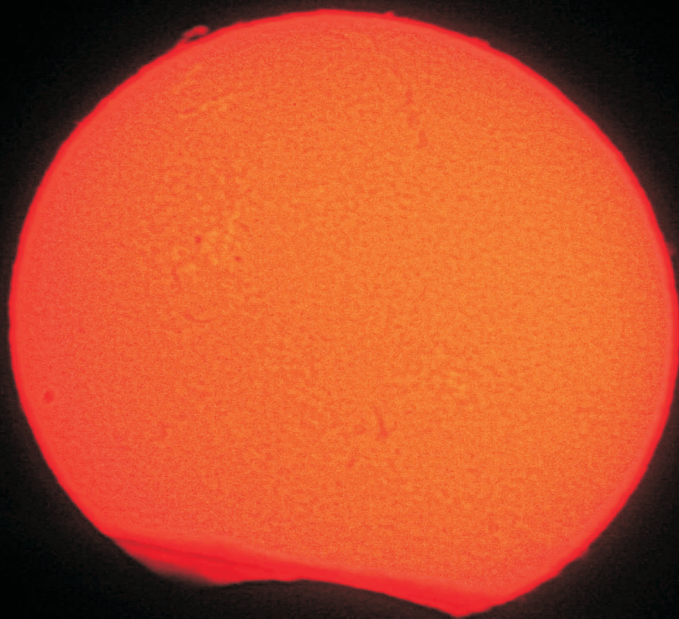


Sunrise Solar Eclipse!



Nov. 3
07:06 EST
1/10s ISO 200

This view of the November 3rd sunrise solar eclipse was taken by **Hank Bartlett**. Instead of observing from his "home base" (a "home run"), Hank decided on a "short stop" at the baseball diamond in Newburgh. Once there, he did not "strike out" with this "fair ball."

Upcoming Meetings

Thursday, December 12, 5:30 p.m.

Annual Dinner

Aunt Lucy's Restaurant, Kingston

Note: No meeting tonight!

Saturday, December 14, 7:30 p.m.

KAON Observing Session

Prof. Gregg Wade (Royal Military College) will speak on

Earth v2.0: Have We Already Discovered an Earth-Twin Orbiting a Nearby Star?

Thursday, January 9 7:00 p.m.

Regular Meeting

Thursday, February 13 7:00 p.m.

Regular Meeting

Thursday, March 13 7:00 p.m.

Regular Meeting

Meetings are held in Room B201 at Mackintosh Corry Hall on University Avenue at Queen's University in Kingston, Ontario.

KAON (Kingston Astronomy Outreach Network) sessions are held at Queen's Observatory on the 4th floor of Ellis Hall. ★



Reports and Other Items

THE CENTRE'S ANNUAL DINNER

There will be some promo items available for sale, including *2014 Observer's Calendars*. If you have anything you would like to donate to the door prize draw, please bring it along. We have several items already but you can never have too many!

YARKER CAM IN NASA VIDEO

The NASA ScienceCast titled "Bright Explosion on the Moon" uses a bit of video from the meteor cam at **Kevin & Kim's** place in Yarker:

☞ youtube.com/watch?v=IYloGuUZCFM

Watch for it about 1:45 in.

QUEEN'S MINERAL SALE

Kevin K reports: There were two vendors there and only one (Grenville Minerals) had meteorites.

Unfortunately, all they had were Campo del Cielo (Chaco Argentina, 1576) meteorites. They ranged from \$65–3500 and were nice specimens. There were also smaller ones on chains, but already I forget the price.

NOVEMBER 14TH AGM

In a nutshell: **Kim Hay** has resigned as Secretary and was acclaimed as President. **Rose-Marie Burke** is our new Secretary. The VP position is



From Kingston Centre, the RASC, and Beyond...

vacant. **Kevin Kell** was acclaimed as Treasurer. **Paul Winkler** has joined the board, without portfolio.

The AGM was followed by lots of great pix and observing reports. ★

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Meeting Report: November 14th

Kim Hay

FIRST LET ME SAY, thank you to all who came out to the meeting, and a big THANK YOU Susan for all your hard work for being President of the RASC-KC for the past four years, we all appreciate the leadership and camaraderie you have given to us all.

I want to thank everyone who has stayed on the board, and who has come on to help the RASC-KC for the next few years. There are still

positions that are open, and if you feel you want to help the centre, but do not want a position, then please come on board to be a board member.

There are always lots of jobs to do that we need help with. If you decide you want to help out, or just want some information on what needs to be done at the Centre please contact the Executive at kingston@rasc.ca or me personally.★

Auditor's Report 2013

Doug Angle

I HAVE EXAMINED the financial records of the Kingston Centre, and I'm satisfied that the accounts of the centre are in good standing, that there are sufficient controls on the use and record keeping of Centre funds, and that expenses are consistent with the goals of the RASC and the Kingston Centre.

Last year, there was a discrepancy of some \$300, where the bank accounts exceeded the amount expected by the accounting records. This year the amount is smaller at \$118.16, but still non-zero. I note that the treasurer has made a heroic effort to find the source, and continues to improve the tracking of sales, expenses and deposits. Given the overall excellent records and

controls, I'm not concerned about the difference.

It appears that there are some accounting practices that are driven by the software used, rather than what's convenient for our situation. For example, I would have expected that the Torus observatory would be funded directly from the observatory fund, supported by an appropriate motion. Instead, there was a motion to transfer the money to the general fund, then spent from there. This interferes somewhat with the ability to track such a transaction. Somewhere in a parallel universe is software that doesn't impose such limitations. In ours, it may be prudent to ensure that motions more

continues on page 7...

Regulus Needs You!

ITEMS OF INTEREST FROM MEMBERS—full articles, or even just a couple of paragraphs are always welcome. Items are gratefully accepted on each and every day of the year! Send items to:

walter (dot) macdonald2 (at) gmail (dot) com

If you are sending Word/Excel documents, please save them as Office 97-2004 format first.

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Vice President:	<i>vacant</i>
Secretary:	Rose-Marie Burke
Treasurer:	Kevin Kell
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Editor:	Walter MacDonald
National Council Rep:	<i>vacant</i>
Director without Portfolio:	Paul Winkler

Committee Chairs/Coordinators

Equipment Loan:	Kevin Kell
KAON:	Susan Gagnon
Webmaster:	Walter MacDonald

RASC Kingston Centre
c/o 76 Colebrook Road,
RR#1, Yarker, ON K0K 3N0

E-mail:
kingston@rasc.ca

Website:
kingston.rasc.ca

A.V. Douglas Award for 2013

Kevin Kell

BRIAN HUNTER has been a long time member of the Centre, supporting it in many ways over the very long term. He has attended and assisted at dozens of the Kingston Astronomy Outreach Network (KAON) public observing sessions and open houses at Queen's University's Ellis Hall Observatory and at many International Astronomy Day outreach events.

His role in at least the last decade of astronomy instruction at the Queen's University Herstonceux Castle in England, assisting in the Shad Valley 4-week summer enrichment program at Queen's and



being a general proponent of astronomy can not be understated.

His latest in a string of contributions was to act as the key force behind having the Kingston Centre acquire, in a long term lease, the Torus CC04 Research telescope from the Queen's University Observatory.

Not only in the acquisition but also countless hours in the dismantling, transporting, reassembly and re-commissioning of the telescope.

