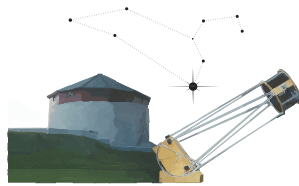


Regulus

September 2016
RASC Kingston Centre



Upcoming Events

Summer Star Gazing

August 27 NFDSP*

September 3, 4 NFDSP*

*North Frontenac Dark Sky Preserve

Thursday, September 8 19:00
Member's Night

Fri-Sun, September 9-11
Fall'n's Stars 2016
Vanderwater Conservation Area, Thomasburg

September 10 20:00
KAON Session
Queen's University Observatory

Thursday, October 13 19:00
Regular Meeting

Thursday, November 10 19:00
Annual Meeting

Check kingston.rasc.ca for meeting locations,
kingston.rasc.ca/observing/sites for sites. ★



Observer: Kevin Kell (@trekkerk)
ID: 1420 imaged on night of 2016-06-01

www.ap.smu.ca/bgo

Kevin Kell scheduled an imaging run of asteroid Levy on the automated telescope at the Burke-Gaffney Observatory at Saint Mary's University in Halifax. Is the future of imaging here, or what?



Reports and Other Items

APOD PHOTO

Congratulations to **Malcolm Park** who had his very nice image of "Firefly Trails and the Summer Milky Way" featured on APOD on July 2nd: apod.nasa.gov/apod/ap160702.html

CFHT FINDS NEW PLANET

The outer solar system is a little more crowded with the discovery of 700-km diameter 2015 RR245. cfht.hawaii.edu/en/news/NewDwarfPlanet/

IN MEMORIAM

There was an abundance of sad news in the RASC this summer with the passing of **Rolf Meier** (Ottawa Centre), **Geoff Gaherty** (Toronto

Centre), and **Angela Clark** (London Centre). The loss of these well-known, active members will be acutely felt.

ASTEROID (22378) GAHERTY

Peter Jedicke reports that asteroid 1994AY10 (discovered 1994-01-08 by Spacewatch at Kitt Peak) will be named for **Geoff Gaherty**. "This is wonderful news, just a bit sad that the IAU naming process is so slow that Geoff couldn't enjoy the news personally. He knew it was in the system." rasc.ca/asteroids/22378

MUCHO VIDEO

The RASC's YouTube channel has

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

passed the 100-video mark with the addition of **Rob Dick's** extensive quarter-century video archive: youtube.com/user/RASCANADA ★

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Summer KAON Reports

Susan Gagnon

JULY 9TH: It was good—after we solved a few technical difficulties. The talk took place in the warm—very warm—room, rather than the lecture hall with AC. It seemed that the talk, *Observing the Night Sky, a DIY Guide*, was enjoyed. I also gave away 20 of my personal stock of old Observer's Handbooks as well as the usual star chart hand outs. About 45 people attended.

It was overcast for the most part and the rain was unpredictable, at times a drenching downpour. There was no chance that the dome would be opened nor did we set up scopes on the deck. At best we saw [Mars](#) and two stars. I shot the breeze with a few people on the deck while the tours were ending in the dome and spent some quality time with a few folks explaining the working of the star wheels. As sometimes happens, bad weather, good outreach, crazy!

AUGUST 13TH: In the air conditioned comfort of the lecture hall of Ellis, **Nathan Deg** took us on a tour of

radio telescope installations ancient and modern! There are several new large construction sites that were new to me MeerKAT, Africa and FAST, China. There were others (Australia) but the names escape me. There was a primer on the history of radio astronomy and what the observations have revealed. Nathan is about half way through a three-year stint at Cape Town and is clearly smitten with the climate and the dark skies. It was nice to hear that from a theorist!

There were about 20 in the audience including **Rick and Jeanette Wagner, Paul Winkler** and me. The dome tour was quick and people dispersed but I did have a chance to go over the use of the starfinder with a curious MBA student. I thanked **Matt Chequers**, the observatory coordinator, on behalf of the local farmers. While we are accustomed to cloudy nights in Kingston, Matt seems to be an expert at wielding the threat of an evening of astronomy to produce actual inches of precipitation!★

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



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Meeting Report: June 9

various members

Hank: What a great way to end the first half of the year, a fun and informative meeting tonight. Thanks to Greg and all the other presenters.

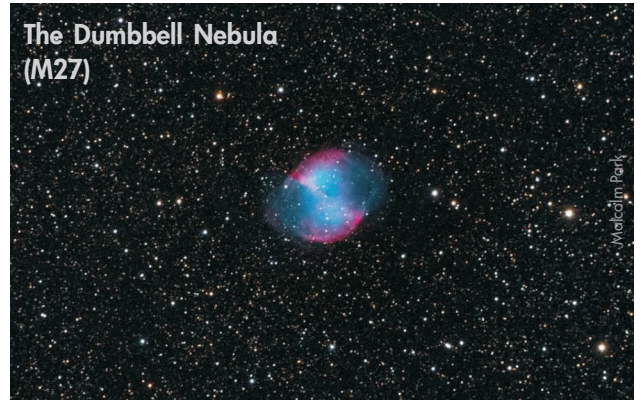
Susan: It *was* a great meeting! I would like to thank Hank and Greg for lending the short focal length eyepieces to me to try before I buy. Thanks also to Brian for the dinner hour discussion of the advantages and practicalities of my pursuit. I have never pushed the magnification on either of my scopes and it is time to test it out! I will return these eyepieces ASAP!

To those whom I will not see until September, have a great summer! Remember that the KAON sessions

are expected to continue over the summer until we hear otherwise.

Regarding June 18th, please pray for clear skies as Bruce and I will attempt to hold the attention of a dozen or so Sparks so as to introduce them to astronomy. Wish us luck. We have some new ideas for activities and we'll report in September as to our success! (They are pretty young and I think that the name 'Spark' is a metaphor for their attention span.)

Malcolm: Agreed, a very enjoyable evening, and as a bonus when I got



home it was clear right until daybreak!

Keith: Funny, when I got home I had cloud cover, very light, but enough to screw up the viewing. ★

A Last Visit to Villa Leonis

Various Members

John: Thanks everyone, Yesterday [July 25th] was a big success. The telescope was moved without any trouble and now is now at my place. We had about a dozen people out to help. It was great seeing everyone again and catching up and getting to know some of the newer faces that Peggy and I have not had a chance to chat with before.

Dieter: Thank you Peggy and John for hosting us, providing us with a lovely BBQ dinner, and making all the arrangements. It was lovely to see **Denise**, and to remember **Leo** and experience the Centre of his Universe one last time. I felt that was as

important as the actual physical act of dismantling his beloved C-14.

Susan: Thanks John and Peggy. It was a very nice BBQ, it was very generous of you to host such a band of trouble makers! It was good to do a bit of catching up. Everything went so smoothly! No fingers or toes lost! The house looks great with the improvements that Denise has made so I hope the sale goes well.

There were several bags of accessories that also came with the scope. Most notable were a packing trunk and tripod, but there were many other bits that others will have to evaluate and log as I kept out of the

way. There were plenty of big, strong men to do the job.

Thanks to everyone for their efforts and expertise. We should never take for granted the talent in our Centre.

Hank: Hello John, glad all went well with the scope and you all had fun. I certainly hope that you and Peggy will get some use out of it, as an unused scope is a sad and lonely scope. Leo's C14 has probably sat far too long as it is, and I am sure he would be happy if it is in use. If you can get enough Baader film and make a solar filter you should be able to see excellent granulation, or did it come

Continued on page 15...

Blast from the Past: Discovery of Comet 1978f

Ken Hewitt-White, NOVA, June 1978

THE FIRST CANADIAN TO FIND A COMET

I am especially proud to report on the finding of Comet Meier 1978f because the author of the discovery happens to be a personal friend and old observing colleague of mine. Well, heck, now everybody wants to say that he knows Rolf Meier. But, actually, Rolf and I did observe a lot

together in the Ottawa Centre, RASC. Of all the observing people I know, Rolf is the one guy who I think really does deserve to find a comet. He has long been one of Ottawa's outstanding amateur astronomers. Rolf has been, I would think, the single most consistent user of their North Mountain Observatory, and was knee deep in the planning for the

relocation of that observatory to Indian River, near Almonte, Ontario this past year.

Using the 16" reflector, Rolf has secured many fine black and white and colour pictures over the years. A collection of these was no doubt part of the reason why Ottawa won the Best Centre display award at the General Assembly in Edmonton. But

WHEN I WROTE RECENTLY about the many advantages to meeting other people who enjoy the sky, it is possible that the people I left out were even more important than those included. One of those people was **Rolf Meier**, an amateur astronomer from Ottawa, Ontario, who passed away recently after a brief bout with cancer at the young age of 63. It is difficult to overstate the effect that his wisdom had on my own development as an astronomer.

