Skyletter

June–July–August 2019

RASC Kingston Centre

Stellarium

Malcolm: Brian showed his pics of this under construction and still in pieces at the last meeting—a 45-inch f/3.75!

Hank: Absolutely beautiful! I want one.

Paul: I think you might have to make one or two adjustments to your observatory, Hank.

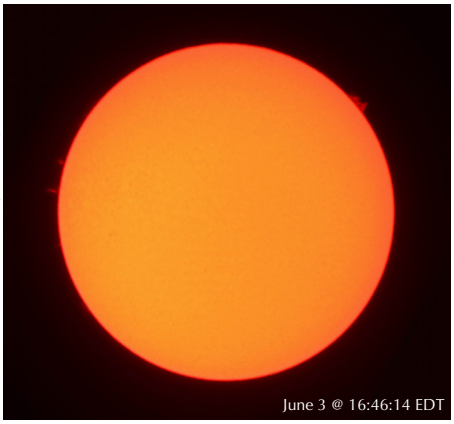
2019 Monday, June 3

Hank: Wow SUN, Wow Prominences! Clear sky even. A nice day and some welcome observing time at the RHA Observatory.

Rick: Did you get any viewing on Saturday? At South Bay Under the Stars, in spite of smoky skies, we saw through Brian's PST quite a nice prominence dangling off the S edge of the disk. There was another smaller one about 2 o'clock. It was the only observing most of us got at the star party. But we had a great time anyway.

I'm hoping the skies will clear off again tonight—I think the cloud is slowly breaking up. I was quite surprised to get a whole night last night, but it was quite good.

Hank: Today was the first observing I have done since the 26th. Glad you got some at SBUS.



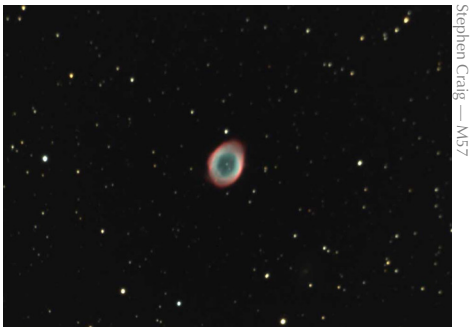
Hank Bartlett — The Sun in Hα, ISO 200, 333ms

Thursday, June 6

Stephen: I can take credit for all the clear weather this week. My observatory is still offline while I wait for new fibre-optic cable to arrive. I'll see what I can get done out in the observatory while I wait.

Thu/Fri, June 6/7

Stephen: I didn't let my lack of a communication cable stop me. I did it old school! I sat out all night with the telescope. The stool I have out there isn't nearly as comfortable as my lazy-boy chair is the house, but hey it's better than nothing! I did a couple of easy objects just to make sure every-



Stephen Craig — M57

Stephen Craig — M27

thing worked. They turned out pretty well! Tonight I'm going after faint stuff again. It's been many years since I've sat outside taking an exposure. I hope I don't have to do it too many times. It's hard on the old bones!

There were no bugs last night. It was cold! I sat out in my winter coat all night. Tonight I'll put on extra leggings as my legs got awfully cold and stiff.

Hank: Beautiful work Steve, maybe we all should step back now and then.

Fri/Sat, June 7/8

Stephen: Last night was another good night. I snagged two galaxies in Ursa Major. An old favourite M81 and an interesting little spiral NGC 4051. The seeing wasn't great and my guiding was a little shaky but any result is a good one! The nights are so short this time of the year that I have only enough time for two image runs a night.

My fibre-optic cable is due to arrive on Tuesday so I'll be ready for more comfortable imaging Tuesday night!

Stephen Craig — M81

Stephen Craig — NGC 4051

Kevin Kell

Sat/Sun, June 8/9

Kevin: Waiting for the throngs to come storming onto the observing deck. Must be a good talk.

Some notes on the Celestron NexStar 6SE used at the open house:

Plugged in the portable power pack, turned the scope on and started to do its alignment...very slowly...checked the battery pack readout...all dark! Hmm thought it was all charged up...checked the switch...still off! Turned it on and the scope picked up the pace noticeably. That's funny...does this scope have internal batteries? Asked google and it sure does. Located the battery cover, found 8xAA...and removed them. They were old, discharged and at some point in time going to leak. Done.

