erin, Ontario, Chris Purton, Pim Fitzgerald, and the author, Sun Kwok, devised a theory for PN formation, better known as the "interacting winds" theory, which dealt with slow stellar winds ejecting massive amounts of the stellar atmosphere into an envelope surrounding the asymptotic giant red star. Later, a separate, fast stellar wind would be "...acting as a snow plow and sweeping up the slow wind material left over from the asymptotic giant branch. The swept up material makes a dense shell, which is what we traditionally call the planetary nebula."

Kwok includes photos that go far to substantiate the theory. He also provides interesting and satisfying narrative on the search for proto-planetary nebulae, a very early stage of PNs. He also deals with the thorny issue of asymmetrical and amorphous PNs, extensions, handles ("ansae"), radial filaments, jets, and NGC 2440, "...an object so complicated it defies description".

A surprising discovery of new forms of carbon leads Kwok to pose the question "Do we owe our lives to planetary nebulae?", which he makes into the tantalizing title of his last chapter.

This 179-page book contains over a hundred colour photographs of planetary nebulae, with an appendix of detailed information of the photos. It also contains many other images, pictures, and diagrams, and has an index, glossary, and recommended auxiliary reading list.

The author was a Professor of Astronomy at the University of Calgary at the time he wrote this book. He is considered an expert on planetary nebulae.



## Looking for Help at Student Star Night

Dieter Brueckner

I have agreed to lead a star night for about 100 students at J.R.Henderson Public School, from 7:30 - 10:00 PM on Thursday, 23 March 2006. (Clouddate is Thursday, 30 March 2006, same time slot)

Because of the large number of students, as well as the likely additional presence of parents and siblings, I would welcome with grateful appreciation the participation of members of the Kingston Centre and their telescopes. The evening is scheduled to begin with a 30 - 40 minute classroom orientation, followed by star gazing in the school yard. The moon will be in third quarter, so it should be an opportunity for dark(er) sky objects.

J.R.Henderson P.S. is located at the corner of Henderson Blvd. and Roosevelt Dr. in the Henderson Place area in Kingston's west end. Centre members have helped at past star nights there with rewarding results.

If helping out has appeal, I would appreciate your call at (613) 384-8033 or your e-mail at [dwbrueckner@cogeco.ca](mailto:dwbrueckner@cogeco.ca).



## March Speaker

Abstract

Our guest speaker for March is Dr. Bryce Bennett. The title of his talk is "Copernicus, Kepler and the Mystery of the Analemma".

"This will be an historical talk on the astronomical theories of Copernicus and Kepler. One of the critical problems that engaged early supporters of heliocentrism was the motion of the Earth itself. While Copernicus was able to show the internal consistency of a Sun-centred planetary system, it was Kepler who successfully 'disentangled' the true motion of our home planet from the apparent motions of the other planets. This crucial innovation would eventually lead Kepler to the discovery of the elliptical planetary orbit."

The talk is intended for a general audience.



## Service Awardees

Kim Hay

Two Kingston members recently received Service Awards from RASC-National. Kevin Kell was nominated by Kingston Centre, and Mark Kaye was nominated by the Hamilton Centre (Mark is a member of both Centres).

The Service Award is the most often given of the RASC's awards. It was established in 1959 and has been granted to 110 members in its 47-year lifetime and to 11 members in the past 6 years. The award is presented to a member who has provided substantial service of a well-defined nature to the Society and / or a Centre over a period of at least 10 years. The number of recipients from a given Centre is restricted to at most one per three years on average.

Motion 06103

It was moved by the [National] Awards Committee that Ted Bronson (Thunder Bay) be granted a Service Award, Dr. Warren Finlay

(Edmonton) the Newcomb Award, Mark Kaye (Hamilton) a Service Award, Kevin Kell (Kingston) a Service Award, and Ed Majden (Victoria) the Chant Medal.  
Motion 06103 was carried

Congratulations Kevin & Mark for jobs well done.