Rolf was born in Germany in 1953 but relocated to Canada when he was about five. He became interested in astronomy after reading *The Search for Planet X* about how **Clyde Tombaugh** discovered Pluto. Rolf joined the Ottawa Centre of the Royal Astronomical Society of Canada in the early 1970s. In 1972 he travelled to Florida where he witnessed the spectacular launch of a mighty Saturn V rocket that carried geologist **Harrison Schmidt**, as well as astronauts **Eugene Cernan**, and **Ronald Evans** on the final Moon flight.

I wish I could have joined him to see that launch, but I actually didn't meet Rolf until the Royal Astronomical Society of Canada's general assembly held in London Ontario in 1979. At that meeting Rolf was the 15th recipient of the Society's Chant medal. Named for **Clarence Augustus Chant**, this solid silver medal honours an amateur astronomer resident in Canada for a lifetime of achievements; in Rolf's case, it honoured him for the work he did as the long-time editor of the centre's newsletter *Astro Notes*, for being president of the centre, for developing an original astronomical device for measuring light called a photometer, and for his designs for unique and original telescopes. But more than any of that, the medal commemorated the hours upon hours

of observing he did, culminating in his discovery of a comet the previous spring. Comet Meier, then designated as 1978f and now C/1978 H1, remains one of the largest comets ever found. Two of his telescopes received awards at the Stellafane national convention held in Vermont.



Rolf and Linda Meier

At the time, I was well into my own and thus far unsuccessful search for comets, and I despaired of ever meeting the famous cometeer. After the banquet at which he received his award, I saw him walking across the campus grounds towards his dormitory. Carrying his award, surrounded on one side by five gorgeous young women and on the other side by another five equally gorgeous young women, I simply assumed that he was too famous to deal with the likes of me.

Not one to give up after one success, Rolf continued his search, and he discovered a second comet (Meier, C/1979 S1). There was a third comet Meier (C/1980 V1) and a fourth (Meier, C/1984 S1). By this time Rolf and I were good friends, a friendship that became ever closer after his marriage to Linda McRae in July 1984. Early in 1985 he set up his camera about a mile south of my home, then in Corona de Tucson. While I had a camera set up at my

home, we both tried to photograph bright meteors. It turned out that we both captured the same bright meteor travelling through the constellation of Leo the lion, and Rolf even used trigonometry to try to calculate the height of the meteor above the Earth as it disintegrated.

Rolf and Linda had just completed their winter home at the Arizona Sky Village, a place where they and their son Matthew and daughter-in-law Melissa could visit and where we had hoped to visit them in the future, when he received his shattering cancer diagnosis. What we have left are many fond memories, and of course we can watch as he finds his new way among his four comets, all of which will bear with pride the name Meier as they sail through the solar system. ★

...Comets

...continued from page 3

Rolf's dedication to observing goes beyond the work he has done with the 16". I can remember the 6" scope he had set up in his back yard years ago. Using this instrument and a friend's eight inch, he made a series of Jupiter disc drawings of such clarity and distinction that they were a runaway first prize in an earlier General Assembly display competition.

Rolf's comet program is a little unusual. He sweeps that part of the sky which is less likely to have a comet in it. For that reason, fewer people are searching there. So he knows that if he spots a comet in that sector, he has a fairly good chance of being the first one to see it. Others had told him that this approach, along with that of using the high powered 16" instead of a smaller RFT, would yield him only negative results. Yet, after just a couple of years of occasional sweeping (*i.e.* not every night) Rolf proved everyone wrong by spotting 1978f.

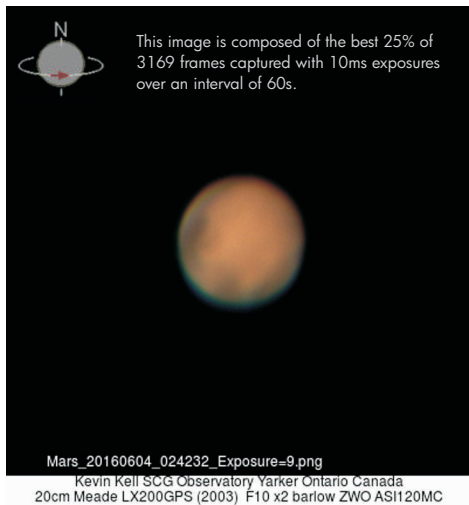
Our hat is off to him. ★

WED/THU, JUNE 1/2

Kevin: I remotely imaged [asteroid Levy](#) with the BGO scope [see *image, front cover*]. Images taken are publically available for a month or so (?) at: ap.smu.ca/~bgo/sm/donequeue.php

SAT/SUN, JUNE 4/5

Kevin: After 3 hours of working on the torus with Brian and Hank, I continued on to imaging a little of [Mars](#) and [Saturn](#) with the 20cm Meade LX-200 with 2x barlow and the ASI120mc camera. The seeing and transparency were poor, but it was later in the night and Mars was higher in altitude.



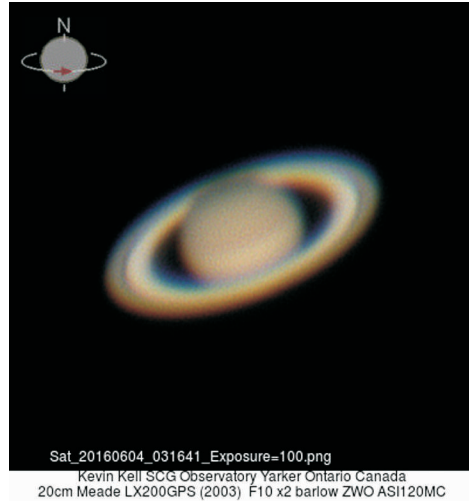
Greg: Well done. Much better than I have been able to capture: I'm just getting a reddish blob that shakes and shimmies all over the place. An occasional flicker of features to tease me... It is very frustrating and most unsatisfying.

Hank: Nice image Kevin, good steady features. Too bad we cannot put on an atmospheric filter to get rid of the red and blue glow.

MON/TUE, JUNE 6/7

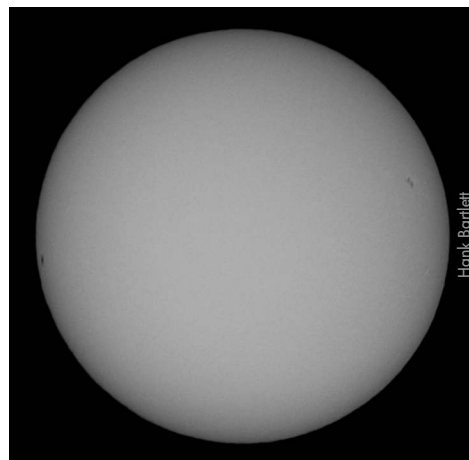
Kevin: This is about the best of a session of 16 runs, each 90 seconds

long, giving about 900 frames at 100ms exposures. This is the best 25% of them processed. It is still low to the horizon... I wonder how much farther south is the Barbados, where Damien Peach has just gone for a few weeks of imaging?



FRIDAY, JUNE 10

Hank: For those of you at the June meeting, I had stated that I expected 2546 to return but it did not happen on the 8th or 9th. I also stated there is some edge time that is not visible, it seems that 2546 is back and was probably just out of site of the SDO/HMI image that is used on spaceweather.com yesterday. IT IS BACK!



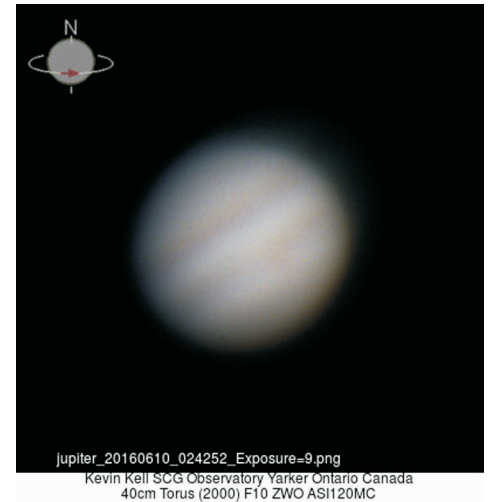
FRI/SAT, JUNE 10/11

Kevin: This is a work-in-progress but

I think the first “decent” planetary image through the Torus. I’ll have to check the notes.

Visually it looked very much like this processed image, even though the skies were not bad Thursday night after the [June] meeting. Malcolm Park noted the skies were clear all night for him sitting out in Lake Ontario. For us the seeing and transparency were still poor. What else is new?

This image was the Torus 40cm native f/10 and was only 9ms exposures instead of the “normal for me” 35ms with the 20cm Meade and f/20. This is the best 25% of 3287 frames taken in 60s. And this was also after attempting two four-star alignments, which did not work out so well, as tracking was not great in that 60s.



