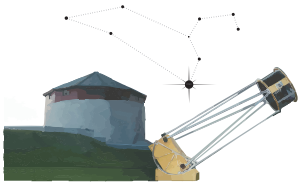
October 2014

Regulus

RASC Kingston Centre



Hank Bartlett sent along this group shot of Fall'n'Stars 2014, which will long be remembered for its three days and two nights of clear weather. Other recent events included a solar flare and associated auroral activity, as captured (below) by **Malcolm Park**.

In this issue:

Annual Meeting

All members should note that the Kingston Centre's annual meeting is coming up on November 13th. Positions up for election this year are VP, Secretary, Webmaster, Editor, and Librarian. More information and an agenda appear on page 9 of this issue.

Upcoming Meetings

Wednesday, October 8 4:15 a.m.
Lunar Eclipse

Wednesday, October 8 9 p.m.

Thursday, October 9 7 p.m.
Regular Meeting:
Randall Rosenfeld, RASC Archivist
"What's in the constellation Crater, how Newton got fifty bottles of champagne, and when Halley drank brandy and swore – the surprising history of astronomy and alcohol"

Saturday, October 11 7:30 p.m.
KAON Session
Mr. Alexandre David-Uraz (Queen's/RMC) will give the warm-room talk.

Monday, October 20 7:15 p.m.
Kingston Photographic Club
Dr. Mike Adler: Taking Astronomical Photographs and Using Them To Understand the Universe
Dupuis Hall, Room 217
kingstonphotographicclub.ca

Thursday, October 23 5:40 p.m.
Solar Eclipse

Saturday, October 25 8 p.m.
Observing Session
L&A Dark Sky Viewing Area

Thursday, November 13 7 p.m.
Regular Meeting

Meetings are held in Room 324 at Ellis Hall on University Avenue at Queen's University in Kingston, Ontario. kingston.rasc.ca

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

More information on pages 2, 16.

Reports and Other Items

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

Astro Play in Kingston

Orbit follows the trials and tribulations of Galileo's daughters, whom he consigned to a nunnery. Playwright **Jennifer Wise** was inspired by the content of real letters that were exchanged between **Galileo** and his eldest daughter, Virginia. Ahead of this event, the Queen's Department of Drama has teamed up with the Department of Physics and **Drs. Hanes and Courteau** will be helping to host an event at the Observatory on Wednesday, October 8th at 9 p.m. The evening will begin in Ellis auditorium where Dr. Hanes will be giving a short talk on Galileo's life and contributions to the scientific community, and following this we will have a Skype interview with the author, Jennifer Wise. This will be followed by a tour of the observatory and, if it is clear, some observing. Hopefully a few Centre members can assist here.

KAON Report: September 13

Nathalie's *announcement*: This month's speaker will be the mysterious and dark matter filled Ms. **Karen Lee-Waddell** of Queen's University / Royal Military College, who will be speaking about "The Cosmic Dance of Galaxies." If you happened upon July's presentation on galaxies, you'll find this month's presentation to be a nice continuation on the theme!

Susan: Last Saturday provided an unexpected window of clear sky for the first hour of the open house. **Brian Hunter** and **Susan Gagnon** covered the event for the Kingston Center. We had the Fitzgerald, binoculars, and a laser pointer. General tours of the constellations were provided as well as Mizar, Saturn, and Mars before the clouds moved in. A hand out was provided with a few factoids, Star Finders, and red plastic to cover flashlights. There were at least 75 folks (this is a conservative estimate) through the observing deck and dome tours. Very nice night. Brian and I were on the roof the whole time so have nothing to report on the talk downstairs.

Other Items

Diffraction Limited's purchase of SBIG was announced on October 1st. At first your Editor was sure he'd slipped back in time by six months to April 1st. However, subsequent chatter on the RASCals list confirmed that this news is real! ★

RASC-KC Board of Directors

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Director without Portfolio:	Paul Winkler

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KAON:	Susan Gagnon
Webmaster:	Walter MacDonald

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.

The Fine Print:
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RASC Names New Executive Director

James Edgar, RASC President

THE RASC BOARD OF DIRECTORS is pleased to announce the hiring of Executive Director **Randy Attwood** of Toronto, effective 2014 September 2.

Randy is a long-time member of the RASC, who has been extremely active in the affairs of the Society over a period of more than four decades, from being a young member in Toronto in 1970 to eventually getting involved in Centre and Society activities at the executive level in the 1980s. He was a member of the Toronto Centre for several years; was the Society President 1998–2000, he received the Society's Service Award in 2005, then he was the driving force behind the 2003 creation of the Mississauga Astronomical Society, which became the RASC Mississauga Centre in 2006. He was recently appointed as one of the first Fellows of the RASC (FRASC), recognizing his exemplary service over an extended period.

In 2012, the International Astronomical Union confirmed the naming of Asteroid (260235) Attwood in Randy Attwood's honour.

We are very pleased to have Randy in this important position. We admire his passion and drive and we look forward to working with him on the Society's future development.★

Meeting Report: September 11

Kevin Kell

WE HAD 4 GREAT PRESENTERS at our meeting in Ellis Hall, Room 324. It ran slightly overtime, from 7:00-9:15. There were 19 members in attendance and presentations from **Richard Weigand**, **Hank Bartlett**, **Malcolm Park** and **Richard Wagner**. We were all gobstopped (is that the right Harry Potterism?) at the work done and put together by these folks and are very, very interested in learning from them.

We passed around some recently discovered 1997 General Assembly pins, Timbits, and some organic heritage veggies (tomatoes and cucumbers). We ran out of time at the end and Leslie and myself were put over to October for after the guest speaker's presentation, during the Members observing reports.

A few folks stayed behind to discuss the Torus telescope collimation issues and we think we have a handle on what is happening.

A great night in all, we got home just before 10:30 and hope the rest of you travelling long distances made it home safe as well!

Rose-Marie: My brother was quite impressed with the presentations. He said "there's a group that can really out-geek me." As we drove home he was saying that we need to take a walk up to where he used to have his observatory on top the hill and see what we could plan for the future.

Hank: It was a pleasure to meet Hans and hear of his multi-mirror telescope building project. It is way over my head, but I would like to know more.

Paul: What a wonderful meeting! This is why I try never to miss the Members' Nights.★

Fall'n'Stars 2014

Kevin Kell

THANKS TO MARK COADY, Chair this year, and to the Belleville Centre for leading the effort. This was our 15th event (with #1 being DSNOS at Presquille Prov. Park in 2000).

It was a great weekend. We were searching our memories for another year with three days and two nights of clear weather! The highs in the meadow hit 31C and the lows about 10C. There was no rain, sleet, snow, frost, ice, or cloud. What a bonus!

Things went smoothly. We had a couple of mentions about the lack of signs, and they were correct: we have not put up signs in the last few years. Then again, I notice Starfest has also has cut back on signage. I suspect the advent of GPS. A suggestion for next year: a sign at the entrance and a sign

at the boy scout camp to start.

Thanks to **Susan** for the loo cleanup. Another suggestion for next year: that we have a team of two, male and female, to split the load and ickiness. We thought we might investigate the cost of a rental, but they would tend to drop it off on Friday and pick it up on Monday, but the gates would be locked then.

We arrived and were setup by 2 p.m. and started observing right away—solar that is.

A welcome-to-FnS2014 rocket launch occurred at 18:00 and we started observing (stellar) before 19:00 (lunar). Uranus was a popular target, with many thinking they found it but not being able to confirm it. The two-day-old Moon went down pretty quickly, as did Saturn and Mars. The southern and western trees were getting taller!

There was dew and our dew heaters were running fairly hard. I think we packed it in around 23:00 as it had been a long day, but were back up and out on Saturday morning around 05:00.

Jupiter was gorgeous and we observed until sunrise, then huddled

Continues on page 13...

Observing Reports: August-October

Various Members

Friday, August 1

Rick: I was just out for a late evening canoe around the bay (it's been so long since it's been still and calm like this, beautiful deep twilight, Moon shining in the west) and, as I was bringing the canoe up on the dock there was some sort of satellite pass. Very bright, say mag –4, very orange (much, much more so than Mars for example) and scintillating (or was it flickering?), it rose from near the SW or WSW horizon and over several minutes faded to invisibility near the zenith at about 21:34 EDT. Obviously it must have been ISS. Except *Heavens Above* doesn't show any such pass. Or any Iridium flares, or any other bright satellites. Anybody else see it or have any ideas what it was?