Other service includes serving on the Board of the Kingston Centre as National Council Rep from 2010-2012, and as Secretary for 2003.

He has given many talks at RASC-KC meetings from as early as 1974 to the present and has endless enthusiasm and stories about Astronomy!

All of his contributions to the Centre have made a very large positive impact on the Kingston Centre and we are very grateful for his service. ★

Fall'n'Stars 2013

Kim Hay

CLOUD MOVED IN FRIDAY, in the late afternoon. We did manage to see two very bright flares, one was -8.5 ; through the cloud it was spectacular. There were some clear patches here and there, others stayed up to get a clear spot, then packed it in.

Saturday was cloud rain, drizzle. It stopped raining but did not clear up, even in the wee hours as it was predicted to.

It was sunny and very cool Sunday morning. We viewed the in white light and $H\alpha$, and also observed in the morning thanks to **Hank**, then found it in our Dob. There were nice prominences on the Sun, but no sunspots or groups. **Hank** tried for Sirius, did not find it.

It was a good weekend with friends, astronomy and camp fires. Some stats:

Registrations:	25	22 weekend, 3 day passes.
Income:	\$1237	
Expenses:	\$792	
Net:	\$444	Split 50/50 with RASC Belleville.

Thanks to the organizing committee: **Mark Coady, Joanne Burns, John Cairns, Joe Shields, Greg Lisk, Kim Hay, Susan Gagnon, Hank Bartlett, Kevin Kell.** ★

Meeting Logistics

Kevin Kell

I HAVE FORMALLY GIVEN UP on the concept of broadcasting (and in the past, recording) Kingston astronomy meetings using the anymeeting.com system.

That system made us not only run audio and video, but also screen sharing and the actual display programs as well (*i.e.* Word, PowerPoint, image viewer), and in the end the netbook running it usually crashed, became unresponsive, and plain just didn't work.

We started with the centre netbook, a single core CPU, and it was even worse. For the last year or so we've been using a personal netbook of ours, with a 2 core CPU.

That is also too small.

Another issue is the 1024x600 screen resolution making everything look funny aspect-ratio-wise on a 1024x768 data projector (circles like the Sun looked liked ellipses on screen).

So, in the future starting 2014 January, I would ask that if you are bringing a presentation of images, PowerPoint, etc, please consider bringing your own computer to plug into the projector. This has the added bonus of you being familiar with your own computer, program, and general operation.

We will still have the older centre notebook available if you do not have

a portable computer or do not wish to bring yours in to the meeting. The centre netbook should be able to handle the simple stuff without locking up.

We are going to try broadcasting the meetings and recording them again using another service called Ustream. The netbook, webcam, and microphone will be dedicated to broadcasting, and nothing else.

We also hope to be back in Ellis Hall Room 324 in January 2014 but will not know until *probably* the first week of January. Watch the centre's e-mail list and the website for more details as it will be announced on short notice! ★

SUNDAY, NOVEMBER 3
PARTIAL SOLAR ECLIPSE

Paul: It is 6:46 a.m. EST. The eclipse is scheduled for 6:46 a.m. EST from my location.

There is a new bank of impenetrable clouds that has just appeared as a solid band across the Eastern horizon up to about seven degrees height.

I feel like Rose-Marie!

Rose-Marie: Misery loves company, glad to see I had some this morning!! LOL!!

Yes, as is usual, CLOUDS spoiling something yet again. *sigh*

Kevin K: [7:30 a.m.] Just got back in from a *cold!* morning partial solar eclipse. We had a band of cloud that made us miss the first few minutes but we did get to see at least a few minutes worth of the event.

Walter: Yes! I successfully observed and photographed the solar eclipse this morning from the dome, using 7x50 binocs, #14 welder's glass, and an iPad. While the iPad doesn't give the highest quality photos, it is very convenient and good enough for a keepsake. There was a bit of thin cloud around, but not



1/30s
ISO 160
07:05 EST
iPad2 afocal
7x50mm, #14
welder's glass

enough to block the view.

Hank: Here is one of the first I got of over 100 [see front page]. Dang cloud sure screwed things up.

...as it started to rise I realized it was coming up right behind a FRICKIN silo. Then I had to make a "long jump" to the long jump pit just outside the home run fence. That is why I had no earlier pics

Kevin F: Watching the eclipse at <http://live.slooh.com/>

Rick W: I made it out as well this morning. Things didn't go exactly as planned—see the following excerpt from my observing log:

Out for the sunrise solar eclipse. Since I was going to be out at sunrise for the eclipse I prepared and went early to be able to see the three pre-dawn comets—C/2012 S1 (ISON) ("Comet of the Century" approaching perihelion), 2P (Encke) (periodic comet on one of its many returns), and C/2012 X1 (LINEAR) (very faint comet in a 5-magnitude outburst.)

The solar eclipse ends only ~25 minutes after sunrise so I spent significant time searching out a location with a good low horizon to the SE. Ended up on the roadside. By this time the sky was already becoming noticeably brighter in twilight.

0545EST saw Comet ISON at the location indicated by ECU. It was a small circular fuzzy blob, several arcmin across, bright condensed pseudo-nucleus. It was quite difficult, indeed, within a few minutes it was invisible.

Did not try to see the other two comets as the sky was brightening quickly.

However, as there is now an hour to go before sunrise took a quick look at Jupiter—nice small disk with 3 Galilean moons in a straight line down and to the right (W). The Orion Nebula is easily detectable but decidedly unimpressive.

0648EST the Sun is rising behind a bank of broken cloud. One long crack in the cloud (perhaps 8-10 arcmin vertical extent) allows me to see a portion of the Sun's disk. By 0650EST the bottom edge of the disk is visible, quite strikingly in eclipse. The eclipse extent is much larger than I was expecting given the short duration yet to go, and cuts out almost exactly the bottom edge of the disk—like the disk has been notched to stand better on a desk.

0710EST next appearance of the disk through gaps or thin portions of the cloud shows the barest detectable (possibly even imaginary) nibble out of the bottom edge of the disk. Quickly tried several shots through the eyepiece with Canon 60Da and Sigma 18-50/2.8 lens at 18mm f/2.8. Not likely that any of them will have been successful.

So there it is. I thought the eclipse was quite cool—so much more obvious than I was expecting. Congrats to **Hank** for getting successful images and **Walter** for seeing it as well. I took some nice sunrise photos of my car on the side of the road with the telescope on the shoulder in front of it. I had decided that, given the limited extent of the eclipse I would enjoy it visually and not try to photograph it, but couldn't resist a few shots through the eyepiece at the last minute.

In my planning I had not adequately accounted for the long period of boredom and chill between the sky being too bright to observe the night sky and the moment of sunrise. Even though well dressed in a snowmobile suit it was quite chilly. However, CBC re-broadcasting Radio Ireland to my car radio managed to assuage the boredom somewhat.

Richard Weigand, reporting from Sandhurst Shores: Cloud cover at horizon (only) resulted in no

observation of the partial solar eclipse. Patience is a virtue in our hobby!