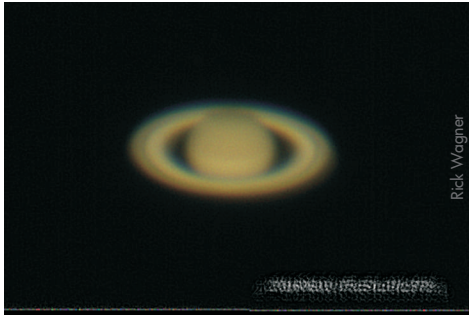
Hank: Reminds me of those old at the eyepiece A40 images but at least it is in the right direction, better things to come!? Well maybe.

Rick: I too got out all night after the meeting. I did a whole night of photometry on [XZ Dra](#), got the big scope working with my new ZWO ASI120MC as an autoguider (though I’m not sure the N–S is working yet.) While it was attached to the scope (with a 2x barlow to be able to reach focus) I decided to try a bit of planetary. So between 0130 to 0200, I took one video run of [Mars](#) (it was

...Observing Reports: June–August

Various Members

already well past the meridian and starting to get low) and 8 runs on Saturn. Seeing was very poor. So the Mars result was a blurry orange disk with a couple of dark(ish) markings near the two limbs so effectively nothing. The Saturn runs at least show some small amount of detail.



This is the best of the bunch. It is not up to Kevin's standards, but at least it is recognizable as Saturn and not a PITA. Being the compulsive science type, I made the mistake of adding timestamps to the images which resulted in the white snow in the bottom right corner.

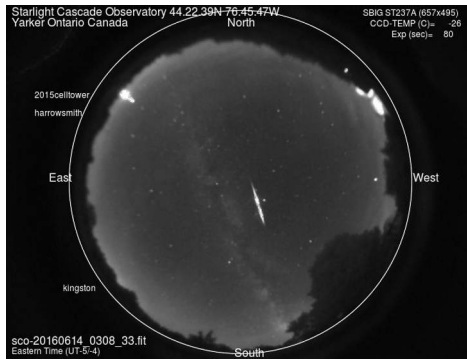
I am quite sure that a major portion of the poor seeing is the scope itself. I haven't got the fans working yet nor the siding on the observatory which will help to keep the interior cooler. As a result the scope is quite warm. Also, I'm looking over the house which, even at 0200 in the morning is probably putting out quite a lot of heat.

Malcolm: That's great. I don't think I've ever been able to even focus well enough to capture Cassini's Division!

MON/TUE, JUNE 13/14

Kevin: Nice one this morning! Right overhead and very bright! It was at 03:08:33 – 80s = 03:07:13 give or take. It left a smoke trail! Up to 14 minutes later it showed up in AllSky1.

Greg: Congratulations. It must have been low: I got nothing in my AllSky for the same time frame.



Hank: Looks like a double pop, nice image. I'm just thinking of doing a second solar today.

Rose-Marie: Sparkly! Very nice sparkly! For once it's right in the centre of the image, full streak caught.

Kevin: Greg, that is abnormal. The range of the cameras should easily overlap, at least 200km down to the horizon, and more likely up to 418km as shown in the allsky.ca/NAdatabase.html circles of distances. Do you have significant dead time during downloads?

I pulled the video and it starts at 07:07:10.48 UT and ends just after 07:07:14.25 UT, about 4 seconds in total.

Greg: It's a video camera so the break between frames is in milliseconds. I am spooling the video to a hard drive as it comes. Am guessing if it is there our clocks could differ, or I am just too lazy to scan a couple of hours of video.

[later] Found it. It was pretty faint as we had a layer of cloud over here. Probably why my motion detect didn't see it. The trace is at 2:53 by my camera clock—so much for time

synch. And I definitely need to work on my video settings. And maybe a directional overlay.

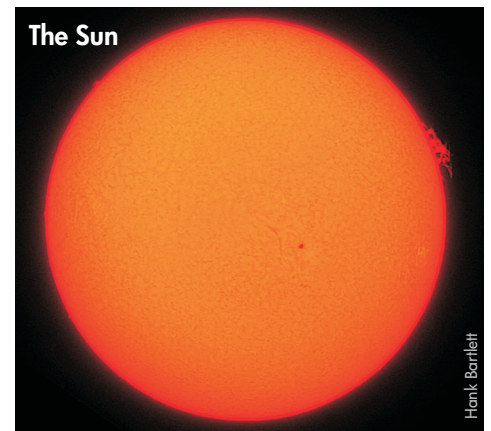
TUESDAY, JUNE 14

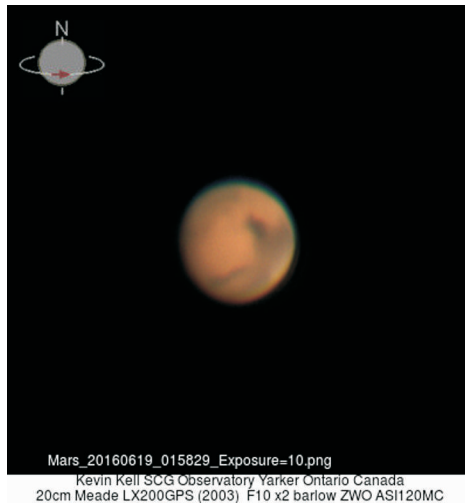
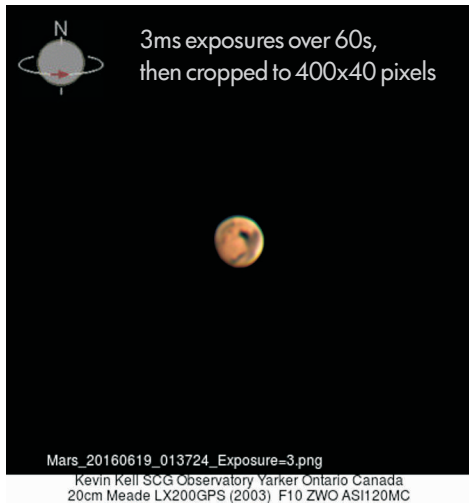
Hank: I have been trying to image Jupiter in the daylight with the DSLR in the Mak90 and get the cloud bands without any luck. Today while comparing the Mak90 and the C80 on the MiniTowerII I tried the BB with the new cellphone holder on both. This is an untouched image of Jupiter with the BB and adapter at the C80 using a max zoom (17:35:05 EDT). I also tried the Mak90 and it worked but just barely. Just playing around trying things. Also got some lunar and solar in both.



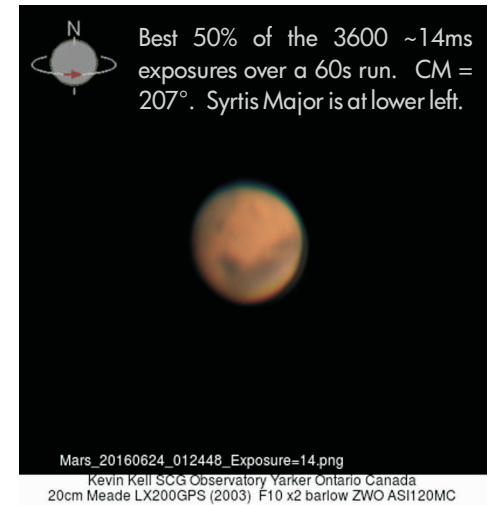
FRIDAY, JUNE 17

Hank: An e-mail from Keith asking about the solar on the 17th reminded me that although I post many images





pretty quickly and ran 10 imaging sessions from 01:11 UT to 01:28UT, only 17 minutes! And that was because of the hungry, bitey hordes of mosquitos. Ich! The sky was barely into twilight and there was still a lot of haze in the target area. The seeing and transparency were poor; Mars was jumping around like crazy. Thank goodness for software-based compensation!



to the RASC Kingston FB, there are many of you who choose not to go there. Therefore here is an interesting image from Friday with a beautiful hedge row that formed on the NW limb of the sun.

coincided with bedtime so we could not wait to see it.

SAT/SUN, JUNE 18/19

TUE/WED, JUNE 21/22

Kevin: With the nearly Full Moon within 25° of **Mars**, and the evening twilight still strong, at 21:30 EDT it is still a *@#*&@ bright sky! In spite of this, and the hoards of mosquitos biting through clothing, Mars was pretty decent Saturday evening.

Kevin: Copy everything I said about Mars and we can say that about **Saturn**. Only the almost Full Moon was within 5° of Saturn.