Rose-Marie: I had noticed one the night before around the same time, would describe it the same way, moving very fast. It didn't look like ISS; I was wondering what it was. It was brighter than most satellites but not as bright as ISS. ISS also starts out dim, gets bright, sometimes flares a bit, and then dims about ¾ of the way over on the pass. This one didn't dim or flare, stayed about the same brightness. I am about 15 miles west of Rick as the crow flies.

Rick: Mine was actually moving quite slowly—much like ISS. And yes, it was quite consistent in brightness all the way to the zenith where it faded to invisibility over 10–20sec.

Wed/Thu, August 6/7

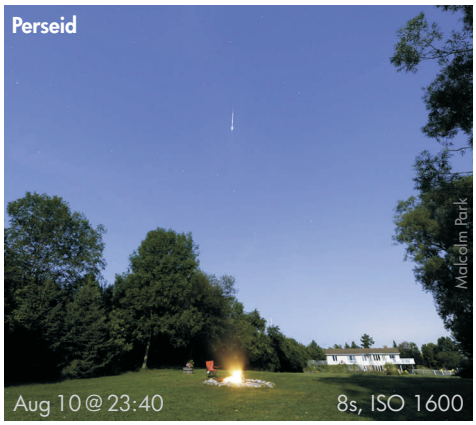
Rose-Marie: Coming up on the "Percies"....damn that full Moon. I put the camera on "set it and forget it" Tuesday during the wee hours after the Moon set; I wanted shots of moonglow but I was dead tired, and only got a couple half-hearted shots. So I set the camera on the lawn and pointed the lens to the gap in the trees where Perseus would be rising and hoped for the best. The camera took shots for a half hour but then the lens fogged up. It did, however, manage to pick up one meteor. I was ticked when I went plodding out there towards the dock, there was one really bright one before I got set up.

The tweaked and cropped version: August 5th 1:01 a.m., 30 seconds, f/3.5, ISO 1600, 18-55 mm lens at 18 mm.

Sunday, August 10

Kevin K: Just captured one Perseid on Friday night, two on Saturday night. This full Moon has pretty much washed out the camera images.

Malcolm: Well I tried last night, with similar results. This is the best one:



Rick: Can you tell us what time, direction, etc. you took this shot? I saw a very similar looking meteor at 23:44 last night, low in the SW.

Malcolm: My camera says it was 11:40 p.m. I'm pointing north at the Big Dipper; you can faintly make out the Big and Little Dippers in the pic. The meteor is pointing right at Mizar. My location is near Wellington in Prince Edward County.

Rick: Given the angles, the time, and the relative locations I think it could easily be the same meteor! Mine was viewed lower to the horizon and had a nice orange colour because of the low altitude. That's very cool!

Malcolm: A few years ago an epic meteor lit up the skies over Northumberland county. As it turned out, both **Andreas Gada** and I imaged it from different places 30 km apart! It filled the frame of a full frame camera using a 14mm lens.

Sun/Mon, August 17/18

Rick: Nice photo Kevin. Since I knew the conjunction wouldn't be visible from my place I arose at 0400, had a quick bite to eat and headed out in the canoe. After paddling around for ~½ hour I could see the two planets through a low gap in the eastern shore so I quickly set up on one of the islands just out in the lake from my place. I took a number of shots framed by the small trees on the island at 18, 50, and 70mm lenses,

and different exposures to try to catch more or less twilight, more or less wavelets in the lake surface, etc. What a lovely view. At the last minute I had decided to bring along my 80mm f/6 refractor with 19 (25x) and 8.8mm (55x) eyepieces so I had a look through the scope as well (it mounts on my camera tripod.) Naked eye the two planets were very obvious—couldn't be missed if you were facing that direction. In the scope at 55x Jupiter's orange disk and three moons were visible, Venus was a whiter, smaller and much brighter disk. After finishing with the planets I took a quick look at the Moon (the central peak of Alphonsus was beautifully detached in the middle of the bright ring of its walls) and M42 (just an oblong hint of a glow in the brightening twilight) in the scope.

After that I paddled off to the marshy area at the east end of the lake for some more fishing (two large-mouth bass, 1½ and 2¾ pounds) trying to keep an eye on the planets. At 0600 in the very bright twilight Venus was still very easy to see with Jupiter still visible to its right. However they were difficult to find, given that I was moving about the lake so had no constant horizon reference points to work from. I'm sure at least Venus would have been visible much longer but I was unable to find it naked eye the next time I checked. I'm amazed at how bright and obvious the pair were right through most of twilight. They stuck out like sore thumbs for at least an hour after rising.

I closed the morning with another swim over to Eagle Point—it really is too cold for this! Air temp was ~14C which I don't worry about since I'm in the nice warm water. Except the water temp has dropped from 27C a couple of weeks ago to only 19C this morning. By then it was 0830 and time for a second breakfast.

Sun/Mon, August 24/25

Mark K (*on RASCals*): Just heading off to bed. Comet Jacques is putting on a nice show. A large round comet, with just a hint of ovalness indicating the direction of the tail, not visible in my scope. Buoyed by the visibility of Jacques, I looked up C/2013 V5 (Oukaimeden) and 289P/Blanpain, both low in the east. Oukaimeden, in Monoceros was easily visible, if not spectacular as a thin line with a brighter end. I could not find Blanpain, in Gemini.

I spent all night observing and never got around to getting out the camera. That seems to be the way of it these days: it is so long between good observing sessions that the sky is getting light by the time I think about taking some images. There was not a mosquito in sight. I think the introduction of a Mosquito Magnet to the cottage this summer has really made a difference.

Tue/Wed, August 26/27

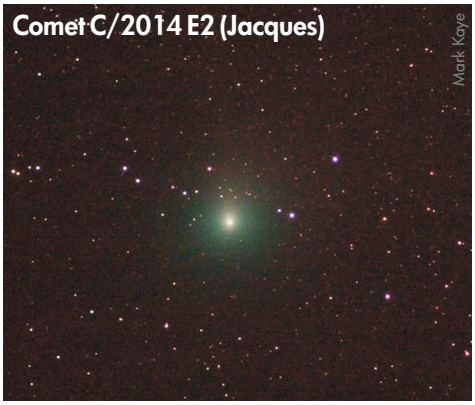
Hank: Hey all you sparklies imagers: I got this FB post from my niece in Fort St John BC this morning of last night's aurora. CJ is new at this, but it is a good first try:

Kim: I got up early this morning around 3:30 a.m., and tried to find the comet; no luck, had to get a map printed out.

I saw many satellites, lots of meteors, many coming from the Milky Way, into Taurus, very bright and fast. M42, M45, always favourites, and just watching the sky. I watched Jupiter rise, then after 5:00 am from the back deck was Venus, they are 15° apart now, what a lovely sight.

There was no aurora in Yarker.

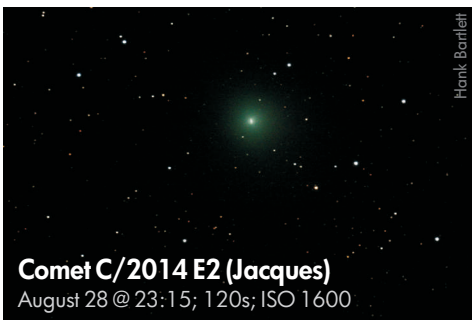
Mark K: The nice thing about Comet Jacques is that it is high in the sky: no sweeping the near-horizon murk for this one.



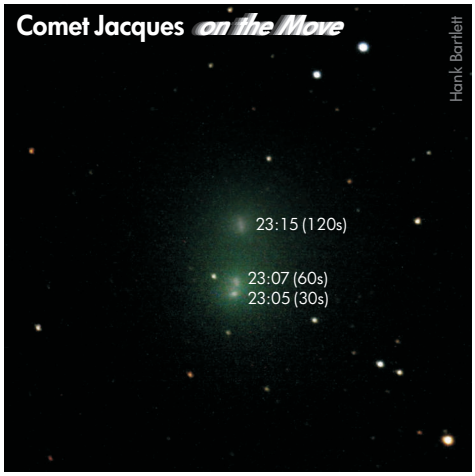
Rose-Marie: I was up at 1:30... 3:30... checking the aurora forecast... at 4:30 there was lots of red on the indicator and I grabbed the camera and tripod and headed to the dock...hoping...but nada, zilch, nothing. I did see a few faint meteors. I also got wide angle pics of the comet, had looked at it through the big honkin' 15x70 binocs, got to see a fuzzy white blob. The nights are still warm and the mosquitoes have backed off a bit.