Kevin K: We were onsite at 06:12 and packed up at 07:11 EST, observing the eclipse for 6 minutes 58 seconds:

First view of the Sun coming out of the clouds:	07:01:33
First sighting of Moon on the Sun:	07:04:22
Last sighting of Moon:	07:11:20



SUN/MON, NOVEMBER 3/4

Kevin K: Two nice [meteors](#) last night in this summary image of all events:

- ▶ The first (nearest center) was at 06:33:16 UTC (01:33:16 EST)
- ▶ The second (upper left) was at 08:08:09 UTC (03:08:09 EST)



Then again...it was -10C outside when these happened. Some of us do not go out into the cold cold.

Walter: Temperatures can be deceiving—it was actually a warm cold last night.

I had a great CCD run: 278 [variables](#), plus [Comet Lovejoy](#). I also had a quick half-hour visual session at dawn, but unfortunately I left my attempt at seeing ISON too



late and couldn't find it in the brightening sky.

Lovejoy shows a very faint tail when the image is stretched lots. More exposure time would bring this feature out better.

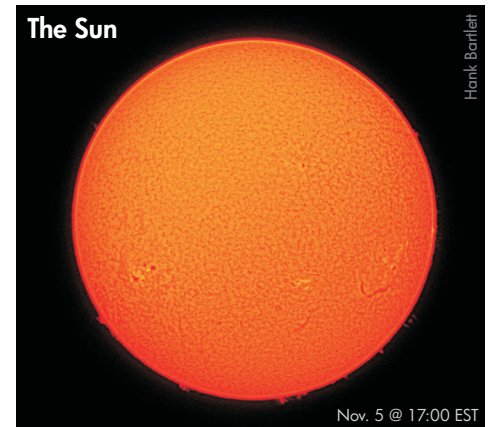
Rick: I too was out last night. I focus on high-cadence photometry of just a few [variables](#), so I only got three variables and three Landolt standard fields (for transformation coefficients.) I was trying to do visual while the scope imaged, but having to check the computer every 1/2 hour or so wreaks havoc with dark adaptation. However I did manage to observe a half-dozen [galaxies](#) in the late evening (plus some ogling of [M33](#) and [M31](#), attempting unsuccessfully to see the 5th and 6th stars of the [Trapezium](#)) and [ISON](#) (and [Mars](#) and [Jupiter](#)) in the pre-dawn sky. I estimated the nucleus about mag 9 or 10, 1.3° tail. I also did a couple of dozen shots of ISON through the telescope with the DSLR.

I saw a nice really, really slow mag 1 meteor fall from Regulus toward the E horizon at about 04:14EST. I guess your system doesn't show meteors that faint, but it was very nice naked eye.

Kevin K: Correct. It is designed for fireball level events, something that might have a chance at surviving re-entry. The camera is at least 15(?) years old, an ST237a from Michigan Tech. Someday both all-sky cameras will be upgraded: more sensitive, small exposure times, faster downloads...one can hope.

TUESDAY, NOVEMBER 5

Hank: I'm no scientist but this blast surprised me [*an X3 flare was reported today*]. I took the attached image at 17:40 UT; although there are a couple of hot spots, nothing looked explosive.



Kevin K: Alien warships dropped an antimatter bomb onto the sun to cause a flare to wipe out all of the pesky life infestation on the planet...only the weapons officer didn't do well on its rotating spacetime frame geometry course and missed the target.



Hank: Holy Solar Systems you are right, I checked and found this overexposed image from the same run showing the shadowy alien craft (right side) in position ready to fire! Good thing you used SOHO to fire a weapon of Math Destruction at them, spoiling their calculations and causing the antimatter bomb to glance off [SS1890](#) and miss the solar center. You have saved our planet for what it is worth.

Captain K you are a genius!

THU/FRI, NOVEMBER 7/8

Paul: Beautiful clear morning, good seeing, no clouds. And no joy trying to see "naked-eye" [Comet Lovejoy](#).

...Observing Reports: November

Various Members

It should be exactly between Regulus and Pollux, but binoculars revealed nothing!

These are the pleasures of observing in light-polluted Kingston. [A few minutes later:] Maybe I should take back the "no clouds." As daylight approached, I could see that there were indeed small, high scattered clouds across the zenith, which could have obscured fuzzy objects of any sort.

FRI/SAT, NOVEMBER 8/9

Tim Seitz reports on the Centre observing session at Tessa's place: It was a challenging climb of their hill in the dark for me. I couldn't have made it without Tessa. We needed flashlights. Once there the sight was great, but clouds from the west would soon cover the sky so we walked back down. We were back down by 7:45.

Kevin K: For those amongst us who are aurora chasers, there did appear to be a little bit of auroral activity tonight from about 22:30-00:30 when it clouded over here. It was nothing really spectacular at all, but it was there on the AllSky1 camera system.

Tim: But I went to Tessa's. We were first to see those clouds coming.

Susan: It was 8 by the time I got to Tessa's. **Leslie** was there, and he and **Tessa, Ken,** and I sat around chatting astrophotography and other stuff and looking at some of Leslie's pictures. I would be proud to produce any one of his single shot, unprocessed pictures. It was cloudy. Then when I was really out of steam from the week before, and decided to head home, we stepped out into the best sky in weeks! Ken shut the yard light off and I did not even have to wait for my eyes to adjust to see the double cluster! I have to stop letting these nights get away on me. Thanks to Tessa for getting us rolling on members observing events. I think

that I would like to try her back yard again some time.

Tim: I was the first one there around seven. Tess convinced me to take a flashlight and climb the hill with her. I found it a challenge in the dark.

We did get to the top though. We saw the clouds coming in from the west. By then Les was driving up so she wanted to go down and greet him. When she said that, I, being unfamiliar with the path back, opted to go back down with her. We greeted Les, then I left, probably around 7:40 p.m. I wasn't up for the climb up there again. So did you folks ever climb back up there?

Sorry I missed the subsequent chat.

TUE/WED, NOVEMBER 12/13

Walter: It finally cleared around 10 p.m. and I was able to start a CCD run. Clouds interrupted a couple of times through the night, but I was still able to get 100 variables. At dawn I was able to add two more comets to this year's CCD haul: **Nevski** and **LINEAR X1**, the latter through a tree. **ISON** was a bit better placed and is



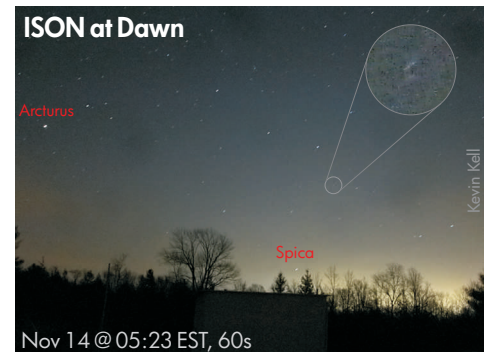
showing a very nice tail.

WED/THU, NOVEMBER 13/14

Some Pennsylvania observers reported a 1-1½ mag jump in the brightness of Comet ISON this morning...

Kevin K: We were unable to see Comet ISON visually this morning but got it in a 60 second exposure on the old canon A2400IS on a tripod. ISON was very close to a magnitude 6.25 (atmospheric extinction to 6.83) star, **HIP 62421**. From our vantage point, it was in the lower atmospheric gunk and close enough to be affected by the Kingston light pollution dome. It is a very poor picture, nothing like anything seen online.

Paul: Congratulations! I just tried again for Comet Lovejoy; the haze and light pollution make it hard even to see Regulus! Needless to say, I failed.