THU/FRI, JUNE 23/24

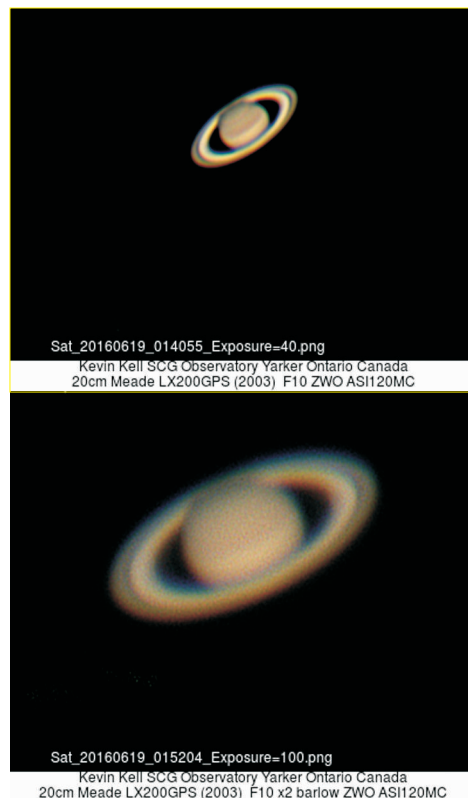
I forgot that the 2x barlow I normally use was elsewhere. I then installed it, re-focused and took two more runs as cloud was moving in and my blood supply was getting low.

Kevin: We went out after sunset, i.e. 21:00 EDT! Wow! I found **Mars**

FRI/SAT, JUNE 24/25

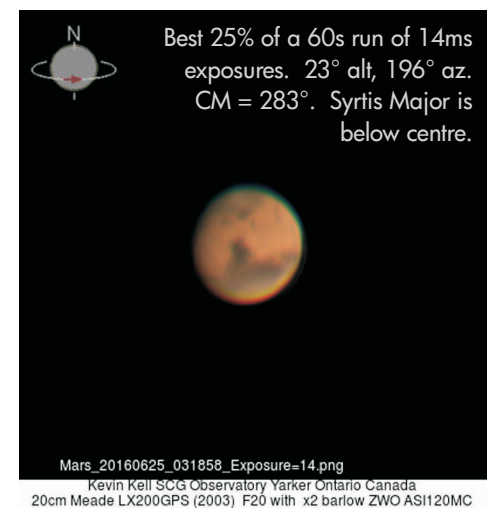
Kim: Excellent work! The mosquitos were very bad...

I did some lunar imaging with my phone camera, looked at **Saturn** and **Mars**. It was a very nice night. It started to cool off.



Kevin: I went out in the late evening around 23:15 for another 15 minutes. The mosquitoes were still out there! **Mars** was almost at the meridian and was not bad at all. There was good detail in Syrtis Major and with a hint of both polar caps.

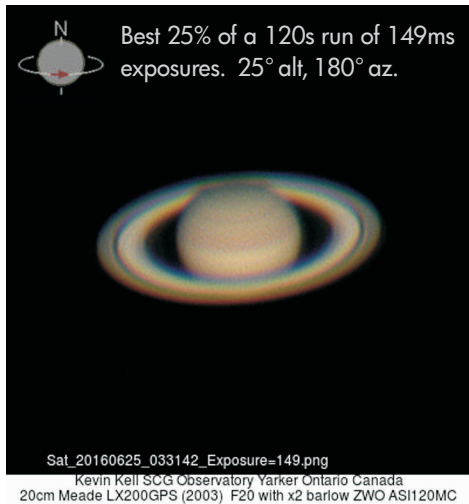
I also did four runs on **Saturn**



Susan: It is great to see these photos! Last night with the Sparks girls I could see what I thought was **Syrtis Major** blinking in and out of focus but had no idea what surface features were visible. Your lower mag pic is representative of what I saw.

We also showed them **Jupiter** and 3 moons, a view of the **Moon** through cloud, and the cloud over **Saturn**

Friday evening. This was the best image, using the best 25% of the run. Cassini's Division is prominent and as a bonus there are some surface detail cloud bands on the surface of Saturn.



TUE/WED, JUNE 28/29

Malcolm: I finally did some imaging last night. I have been meaning to do narrow band imaging forever, and I finally got around to taking a complete set: 6x5 min Ha, 10x5 min SII, 9x5 min OIII. I stacked and combined and blended and processed, etc using the Hubble Palette method which is an RGB image with SII mapped to red, Ha to green and OIII to the blue channel. I just followed the instructions and it came out looking like this: photopark.ca/Recent-Pics/i-rxRD3C5/A

Someday I'll take many hours of data and get a more professional result but for now this works!

WED/THU, JUNE 29/30

Malcolm: Well I hope some of you got outside last night. And tonight looks even better. I experienced one of the best displays I have ever seen last night. It was so intense it made me smile. Sparklies? Sort of...it was the best and most active display I have ever seen...

Of fireflies. Pics don't do it justice!

Greg: Nice one, Malcolm. Happy to see your fireflies are out. We have seen one here so far...sigh. It was nice to sit in front and just stare at the sky...

Keith: I went out last night, beautiful sky; the Milky Way was so vivid and so was the dew, feet soaked getting to the observatory, the planets were perfect blobs and wobbling like jello, so I closed up and walked through the wet to bed.

Rick: Yes, I was out too, most of the night. I was doing photometry with the 90mm scope (very nice maximum for AR Her), puttering about with the 16" (some visual like NGC5897—in the same field of view as Mars, and Seyfert's Sextet for the Deep Sky Challenge list, Mars, Saturn, did a couple of brief video runs on Mars), some quick touring with the 11cm Newtonian and 24mm eyepiece on North America Nebula (with H-beta filter), Barnard's E, Scutum star cloud, Milky Way, and finally with the 15x70 binos running up and down the Milky Way from Sagittarius to Deneb.

I never did get around to any wide-field photography. There is really no location on my property where I can see both the pole for polar alignment and the far southern constellations which I want to shoot. I need a permanently aligned small mount for that.

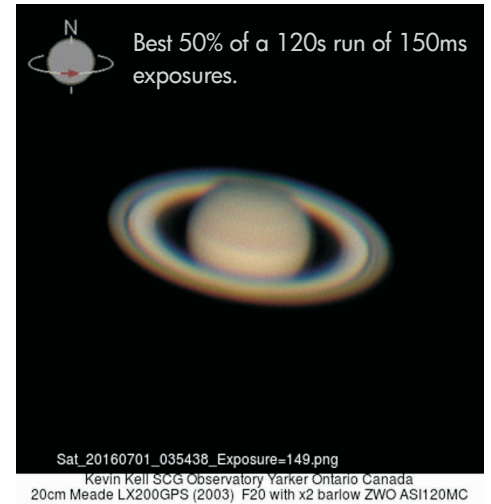
THU/FRI, JUNE 30/JULY 1

Malcolm: It was chilly last night! A little damp too. I crashed around 3 a.m. in my tent and sleeping bag at Oak Heights; I'm going back up there again tonight and probably tomorrow. No skunks, no bears, but lots of birds especially at night...like whippoorwills...[youtube.com/watch?v=jIxfVSS_65o](https://www.youtube.com/watch?v=jIxfVSS_65o)

Hank: It was cloudy/rainy last night, hit a few Irish pubs, and then back to

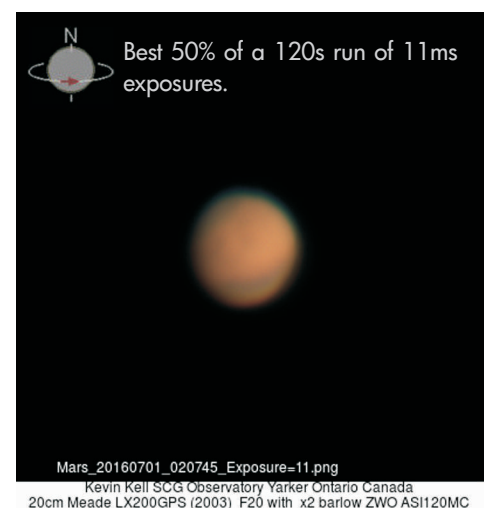
the hotel patio to drink and have some craic! I brought the Mak90 and haven't had the opportunity to use it.

Kevin: Thursday evening was not too bad (seeing was poor) but I waited long enough and was able to image Mars and Saturn from 22:00 to 01:00. Mars was the first target and continued until just after midnight, then disappeared behind the backyard maple tree. Saturn was next and turned out not too bad at all.



FRI/SAT, JULY 1/2

Kevin: Mars was the first target of the night until it went in behind the maple tree. I also tried stacking the best 10% of the images but the seeing was poor and it really did not make a big difference in end quality. Not the best by any means but it has been a while and one can always hope for better skies.



Rick: Nice shot Kevin. This looks very much like what I was seeing visually a few nights ago. I haven't yet processed the several video runs I shot. It's unfortunate that Mars' rotation period is so close to 24 hours—we seem to be stuck right now with one of the most featureless faces of the planet.

SUN/MON JULY 3/4

Rick: I did get out observing Sunday, Monday, and Tuesday nights. All three nights I had the 90mm refractor doing photometry from twilight to twilight. Sunday night I also had the 12.5" and 8" dobs out working on the Deep Sky Challenge List. I managed to check off eight of them before I ran out of time at morning twilight.