Thu/Fri, August 28/29

Hank: I was surprised how easy a find Comet Jacques was and how bright in the C9.25. This is the first



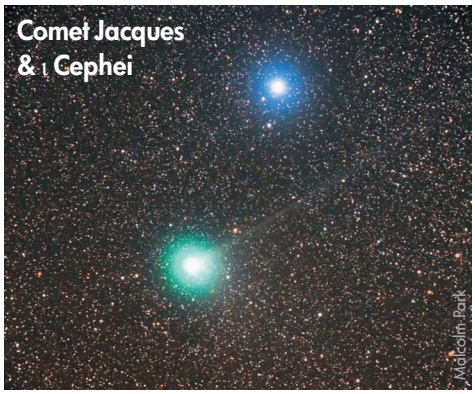
time I have imaged DSLR at prime focus for a comet. I was also surprised by the motion of the comet in the 9:26 between the first and third images I took. I did darken the black and raise the white a little to get better contrast.



Malcolm: Nice! Yes I noticed the comet's relative speed at Starfest, I took images over about an hour and it was really amazing how much it moved.

Rick W: I was out shooting the comet both Sunday and Monday nights and neither bunch showed any tail whatsoever, even though I was shooting well into the sky background and stacking a couple hours of exposures.

Malcolm: I shot a few frames but rather than combine them, I chose to just process one. It's a single 5-minute exposure at ISO 5000 through a TEC140 on an AP Mach-1 mount. Unguided. Camera is a Nikon D800.

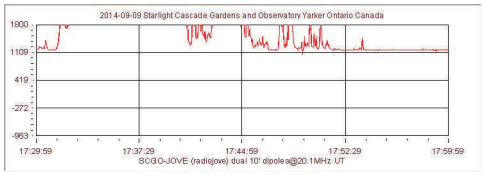


Hank: The star background is amazing in this area when I first searched I thought I was lost there were so many stars.

Wednesday, September 10

Kevin K: X1.4 class solar flare being reported, starting and 17:42 UT and continuing various radiojove stations have reported this over the last 20 minutes. I'm waiting for our own SCGO radiojove station to upload its data from the last little while. Of COURSE it is cloudy out!

A few minutes later: Confirmed by SCGO. This is the automatic fixed Y axis upload image [*clipped due to bad scaling*].

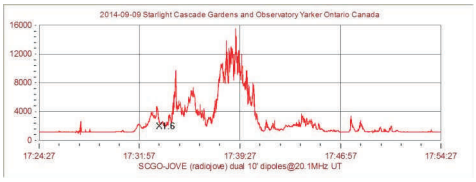


Hank: Thanks for the heads up, possible images to follow, used a #7 cloud filter!

About half an hour later: Even using a #7 cloud filter the results are fuzzy. The long one second exposure brought out a lot of artifacts and dust motes on the lens or chip. Here is the same image in colour and B&W. The red of the sky is the cloud cover.

Thanks for the email letting me know, I gave you full credit. I dropped my reno tools and ran to the back door. 68 images later I had this to show. Here I thought my summer PowerPoint was finished.

Kevin K: I regenerated the chart of the X1.6 solar flare and this is what it looks like:



Hank: Good for you: adjust the scale and be prepared for these rare events! I was so lucky to have checked the e-mail Kev sent and that he did send it.

Fri/Sat, September 12/13
Auroral Activity!

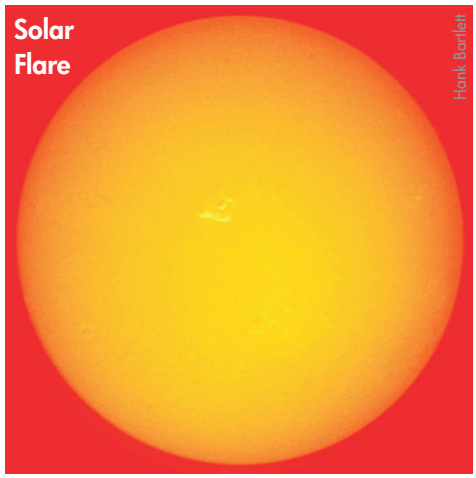
Kevin K (*21:00*): Camera-visible-only aurora so far. The spikes are visual. Go out!

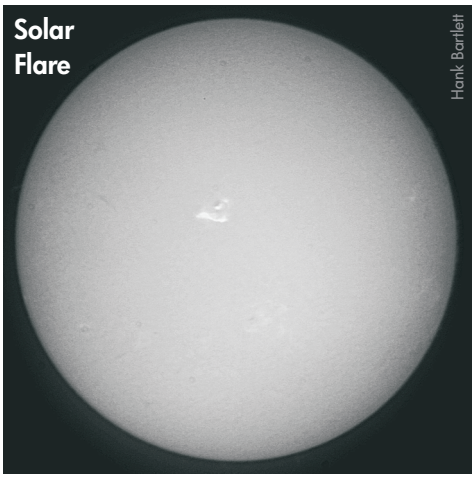
Malcolm (*21:09*): I'm out. It is too beautiful on camera, faint to the eye.

Tim (*21:47*): I have been out on my deck twice but can see nothing from here in Kingston.

Rose-Marie (*22:34*): Been sitting here with bated breath waiting for it to fire up, keep checking the aurora indicator, went outside to look a few times. So far, nada. Now the darned Moon is coming up. If it's not strong we ain't going to see much with that spotlight behind it.

Kevin K: This first shot [*see next page*] of the evening was around 20:52 and was probably the best aurora of the evening. It subsided





over the next hour, and we went back inside around 22:00.

In this second shot [*below*] we captured the aurora and a –6.6 Iridium70 flare. Very nice!

The last shot [*below*] shows a mysterious satellite flare. Our guess is –10 or brighter, and that it lasted on the order of 5 seconds. In general, the brighter Iridium flares are, the brighter they are, so on that basis this was not an Iridium flare. The time was 21:04:39 approximately (the camera clock may not be 100%).

Heavens Above shows a few candidates that passed around that time in the far north but nothing nearly as possiblly bright as that. It was travelling south to north, and just directly below Polaris. We have H-2A R/B, SPOT 1/Viking Rocket and maybe a few other candidates.

Rick W: *Heavens Above* shows an Iridium flare predicted for 21:03:40 from your location, mag –3.7, in almost exactly the correct location.

Susan: Thanks for the photos! It is nice that it was clear. Timing is everything.

Rose-Marie: I kept checking the online forecast all evening and went out several times looking at the sky, saw absolutely nothing. I stayed inside and kept stoking up the wood stove.

Malcolm: Here's the view from the County [*also on front cover*]. It was mostly too dim to see naked eye, but nice on the camera. I captured images for a time-lapse, which I'll post it after I finish processing it.

Richard W: *View from Sandhurst Shores*: My astrophotos turned out same as Kevin's. The sky N to NE was grey and the colours only showed up in the camera and enhanced with Photoshop. My first Aurora Borealis! The time from here was 2100 to 2130 hours.

Once that was over, I awaited moonrise at 2200 hours and watched her rise. I completed another set of Moon observations in the clear night sky. Close to the end of the session, clouds rolled in from SE.

It was interesting to watch the clouds travel over the face of the Moon at 10x magnification! Overall, it was a great evening to be outside.

Thu/Fri, September 18/19

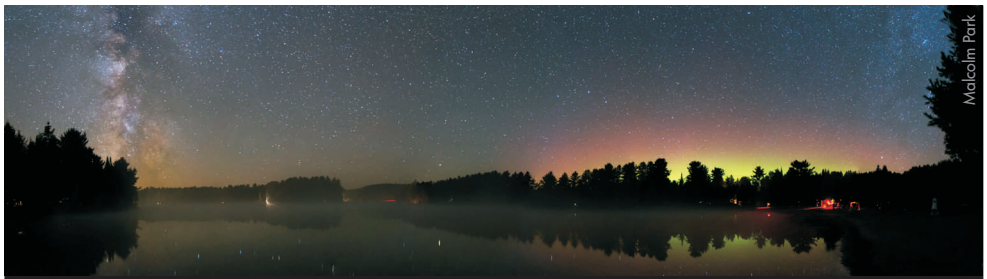
Kevin K: Drat! Looks like we missed some aurora last night from about midnight to 2:00 a.m. EDT. Very nice, very cold camera (it hit –3C outside this morning). Too bad the neighbours left their back yard floodlight on all night.