Hank: I would like to drag myself out that early, but nope.

There is a pic on spaceweather of Lovejoy shining brightly and brighter than ISON. I was impressed and thought, hmm I better take a look.

Then I looked at the EXIF data for the pic: 11 minutes of exposure! Forget it. Digital is nice, but you really need to check before you go out. Had it been a couple of minutes I would have been out there.

Walter: You should always go out and look. The exposure time of an image doesn't tell the whole story about how bright a comet is (e.g. what about the sensitivity of the detector, the aperture used, sky conditions, etc.). In fact, Lovejoy was *easily* visible in my C8, so get out there!

Also, comets can change in brightness from night to night, and often depart substantially from predictions: remember Comet Holmes—not bad for a comet predicted to be at 17th mag, eh? In fact, ISON has just brightened a mag or two in the last 24 hours according to visual reports. Nevski is also *much* brighter than 15th mag, as ECU says it is. This is why I have been making an effort to image as many comets as possible: yes, many are faint or even undetectable—but there are lots of surprises too!

David Levy has told you that comets are like cats, *i.e.* they basically do whatever they want! You should heed that. Always look. [*LINEAR X1 is also substantially brighter than its predicted 13th mag, and Encke has been having a very good apparition too. Your editor has now imaged 30 comets during 2013, all published in Regulus.*]

Rose-Marie: I had lofty plans of getting out this morning, but it just didn't happen. I slept through the radio alarm for several minutes, was vaguely aware of some noise annoying me, slapped off the alarm and went right back to sleep. Yesterday I had woken up around 4:45, took my big honkin' binocs and looked out the livingroom window that faces east. I saw some white fuzzy streak with averted vision: I

think it was ISON. I got bundled up and headed out with the camera but by then the Sun was at predawn and there was just enough light that it didn't show up on the images. Now there's a full Moon coming and some cloudy on/off days, guess I'll just have to wait til it comes round the Sun.

Rick: I too was out this morning with my 20cm f/5.6 Newtonian. I'm getting so desperate that I've set my alarm for 0400 and get up every day now to see if it has cleared off. This morning was the day. ISON looked very much like the picture—spherical coma with needle-like tail about $\frac{1}{2}^\circ$ long. I even thought I could see a hint of green in the coma. Easily visible, though almost stellar, in my 7x35 finder. Lovejoy was bigger, brighter. Big fuzzy blob even in the finder, it shows a large oval coma and tail a degree long, broader than ISON's. As twilight began to rear her ugly head (well OK beautiful head with *zodiacal light* up into Leo) I picked off Encke—just the faintest round puff of cloud a few arcmin diameter, and then S1 LINEAR even smaller though somewhat higher surface brightness. The latter two comets were very low to the horizon—I was sitting on the ground looking through the eyepiece. Clouds began to move in from the SW as I was packing everything away at 0600.

MON/TUE, NOVEMBER 18/19

Kevin K: Another attempt to visually observe Comet C/2013 S1 ISON, now below and slightly to the left of the bright star Spica in the ESE. It is still very close to the Kingston light pollution dome and now what with a full Moon lighting up the clouds in the east: no joy.

Rose-Marie: I feel your pain. BigWetNose got me out of my nice warm nest this morning at around

4:00 a.m.; there were broken clouds to the west with the Moon shining through, and thick clouds to the east.

Speaking of the Moon, did you notice a lovely Moon halo Saturday night when you were doing the Torus work?

TUE/WED, NOVEMBER 19/20

Kevin K: Methinks ISON is too low in the guck to be spotted. It was clear here, -11C. I spotted Spica and Mercury OK, but no ISON in 15x70 binocs; it is still in the low guck near Kingston light dome.

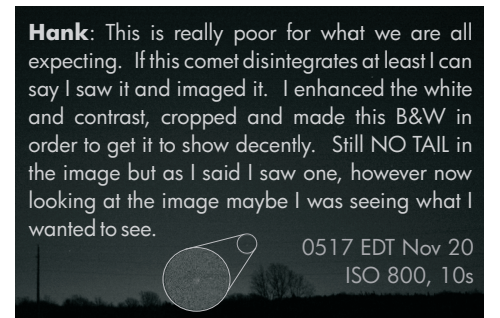
Looks like this was the last chance: cloudy tomorrow and only 8 days away from conjunction with the Sun. It is getting closer all the time.

Richard Weigand: Report from Sandhurst Shores confirms the same observation as Kevin. Let's hope we can see this comet at some time during its travel around the Sun...

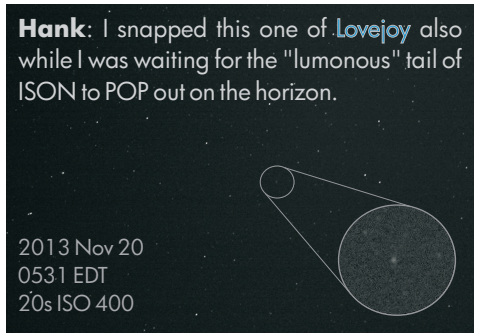
Hank: Yes, I got my eye on ISON just before 5:30 this morning. I naked eyed it in the muck in the ESE. I set up off of County Road 11 at the Cataraqui Trail, just east of Newburgh about 4:45 a.m. I actually saw it naked eye before picking it out in the binocs. In the binoculars I saw a slight tail, but in general very disappointing for all the hoopla so far. COLD!!!! Just looking over the images now and nothing other than a fuzzy star at this point.

I did see one fast bright Leonid but it was out of the image frame.

Rose-Marie: I actually managed to drag myself out this morning. Got up



at 4:00 a.m., peered out the big living room window that faces east with the big honker binocs; didn't see it. Almost went back to bed, but got all bundled up and took the camera out for a few shots. On the small preview screen it looks like there's a smudge. Bright moonlight was casting shadows, so it doesn't look too promising.



Kevin K: Even this past night, three days past the Leonids peak, we are getting a lot of large meteors and fireballs. There were nice ones at: 05:23, 08:41, 09:02 UT; spectacular ones at 06:18 and 06:53 UT.



Rick: I too was out in the pre-dawn hours, unfortunately a little too late for eyesore, I mean ISON. It was unseen in the twilight. Lovejoy however was quite easy in 8x42 binos. Didn't try imaging, though I should have and will next time it's clear. And wasn't Mercury spectacularly bright? They say that most people have never seen it, but I think it's more accurate to say that most people don't realize they have actually seen it. Not that I think it counts if you don't know what you're looking at.

In fact I was out most of the night,

starting about 17:30 and going (with a couple of naps) to about 06:30. Imaged a bunch of the new +50 dec Landolt standard fields (thanks, Kevin, for the paper), some of my favourite variables, and a new variable star target XZ Ceti. That is one that Arne Henden at the AAVSO has put out as a project on which everybody can test their photometry procedures. It will be a good way to self-assess the quality of one's data but also provide a honking great pile of data for a star in which he has an interest. Also spent a couple of hours after midnight looking at the Moon.

Kevin K: Allsky1 is pretty much useless when the Moon is up, what with 90 second exposures and all.

Hank: I plan to do more observing once I retire, but I don't expect it will be to this level or quantity; you must have slept all day. Kudos to you Rick for doing what you enjoy, especially in this cool (notice I didn't say cold) weather.