Monday night I mostly slept while the photometry scope worked. Then Tuesday night I was out with the 12.5" at the water's edge to work on some southern objects. I got the remaining two summer deep sky objects and got initial observations on another one ([Barnard 72](#), to which I'd like to give some more time) and picked off a couple of the southern Deep Sky Gems. Finally, I got out the 4.25" and 24mm eyepiece with UHC and H-beta filters to try and pick out [IC1396](#) (also on the challenge list.) It's a toughy so, while I did see parts of it, I'm going to give it some more time as well. Then did a meridian flip on the photometry scope and went to bed at 0200 (up again at 0400 to shut down that scope then back to bed again until 0730.) So thank you Kevin for some cloudy nights, I needed the rest.

TUE/WED, JULY 5/6

Rick: While observing Tues evening/Wed morning I saw two events which you might have caught on your all-sky cameras.

First, from midnight to about 10

past, was a very odd satellite: I was hunting for Pal11 when I noticed a bright 'star' just to its north. It was between mag 1 and 2 and quite stationary. I got it in the scope and could see that it was moving very slowly ESE—a couple of minutes per degree. It went from about 19h45m -7° , to 19h59 -6° , fading slowly to invisibility. The object was not resolved at 224x, never flashed or flared, just faded away. I checked on Heavens Above and it shows no corresponding satellites.

Second, about 0512UT, was a mag 1 [meteor](#) which flashed from northern Pegasus to just N of Delphinus. It was quite fast, left a ½ second decidedly greenish train.

Do you see any signs of these two on your archived images?

Kevin K: The thing about the all-sky cameras: the event would have to be quite bright. We went with a longer exposure time of 80–90s to bring out more background stars to compensate for the otherwise very boring imagery coming out of AllSky1, as fireballs are so very rare.

I am attaching an image from just after that time for you to take a look at. I can't figure out what section of the sky to watch from frame to frame and perhaps you could clarify. There was definite high level cloud that night. The 2nd one 05:12 UT is 01:12 EDT.

Scanning...nice meteor at 00:26 in the NNW. Nothing around 01:10–01:15 EDT.. just a long satellite pass. AllSky2 shows five bright meteors but only from 06:09 to 08:01 UTC. AllSky1 images for that night are online at starlightcascade.ca/allsky1/imagearchive/20160706/ We keep only the last week of allsky2 results online at starlightcascade.ca/allsky2/

Rick: Oops, on a second (well, 18th) look, actually I do see something unrelated in Sco: 20160706_0002_59.fit.png.jpg It looks like a short

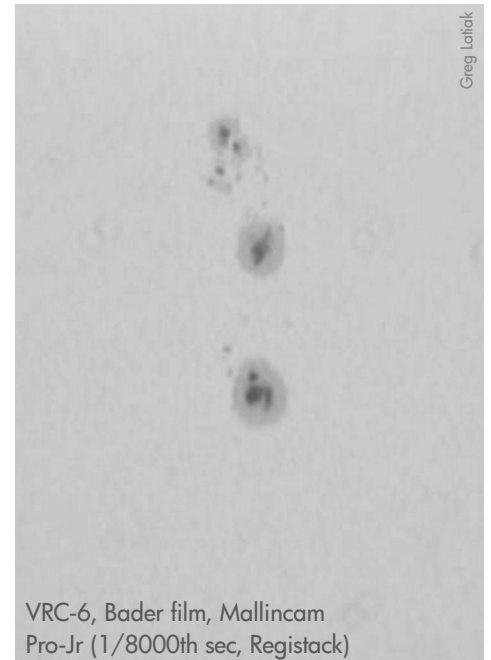
meteor down just above Saturn?

MONDAY, JULY 11

Kevin: I went out with good intentions Sunday evening. I installed the new Orion flip mirror, the camera, and an 18mm Plossl. The entire focus had shifted again because of the change in length of the optical system, so a little coarse focus change and things looked good. That's when the mosquito squadrons hit. They haven't been this heavy in weeks. I might have gotten two runs of [Mars](#) and two of [Saturn](#) before surrendering and heading—running—indoors.

SUNDAY, JULY 17

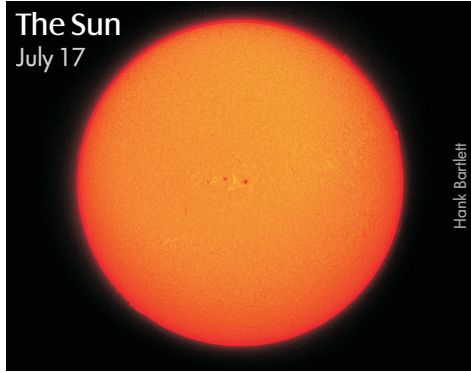
Greg: I noticed that the [Sun](#) isn't so blank today. This was more or less dead centre in the disk:



It was tough to focus on the screen with the glare of day over my shoulder. Anyone use anything like an old photographer's cloth?

Hank: Here is an $H\alpha$ of the same [*image next page*].

Greg: Thanks, Hank. I find it interesting to compare the $H\alpha$ to the visual image, particularly how the



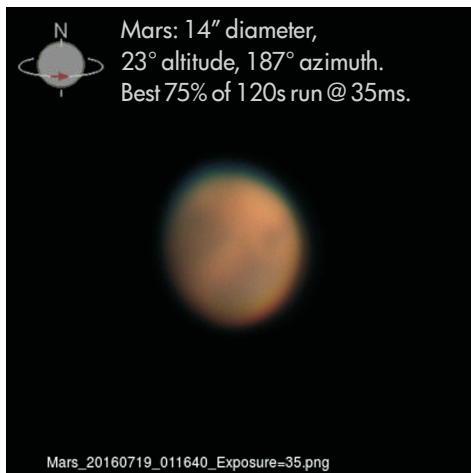
spots themselves change.

Hank: Yes, there is so much more definition in white light but the actual active region shows in the H α . Both have their purpose, this is why I now have both on my MiniTower so I can compare.

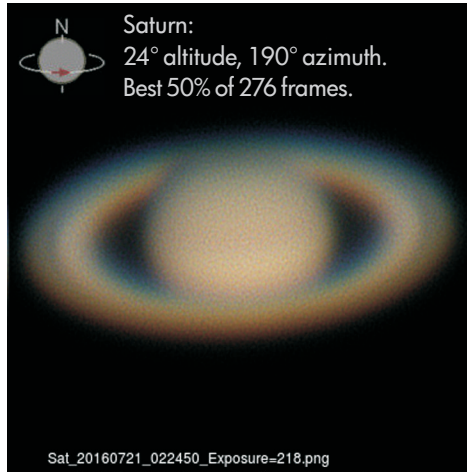
MON/TUE, JULY 18/19

Kevin: I was imaging the moon last night just after sunset and managed to start two and only two runs of **Mars** when the bus stopped and all the mosquitoes got out on the SCGO stop.

The seeing was poor as the wind was still pretty gusty. This image is from 01:16 UT or 21:16 EDT. This was the best 75% of the images in a 120 second run with 35ms exposures. Comparing to an image of the best 10% processed, this one is much better. The 25% one is harder to judge, the 50% one I cannot easily tell the difference.



Kevin Kell SCG Observatory Yarker Ontario Canada
20cm Meade LX200GPS (2003) F20 with x2 barlow ZWO ASI120MC



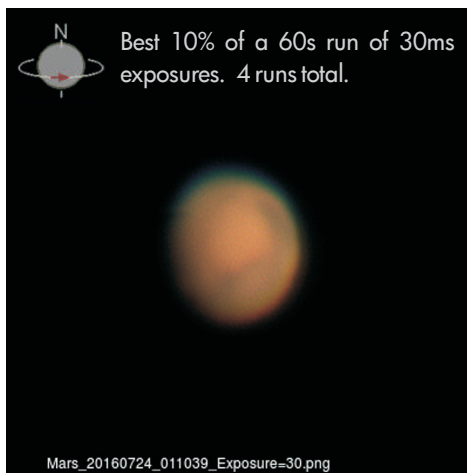
Kevin Kell SCG Observatory Yarker Ontario Canada
20cm Meade LX200GPS (2003) F20 with x2 barlow ZWO ASI120MC

Kevin: The seeing was poor (same night as the last Mars image). Exposures were 218ms in a 60s run (did I mention mosquitos?). Any fewer frames and the image looks very grainy. The Sensor temp was 19 deg C. The AllSky1 camera (approaching 20 years old?) was around -16C, as a comparison. I am starting to look forward to the next ZWO ASI camera... one that is cooled. They have several but prices are still pretty high.

SAT/SUN, JULY 23/24

Kevin: This is getting to be a little repetitive: poor seeing, average transparency, mosquitos: very poor (*i.e.* a lot of them!)