Walter: Winchester Observatory was pumping tonight, doing 190 variables and 8 comet fields.

Friday, September 26

Mark K: The Sun was a pretty amazing sight today in both white light and Hα. It is interesting how different the view is. In Hα, there were lots of prominences and filaments, but hardly any spots, while in white light, there were lots of spots in very complex regions.

While I was out, I attempted to view other stars. The faintest I was able to find was at 4.67 magnitude. It seems that with a telescope during the



Malcolm: I was up at the Algonquin Adventure star party at Mew Lake last night (Sep 18/19). There was a mild Kp=3 event early in the evening after dark, but then the pretty mist ate us and it totally fogged up. Basically at that point I packed and crashed for the night in my tent (warm with an electric heater). Kp then climbed to 5. So I missed the main event, but I did catch the early show.

day, I can spy magnitude fainter stars than someone from the city of Toronto can see at night. Saturn was much harder to see than the 3.5 magnitude stars I found. I also observed the two day old Moon.

Walter: I really had things cranking tonight, hitting 248 variables.

Sat/Sun, September 27/28

Walter: I did 88 cataclysmic variables tonight (since the Miras are done for this week).

This is a good time to mention R CrB, which is now up to mag 9. Will it finally make it all the way back to max (6th mag) this time? It hasn't been at max since May 2007, as you can see from the AAVSO light curve below. There have been three times when it looked like it might come back, but this current rise is the strongest yet. Stay tuned!

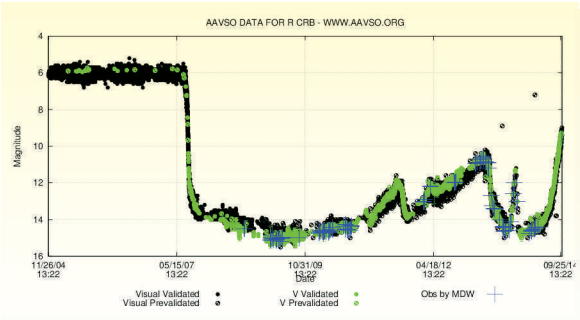
Thursday, October 2

Walter: Peter Ceravolo reports a huge prominence this afternoon. Did anyone catch it?

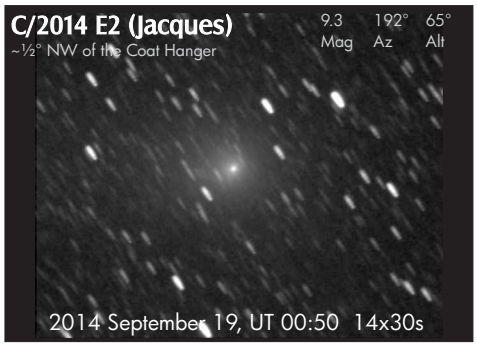
Mark K: Fool that I am. I left my C70 at the cottage. I kick myself each time I remember after the fact.

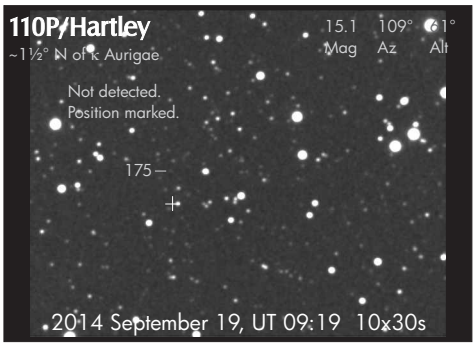
Hank: You bet Hank did. Retirement is great, and luck helped of course. It was a great eruption. I took over 300 images in 39 minutes. Unfortunately a technical difficulty, dying batteries, and a neighbour who wanted to chat at the WORST time got in the way.

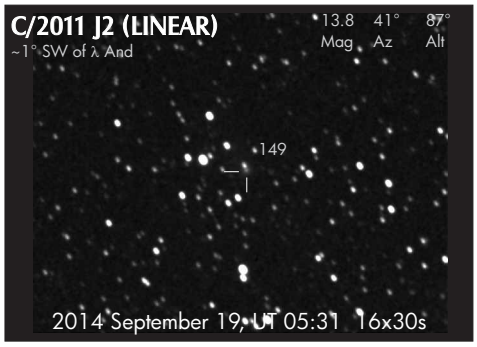
[*You can see a couple of Hank's spectacular images on page 14.*]★

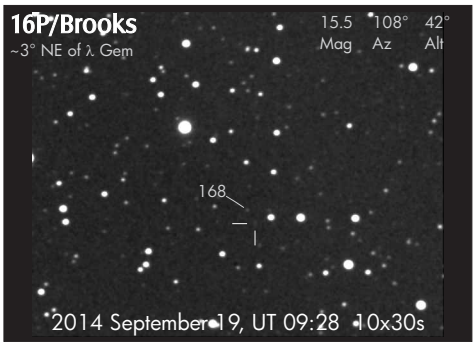


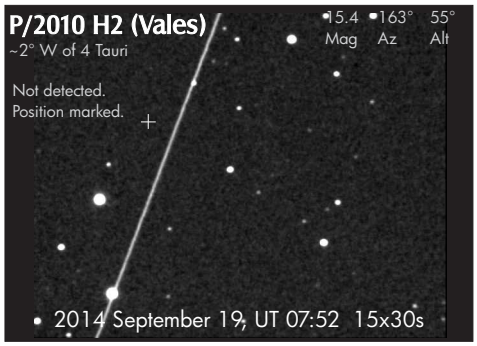
September Comets

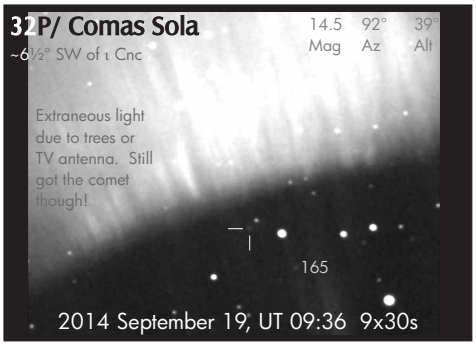


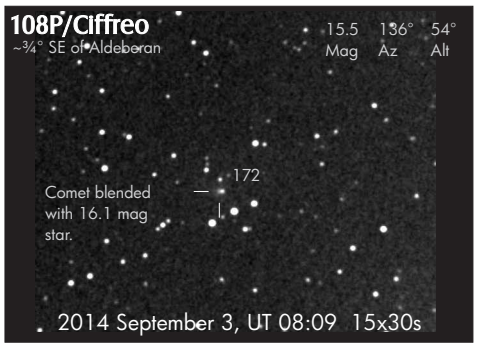


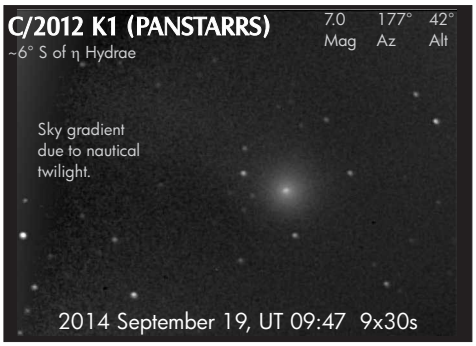








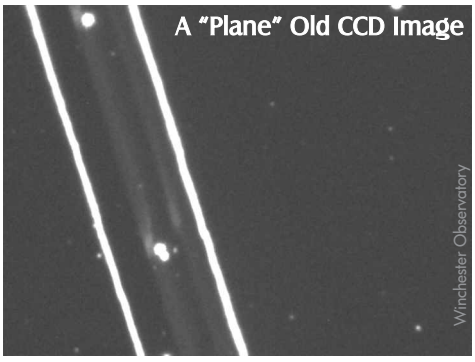




Predicted magnitudes are from ECU. All times are mid-point. Mark Kaye reports that C/2013 V5 (Oukaimeden) was an easy visual target as of late August, but trees blocked it from your Editor.

Left: R CrB, the prototype of its class, has been putting on a great show for the last seven years or so. Your editor's CCD observations are shown as blue crosses.