We had set up while the sun was still up...no stars to align...but the Celestron can align on planetary objects...chose the moon. It worked, tracked like a charm at high power (100x) for a time. Told it Jupiter! It did not display that choice while the planet was still under the horizon. A little later afterward, it did show that choice... but the pointing was off. Tried to use the Rigel QuikFinder...it also was off. Aligned them together using the Grant Hall flagpole. Still the pointing was off from Jupiter.

By that time it was dark and Brian had spotted Vega, Arcturus and Spica. We couldn't find a 3-star align on the menu, so cycled the power and went into 3-star align then.

The Celestron is different than the Meade. Celestron is two step process. After entering date, time, time zone, daylight saving, it wants you to drive it to a bright star which it does at high speed, press ENTER, then it switches to low speed, center it and press ALIGN. Repeat for two more stars. It thinks about it for about 30 seconds and comes up Aligned!

Went back to Arcturus...close enough, especially since the deck plates the tripod is resting on shift when people walk by.

You can force a sync on an object after the fact as well: press Align, then down arrow to select sync then press ALIGN.

We stayed on Jupiter with a 15mm eyepiece (100x) for the rest of the night. Ganymede on one side, Io, Europa, and Callisto on the other. At 10° altitude, no cloud bands were seen on the surface. By 10 p.m. and maybe 15° altitude, it got out of the mucky air enough that we could see two bands. No GRS though, it did not come up until after midnight.

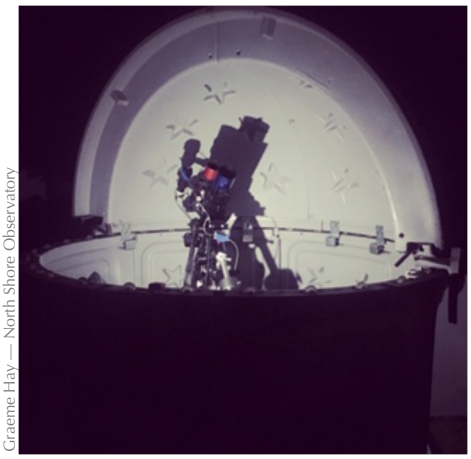
A great night, lotsa fun.

Greg Latiak — M8 & M20 — 20x30s, 16-bit

Greg: Not much to complain about—save that when the wind plant is running there is enough vibration to shake even my enhanced pier… sigh. But was able to get a bit of the region around the Trifid and Lagoon nebulae (rather close to the horizon at the time) before packing it up. WO Z61 APO refractor/ MallinCam DS16C. Maybe next week…

Graeme: I'm new to Kingston Area (well situated in Napanee) and just joined Kingston RASC. I had been a member of Ottawa Centre for a few years prior to a stint in Toronto where zero observing occurred. Suffice to say I'm glad to be back in dark skies.

I mainly do astro-imaging but also outreach, I have an observatory setup on the property (North Shore Observatory) so I can do imaging in dark skies with my telescopes. I've attached a photo from last night with the smaller two piggybacked for dual imaging



Graeme Hay — North Shore Observatory

I'm trying to pick tonight's target(s) after imaging the Veil nebulae last night. If I'm lucky I'll be able to lift my observatory dome and set up the system to finish imaging the Veil nebulae tonight so I have something to process next week. Here's a sneak peek: single sub with stretching—compressed.

Graeme Hay — Veil Nebula Complex

Graeme: So for those who have all-sky cameras (still waiting for software development to be complete for mine), you might want to check your video feeds. Last night at 11:48–11:49 p.m. there was a large meteor to the E of Napanee that stretched approximately from above Hercules down to Sagitta/Altair in the sky, lasting about 1½ seconds. It did not break into pieces. It was unfortunately outside my camera frame (as I was pointing at the E/W Veil) but if anyone captured it I'd be interested to know as I'm hoping to have an all-sky camera by the end of the summer..

Kim: While home I had seen a large meteor /bolide at 22:16. I did report it to the AMS. It came from E to W 45°, bright as Jupiter and was caught on the all-sky Western U camera.