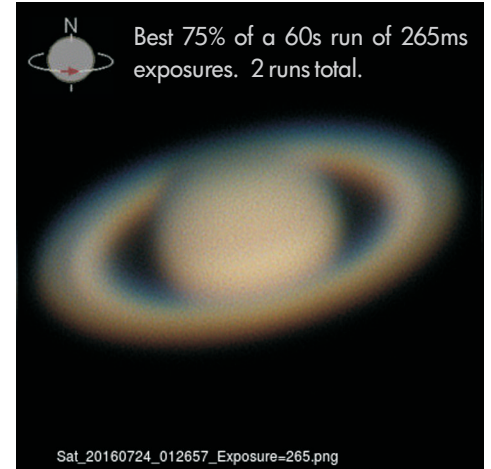
Mars and Saturn looked so bad in the preview window that I almost did



Kevin Kell SCG Observatory Yarker Ontario Canada
20cm Meade LX200GPS (2003) F20 with x2 barlow ZWO ASI120MC

not image at all. Then again, I remembered that stacking and processing actually do work!

Software: pipp (to crop and shrink), AutoStakkert! (to align and stack), RegiStax (wavelets), bash script and ImageMagick (annotate).



Kevin Kell SCG Observatory Yarker Ontario Canada
20cm Meade LX200GPS (2003) F20 with x2 barlow ZWO ASI120MC

This wonderful ~10-second-long **meteor** went by on 20160724 at 02:35:17 EDT in the west, moving south-to-north and spanning over 90° of sky!



Yarker (1.0A)

MON/TUE, JULY 25/26
ISS TRANSIT OF SATURN

Kevin: I was outside with a half hour to spare, setting up to image the ISS transiting Saturn. Total and utter imaging failure. Equipment failure. I never saw a “Proc Trap 2” error before and had to attempt to realign and calibrate the scope with only a few minutes to spare... and the clock I was using was a few minutes slow.

*&@\$@#_%~!

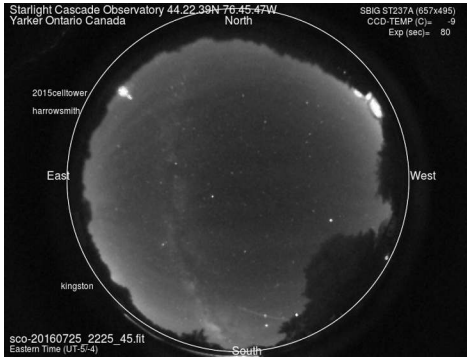
We did see it visually and it was

...Observing Reports: June–August

Various Members

something else...was it going to intersect? Surely the path goes nowhere near! Only it did.. Bam! Would have taken [Saturn](#) right out of the sky!

OK, so this is proof that the android app “ISS Transit prediction free” works and that the ISS does not change orbits all that much anymore.



Well, at least the AllSky1 camera imaged the event! Saturn, Mars, Antares and Scorpius are all in the bottom section of the image, with the trail of the [ISS](#) going overtop of Saturn. There was quite a lot of haze last night as well.

MON/TUE, JULY 25/26

Hank: Di shared an image to me from Facebook. Did any of you see or hear anything of [aurora](#) at 1 a.m. on July 25?

Kevin: AllSky1 showed what might be aurora from around 20:39 on Sunday evening the 24th, but it was so low and easily confused with lit up clouds. Then the moon comes up and all hope is lost. I must remember next time to buy a house on a hill surrounded by fewer tall trees!

Mark K: I have a chain saw and I know how to use it...

THU/FRI, JULY 28/29

Rick: Well, I watched the non-event. Though really it was quite interesting. The [Moon](#) squeaked by just S of [Aldebaran](#) by only a few arcseconds. The colour difference

between the very slightly reddish white of [Aldebaran](#) against the rather muddy pale grey of the Moon was quite dramatic, as was the difference in surface brightness. The star was much brighter than the surface of the Moon. At its closest approach the Moon's motion was distinctly visible as the last, finest point of the crescent skimmed by [Aldebaran](#). All seen in my 20cm f/5.6 Newtonian at 80x. The seeing was quite good.

Hank: I saw your first e-mail while climbing back into bed after putting the garbage out for pick up, but did not read it. I wish I had, as I would have stayed up for that. Glad you saw it. The motion and colours you described are usually only noted when celestial bodies are that close. Very cool.

Rose-Marie: Was this last night? 'Twas cloudy here, and I'm only about 15 to 20 miles west of you.

Kevin: Really early this Friday morning. We were on the road at the time. I saw the event listed somewhere but that we would just get a conjunction, not a graze or an occultation.

John: I was loading my first flight this morning and looked up and saw the [Moon](#) and [Aldebaran](#) very close together and yes the colour and brightness were great to observe. I checked on it ever chance and only saw a close pass.

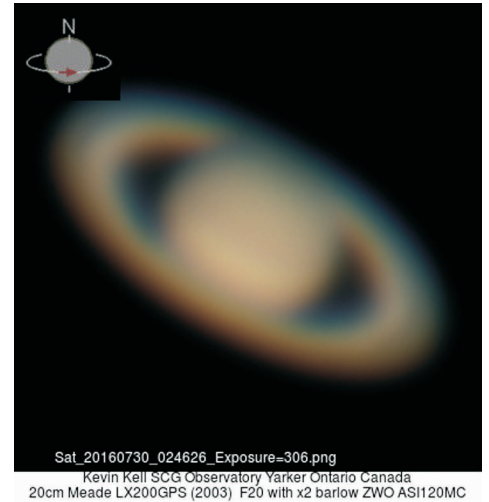
Richard: Here at Sandhurst Shores very cloudy this morning!

FRI/SAT, JULY 29/30

Kevin: After the Meade Lx200 GPS crash (proc trap 2) error on the night of the ISS-Saturn transit, we finally got the scope realigned and tested it out Friday night for a quick couple of imaging runs. The seeing was poor, [Saturn](#) is still very low in altitude, Runs were 60 seconds and this is the best 50% of those processed.

The animation I put together

shows how the cloud affected the first but not the second image. Exposures were in the 3fps region (300 ms).



TUE/WED, AUG 2/3

Rose-Marie (21:59): There's a prediction of a G1 storm, Kp now at 5...will it or won't it? The oval shows *just* north of here at the moment. Got my boat ready and camera gear...just waiting for “true dark” so I can see something. It was clear all week but now there are some lingering clouds....grrr...

Hank (22:06): Nothing visible from the burgh although a long exposure may show different. I am betting NO.

Rick (23:17): Yep, satellite looks dead clear but the sky is nearly overcast here. Scope and camera are sitting out there aligned, targeted, programmed, and useless. Sheesh. However, I did get some nice data on [IC1396](#) and [IC5146](#) last night.

Rose-Marie (23:56): Looks like you won that bet, Hank. Once more I got suckered. Took the boat across the bay and sat there....waiting....'tis almost midnight and nada. So off to bed.

Kim (05:50): Well I was up at 1:45 a.m. and it looked a little brighter to the north, so I went out and took some images...by 2:15 a.m. the aurora had started to subside a bit.

...Observing Reports: June–August

Various Members

The camera was on a very cheap, short tripod (on a table), so the images were a bit skewed, but the answer is yes! There was **aurora**! There was only green visible, and some spiking.



Aurora
Canon PowerShot ELPH 120IS, 15s.

Kim Hey

Kevin: **Meteors** are starting to pick up in the pre-Perseid peak time. This is the summary of last night. Looks like seven so far:



Rose-Marie: I went out in the boat just after 10:00 p.m. and parked across the bay hoping for aurorae. Zip in that department. Around 11:00 p.m. there was one of those jerky long trail what I call fireplace coal type meteors, not bright but it travelled a long ways from SW to NE. Saw 2 little *pfft!* type Perseids. It's supposed to be an outburst year for Perseids, hope and pray that we get clear weather!! All this rain everyone is praying for, I don't want it clouding out for the meteor shower...AGAIN...

The one good thing about the dry weather is that it knocks the mosquitoes down. I only had two of them after me, and I promptly

smacked 'em when they got close to my ears.

Kevin: I went out to do some imaging through clouds at 21:00–21:30 EDT last night and the mosquito swarms drove me in again. What is the lifetime of these beasts? How can they possibly still be alive and around? We've had drought for a month now with very little wetness: 0.5mm this past week is about it.

WED/THU, AUGUST 3/4

Kevin: It's getting better every night. An outburst year? So far so good!



THU/FRI, AUGUST 4/5

Kevin: Last night showed 15 **meteors** captured on AllSky2. They seem to be getting a little brighter, bigger and longer over the last few nights. I stayed up until 01:00 watching a football game in Calgary and did not see the outside at all.



Rose-Marie: I was exhausted last night, wanted to set up on the dock and point to the north, but couldn't pry my backside from the couch.