Right: 2014 March 3/4. This is clearly an airplane, and at fairly close range! This is frame #6 in a sequence of the V402 Andromedae field. While the plane was in outburst, the variable was not.



Kingston Centre's Upcoming Annual Meeting

THE CENTRE DEVOTES half of its November meeting each year to get its business done. Since it is only *half* a meeting, it is relatively painless. The best part is that we get to hear summaries of a year's worth of activities—and it's been a good year!

As usual, several positions are up for election this year, and the duties for these are listed below for anyone who is interested in grabbing one! Hopefully someone will go for the VP position this year. As long as the current President doesn't get hit by a bus, it is one of the easier offices to hold.—*Ed*.

AGENDA

AGM—RASC Kingston Centre,
November 13, 2014

1. Welcome
2. Presentation of Agenda
3. Approval of Agenda
4. Approval of 2013 AGM minutes
5. Reading of annual reports:
   - President
   - Secretary (report and approval to update at year end.)
   - Treasurer
   - Library
   - NAC Representative
   - Editor
6. Centre Elections:
   - Secretary
   - Librarian
   - Editor
   - NAC Representative
7. Appointment of Auditor
8. Adjourn with thanks

DUTIES OF THE SECRETARY:

- Compile meeting information each month and send to the Editor for inclusion in the newsletter.
- Take minutes at Executive Board Meetings: Assign Motion numbers to minutes. Type up minutes and send out to the Executive, especially if there are actions. *Note: We must have a minimum of three executive meetings a year.*
- Send out "Thank You" letters. This could be to speakers or members.
- Update Executive and Members' Manuals. (The entire Executive will help with this, as everyone's input is needed to do this effectively.)
- Send in the Centre Annual Report to national office by Feb 15th. (This has been done for the 2013 year already.) This report goes to the Executive Director and the National Secretary. This report will appear in the RASC's *Annual Report*.
- Send welcome letters to new members listed in the national office reports to centres. *These come out once a month, and the Treasurer passes them on to the Executive list.*
- Be on the Executive email list and contribute. We all help the Centre grow.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE VICE PRESIDENT:

- Help with meetings when the President is away.
- Send out hard copies of newsletters to members who wish to receive them in that format.
- Promote Centre meetings in local newspapers.
- Maintain the Centre's Facebook page.
- Be on the Executive email list and contribute. We all help the Centre grow.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE LIBRARIAN:

- Maintain an up to date list of library books.
- House the library. While this has been the custom in recent years, it is not a mandatory duty.
- Procure new additions to the library that may be used by members.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE EDITOR:

- Solicit material for the newsletter.
- Produce the Centre's newsletter, *Regulus*, using the software of your choice. *Ideally 10 issues per year will be produced (monthly, except for July and August).*
- Post the newsletter to the website.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE WEBMASTER:

- Maintain the Centre's website. Currently our site uses Drupal 7.
- Do upgrades and add modules when necessary.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE NATIONAL ADVISORY COUNCIL REPRESENTATIVE:

This position replaces that of the National Council Representative. This person is the liaison between the Centre and the Society.

- Attend NAC meetings either in person or by phone.
- Report back any items that effect the Centre and its members. The Centre executive will discuss any such items, and any concerns arising from this are taken back to the NAC for clarification or answers.
- Attend the Annual General Meetings at the General Assembly. This is covered through the Travel Policy of the Society, and the Centre will cover up to $200.00 of travel expenses.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet. ★

Starlight Cascade Report

Kevin Kell

HERE ARE TWO ITEMS OF INTEREST to ATM (amateur telescope maker) types, simple modifications to aid in observing:

MODIFICATION #1

The StarlightCascade Observatory has a carpet on plywood on styrofoam insulation floor. Because it is fairly small, telescopes need to be stored away when not in use, to get out of the way. To aid in moving the 20cm telescope, we built this little sliding platform. The first image is "before" with only four small Teflon pads. The next image is the "after" with the original 4 small Teflon pads but also three much larger ones and a couple of smaller ones.

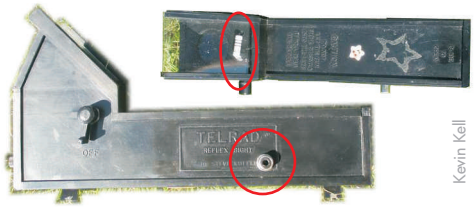
The total Teflon-on-carpet surface area has gone up by a factor of three or four and in actual tests of moving the telescope in and out of storage position, works very well! Friction has in fact decreased enough so that you are not straining to move it with your foot anymore.

I suspect his method may not work out for very heavy telescopes—wheels would almost certainly be needed.

MODIFICATION #2

The Telrad is a handy optical finder accessory for telescopes. They are great, and recommended for anyone with a scope that is pointed manually. Yet they are also horrible, being the first to dew up when it cools down in the evening. The solution to this is to add a little heater to the optical surfaces of the Telrad. Then all will be well!

These images show the installation of a kit purchased at Astrocats, by Dave Yates (bendun.net/Images/STARFEST2011/Adding%20a%20Telrad%20Dew%20Heater.pdf). (This is similar to what we did on our first Telrad 15 years back while attending Starfest when Dave was selling a $10 kit.)



This is a 100 ohm wire wound resistor (rated for 2W) mounted just inside the glass surface, with wires running down the body to a power tap. You plug in an RCA male 12V DC cable to your dew controller and it will prevent dew from forming on the instrument!

In the past we would hook these directly into a 12V DC power source, usually a battery, but there is wisdom in running it through a power controller first. We bought 4 kits and will be installing the remainder in the near future. This first one was installed on Kim's 20cm Dobsonian, "Starbuck."

UWO CAMERA UPDATE

The UWO all-sky camera (Yarker10) suffered a power supply failure (going from 12V to 21V DC) on or about August 22nd. The rise in voltage melted the circulation fan and eventually killed the low light camera altogether. There is no word yet on if or when it might be repaired or replaced.

The older AllSky1 system we have had up and running since December 2006 is still clunking along.

RADIOJOVE COMPUTER UPDATE

The Windows 7 computer running the Radiojove radio telescope system (24.1MHz) has died. Computers tend not to last too long out in the observatory. Either it is the fact that environmental conditions are more extreme than inside the house, or the fact the most of the machines that go out there are old and decrepit to start with, or a combination of both.

Transferring the data logging program over to the AllSky1 computer (Windows XP) was a plan but the USB sound card does not work under Windows XP. So I think we may try using the motherboard sound system and see what happens.

CELL TOWER UPDATE

In other StoneMills Township news, you may recall Rogers proposed to put up a 103m+ cell tower in what amounts to our backyard. 11 residents commented and Rogers responded by moving it closer to us. A month or so ago we noted what sounded like many small explosions in the area of the site. We think it was geologic sampling to see what the anchors would be anchoring in. No development otherwise.

Last week we note in the local newspaper, Rogers is proposing a new 100m+ cell tower at 354 Dewey Road, just north of Camden East, north of Bethel Road. I may be a little optimistic, but why would they place two new cell towers so close to each other? Google maps show about a 4 km separation. In my radio mind, that is far too close for two towers from the same company, especially when the tower was designed to enhance coverage from road 38 to road 41 and up to Enterprise.

The optimistic part of me says their geology tests showed unsuitable anchoring ground (layered fractured limestone) and they might just cancel the tower in our back yard. So now the pressure to get Radiojove back up and operational again is greater, to take advantage of this possibility for the future.★

Tardis Observatory Updates

Kevin Kell

SUNDAY, SEPTEMBER 14

Brian, **Mark**, and **Kim** were on hand for this Torus work session. We removed the primary mirror assembly, removed the primary mirror from the holder and disassembled the cell holder. We discovered:

- The back of the primary mirror was definitely not parallel to the mounting plate. Nor was the top surface of the mirror edge to the mounting plate.
- One support bar holds two triangles of three support points each was installed backwards and binding a bit. We remounted this in the correct orientation.
- Three side mount ball jointed primary mirrors supports were corroded and sticking. We are having these three assemblies cleaned ultrasonically and then will regrease them and reinstall them.

MONDAY, SEPTEMBER 15

Mark K: The ultrasonic bath went very well and all six balls joints are moving nicely. The are in the drying box now.


Adding new grease.

TUESDAY, SEPTEMBER 16

We had a greatly successful night working on the torus scope.