## The Sky Search Program: Winter and Spring

Leo Enright

### Background

In the autumn sky last year, a number of members of our Centre pursued a "Sky Search Program", becoming well acquainted with a chosen area of the sky – the kind of pursuit that has enabled some well known astronomers of past eras and of the present time to discover comets, asteroids, and novae.

Last autumn, relying on the tradition of those previous programs in our Centre and on the even older program, of which David had been a part in the Montreal Centre in the 1970's, our revised program was called a 'Nova Search Program.' However, in view of its announced aims, it seems more appropriate, at this time, to call it simply a 'Sky Search Program.'

### Aims of the Program

Stated simply and directly, the aim of the program is to become more familiar with a certain area of the sky, so as to be able to detect a nova, if, perchance, one were to occur in that area. (Familiarity with the area would lead to the recognition of an asteroid, or even a comet - Eureka! - passing through the area!) However, the chance of such events happening is remote. A second aim is to be more aware of the many objects that are there to be observed, objects we may never even have considered being so accessible. A third aim is to improve our observing techniques through systematic practice.

Throughout the autumn I spent a good deal of time becoming familiar with Area 11 which was the one that I had chosen from Stage One of the program.

The results of my hours spent examining the area are given in my report in the December 2005 issue of Regulus, beginning on page 3. I invite every member of the Centre who participates in this Stage Two, similarly, to submit a report to our newsletter of your efforts at becoming very knowledgeable about that region of the heavens.

### Organization of the Program

Each participant is expected to choose one of the 30 suggested areas of the "late winter and spring sky", and to strive to become as familiar as possible with that region, based on the equipment that is available to her / him. The intention is that, later in the year, a Stage Three will be announced so that members of the Centre may continue this endeavour during the coming summer season.

Each area of the sky is 1 hour of Right Ascension (that is, 15 degrees, as measured along the Celestial Equator) BY 10 degrees of Declination.

Participants should become well aware of the positions and magnitudes of all the stars in the designated area, **DOWN TO THE LIMITING MAGNITUDE**, if possible, **OF THE INSTRUMENTS THEY USE**. No one is excluded because of the size of the optical instrument that he / she owns.

Reports of anything unusual in the selected area should be given at each Centre meeting, and if possible, there should be a designated time at each meeting for "Sky Search Program Reports". These reports should, of course, include any suspected novae or comets (!!! Rare Eureka Events!!! – Doubtless previously reported to the IAU!!!), but also changes in magnitude of the variable stars in the area, asteroids in the area, even artificial satellites moving in the area. These reports, over the coming months, should reflect a gradually increasing familiarization with the chosen region of the sky. An example would be the reports from a person who begins with 7X35 binoculars and lives in, or near, the city, and is able to report on the number, and in some cases, the variability (of the variable stars) of stars down to 7th, 8th, or 9th magnitude. Later, if that person uses larger binoculars, or a small telescope, or observes from a darker site, he/she may report on the number and variability (as applicable) of stars down to 10th, 11th, or 12th magnitude. Such a person should

surely be able to detect a fairly faint asteroid passing through the area, even if he/she had never heard of that asteroid before. Because of the presence of a very unusual star in my chosen Area 11 of Stage One, I was able to become familiar with 'VanMaanen's Star', a prime example of a 'degenerate star', an extremely massive and very old white dwarf, a very rare example of its type at the time of its discovery in 1917. I hope that some members who select areas of Stage Two of this program will be equally fortunate in encountering similar 'rare and exotic birds' from the vast celestial zoo.

I have prepared the following list of 30 areas of the Late Winter and Spring Sky, very easy to locate in the evening over the next four to five months. They are above the murkiness of the horizon, and yet most of them are not in the difficult-to-observe, neck-craning area of the zenith. (A few of them, such as Areas 27 to 30, allow our Honorary President to pursue southern celestial regions, that are well placed for him but are not very high as seen from southeastern Ontario!)

Each participants should choose her / his individual area, and then study it carefully on the star atlas that she / he uses. The area should be monitored every clear night, if possible.