So...before I went to bed I set up the camera on the patio facing south (no northern view from here). I set it to run 30s exposures continuously. I got a nice series of the **Milky Way** and **Sagittarius** marching across, but no meteors that I can see on the wee camera screen. Gotta download and process, should make a nice little motion clip.

SUN/MON, AUG 7/8

Greg: Looks great. All I had were thin clouds that concealed almost everything except:



The Lagoon Nebula (M8)

Greg Laitak



The Trifid Nebula (M20)

Greg Laitak

Kevin: Things are picking up.. 32 bright meteors last night.



Rose-Marie: I managed to drag myself down to the dock with the

barndoor tracker at midnight. Was out for an hour, only saw a couple of *pffft!* little meteors. When I couldn't keep my eyes open any longer I set up the camera on the patio and ran a series, no meteors visible, but then again it was pointed south.

Susan: I was out Saturday evening (after the [Olympic] women's relay!), stepped out the door and caught an ISS pass, then turned around and caught an amazingly bright meteor. While glued to the eyepiece I had one go by...always very cool. I was unable to stay up last night as it was an early beach day today.... It is hard being retired.

Nice photos Greg, your efforts are really paying off.

MON/TUE, AUG 8/9

Kevin: There were up to 26 recorded events on AllSky2 overnight at http://starlightcascade.ca/allsky2/to_night/



Rose-Marie: I had set the camera up in the garden to run a series, lens pointed north, got a whole lotta nuthin'.

WED/THU, AUG 10/11

Kevin: We got home late Wednesday evening and went out from about 22:00–22:30 EDT to check out these flying rocks that light up things. In all that time, it was mosquito-y, bad transparenc-y, moonlitupp-y and all in all only ONE perseid meteor. But 39 **Perseids** were caught by the

AllSky2 camera system during the night.. not bad!

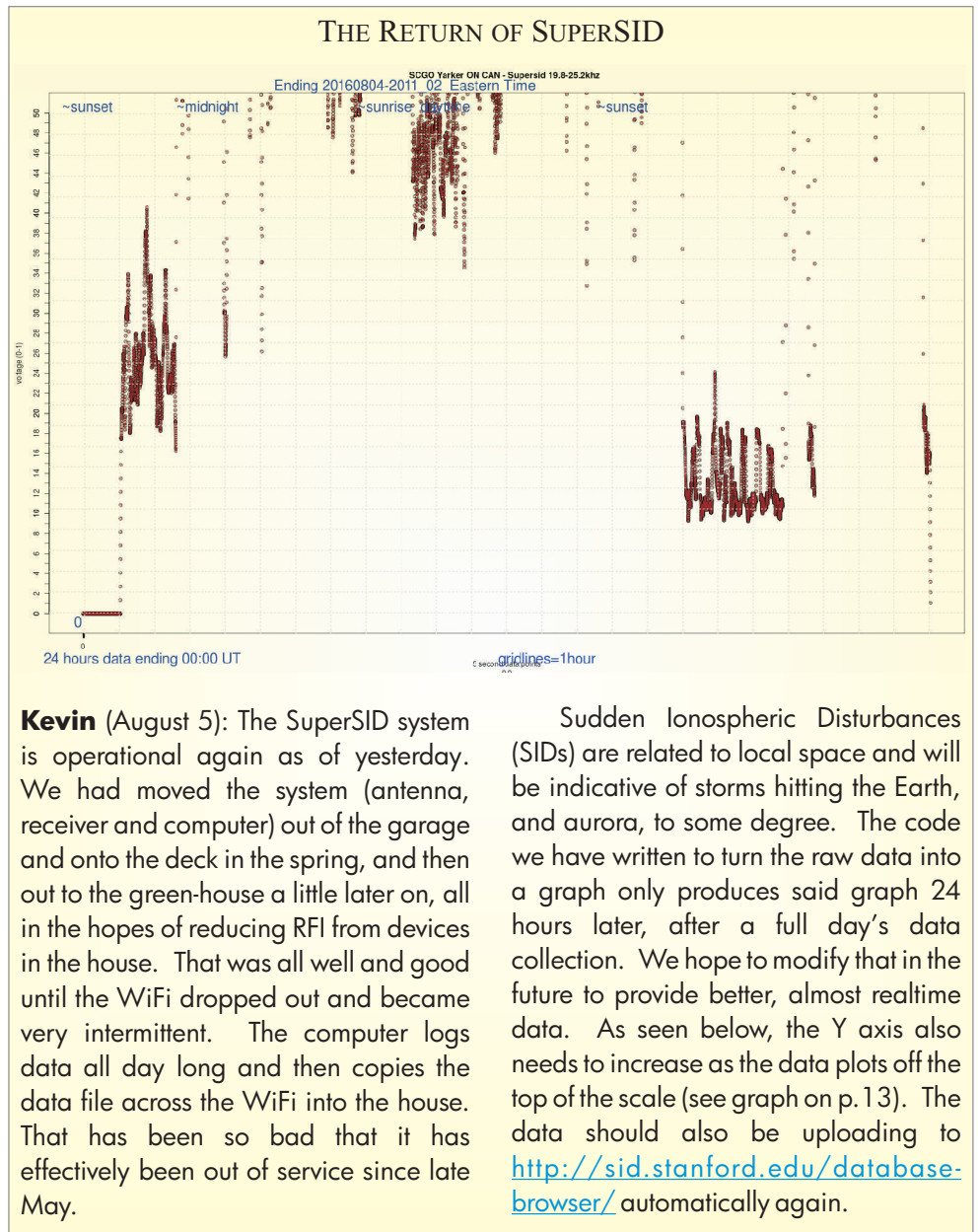


Rose-Marie: I went out on the dock last night just before 3:00 a.m., pointed the camera to the northwest.

I saw about a dozen, mostly little *pffft!* and a couple almost medium ones, but nothing that showed up in the images. Bah. It's the Great Pumpkin Charlie Brown!

Greg: We have noticed that when the blabbing is extra loud about how great it's going to be it either fails to materialize or we get record clouds... and the indignity of great reports from elsewhere. My sky cam has seen one, so far, but lots of clouds...

Rick: I saw a half dozen **Perseids** at StarFest (and several non-shower meteors, one of which was very nice—short and fast, mag -5 or so,



Kevin (August 5): The SuperSID system is operational again as of yesterday. We had moved the system (antenna, receiver and computer) out of the garage and onto the deck in the spring, and then out to the green-house a little later on, all in the hopes of reducing RFI from devices in the house. That was all well and good until the WiFi dropped out and became very intermittent. The computer logs data all day long and then copies the data file across the WiFi into the house. That has been so bad that it has effectively been out of service since late May.

Sudden Ionospheric Disturbances (SIDs) are related to local space and will be indicative of storms hitting the Earth, and aurora, to some degree. The code we have written to turn the raw data into a graph only produces said graph 24 hours later, after a full day's data collection. We hope to modify that in the future to provide better, almost realtime data. As seen below, the Y axis also needs to increase as the data plots off the top of the scale (see graph on p.13). The data should also be uploading to <http://sid.stanford.edu/database-browser/> automatically again.

bright green train which lasted for about 60s, twisting in the wind.) Monday night I was out with the camera going pretty much non-stop from ~22:00 to ~02:00 and probably saw another half dozen. However every single one of them was either out of the field of view or while setting the camera. A very nice slightly greenish mag -2 [Perseid](#) went right down the neck of [Cygnus](#) in the 30s while I was reorienting the camera from landscape to portrait—would have been in the field both before and after the switch. (Yes, I know Kevin—“why were you switching?!” Things were going into the trees.) Every evening ~22:30 I go out for a cooling 20-minute swim—on my back so I can see meteors from 200m out in the lake for better horizons. I haven’t seen a single meteor yet from the water.

THU/FRI, AUGUST 11/12
PERSEID MAXIMUM

Rick (18:31): Well, my gear is all assembled, the canoe/paddles are down by the dock, all is ready. Looking at the recent satellite pictures and the CMC cloud/transparency forecast however, it looks extremely unlikely that we be anything but overcast. Probably a good night to sit inside and watch some astronomy videos on YouTube.

Rose-Marie (18:54): We may get a few gaps in between, still about 5 hours or so til moonset, see what the wind does. I’m just as disappointed as you, I had planned to take the big rowboat over to the far shore and jam it in where I could see northern sky. I think there will be two watercraft not going anywhere tonight.

Rose-Marie (03:37): Well lo and behold...I had the alarm set to keep checking the sky about every hour, and at 01:30 I saw some clearing, so headed down to the dock. From Casseiopeia to the southwest it was

clear, so set up the camera and stretched out on the lawnchair to watch what was supposed to be a spectacular show. 200 meteors an hour my hind end. So much for the banner year. For those of you who slept through or had clouds, you didn’t miss much. I’m just hoping that at least one or two of those piddly streaks even shows up on in the images.