Graeme: Good idea, I have done the same.

Kevin: We did capture an event on 20190609 at 03:49:10 UTC.

We too are hoping to build a replacement for our AllSky1 system that bit the dust last year and would be interested in seeing your hardware software package at some time.

Kevin Kell

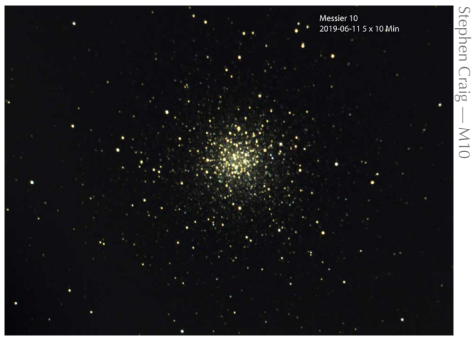
Graeme: You'll have to ask Eric Le May about the software portion as he is the one programming the camera. The hardware is a ZWO camera coupled with a Raspberry Pi to keep the costs down.

It came out of the need for a cloud camera, as his system is fully automated, to ensure clouds/rain don't roll in while the gear is out unattended. However Eric is working on additional features for meteors beyond just random chance captures.

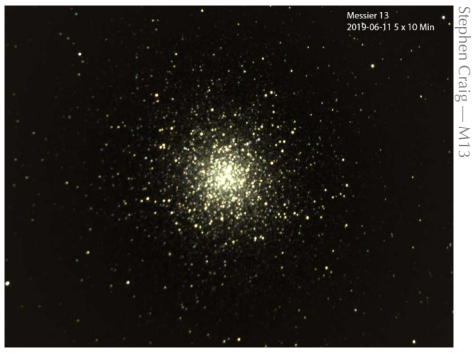
Once my thesis is out of the way I'm going to be looking at the housing setup; basically to ensure the dome doesn't fog up and the unit is weather proof so it can be left outside all the time.

Tue/Wed, June 11/12

Stephen: As the moon was quite bright last night I decided to go after some globular clusters. I did four but these are my best two. Globular clusters are quite sensitive to seeing and guider accuracy. Both declined as the night wore on. I am always trying to improve my photos. I am quite happy with M10. M13 is good but not my best.



Stephen Craig — M10



Stephen Craig — M13

"Second place should need a telescope to see us."

—Elon Musk, Tesla Motors
Company Overview,
Summer 2011

Wed/Thu, June 19/20

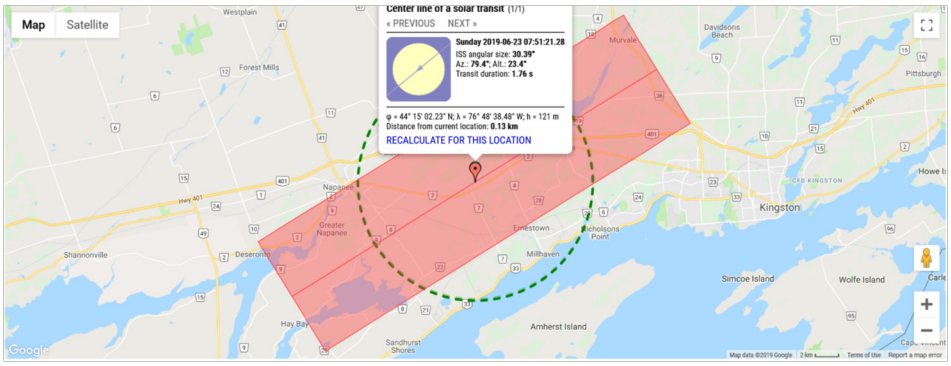
Kevin: I actually was able to image Jupiter last night:

Kevin Kell — Jupiter

ISS Solar Transit

(Monday, June 10)

Hank: If anyone in this corridor (or willing to travel) is interested (see map) the sun will be over 20° above the ENE horizon and 1.76s is a good timing for the pass. For me here it is a near pass.