Rick on the night launch of the Minotaur 1 rocket at NASA's Wallops Island facility: I watched the NASA/Wallops TV channel until about 20:00 EST when they were reporting about T-16minutes. I took my camera outside to my SE horizon observing cliff. I started a series of 15s exposures at about 20:10, facing somewhat E of S since I expected that, in the unlikely event that anything was visible, it would be low in the sky and located in the SE—it didn't seem likely that the thing would leap straight up off the launch pad. Wrong. Dead south a ~2mag very orange star headed straight up into the sky, gradually turning towards the E. As a result the camera only caught the last few seconds of it before its motors went out. However, it was cool to watch. I watched with binoculars for the last half of its visible path and then tried to continue following its motion in case it re-lit a second stage or something, but I

didn't see anything.

SAT/SUN, NOVEMBER 23/24

Mark K: Yesterday morning, I had a terrible headache that woke me up at 03:00. I lay around trying to will it away and finally gave up and got up at 04:00 and then again at 05:00, but it was cloudy. I finally fell asleep and woke up at 07:00 to clear skies. So I was doubly annoyed, a throbbing head and a missed attempt at ISON.

This morning, despite weather predictions to the contrary, it was quite clear, both in my head and in the skies. From the driveway here in light pollution hell, Lovejoy was easily visible high overhead in binoculars, so I drove to a lookoff on the Niagara Escarpment that looks through a hole in the deathly glow between Milton and Mississauga using Mercury as a reference. I used a WO66 and my 7x50 binoculars and came up with nothing at all. Mercury, Saturn and Zubenelgenubi were easy unaided eye targets and both Encke and ISON should have been below, but nothing was seen. I kept looking until the sky was too bright to see Saturn. If ISON is going to be the comet of the century, the next 87 years are going to be pretty dull in the comet department.

It did make me feel better about not struggling out with a sore head to look for the comet yesterday morning.

FRIDAY, NOVEMBER 29

Mark K: Well, because I am a glutton for punishment, I drove out to a location with an unobstructed south eastern horizon and watched the Sun come up. It is only -9C, so it is not too cold and for once, there is not any wind. Will you be terribly surprised if I say that nothing beside the Sun was spotted?

I plan to shovel the roof and

...Observing Reports

carefully use the scope later today.

A late afternoon report: I have done a careful search of the area that the comet should be in and nothing was visible in the scope during the day.

Kevin K: We made it out to Lake Ontario Park at the top of the hill just a minute or two before sunset around 16:30 and stayed until 17:00. There was a 5° band of cloud on the horizon and we were unable to see anything comet at all.

SATURDAY, NOVEMBER 30

Kim: Well we awoke in plenty of time to get up to the Yarker ball diamond but alas the clouds were everywhere. At 4:00 a.m. I saw the **Moon**, at 5:00 a.m. I saw **Jupiter** and **Arcturus**, at 6:00 a.m. I saw clouds...

Hank: Is there no comet decency in life anymore? DANG!

Tim: Another 'cometary' on 'cometment.'

Comet ISON's perihelion passage was watched by many in the SOHO imagery available on the Internet, and clouds dominated our skies... ★

...Auditor

...continued from page 2

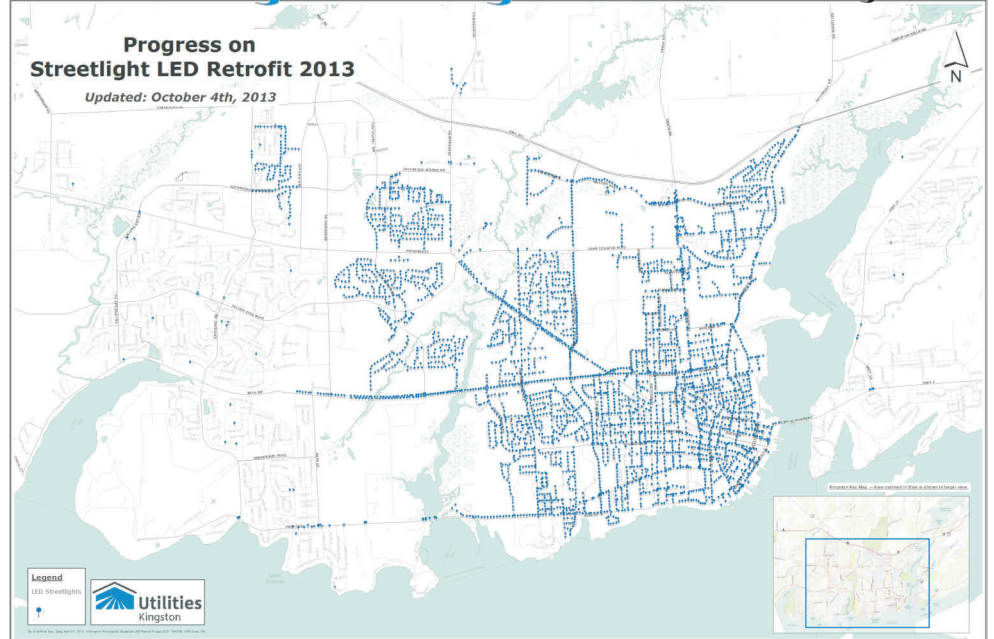
clearly reflect the underlying intentions.

I'm particularly pleased to note that administrative or overhead types of expenses amount to only about \$200; less than 4% of the total budget. The Profit and Loss statement has a higher value for administration, but this includes speaker expenses, honoraria and the like, which are of value to the members as opposed to things like bank fees, postage and photocopying. Our money is being well spent.

My compliments to the treasurer for the quality of his methods and records, and to the executive for the care with which they are managing the Centre. ★

LED Streetlights in Kingston

Utilities Kingston et al



OCTOBER 7, 2013: Utilities Kingston crews have reached the half-way point in the city-wide LED lighting upgrade project. Over 5,400 of the nearly 10,000 high wattage street-light fixtures have been replaced with energy-saving light emitting diode (LED) fixtures.

"Utilities Kingston crews are completing the work more quickly than projected after the 2011 pilot project and this energy-saving project is on track to be completed ahead of its original 12-month schedule," says Brad Joyce, Director of Hydro & Business Services at Utilities Kingston.

This city-wide, \$4-million lighting upgrade will provide reliable and energy-efficient street lighting, while reducing light pollution and maintenance costs. It is expected to halve the City's street lighting energy consumption and save significant energy dollars. The project will receive \$330,000 in rebates from the saveONenergy RETROFIT program.

"We're committed to helping the community achieve its goal of becoming Canada's Most Sustainable City, and are proud that this project will help towards that goal," says Joyce.

In residential areas, crews are replacing fixtures containing 100-watt light bulbs with 53-watt LED fixtures. In high traffic areas, fixtures containing 250-watt light bulbs are being replaced with 101-watt LED fixtures and 180-watt LED's are replacing 400-watt

bulbs. —*Utilities Kingston news item*
utilitieskingston.com/News/NewsArticle.aspx?ID=143

Mark K: Oh great. I replaced 50 watt Par20 with 8 watt LED. The LED bulbs are brighter. I replaced 60 watts A27 bulbs with 10 watt bulbs. They too are brighter. So a 53 watt bulb would be equal to a 320 watt bulb.

This is what I expect from LED conversion. Oh look, we can have six times the light using half the energy. Let's do it.