Mark Kaye brought back the newly-cleaned side supports that now had a full range of motion. **Brian Hunter** brought along some great grease to make sure they stay that way. **Walter MacDonald**, **Kim Hay** and I were on hand as well.

We modified the floating cell structure by adding a couple of washer shims to two of the six cells


Working on the mirror cell.

and that evened out the entire mirror. It was now much closer to parallel than it had been in the past and was no longer visibly uneven. The mirror assembly was reassembled and installed into the scope. It was grossly aligned by the use of an allen key to set the spacing. Looking up the tube things looked very good visually.

We then spent 20 minutes trying to find Vega. After a lot of cussing we did find it, through it into and out of focus and then using the out of focus image (½ the field of view in a 40mm Superplössl eyepiece) we finalized the collimation to provide a nice symmetrical secondary shadow and locked down all of the push/pull bolts and the three-sided hanger supports. This collimation proved to be the best we have ever had. Vega was a pinprick with a lot of rays coming out of the star. By this time it was well into twilight, maybe 20:30 or so. It was getting cooler and then mosquitos were still out but not too bad. We thought to stop the collimating process, of which the next step was to throw a camera on it and get much higher powered results and more accuracy. That will wait until the next session.

The pointing model should have been out to lunch, what with the mirror itself having been removed and remounted. Remember the math problem? 1 mm of difference in the mirror position would result in ~8 arc minutes at the other end? Turns out the total displacement was more on the order of a couple of degrees. We moved it around a bit, remembering the offset for each and manually positioning it after each slew. We did find our targets.

Then came the three-star alignment on Arcturus, Vega and Deneb. It took a while to remember the procedure but in 10 minutes we had it done, with residuals that were not too bad. Slewing back to Vega had it in the field of view, not perfectly centered, but much better than before.

After that it was a quick tour of the sky: M13, M31, M22, M27, M57 and more. The pointing was good, each time within the field of view.

So tonight's accomplishments were getting a good (not great) collimation and pointing model completed.

There will be a hiatus for the next week or two until the RMC dome project is completed and Fall'n'Stars


Brian Hunter and Mark Kaye with the 16".

is over. After that we will be moving to the camera installation phase, doing a very fine collimation adjustment, then a multi-star alignment.

Thanks to all!

Mark K: I went to Kim and Kevin's last night with the freshly-cleaned swivels. It was fun to watch them in the ultrasonic bath. When the high frequency vibrations were turned on, you could see the old glue (that used to be grease) vibrating out of the bearings. After an evening in the bath (it has a heater that warms the fluid and three six-minute sonic pulses), the bearings were clean. I then popped them into a drying box after a towel-off so that they would dry. The box has two large containers of silica gel in it and is very useful for taking moisture out of things that have moisture inside where it cannot be towelled out.

Kevin and **Brian** were getting the bits all in a row when I arrived. **Walter** showed up shortly thereafter and **Kim** produced needed parts, drinks, and cameras the whole time.

Shimming things up.

We spent some time analyzing the mirror cell. Everyone had some thoughts since the last session and parts where checked. We basically could not understand why there was a problem with the mirror cell. None of our ideas panned out, so we put the mirror in place and it was still noticeably tipped. Brian had brought some washers of various sizes with him that we could use as spacers. We measured the height of the mirror above the cell all around and decided that a couple of washers on one pair of flotation points would raise the mirror the right amount. We took the mirror back out of the cell and put in the washers after first drilling them out so they would fit. Lo and behold, when the mirror was returned to the cell, the whole front surface of the mirror was within 8/1000 of an inch of being parallel with the cell. The difference before was over 3/32". (Sorry, the scope was made in the U.S., so everything about the scope is in the Imperial measuring system.) At this point, Brian began to bounce around. We decided that 8/1000 was pretty close and we put the mirror back into the scope.

Getting it right.

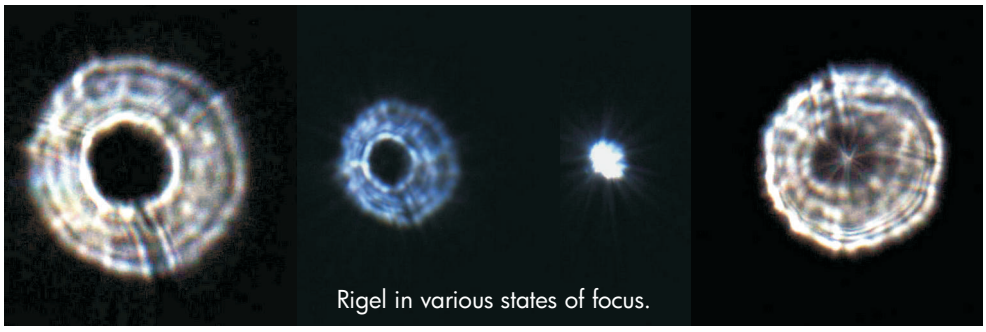
Our initial view up the focuser tube was inspiring. The scope looked like it was pretty close to being collimated, just like that. Now Brian was beginning to get even more excited. We tightened the scope up temporarily and set about finding Vega. The field of view of the scope is tiny, even with a low power ocular and we did not have any idea of the focus. So we hunted down Vega by first moving the scope to where the software thought Vega was (not too far away, about 1½°) and then we moved the scope back and forth in R.A. and Dec. until Vega appeared from behind the secondary (while looking through the tube without an eyepiece in place). We then split the difference and that put us very close.

By this time, it was getting dark enough to focus on field stars, we got a focus, found Vega and did a second and final collimation for the night. Kevin was able to centre other targets by noting the offset of the software from the real world and we looked at some double stars. We were able to split one half of the double double (ε Lyrae) and the colours of Albireo was easily noted. Then using Arcturus, Altair, and Deneb and Kevin's knowledge of the offset, we centred each star and input it into the software's pointing model. Returning to Vega, it was well inside the field of view. Not perfectly centred, but from then on, every target we picked was well in the field.

Brian was going gaga by this time; he has never seen the scope perform optically as well as it did with a rough collimation last night. It seems that the scope has been incorrectly assembled the whole time it was in service in its past installation. That means the scope is ready for a more precise collimation. We all left for the evening with the feeling that the scope is on the right path.

Brian: I must object to the suggestion the I went "gaga!" I was bouncing off the walls, but there are no walls!

Hank: Brian, if only I could have been there your exuberance always


Rigel in various states of focus.

...Tardis Observatory

boosts the mood.

THURSDAY, SEPTEMBER 25

We did some imaging this morning to document that status of the Torus telescope collimation. We took four images of Rigel, from out of focus, to focus, and then out the back of the focus. We did the same with Betelgeuse and then followed up with two images of Jupiter, exposed and focused on the moons, and then exposed for surface detail. These images were taken with the ZWO ASI 120MC camera using Handy-AVI for the stars and Firecapture v2.2 for Jupiter. No other processing was done—these are raw images.

Rigel shows a slightly off-centre secondary mirror shadow. Tweaking the collimation by this tiniest amount may be a very difficult game, where how far is good enough and how easy is it to make it worse? Betelgeuse shows much the same, in the same direction.

The moons of Jupiter did not come to a sharp focus and the same focus was used when the exposure reduced down to 5ms for surface detail.

We intend to repeat these images with other scopes, to compare and contrast. These images were taken: after the mirrors were recoated (in August), and after the fine collimation and without the centre baffle. The baffle will be going in as well with another imaging run to see if anything changes.

Doug: It looks to me like there is a fair amount of turbulence and possibly tube currents too. Is it possible to reduce the camera sensitivity and take longer exposures? That would average out the turbulence, and leave a better view of the optical quality.★

...Fall'n'Stars 2014

around hot coffee waiting for the Sun to clear the eastern treeline.

Saturday afternoon's swap table was very small. The talks then followed and that did not go as well as planned. **Greg**'s talk ran on for longer than expected and others with talks ready were not able to present them. A suggestion for next year: firm 15-20 minute limits for presentations. A model rocket workshop followed where some folks built their own from kits.

We did not promote the photo contest (nor a prize for it) and as a result had only *one* entry. (Last year we had a good competition.) Suggestion for next year: promote the photo contest early and often; establish and publicize the prize as well.

Dinner was moved up to 17:00 (from 17:30) and that was a good idea that worked well. We were able to finish dinner while the Sun was still up. Dinner, as usual, was good. I find we are eating less in general and there was a lot of leftover food again (more than last time).