Here are the things that should be recorded for that area of the sky:

- the number of stars of each magnitude (to the limit of the instrument used),
- the variable stars (name, type, mag. range if known, and mag. at time of observation),
- the double and multiple stars,
- the planets (if any, remember, one person may even choose the area with Saturn),
- asteroids, comets, or even meteors seen in the area,
- any special named stars, or historically important stars, or historical novae,
- any galaxies, star clusters, nebulae, dark nebulae, or quasars,
- specifically from the previous list: any Messier objects, Herschel objects, NGC objects, or objects from the Levy List

Area Number	R.A. (h)		Dec. (deg)		Constellations in the area
			S shown as -	N shown as +	
1	8	9	0	-10	Hya/Mon/CMi
2	9	10	0	-10	Hya/Sex
3	10	11	0	-10	Sex/Leo/Crt
4	11	12	0	-10	Leo/Crt/Vir
5	12	13	0	-10	Vir
6	13	14	0	-10	Vir
7	8	9	0	+10	CMi/Cnc/Hya
8	9	10	0	+10	Cnc/Leo/Hya/Sex
9	10	11	0	+10	Leo/Sex
10	11	12	0	+10	Leo/Vir
11	12	13	0	+10	Vir
12	13	14	0	+10	Vir/Boo
13	8	9	+10	+20	Cnc
14	9	10	+10	+20	Cnc/Leo
15	10	11	+10	+20	Leo
16	11	12	+10	+20	Leo/Vir/Com
17	12	13	+10	+20	Vir/Com
18	13	14	+10	+20	Vir/Com/Boo
19	8	9	-10	-20	Mon/Hya/Pup/Pyx
20	9	10	-10	-20	Hya/Pyx/Sex
21	10	11	-10	-20	Hya/Sex
22	11	12	-10	-20	Crt/Crv/Vir
23	12	13	-10	-20	Crv/Vir
24	13	14	-10	-20	Vir
25	8	9	+20	+30	Cnc/Gem
26	9	10	+20	+30	Cnc/Leo
27	8	9	-20	-30	Pup/Pyx
28	9	10	-20	-30	Hya/Pyx/Ant
29	8	9	-30	-40	Pup/Pyx/Vel
30	9	10	-30	-40	Pyx/Vel/Ant



## Computer Donation

Kevin Kell

RASC-KC donated two older model computers to the Ellis Hall Observatory on Saturday February 11th, 2006.

The intent of the donation was to provide more capability to display self running slide shows, planetarium programs, and other astronomy related material without necessarily running on the main telescope command and control computer systems presently in the warm room. These two systems are Pentium 3 class 500MHz with 256mb and 512mb RAM respectively. They are both dual booting MSWINNT2000Pro and Linux Fedora Core 4 with KDE. We provided the workstations, keyboards, mice and software setup.



*Two computer systems were recently donated to Queens for use in the Observatory*

On the windows side they have Virtual Moon Atlas, the ability to show MS powerpoint 2000 files, and Starry Night Pro v3.12

On the Linux side they have KStars, an excellent Planetarium program, especially for variable star observers. They are not currently connected to a network or the internet but may in the future.

At least one of the systems is being considered for a wheeled cart, to enable it to be moved out into the hallway, running a display. For those RASC-KC volunteers who may be interested, you can create your own powerpoint slide show of projects, special interest images, or anything that you would like astronomically related, and bring them in and install them on the systems as part of a resource library. Both machines have USBv1.1 capability and cdroms.

## ATM - The Next Step

Doug Angle



A few years ago, we completed construction of the 24" telescope. It's been a great addition to the assets of the Kingston Centre, and has given us the opportunity to use a large aperture telescope that many of us wouldn't otherwise have. Shortly after that, we received the donation of a 16" diameter glass blank. It's been sitting under my chair since then, and I thought it might be time to do something about it.

When we were deciding on what to do with the 24", we chose to go with a fairly standard, published design. We bought [The Dobsonian Telescope](#), which gives all the relevant information to build an Obsession style scope, and we did what the book says. That way, we weren't taking chances with an unproven design on such a major project. The 16", while still a substantial project, affords the opportunity to do something more creative. Below, I'll outline some choices of optical design. We'll need to select one as a first step.