Hank: I must agree the LEDs are increasingly brighter. When we first started converting some house lighting with 2W bulbs the kids accused us of being vampires the lights were so much dimmer. Then came the 2W super brights, then the 4W, what a difference and too bright. It is a challenge sometime to buy the right one to match the previous bulb if you don't take the old one with you.

As astronomers we once welcomed this change but I am not sure it stand true anymore. The Napanee theatre mall put in solar LED lights in the parking lot. These lights are dim but ample and that is the way it should be. ★

"Whenever possible, Utilities Kingston uses lights approved by the International Dark Sky Association (IDA), to reduce urban sky glow and improve the visibility of the night sky. The LED lights chosen for this project are approved by the IDA."

utilitieskingston.com/StreetlightUpgrades.aspx

A REALLY GROADY NIGHT IT WAS... cold and windy and rainy... with a little bit of snow up Yarker way.

Another group had the auditorium when we arrived, without actually booking, so we were late in getting in to it and did start maybe around 19:40 or so.

Martin Duncan gave a great update from his talk of a couple of years ago on planetary systems and chaos and the very latest updates from the Kepler year 3 data set, just recently released.

Don't quote me because I did not take notes, but the takeaway I took away was that the new estimate for Earth-like planets in the habitable

zone is now at 20% for Sun-like stars. That alone is huge! The Drake Equation of intelligent life is still a lot of estimates, but some of the variables are starting to be nailed down a little more accurately now.

45 people were in the audience and maybe ten stayed behind to take a look at the Celestron 14.

Familiar faces were **Tessa and Ken, Rick and Jeanette, Brian, Laurie and Devon**, along with **Nathalie, Jonathan, and Terry**.

We sold a few calendars and a Handbook. We still have lots left.

The third floor of Ellis hall is still mostly in ruins, as is a lot of the 2nd floor as well. There was no other

place to go other than the observing warm room, if we could not get into the auditorium that night.

The C14 was operational, able to dance around inside the closed dome, allowing folks to take a look up the barrel, or down the barrel, whichever orientation you prefer. ★

Observing Session

Richard Weigand

WE HELD OUR BACKYARD ASTRONOMY NIGHT on Sunday, October 19th. We had 11 attendees which included three children. We had three scopes from our community members to view the stars, planets and Moon rise.

We spent at least an hour on viewing **Venus** which was west at 20 degrees; this was a first for most of them. The attendees were surprised that Venus light comes to us crescent shaped similar to the Moon's crescent shape.

Once that was done, we viewed **Ursa Major** and **Polaris** naked eye observation. One telescope was focused on Lyra and we all viewed the **Ring Nebula**.

Moonrise was on time and an orange ball rose over the lake. Our telescopes showed the craters and plenty of surprises there from our attendees.

I gave out the RASC Moon Card and Planisphere. We spent two hours as a group, and an additional hour myself, viewing the Moon. Tonight I used the Celestron Sky Watcher six inch with 25x and Moon filter when viewing our beautiful Moon. ★

Website Report 2013

Walter MacDonald

Chair: Walter MacDonald
Members: Kevin Kell,
Kim Hay

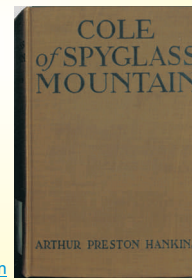
THE CURRENT VERSION of the Centre's website will mark its 7th anniversary in February 2014. This is a couple of years longer than I thought it would be in service! It works well enough, but page editing is done at the code level, which is not user-friendly. Also, the image gallery software we were using did not survive one of the server upgrades. (Our hard-coded image galleries still work though.)

Some thought has been given to building the next version of the Centre's website with Drupal 7 (also used by the RASC) which would make editing very easy and allow us to plug in various pre-built open source widgets for extra capabilities. Porting the current site to Drupal would be a major project, but it would be worth the effort required.

As usual, thanks go to our servermeister **Kevin Kell**, who has managed the backups and replaced server hardware and software as required. ★

Midnight—with Cole of Spyglass Mountain seated high up on his ladder, his far-seeing blue-gray eye glued to the powerful five-hundred-diameter eye-piece of his telescope. Unnoticeably the refractor followed the planet in its endless flight. The driving clock purred softly, the only sound on Spyglass Mountain—cold and still fraught with uncanny tensity.

—Cole of Spyglass Mountain



rasc.ca/cole-spyglass-mountain

Editor's Report 2013

Walter MacDonald

REGULUS CONTINUES TO PUBLISH on a more-or-less regular schedule. Eight issues were produced in 2012, and ten will have been produced for 2013 (as long as there is no snap provincial election). One brief issue of *Ridiculous* (the first in 20 years!) was also released at summer's end. In addition to the Centre's website, issues of *Regulus* are also archived at rasc.ca/newsletters.

The included table is a five-year summary of newsletter production.

Year	Issues	Pages	Notes
2009	10	117	
2010	11	93	
2011	8	87	November issue produced by Kim & Kevin.
2012	8	78	
2013	11	111	One issue of <i>Ridiculous</i> (first in 20 years!).

2013 has been a strong year, thanks to the various observing activities and construction projects undertaken by the membership. Hopefully this will continue through 2014! ★

THE CENTRE'S REGULAR MEETING was held on the third Monday of June, just two weeks after the special meeting featuring **David Levy**. Our Centre President, **Susan Gagnon**, ran the meeting as usual.



A brief discussion of the fees for the new family category of membership was held, since Centres are allowed to set those. **Kevin** (our treasurer) showed a big spreadsheet analyzing this. In the end there was agreement on a set of numbers that will result in the least possible change and be basically revenue neutral to the Centre.

The conversion of associate memberships into family memberships will likely see official RASC membership numbers increase by 200–400, and without any real new costs being incurred by the Society. One variable is whether all associates will stay on with the new membership category.

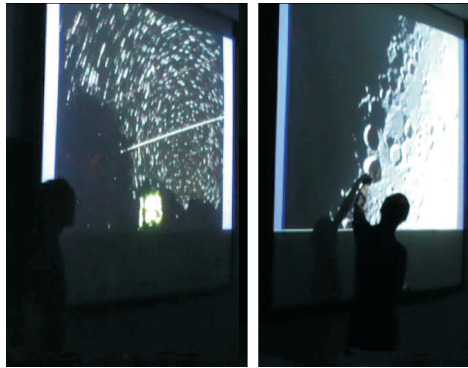
GA elections (the 2013 Board Transition) close June 30th. Members can vote online.

Tessa has offered to hold an observing session at her site on Colonel By Lake.

The 14th annual Fall'n Stars (est. 2000) will be held on September 6–8th. The deadline for reserving dinner is August 30th. The facilities there are rustic, but on the upside there is a very high ratio of door prizes to participants. There are always a photo contest, book sale, and swap table. For those that can't make up their mind until the last

minute, it is possible to show up and register at the event. Accommodation in the Long House (bring your own sleeping bag) is available for those who don't want to pitch a tent.

Storage Shed Assembly & BBQ: two or three weeks ago the Centre had a mount assembly session at Yarker, followed by a BBQ. Another work party will be held on June 22nd (1–4 p.m.) in Yarker to assemble a storage shed (from a kit) for the Centre's equipment. This will be followed by a BBQ (food provided, but BYOB). The shed kit does come with a floor, and a good sturdy roof (another shed that scopes were stored in had a roof collapse last winter). Hopefully no critters will get in. Most items will be stored in plastic Rubbermaid containers.