Sunday, June 23

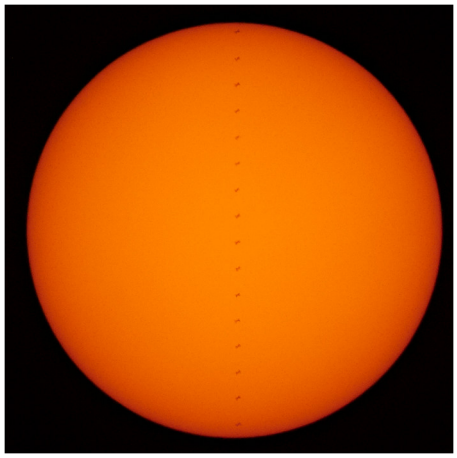
Malcolm: Success! Pic at 11.
Mark: Well, I filmed from 07:50:09 to 07:54:09 EDT in 1080p. Now I have to review the video to see if I captured anything. I have a lot to learn about controlling my 7D in video mode. Anyone see anything visually?

With my luck, they moved up the orbit overnight and I will search for nothing...
Graeme: It was about 1.2 seconds, you blink and you'll miss it (which of course I did...) but my camera was filming so there is that.

I also managed to grab it, now to see if I can tell if it's more than a "smudge" crossing the sun. Video/pictures also coming soon (after a nap, I also was imaging last night out at the L&A Dark Sky Viewing Area).
Hank: So glad some of you got out to image this, it will be very interesting to see the images and hear the stories at the next meeting. I was of course still in bed!
Malcolm: So last night, I decided to use my Orion ED80 instead of my WO FLT132. I set up on the back deck to get and lock down focus after dark, when I noticed some weird haloes around the stars and I think I have a collimation problem with the WO.

I switched to the shorter FL ED80 and images were fine, so I went with it today. As a result, the image is smaller than I wanted, but hey ISS isn't going away anytime soon, we can do this almost anytime.

I caught the ISS in 16 frames, which makes approximate sense to me given the math: 1.79s duration transit, 9 fps shooting. ISO 1600, 1/2500s exp. Poor transparency required longer shutter speeds but well within tolerance to get close to my 9 fps. Stacked all frames in PS CC using blend mode darken.
Mark: Would have been nice if there had been a sunspot to check focus on, but the sun is blank.
Graeme: Oh I 100% agree, I thought it would be a bit higher to clear some trees... I got lucky though and the transit happened between the last two branches.
Hank: NICE! It is good to see what quality equipment and talent can capture. Looking forward to more, and a lunar pass.
Mark: Got it! I have to edit out the 03:58 without the ISS, but it is there and you can even see that it has solar panels, etc. I may leave in a bit with the song Sparrow that was doing the sound track. Got him loud and clear. I opted for 1080p. Next time, I will try one of the hacks that gives me more control over the intricacies of the camera. This time, I just plain did not want to mess around with it when I have never done this before.



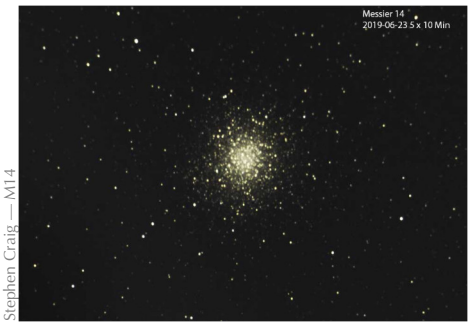
Malcolm Park — ISS Solar Transit

I have 52 frames of capture and the detail of the ISS is about the same as the images in your composite. I used a Baader film, so my solar disk is white.

Sun/Mon, June 23/24

Stephen Craig — NGC 6384

Stephen: I had a great night last night. Everything worked as it is supposed to and the cloud gods were merciful. I imaged two globular clusters and a galaxy.



Stephen Craig — M14

Stephen Craig — NGC 6229

Tue/Wed, June 25/26

Stephen: Tonight turned out very well. Seeing is reasonable and the sky is fairly transparent. Tonight I'm going after some globular clusters in Ophiuchus and Serpens. They are not spectacular, but they are not often imaged.
Greg: Happy for you. The clouds showed up here right at sundown, didn't start clearing until 3 a.m. You must be doing something right...
Kevin: Absolutely ecstatic that you and perhaps others could take advantage of the clear skies...me...I could barely keep my eyes open by 8 p.m. and called it a night early.
Rick: Wasn't it a nice night? We got home late, about midnight, from relatives. It was so dark when we got home we could hardly find the house and it took me a couple of minutes to get to the observatory to be sure I didn't run into it in the dark (which in fact I did in spite of my careful approach.) So I got in a good night (if you can call the remaining 4 hours of darkness 'a night') as well—more variable stars.