The simplest design is the Newtonian. Normally, descriptions of the Newtonian say that there is only one optical surface to grind, but in practice there is a second, flat mirror, which is quite challenging to make (Jan Wisniewski spent more time on the flat for the 24" than the primary took to make.) All the

telescopes we've made so far, and most of the commercial scopes we own are Newtonians.

Probably the next most common design is the Cassegrain, which uses the same primary as a Newtonian, but has a convex secondary. We usually see them in the form of the Schmidt-Cassegrain made popular by Celestron and Meade. Again, the secondary is difficult to make, and these are usually not attempted by amateurs.

Another variation is the Gregorian Telescope. It also uses a paraboloid primary like the Newtonian, but with a concave, elliptical secondary. There is an optical test suited to the secondary that makes it easier to fabricate.

In the Cassegrain and Gregorian, the secondary increases the magnification of the primary. Where Newtonians are typically  $f/4.5$  to  $f/8$ , Cassegrains are usually in the  $f/10$  to  $f/15$  range. I've never actually seen a Gregorian, but the design suggests focal lengths in the  $f/15$  to  $f/20$ . Both cases would have quite a high minimum magnification, about 150 for the Cassegrain, and 250 for the Gregorian. They would therefore have a narrow field of view, which in turn would require either an equatorial mount or a computer driven alt-az mount to use effectively. This would bring it's own challenges in fabricating the mechanical, electrical and control systems.



*We now have a curve generator available, that will allow rapid cutting of the initial curve. This should save a lot of time in the initial stages.*

When we built the 24", we did all the grinding by hand. The roughing alone took about 80 hours spread over 10 months. I now have a diamond cutter which should be able to cut whatever curve we need within a few minutes, so this should speed the grinding process. I would expect about 20 hours to produce the primary vs over 100 for the 24".

This article is meant to be an overview of some possible choices for a new telescope. Obviously we need to make some choices before can begin fabrication. I invite members who are interested in participating in the project, or have an opinion on what we should build to contact me.



## Sky Publishing sold Press Release

Cambridge, MA — Sky Publishing Corporation, the privately held publisher of astronomy periodicals and books, announced today that it has completed the sale of its business to New Track Media LLC, an entity formed in the fall of 2005 by Stephen J. Kent and Boston Ventures. Terms of the transaction were not disclosed.

Sky Publishing Corp. was founded in 1941 by Charles A. Federer Jr. and Helen Spence Federer, the original editors of Sky & Telescope magazine. Sky & Telescope is the world's most respected astronomy magazine, serving amateur astronomers around the globe. In addition to Sky & Telescope and SkyandTelescope.com, the company publishes Night Sky magazine (a bimonthly for beginners with a Web site at NightSkyMag.com), two annuals (Beautiful Universe and SkyWatch), as well as books, star atlases, posters, prints, globes, and other fine astronomy products. For New Track Media, which is based in Cincinnati, Sky represents its first transaction in a broader plan that calls for building a portfolio of consumer enthusiast properties, not all science-related, and largely through acquisition.

Key members of the Sky Publishing senior management are keeping their roles. Susan Lit, president and publisher, and Richard Tresch Fienberg, editor in chief, have both agreed to continue in their positions under the new ownership. Ms. Lit emphasized that Sky had not been considering a sale

but saw this as an opportunity to associate with a group that has broader ambition for growth along with a proven track record in publishing. "I have known Stephen [Kent] for years," said Lit, "and when he announced his plans with Boston Ventures, this seemed like an opportunity to become a central piece of a new and exciting company. As an employee-owned company for 65 years we had to be assured that a new owner would value our independence and history, and at the same time be committed to our growth. New Track Media offered the growth opportunities and shared vision of entrepreneurial spirit." The company will continue to operate out of its offices in Cambridge, with plans to relocate to new offices in the Boston area within the next year.