Door prizes were delayed by a *lot* of rocket launches but we got back and had enough prizes to go around more than once. Thanks to all of the donors, and to **Greg** for getting the great 99% reflective 2" diagonal from Oceanside Pacific Telescope (OPT) in California. I am not sure what to do with it, but it is great anyways! [*I would suggest sticking a 2" ocular in it.–Ed.*]

Other door prizes and raffle items included a "StarGazer Steve" telescope from **Mark Coady** and a great "fruit basket" from **Hank & Di Bartlett**.

We packed it in early (maybe 10:30) on Saturday night, due to too much good food, drink and company, and were back up again at 04:00. Sunday morning Sky Quality Meter readings peaked with the best at around 21.45 square picoliters per

...continued from page 3

Kevin Kell

magnitude of disordered angstroms (or whatever the units actually are).

Doug Angle brought the 60 cm Venor telescope out and we had a great time with it, re-collimating, removing three dead circulation fans, installing two new fans (we ran out of daylight), building a Hartmann Mask, and imaging it with video. The Venor is holding up well for its 11th year (first light was in April 2003). Reports from users on Saturday night indicated the collimation was not bad at all and the seeing was good!

I shot a lot of 60 second exposures from our old Canon A2400IS camera with CHDK software and they turned out quite well. I found a script to run that let it take continuous images all night long, so I left the camera out and went to bed. (The camera battery died later on.)

No aurora was seen (good and bad, depending on what you were trying to observe). Kim bagged Kemble's Cascade again this year. It is a favourite target.

The total attendance was: 20 weekenders, 10 daytimers, and 28 for

...Fall'n'Stars 2014

Kevin Kell


The new fire pit.


Hank in action.


Kim in action.

dinner. There were some new faces from the Ottawa area. Thanks to **Rick Wagner** for bringing it to the Ottawa centre's attention. We did not lose money this year! Yay! That is always our intent: not to make a profit, just to not make a loss. It looks like there will be a little net left over to split amongst the two sponsoring Centres.

The field area was expanded by the clearing of shrubbery back 2-5m around the edges. Some trees were marked with orange paint (in preparation for bringing them down, we hope). Particularly that tallest one in the south that looks dead! A portion of the field was taken over by a large (10m diameter) fire pit with huge boulders and a lot of gravel. We launched some rockets from there as it was so new it had not yet had a fire in it.

That's about all I can remember now. I have to process the images, write in the logbook, transcribe the audio and think back some more.

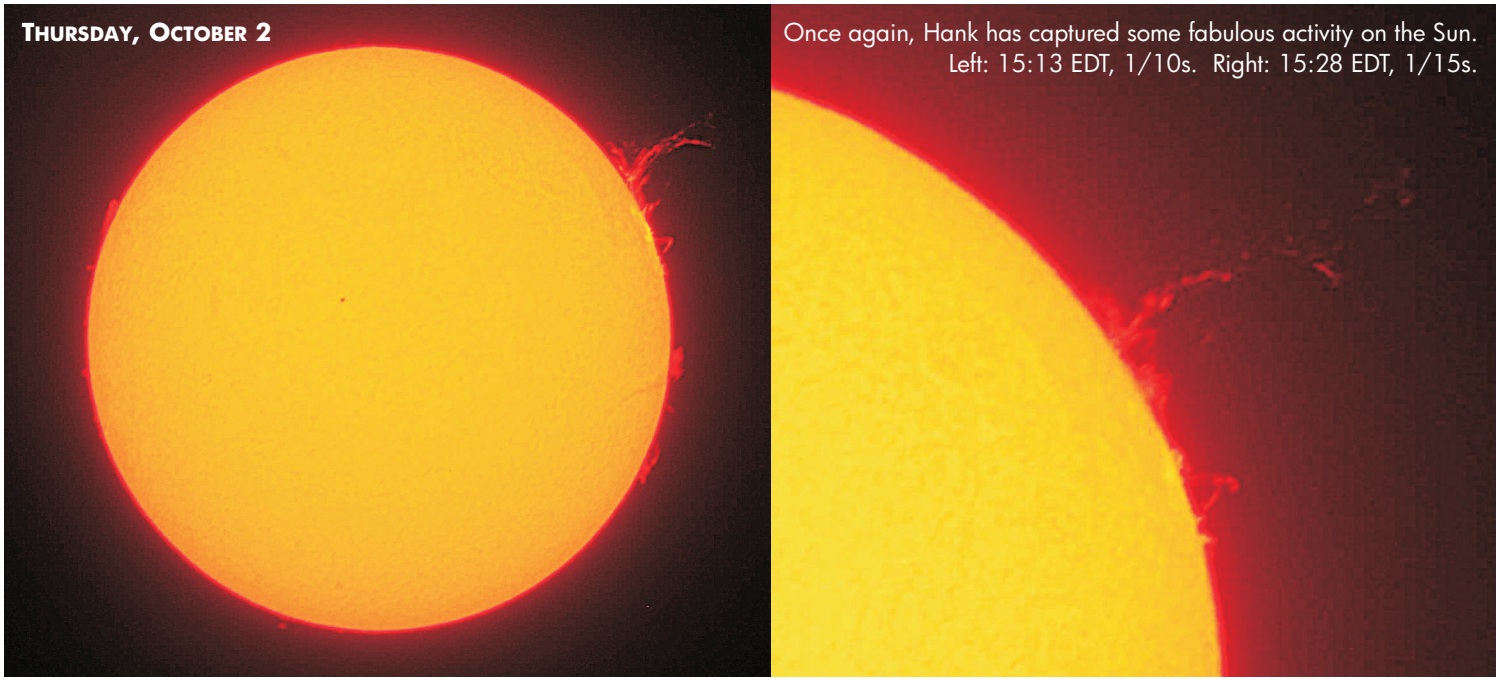
Thanks again to all!

Hank: It was the best the very best! The sky was clear, the temperature was warm (actually HOT in the day), and the people were the best of friends and acquaintances one could ask to meet. FnS 2014 was excellent! Friday night was the usual group of volunteers and Saturday night included a whole group of new guests from far and wide. It was very rewarding to see people come and enjoy the venue and put it in a fresh perspective. While we have grown a little critical, others were speaking very well of the grounds and the horizon it offers. Maybe we are luckier than we realize. I cannot recall another FnS that we had two clear days and nights! The astronomical equipment and talent present on Saturday night was more than impressive. Mostly I chose to sit back in the evening and just gaze at the sky, listen to the buzz of telescopes slewing and people chatting with each other.

Thank you to all of those involved in presenting this event. ★

A Solar Spectacular

Hank Bartlett



Once again, Hank has captured some fabulous activity on the Sun.
Left: 15:13 EDT, 1/10s. Right: 15:28 EDT, 1/15s.

Starfest 2014

Kevin Kell

It's been 10 years since Kim & I last attended Starfest (near Mount Forest Ontario)... 2004. That was the year of a big storm microburst that destroyed our tent while we were inside of it trying to hold things down. We now have a minivan and a tent trailer, so in a similar event, would have better protection.

We headed off on early Friday morning, avoiding the 400 series highways with the trailer. With 1 hour of stops along the way for lunch and gas and shopping, we arrived 7½ hours later (going along highway 7 straight across).

Registration was only two people at the front, much more streamlined than in the past with 4 or 5 people manning a large tent inside the grounds. Remember the tall hill just east of the tent where we set up the 60cm Venor telescope one year? It's been flattened. There are also a lot more "permanent resident" trailers than in the past.

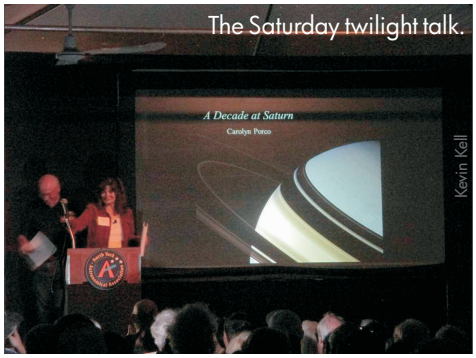
The area close in to the tent was filled in pretty quickly. By the evening we were set up south of the tent near the tree line and quickly surrounded by other campers. It was cloudy and after a very long day we packed it in before 23:00. It cleared up a little after that.