I learned things at the AAVSO meeting that I've yet to incorporate in my observing program. Once we get past this meeting and a couple of home things that are taking too much time with my current handicap I hope to do a major review/revision of my program. I'm even thinking of going to the AAVSO meeting and int'l pulsating stars conference in Las Cruces, NM in the fall.

Friday, June 28

Greg: Ever have one of those evenings when everything was favourable—until you pointed the scope at a target and saw a field of unfocused objects mixed in with the stars? Here we are again… spiders had moved into the scope and filled the tube with webs. Not catching much but what a mess. Took it apart and cleaned it today. Note: spider droppings are not soluble in alcohol, but wash off fine with distilled water.
Hank: 'Little Bastards!' is all I can say.

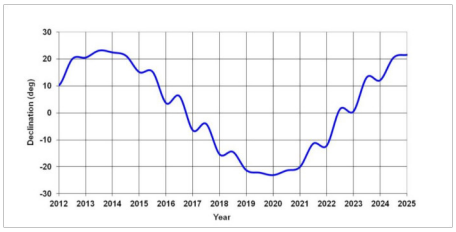

Greg Latiak

Mon/Tue, July 1/2

Graeme: Attempt #1 to image Jupiter, EdgeHD 8" with iPhone 6s —this time extracted from video. Planetary is not my forte but I do give it a go every so often.

Graeme Hay — Jupiter

Hank: Decent given it is iPhone at eyepiece. Keep it up; as well, Jupiter sucks at that latitude.
Kevin: As Hank notes, Jupiter sucks: lowest declination in my imaging lifetime. It only gets better from here!
Graeme: I am working with what I have; going to try a different method and see if I can get a "better" result.



Kevin Kell

Tue/Wed, July 2/3

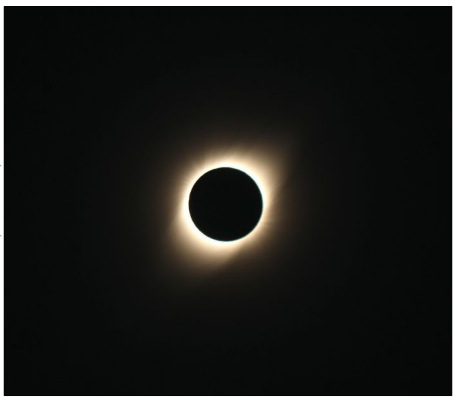
Graeme: Managed to get a better photo on attempt #2.


Graeme Hay— Jupiter

Susan: That's a keeper!
Hank: Yes, looking much better! Very impressive considering all the factors. Keep at it Graeme.

Tuesday, July 2

Brian: Success! Well worth the trip.
Rick: Looks like it came off under cloud-free skies. Lucky Brian.



Brian Hunter — Totality 2019 July 2

Thursday, July 4

Stephen: I've had several good nights. The sky has been a bit hazy but the seeing has been good. This is my best shot from last night, NGC 7008 in Cygnus.

Stephen Craig — NGC 7008

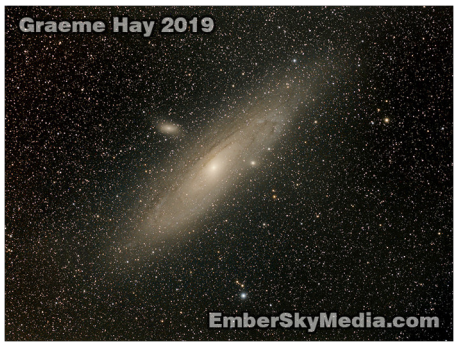
Sun/Mon, July 7/8

Stephen: Last night was a good night. All my gear worked well and the weather cooperated. I imaged a number of globulars and one planetary nebula. The nebula turned out well other than not being centred well enough in the camera. I had to crop it too severely to centre it. I'll redo it tonight maybe with a longer exposure.