New Track Media was formed in the fall of 2005 by Kent, with support from Boston Ventures, an established private equity firm with a longstanding media focus. Kent, who was most recently CEO of F+W Publications, is chief executive officer of New Track Media, LLC. "We couldn't have asked for a stronger brand to launch our new venture," said Kent. "Sky & Telescope has a rich history and established editorial authority in a category that is everlasting. We are proud to make it the cornerstone of New Track Media." According to Kent, "With the Sky acquisition complete, we are now eager to bring other prominent special-interest properties into the portfolio and hope that this will help others see that we're a buyer who can work quickly and confidentially toward completion."



## Kingston Centre Bylaw Changes

### Preamble

Recall that last fall, we approved the incorporation of the Kingston Centre. This was the first stage in our pursuit of charitable status. The next steps involve updating our Centre bylaws. We have now produced a draft of the new bylaws.

These bylaws were based on the sample centre bylaws last revised in late 2004 by the Constitution Committee of the RASC. Using the National Society as an example of an organization hamstrung by its own bylaws, we took a view to minimize the detail in the bylaws and to eliminate anything non-essential, yet at

the same time remaining consistent with the sample bylaws.

### Notices

As per our current bylaws:

#### *Article IX - Amendment of the By-Law*

*2. A proposal for an amendment to the By-Law must be submitted in writing to the President and Secretary at least thirty (30) days before the Annual Meeting. The Secretary shall prepare a written draft of the amendment for presentation to each member of the Centre and if possible shall see that it is published in the Centre's Newsletter prior to the Annual Meeting.*

The President and Secretary have been notified that a proposal for amendments to the bylaws of the Kingston Centre has been brought forward. In fact, the RASC-Kingston Centre Executive Council (which, of course includes the President and Secretary) has considered these bylaw amendments and approved them at the meeting of Sunday 2006 February 19. As for publishing the amendment in Regulus, these changes are quite substantial, and total 19 pages overall. We feel that the cost of printing and distribution of paper copies to the whole membership is not practical, and not good use of the Centre's money. An e-version will be available on the Centre website as soon as possible, and we will make paper copies available at the meeting. If you do not have web access, and would like a paper copy, please contact a member of the executive.

#### *Article VII - Meetings*

*3. Special meetings of the Centre may be called by the President as he or she shall judge necessary and notice seven days in advance shall be given to each member of the Centre.*

A Special General Meeting of the Centre has been called on the occasion of our regular meeting on Friday, April 14th, 2006 to consider these Bylaw changes. This article in Regulus is the required notice to members of the centre.

### The Process

The National bylaws state that the Centre bylaws need to be approved by National Council which in turn requires that the Constitution Committee of the RASC review and approve of the Centre Bylaws. Following all that, we can submit them as part of our application

for charitable status. So the timeline is like this:  
 Now: submit draft bylaws to Constitution committee.  
     Request a reply by our April meeting  
     Notice of meeting and notice of motion  
 Before April 14: receive reply from Constitution  
     Committee  
 April 14: Special meeting of the Kingston Centre to  
     approve the new bylaws.  
 May 19 (or 20th): National Council to approve bylaws  
 Following May 20th: submit bylaws as part of  
     charitable status application.

### Benefits of Membership: Sky & Telescope and Astronomy magazine subscription discount.



Kevin Kell

Members of RASC-KC in good standing are eligible for a magazine subscription discount when they renew through the Centre. Bring your renewal notice into the Treasurer at any time (meetings, KAON, on the street) and I'll put a cover letter on it and sent it in to the magazine of choice.

Both discounts are approximately \$10, so Sky & Tel works out to about \$50 Can and Astronomy to about \$60 Can, depending on the Can-US exchange rate. If you renew otherwise it will cost you approximately \$60 Can and \$70 Can respectively. Preferably you can put your credit card information on the renewal form and that will be processed fastest. Other alternatives are to bring cash or cheque made payable to RASC-KC with your renewal form.

It has been mentioned on the National RASCals email list that if you renew directly yourself for 3 years, you get a comparable price (about \$150 and \$180 respectively).

Once they leave my hands, it takes 4-6 weeks before they are processed by either company.

In other news, Sky&Tel was sold in February and we are waiting to hear about any possible price changes.