Saturday was better, we got in some Solar observing, attended a lot of great talks. Speaking of which, go to blue-moon.ca. **Yuichi Takasaka** is who I would consider Canada's foremost aurora photographer. I attended his Friday night talk and two workshops on Saturday, all of which gave great practical tips on photography.

Inside the main tent.

Our highlight speaker, and the main reason we went to Starfest after the long hiatus, was **Carolyn Porco**, lead of the Cassini spacecraft imaging team. We had watched her recently on the BBC series *The Sky at Night* and she was great there as well.

Dinner was good: fast service and not overcrowded. **Paul Gray**'s son **Nathan**, took home the "Bring Home the Bacon Award" for his supernova discovery, the second or third award in the family now! We did not have a lot of time to spend with Paul and the family. They headed back home to Nova Scotia immediately after the presentation.



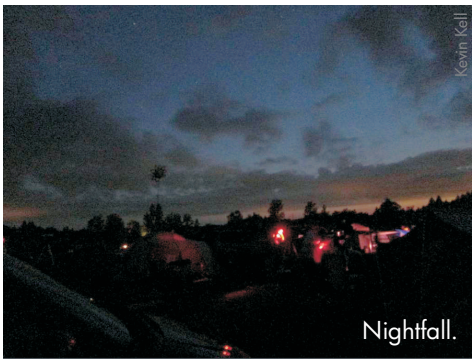
The Saturday twilight talk.

We ran into a lot of people while wandering around, mostly good, some not so great. Arrgg, politics!

Saturday night was mostly clear and we observed and imaged as long as we could, until almost midnight. Sunday up late, breakfast and packing up to hit the road by 9 a.m. For once in a very long time, we did not get rained on during the pack up, although it did rain on us from Arthur to Orangeville.

The rest of this is just a bunch of random thoughts and notes:

- The permanent trailers were well red-lighted out and did not cause us any issues.
- There were always too many vehicles moving about at night, and at least a couple without red coverage.



Nightfall.

- Almost everyone there had modern powered telescopes. This is a big change in 10 years. We got along with our Dobsonian.
- Comet Jacques was great visually, as was the Saturn/Mars conjunction in the western sky.
- The imaging salon competition was now all digital (it used to be prints posted on boards, like our Fall'n'Stars photo contest) and was awesome. There were 185 entries from 10(?) people. 90% of the images were world-class. The video presentation of them is available for viewing at: https://www.youtube.com/watch?v=oEj4tOLamaI&list=UU_qhnFrn3ytzo1jWK6OO2xw&index=1
- **Normand Fullum** was there from Montreal, the artist who re-coated the 16" torus mirror for us recently.
- We had a *long* talk with **Constantine Papacosmos** of the Montreal Centre (he and **David Levy** built and donated the 10-inch Douglas scope to our Centre—see the August 2005 *Regulus*.) He and others convinced us that going to Stellafane near Springfield Vermont, would be a good idea. Turns out it is about as far away from us as Starfest is and would be something new. We are thinking about it (Thursday–Sunday, August 13–16, 2015).
- Tips from **Yuichi Takasaka**: get a *great* tripod. Do not extend the vertical head. Use a remote trigger. Bring along very large ziplock bags to put your entire camera and lens system into when done and before bringing indoors. Put them both into

...Starfest

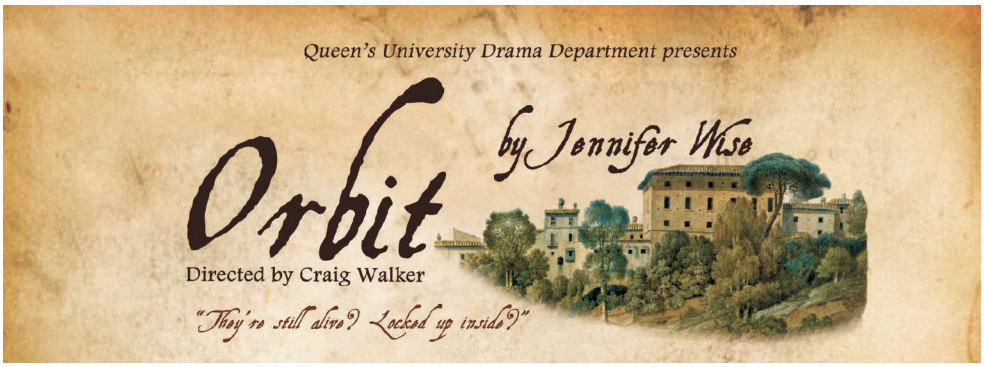
...continued from page 15

your camera bag as well to allow for as slow a warm-up as possible. Do not get frostbite. Yellowknife is one of the best places in the world for aurora photography: clear skies and cold temperatures. September is very good up there as the bugs are gone and it has not yet reached –30 or –40C. The good aurora season runs from early December to early April. Don't buy cheap no-name Chinese batteries or remotes—they don't work so well. Always have two camera batteries—at least. He uses 64GB very high speed memory cards. Use RAW format instead of JPG. Do not use in-camera dark frame processing, but at the end of the imaging session take 4 or 5 dark frame shots (with lens cap on).

- Mount Forest has grown a bit. The grocery store closed and a large No-Frills has opened. Ask at the gas station where the LCBO is and most people do not know. Turns out it is in the same place: a back street and very unobtrusive.
- No signs to Starfest. With GPS I guess most people can find it now.
- Our new 5-day ice cooler worked like a charm!
- The swap table event was pretty small. Paper copies of *Sky & Telescope* were available. I offered Chris $10/box—where he would pay me $10 a box—but he declined
- **Bonnie Bird** and **Andreas Gada** are looking good
- Both memory cards for our cameras did not have the CHDK software on them, so we were limited to 15 second exposures on the tripod. Some still turned out nice!

In summary, if you have not been to Starfest, go. If you go alone, you will still be meeting and observing with new friends. If you have been before, things are much the same as in the past.

I'll post a pile of images once I have them processed for size and labelled.★



QUEEN'S UNIVERSITY Department of Drama is proud to present the premiere production of *Orbit* by Jennifer Wise and directed by Craig Walker. This production is the inaugural performance in the new Isabel Bader Performing Arts Centre Studio Theatre.

Galileo Galilei has been called "the father of observational astronomy," "the father of physics" and "the father of modern science."; but he was also a real father to three children. His son, Vincenzio enjoyed all the privileges of independence that Galileo could make available. His daughters Virginia and Livia, on the other hand, were sent to a convent to live out their lives in seclusion and misery. Inspired by Virginia's surviving letters to her father, the playwright Jennifer Wise brings the long silenced sisters to life within our imaginations. Under the direction of Craig Walker, Head of the Queen's Department of Drama and former Artistic Director of Theatre Kingston, and director of dozens of performances in the Kingston area over the past twenty years, *Orbit* explores the human scale within a vast cosmos.

Jennifer Wise is a playwright and Associate Professor of theatre history at the University of Victoria, whose work is published in Canada, the U.S, the U.K and Germany. Her fresh and lively translation of Brecht's *The Resistible Rise of Arturo Ui* was staged at the Phoenix Theatre in Victoria, at York University and at the Great Hall Black Box in Toronto in 2013.

Professional actor **Paul Rainville** will lead an otherwise all-student cast as Galileo. Recipient of the Audrey Ashley Award for his distinguished contributions to Ottawa theatre, Paul Rainville has acted with the National Arts Centre, The Great Canadian Theatre Company, the Gladstone Theatre and more. He has also been seen on more local stages, making appearances in 2013 as Polonius in *Hamlet* in the St. Lawrence Shakespeare Festival, and in *No Great Mischief* at the Thousand Islands Playhouse.★

Performances:
Opening Night Performance followed by Drama Homecoming Reception - Friday October 17
Evenings – October 17 –18, 23 – 25, 30 –1 at 8:00 pm and
Matinees – October 18, 25 & November 1st at 2:00 pm
Admission:
General Admission - $22.00, Student/Senior - $15.00
Tickets:
Purchased online: http://www.theisabel.ca/tickets;
the Isabel Bader Centre box office (12:30-4:30pm);
or at the door prior to performances.
For more information please:
Visit http://www.queensu.ca/drama | **Call** (613) 533-2104 | **E-mail** orbit.queensdrama@gmail.com
Be sure to visit our Facebook page and Like 'Queen's University Drama Presents Orbit'
#hiddendaughters