Rick Wagner was up next. He showed a photo of an ISS pass near Polaris. He took 30-second exposures for about 20 minutes. The star trails in a stacked image showed the half-second gap between exposures. A green laser was used to “caption” the image with the letters “ISS.” When stacking in PhotoShop (for a modest number of images), Rick uses layers, putting each one in lighter mode. Actions in PhotoShop help to automate things. (He is using PhotoShop CS4.)

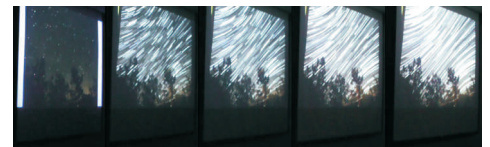
Rick managed to image the Lunar X on April 17th thanks to a heads-up from **Kevin K**. The X is visible for only a few hours each lunation and that window only occasionally occurs here at night and with the

Moon up. Conditions have been favourable three times this year, and the next opportunity comes on December 9th. The *Observer's Calendar* lists these occurrences. A DSLR was used in 640x480 video mode on a tripod-mounted 80mm refractor. The scope was undriven, which created difficulties later with the stacking software. Some discussion was had about whether the X is also visible around last quarter.

A wide-angle shot showing part of the Big Dipper's handle clearly showed M101 and a couple of its companions, as well as M51 and its companion. Bumping up to a 400mm lens, Rick also imaged:

- ▶ M101, with galaxies near it,
- ▶ M51, showing faint material distorted by the interaction of the two galaxies,
- ▶ The Gamma Cygni area with lots of nebulosity and stars,
- ▶ Comet PanSTARRS in a 3½° FOV. The anti-tail dominated the image due to the current geometry. The comet is well above the plane of the solar system.

Setting up his camera to run automatically for about four hours, Rick secured 500 frames. In addition to a very nice stacked shot (see the front cover of the July *Regulus*), he had also turned these into videos using different techniques. Of course there was the usual “sky in motion” video, complete with airplanes and satellites. Another video used a stacking effect that resulted in accumulating star trails. It is a spectacular effect!



Still another approach using lighten mode, but setting the image opacity to 95%, caused the “older” images in the stack to get pro-

continues on page 13...

THE ISABEL WILLIAMSON LUNAR OBSERVING PROGRAMME (IWLOP) was revised in 2013 by the RASC Observing Committee. It is my goal to work towards this certificate programme over the next twelve months. All are invited to join in the fun of observing our satellite.

THE MOON AND MAN'S EARLY HISTORY

Man has always looked up to the sky at night and marvelled at the wonders of the universe.

Long ago our ancestors measured the moon's cycle and found that the 29.5 days created a month period by which all things could be measured.

ANCIENT HEBREWS

Genesis 1:16: God made two great lights-the greater to govern the day and the lesser light to govern the night.

LUNA OR DIANA – ROMAN NAME

In Roman mythology, Diana (“heavenly” or “divine”) was the goddess of the hunt, the moon and birthing, being associated with wild animals and woodland, and having the power to talk to and control animals. She was equated with the Greek goddess Artemis.

HECATE—GREEK NAME

Hecate or Hekate was an ancient goddess, most often shown in a triple form. She was variously associated with crossroads, entrance-ways, fire, light, the Moon, magic, and witchcraft. She had rulership over earth, sea and sky, as well as a more universal role as Saviour Mother of Angels and the Cosmic World Soul. She was one of the main deities worshiped in Athenian households as a protective goddess and one who

bestowed prosperity and daily blessings on the family.

TOTH—ANCIENT EGYPTIAN NAME

Thoth played many vital and prominent roles in Egyptian mythology, such as maintaining the universe, and being one of the two deities (the other being Ma'at {justice}) who stood on either side of Ra's boat. In the later history of ancient Egypt, Thoth became heavily associated with the arbitration of godly disputes, the arts of magic, the system of writing, the development of science, and the judgment of the dead.

THOMAS HARRIOTT—JULY 26,1609

Thomas Harriott is credited as the first person to view and sketch the moon from the eyepiece of his telescope. His drawing is dated July 26,1609 a full four months before Galileo.

THE MOON IN SCIENCE FICTION LITERATURE

From the Earth to the Moon, written by Jules Verne in 1865, was the first science fiction book about the Moon. Two men were thrown up into space in a large cylinder with a pointed end and landed on the Moon

The IAU agreed to use “The Moon” as the official name for our satellite in 1989.

A LUNAR GEOLOGICAL TIME LINE

Pre-Nectarian Era: This begins with the formation of the Moon approx 4.5 billion years ago and ends when the Nectaris Basin and Mare Tranquillitatis was formed approx 3.92 billion years ago.

Late Heavy Bombardment Era: This period runs from 4.1 to 3.8 billion years and is the time when

many of the lunar craters and basins were formed.

Nectarian Era: This period is defined by the formation of the major basins on the Moon. This period covers the approx 3.92 to 3.85 billion years ago. Examples include Mare Crisium, Mare Humorum and Clavius.

Lower (or Earlier) Imbrian Era: During this period the last major impact craters were formed *i.e.* Mare Imbrium and Mare Orientale. This period covers 3.85 to 3.8 billion years ago. Other examples from this period include Casini, Arzachel and Petvius.

Upper (or Later) Imbrian Era: Most of the major mare formed during this time period. This time line runs from 3.8 to 3.2 billion years ago. Examples include Sinus Iridum, Plato and Archimedes.

Eratosthenian Era: Major impact basins were formed during this period. The major mare craters began to degrade during this period. This era runs from 3.2 to 1.1 billion years ago. Examples include Langrenus, Pythagoras and Theophilus.

Copernican Era: This period has minor impacts and we find now distinctive ejecta ray systems all over the surface. There continues to be multiple craters in surface. This era runs from 1.1 billion years to the present day. Examples include Copernicus, Tyco and Kepler.

BIBLIOGRAPHY

- ▶ I.W. Lunar Observing Program
- ▶ Wikipedia\Wikispaces
- ▶ Personal Books and software
- ▶ Sky and Telescope's *Field Guide of the Moon*

See more references on next page... ★



gressively fainter. This made the stars look like a bunch of comets moving across the sky; airplanes and satellites would flash by and then fade out.

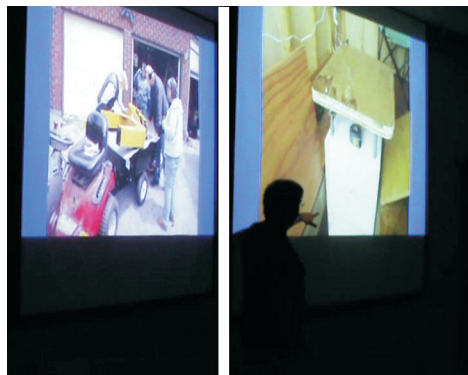
Susan talked about a special observing session during David Levy's recent visit to Kingston. The day after this special Centre meeting, Susan had dinner with David & Terry. Afterwards they went out to show David the Lennox & Addington Deep Sky Viewing Area. The weather prospects were not good, but improved at the last minute and they wound up with two hours of clear sky! The highlight of this session was a very beautiful photo taken by Terry showing David, Susan, and telescopes silhouetted against a starry sky. This has been prominently featured on the cover of the October issue of *JRASC*, and also in *SkyNews* (Sep/Oct, page 9). Susan left at 1 a.m.