Stephen Craig — NGC 6781

Mon/Tue, July 8/9

Graeme: Andromeda 2.0—this is a sneak peak at some of last night's efforts. It was first light using BackYardNikon from O'telescope now that their latest pre-release supports my Nikon Z6.



Stephen: It was a good night last night. I imaged some more globulars while the moon was up. After moonset I worked on long exposures of NGC 7380 (The Wizard Nebula) in Cepheus. I've had a lot of late nights so I had trouble staying awake through this one. But it turned out pretty well!

Stephen Craig — NGC 7380

Kim: Nice work Stephen. I am curious why they call this 'The

Stephen: I was just looking over my past photos. I compared my first image of M27 with my most recent. I think there is a bit of improvement there.

And another (re-)take:

I have photos that I will look at and think, "I can't do much better than that." But then a year later I'll try it again and think, "Wow! That is much better! I'm happy with that." This is last year's image of M20, The Trifid Nebula along with this year's. Can't do much better!

Stephen Craig — M27 (both)

Stephen Craig — M20 (both)

Wizard.' I swear those who named these objects were on good drugs or fine wine.

Stephen: I don't know how it got it's name. But then I haven't looked at it through an eyepiece. Donna gives her own names to things but she couldn't come up with a name for this one other than 'Pretty red.'

Mark: You have to rotate it. In your case, you are looking at it almost upside down. Even then, you have to use a lot of averted imagination to see the wizard. Using the dreaded Hubble palette also helps. There is one rotation of the field in which it looks more like the head of a puppy, at least to me...

KAON Session

Sat/Sun, July 13/14

Hank: Hello all, another fun night of public astro and the weather held for the most part. Thanks to all my fellow observers for a fun evening.

Kevin: Agreed, it was good! We setup around 20:30 for a 21:00 start; public people were there before 21:30 and we went through until 23:00, packing up, left by 23:30, and were home after midnight.

Rough guesstimate was over 100 people on the deck. It was steady in groups and not overwhelming.

Thanks to Laurie and Devon with the 20cm Meade, Kim working the 15cm Gibbs Dobsonian, Hank working his iOptron dual scope setup, and I ran the 15 cm Celestron NexStar 6SE. A Queen's grad student or two ran the Questar scope as well.

Targets were the ¾ Moon, Jupiter nearby with four moons on one side, and Saturn!

Stephen Craig — Moon (both)

Stephen: I finally got around to processing my 4-image composite Moon photos from last week. It's interesting to see the change that one day makes.

Tue/Wed, July 23/24

Stephen: Well, I see that grumbling and complaining paid off. I got my clear night!

Greg: A good one here as well. Except for the wall of mosquitoes I kept having to scrape off my monitor. Don't think they liked my blood type...maybe the bath in 'Deep Woods' helped.

Wed/Thu, July 24/25

Stephen (20:43): As I waited for what I hope is another good night I've been processing my images from last night. This is NGC 7635, The Bubble Nebula. I tried a longer exposure to see if I could bring out more of the bubble. The moon started to fog my images so I had to cut my observing run short. I'll try again on a completely moonless night and see if more subs will improve it. But this is still a pretty good attempt.

Stephen Craig — NGC 7635

Stephen (01:34): Well that's the end of my imaging. Clouded over at 1:32.

Stephen (02:23): My Iris Nebula (NGC 7023) turned out fairly well:

Stephen Craig — NGC 7023

Rick (03:52): I'm still going strong —looks like the cloud is beginning to come in here too but I'm hoping I can push through to the beginning of nautical twilight when I would be quitting anyway.

Malcolm: Today's front page includes a story and an 8-image layout of the all-sky cameras in the Network that captured the fireball. Yarker is on the front page of Spaceweather.

Kevin: Always fun!

Stephen: I also imaged M108 in Ursa Major last night. I think it turned out rather well. Better than my previous attempt anyway.

Stephen Craig — M108

Walter: I imaged with the NYAA scope last night, but the session ended earlier than intended because the last object only had 1 frame per colour instead of 5. I'll fix that for tonight's run.
Mark: Phantom images?
Walter: Awkward automation software (CCDAP—I'm really more of an ACP guy).