’Tis now 03:30, of course when prime time viewing hits in roll the clouds, solidly socked in here right now.

Kevin (05:49): Good for you! We too awakened around 01:45ish and went out for one hour...well Kim did...I lasted 30 minutes and counted 25...so about 50per hour, well below the normal 100 and much below the much hyped 200.

It has been the first after-midnight Perseid watch for me in some years. My memory says it used to be much better. Of the 25 I saw, maybe 15 of them were “normal” Perseids, relatively bright, fast moving, leaving a trail of ionized plasma. There was cloud all around in places, moving in from the west and north on us. Cow sounds, lots of crickets, and no mosquitos for a change! And still 26C outside (now 25C and still no rain).

John: In Sharbot lake between 2 and 3 a.m. there was nothing but cloud. The night before at the same times there was some cloud and some haze and only five of the little buggers.

Kevin: The first recorded meteor of the evening was at 02:56UT (22:56 EDT) with heavy cloud. The last recorded meteor was at 09:09 UT (05:09 EDT) with heavy cloud. The total count for the night was 58, of which one of them looks suspiciously like an alien spacecraft veering off course in just over 6 hours.

After being outside doing visual from 01:45–02:15 EDT I can positively say that my eyes saw more

than the camera did, although it is designed for fireballs and not dim meteors. The AllSky1 system did not pick up any meteors.



Greg: Thank you for your painstaking work. I looked at my cloudcam for this period and think I saw three or four through the clouds. Sigh... glad I slept though it...



This is the best the cloudcam did. There were others over the night but with the cloud cover they were a barely-visible flicker. This is the only one that was distinct enough to trigger the motion detection and flag it.

Rose-Marie: I downloaded the series of shots from last night. There’s three piss-poor meteors.

Kim: By this estimation of meteors I caught the majority from 01:45–02:45 a.m. with 42 counted. Woohoo!

FRI/SAT, AUGUST 26/27

Kevin: We went out Friday evening south of Newburgh to the Venus Transit site to observe and image the [Venus-Jupiter](#) conjunction. It was surprising how low to even that horizon was. Soon it was lost in cloud and haze so we went home. ★

Exterior Lighting Upgrade

Kevin Kell

MANY YEARS AGO we did an external lighting audit of our home, and that resulted in renovations and modifications as detailed in a four-part article *Responsible Lighting and Your Home* starting with the February 2005, and continuing in the January, February, and August 2006 issues of *Regulus*.

This article is a new addition. We have finally found new full cutoff fixtures to replace the original “horse carriage” style that have been on the house since it was built (but that we had removed the bulbs from and not used). This new fixture (pictured at right) we found at the local Rona store in Kingston back in May. It was at a reasonable price point, about \$40.

After replacing the two fixtures overlooking the garage, we thought it time to replace the light on the front door deck as well. It was a Hampton



Bay full cutoff motion detecting fixture, as described in *Responsible Lighting and Your Home, Part 4*

(*Regulus*, August 2006). But it had a problem. No matter what the setting, it would always motion detect and turn on the light...even in the daytime! So that feature was little used. Still, the fixture was full cutoff so it has been moved to the back door deck where we will experiment more with the motion detect feature and see how it goes.

Lastly, the CF bulbs that used to be in these fixtures have been replaced with lower wattage, lower lumen LED bulbs, lowering both our power bills and the amount of reflected light spilling out into the night sky.

I encourage all astronomers to do a daytime and night time walk-around of your property to see what you can do to help reduce light pollution, excess lighting and improve your astronomical hobby.★

Astro Bag

Hank Bartlett

AT ASTROCATS I picked up an Explore Scientific soft-sided telescope case. Empty, the well padded case weighs only 4kg and has moveable partitions. Loaded with three scopes, a tripod and a set of dew heaters it weighs 18kg. The scopes shown here are a C80 refractor,

SolarMax60 and a Mak90; the tripod is for the MiniTowerII and has 1.5" legs. As soon as I saw this bag I HAD TO buy it: my biggest reason was to have a carrier that could handle a tripod and still protect my scopes. Previously I had two scopes in a hard case with some eyepieces and the

third scope in another bag and then the MiniTowerII mount case and eyepiece case with a loose tripod. Over all I am hoping to reduce from five to three pieces for everything. I just thought I would share as we all have too much equipment to haul around.★



...A Last Visit to Villa Leonis

...continued from page 3

with accessories?

John: No solar filter for the big guy but there were some eye pieces and camera adapters and some other bits and bobs. I am going to try and sit down this weekend and make up a list and post it. Some of the items I will

have to post a image of or bring to a meeting for someone to figure out.

Mark K: I thought that Leo used his 20cm for solar stuff, not the big scope. Unfortunately, there was not a solar filter in evidence. We did get some sort of energy rejection filter

for a 20cm scope, however.

That was the first time I was at Leo's observatory. I wish I had been while he was alive.★

[Kingston Centre is most grateful for, and honoured by, Denise Sabatini's generous donation of Leo's C14 to the Centre. -Ed.]

What is the best telescope in the world to use for viewing the night sky? For most of us, I believe the answer would be the Hubble space telescope. Since its launch in 1990, and its successful repair in 1993, the Hubble has provided the majority of beautiful images of stars, galaxies, clusters of galaxies, and almost everything we find wonderful to gaze at in the night sky. I am not an exception to this general rule; the images that Hubble returned to Earth of the impacts of the Comet Shoemaker-Levy 9 during its impact with Jupiter in 1994 were absolutely breathtaking. I cannot deny that. And soon, the Large Synoptic Survey telescope, with an 8-meter diameter mirror and a field of view covering six Moon-diameters, will send us pictures of a sky we know almost nothing about. So shouldn't one of these be my favourite telescope? They surely would be, if only I could have looked through them.

Neither the LSST nor the Hubble space telescope are my favourites. If they aren't, then what is? My own favourite telescope is a tiny 3.5"-diameter telescope with a black tube that I've owned for more than half a century. Echo (this telescope's name) does not have the aperture or the power to spot anything other than the brightest objects in the sky. But because it gave me my very first telescopic view of Jupiter, and inspired me to go into astronomy, it therefore is my favourite telescope.

I have had my eye on the sky since the warm, clear evening of July 4, 1956 when I saw a shooting star appear out of the darkness that summer evening and scoot across a stretch of sky until it disappeared near the star Vega. (I assume that it was Vega since Vega is the brightest star in the summer sky and this particular shooting star was heading towards that bright star.) By the

summer of 1960, as I recovered from a broken arm sustained in a bicycle riding accident, I really thought that I would like to see the night sky through a telescope—any telescope. The Hubble, and the LSST, were not even a gleam in anyone's eye at the time. On the afternoon of September 1, 1960, my uncle stopped by our home and brought out a box containing a Bar Mitzvah present from him and my parents. Inside the box lay Echo.

A few hours later I carefully set the telescope up in our garden. I



Wendee Wallach-Levy with David Levy's favourite telescope, Echo, a 3½" reflector.

noticed that between two trees in the southern part of our lawn were two rather bright objects, and I decided to set the telescope up on the brighter of the two. Carefully centring the object in the middle of the finder telescope, I then looked through the eyepiece. I saw what looked like a doughnut of light, complete with a hole in the middle. What was wrong with my new telescope? By playing with it a little I learned a lot about telescopes in the next few minutes.

The most important thing was that by sliding the eyepiece up and down the doughnut appeared to get either larger or smaller. As I continued to adjust the eyepiece, the doughnut shrunk in size until the hole in the middle disappeared. Almost miraculously, the light in the telescope became the mighty planet Jupiter. What's more, I saw markings on Jupiter, and three starlike dots nearby that I later learned were Jupiter's moons.

Were I growing up in today's culture, the experience from so long ago might have meant nothing. We now have spacecraft that are studying Jupiter at close range, as if we knocked on the door front door and Jupiter invited us in. But as amazing as these spacecraft are, nothing can take away from actually looking through a telescope and seeing something in the sky for yourself. In future years I expanded my collection of telescopes, and I tried to begin the career of each new telescope with a look at my favourite planet Jupiter.

Both Echo and Jupiter are very special to me. Echo now holds a place of honour inside my home. Although I rarely use this telescope, the views it provides are still thrilling. And in 1993, Gene and Carolyn Shoemaker and I discovered a comet which a year later slammed directly into that planet. Not from my our home in Vail, a lovely 14-inch Meade telescope called Voyager shows young people the night sky at the Corona Foothills Middle School. It could be someone's favourite telescope. Despite the amazing telescopes that are available now to all of us, it still seems to me that our favourite telescopes are the ones we first looked through, the ones that inspired us to reach for the stars. ★

Our thanks go out once again to David for providing his columns for inclusion in Regulus.