The viewing area is well-marked and therefore easier to find now, with a sign about 1km from the site on Highway 41. From the 401 Odessa

exit it was a 42 minute drive to the area. It is remote, so it is best not to go alone. The site is a little less rustic thanks to the recent addition of a johnny-on-the-spot.

Lights are visible from cars going by, but the traffic volume is very low and the viewing area is elevated from the road. The horizon is very good with the trees low and far away. In the summer the site can be quite buggy, as these intrepid observers found out. Since the site is very open, any kind of a breeze would help reduce the bug problem.



Kevin K showed the new pier that has been built for the Torus telescope at Yarker. The fork is 120kg, so a small tractor and trailer were used to move it out to the pier. It took several members to lift the fork onto the pier. (See page two of the

July issue of *Regulus*.) At least 10 minutes were spent just in levelling the scope mount. Then the roll-off building was very carefully rolled over the mount—and it just barely fit! The deck around the pier was extended and some work was done on wiring for the scope.

Kevin showed a few pix from the David Levy talk. Attendance was 55, and everyone had a good time.

A break followed for refreshments and conversation. An ETX scope that someone brought was set up.



Following the break, Bruce showed some of his pictures of the May 26th triple conjunction of Mercury, Venus, and Jupiter low in the NW. He was surprised at how easy it was to see—even as he was driving to the observing site he used—the cemetery at Glenburnie. [No doubt, it was a *grave* situation...] A couple weeks later, Bruce also observed Mercury and Venus at dawn. Two days after that he imaged Mercury and Venus again, this time from Depot Lakes Conservation Area.

A draw was held and the night's door prize (a hardcover edition of Buzz Aldrin's autobio) was awarded.

Susan talked about the possibility of building a directory of observing sites for the Centre's website. Besides being of benefit to members, it might help to locate a darker-sky site for Fall'n'Stars. Members must know lots of good sites scattered around the area. ★

RESOURCES FOR THE IWLOP

- ▶ 2014 *Observers Handbook*
- ▶ *The Modern Moon: A Personal View*, Charles Wood.
- ▶ *The Cambridge Photographic Moon Atlas*, Chu, Paech, and Weigand.
- ▶ *The Beginners Observers Guide*, Leo Enright. Chapter 11, pp. 88–98.
- ▶ I.W. Lunar Observing Program: rasc.ca/observing/williamson-lunar-observing-certificate

WEBSITES—WINDOWS

- ▶ Observe the Moon Organization observersmoonlight.org
- ▶ Antonin Rukl "Atlas of the Moon" the-moon.wikispaces.com+ruk1+index+map
- ▶ Moon Guy Garyseronik.com
- ▶ Act React Lunar Surface Quick Map <http://target.lroc.asu.edu/q3/>
- ▶ Lunar Picture of the Day lpod.wikispaces.com
- ▶ Lunar Reconnaissance Orbiter http://www.nasa.gov/mission_pages/LRO/main/index.html
- ▶ Lunar and Planetary Institute <http://www.lpi.usra.edu/>

WEBSITES—ANDROID

- ▶ Mobile Observatory
- ▶ Moon Phase Pro

FREE SOFTWARE

- ▶ Virtual Moon Atlas by C. Legrand and P. Chevalley 2010

AS IT TURNS OUT, Saturday, November 16th was the only good day in a long time to work outside on the Torus telescope project. Thanks to **Kim, Brian, Paul, Leslie,** and **Hank** for all being on hand when we had another three-hour work session on the Torus project.

We have videos from the camcorder but once out of range of the audio pickup, you cannot hear too much. So these videos are more useful as a reference archive rather than a good how-to.

We started with standing the scope up vertically and using a step ladder to access the push/pull bolts and used no tools, only hands, to prevent anything from falling onto the primary mirror.

Push bolts were loosened (the inside set of the two push/pull bolts), the cheshire collimator aid was put in the bottom, after removing the 90° diagonal and everyone took a look and agreed that the secondary looked good and needed no adjustment. We then hand tightened the push bolts and moved our attention to the primary mirror.

Again, push bolts were loosened (this time they were on the outside set) and we physically moved the mirror while people looked through the cheshire to see what changed. Again it looked good grossly, and we tightened up the push bolts with allen keys.

After a coffee break we went back and reinstalled the MX716 software as it was not working/recognized. We still had to turn off the keyboard and mouse and camera, then turn on the camera USB connection first. Then it worked with only one 5m USB repeater and the 4m USB cable from the camera. We then added in the 2nd 5m USB repeater and it still worked. There was dancing on the observing deck.

Onto **Venus** using a 40mm SuperPlössl eyepiece, we centered

Venus in the middle of the field of view and told the telescope to “Here” “Track.” We inserted a red filter into the 40mm eyepiece 40mm (100x) and then used progressively more magnification: 26mm (153x) all the way up to 12.4mm (322x). Leaving it there for five minutes had Venus still well centered in the field of view.

The telescope is tracking great. The pointing is a bit off because of the removal and reinstallation of the mirror for cleaning.

We did some video imaging with the Olivon digital eyepiece, and those short videos are online:

☞ kingston.rasc.ca/Secure/torus/

Hank also imaged through the eyepiece with his Blackberry Q10 smartphone. That image is also online.



Other sample images include the raw .fits format (and .png conversions) of the **Moon** with the MX716 camera. We had it down to its fastest exposure 0.001s and the moon was still washed out.

Lastly the camcorder images have been compressed by at least 10:1 but are still huge, for the 2-3 hours of recording we did. They will need another few others from this message before they are all uploaded to the site.

By this time the almost full Moon had come up over the trees, the Sun had gone down, the temperature was down to 3C with a wind and a lot of

cloud had moved in. So we shut the operation down and called it a good day!

The next step is a bright star collimation (point source instead of extended objects like Venus and the Moon), adding the finders, building cloth end covers, building a waterproof cover/drop sheet, rewiring some of the USB cables again, and a bunch of little stuff.

We are getting closer!

Hank: Thanks again to Kevin & Kim, this project is progressing very well and I hope all those involved feel it is worth all the hard work they have done. It was a fun and informative afternoon and I even got to take a Venus image with my BlackBerry. This is all starting to make sense to me now and I look forward to some day commanding this scope to do something. Note I said ‘day,’ I want to see what kind of planetary daylight images this scope can do.

Paul: I echo the thanks to Kevin and Kim. I learned some things as well, although I admit I was confused some. Enjoyed the education and the treats too!

After I got chilled, I left before you all got the electronics working satisfactorily; thank goodness Brian didn't have to take an axe to the computer after all!

I think the videos and the picture of Venus are spectacular. Well done, Team! Thanks for letting me be there.

Susan: This sounds like it was a great day for the Centre! Nice work everyone.★

...I do not even begin to understand the many wonders of email delivery. Quite often, replies turn up in the list before the message that was being replied to. Rarely, messages just go into the black hole that powers the internet and disappear, to reappear at a later date, and some quite possibly disappear forever and contribute to the heat death of the universe...

—Mark Kaye, RASCals Moderator