## The Kingston Centre of the RASC

### 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: [angle@personainternet.com](mailto:angle@personainternet.com)

Post: Doug Angle,

1910 Keeley Rd.

RR#1, Sydenham Ontario Canada

K0H 2T0

### 2006 Publication Deadlines

For the month	Deadline
February	January 28
March	February 18
April	April 1
May	April 22
June	May 27
July	June 24
August	July 29
September	August 19
October	September 30
November	October 21
December	November 25
January 2007	December 16

**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. Copyright 2006 All rights reserved. Permission is granted to other publications of a similar nature to print material from Regulus provided that credit is given to the author and to Regulus. We would appreciate you letting us know if you do use material published in Regulus.

## Kingston Cosmic &amp; Events Calendar for March and April 2006

By Kim Hay

For more detailed information, please refer to the RASC 2006 Calendar, and the RASC 2006 Observers Handbook

March 5 23:00 Sunday	Mars 2.9° to left of Moon	March 29 19:00-21:00 Wednesday	Observational Astronomy Night on the Observatory
March 6 15:16 Monday	First Quarter Moon	April 1 20:00 Saturday	Moon occults the Pleiades best in E of N.America
March 7 19:00-21:00 Tuesday	Observational Astronomy for the Novice Course	April 2 2:00 Sunday	Daylight saving Time begins
March 10 - 19:30 Friday	Regular Meeting Stirling Hall Theatre A Dr. Bryce Bennett	April 5 Wednesday	First Quarter Moon 8:01 and near Pollux at 9:00 pm 2 shadows on Jupiter visible in all of N.America
March 11 - 19:30-21:30	KAON Observing Session- Ellis Hall Queen's Observatory Saturday. For more information visit <a href="http://members.kingston.net/rasc/pubobs.htm">http://members.kingston.net/rasc/pubobs.htm</a>	April 8 Saturday	Mercury at greatest elongation W 28 degrees
March 14 18:35 Tuesday	Full Moon Penumbral Lunar Eclipse, Moon rises during eclipse in most of North America	April 8 21:00 - 23:00 Saturday	KAON Observing Session- Ellis Hall Queen's Observatory for more information visit <a href="http://members.kingston.net/rasc/pubobs.htm">http://members.kingston.net/rasc/pubobs.htm</a>
March 17 6:00 Friday	Spica 0.5° N of Moon best in West of North America	April 9 12:00 am Sunday	Regulus 2.3 degrees S of Moon
March 18 Saturday	Zodiacal Light visible in the West after evening twilight for next two weeks.	April 13 12:40 Thursday	Full Moon
March 20 13.26 Monday	Spring Equinox	April 14 19:30 Friday	Regular Meeting Stirling Hall Theatre A Peter McMahon from the Discovery Channel
March 21 19:00-21:00 Tuesday	Observational Astronomy for the Novice Course	April 16 23:00 Sunday	Mars 0.8 degrees right of M35
March 22 14:10 Wednesday	Last Quarter Moon	April 20 23:28 Thursday	Last Quarter Moon
March 24	Astro Yak at the home of Friday Kevin Kell & Kim Hay visit <a href="http://members.kingston/~rasc/indexsec.htm">http://members.kingston/~rasc/indexsec.htm</a> for directions	April 22 12:00 Saturday	Lyrid meteor peak
March 25 Saturday	Venus at greatest elongation West (47°)	April 27 15:44 Thursday	New Moon
March 28 19:00-21:00 Tuesday	Observational Astronomy for the Novice Course Last Class	April 28	Astro Yak at the home of Friday Kevin Kell & Kim Hay visit <a href="http://members.kingston/~rasc/indexsec.htm">http://members.kingston/~rasc/indexsec.htm</a> for directions
March 29 Wednesday	New Moon 5:15 2 shadows on Jupiter in most of NA. 12:53 am	March Members Observing Session	March Floating Period: first clear night beginning Monday, March 20 to Friday, March 30. Meet: 7pm in the South Parking Lot of Lemoine Point C.A.