Thu/Fri, July 25/26

Walter: Another imaging run with the NYAA scope:

- NGC 6589 4x300s LRGBHa
- Sh2-72 4x300s LRGBHa (hoping for 3 objects in frame)
- NGC 7094 4x300s L, 1x300 R (ran out of night, but it's early in the season for this one)

Kevin: Tell us about the scope and the remote process. Do you tweet in observation requests or is it total windows remote desktop and total local control of everything?
Walter: There is nothing magic about it. TeamViewer is used to control the observatory computer which is running all the software needed to operate the observatory. (I think they should just run a Pro version of Windows so MS Remote Desktop can be used—maybe they'll do that when they go to Win10.) All software is off-the-shelf. Significant custom work was done by the club to automate the Ash Dome though.
Mark: Trained members split up the nights of each month. They control the scope using TeamViewer. Their results are accessible during the day due to the limits of the satellite internet connection. The images are available to all members to manipulate. The scope is a 150mm AP f/5.6 Starfire on an AP Mach 1 mount in an Ash dome. The automation is all done with member provided solutions, readily available software and volunteer labour.
Walter: I think you mean "inaccessible" during the day…

It is pretty awesome to be out at Oak Heights in person and yet still have Internet, even if it's not quite as fast as in town.
Malcolm: Accessible in the day, not accessible the night that you took them. Same thing.
Walter: Ah, now I understand. Guess I've never been in that much of a hurry to get the images.
Mark: Did you mean to attach your work?
Walter: Eventually, once I've had time to download and process them. For now, just a report that images have been taken.

Sun/Mon, July 28/29

Greg: While waiting for the clouds to clear, after resolving a problem with my guiding, I have begin narrowband imaging using a remote telescope in hot but less cloudy Spain. There were, of course, problems with this first go but my exposure calculations were not too far off. Now the fun of learning how to combine these in PixInsight and get sensible colours. Anyhow, my first narrowband combination, missing the OIII layer (of course).


Greg Latiak — Veil Nebula Complex

Kim: Very nice Greg. What telescope are you using?
Greg: It's iTelescopes T16, a 150 mm refractor.

Monday, July 29

Stephen: My On Axis Guider tends to give me annoying infrared reflections from bright stars. I thought that an infrared filter would cure that. In reviewing my recent images I've discovered that while it did eliminate the infrared reflections it also reduced the visible light reaching the camera. I've taken some longer exposures but it resulted in less image.

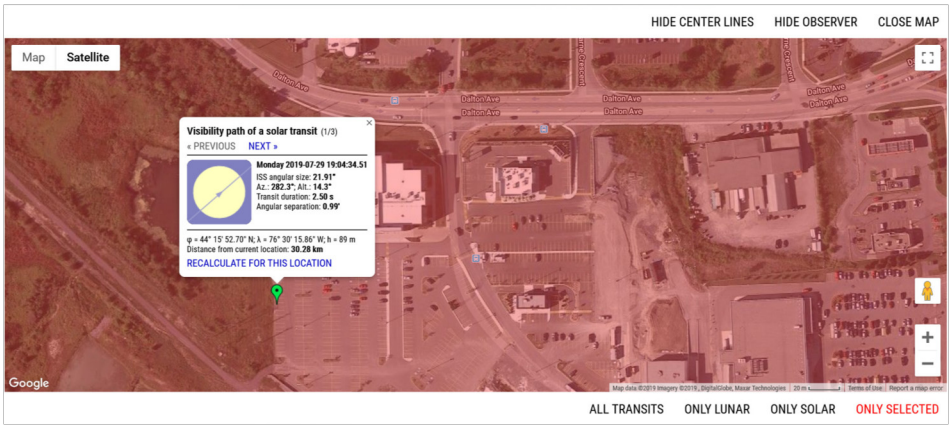
Needless to say I'm getting rid if the infrared filter. I can deal with the reflections in post-processing. Two images of the Iris Nebula say it all:

Stephen Craig — NGC 7023

Stephen Craig — NGC 7023

ISS Solar Transit

Monday, July 29



Hank: This transit will be an actual visual observation as it is going to last 2.5s, this will be very interesting. I plan to video in white light and watch in h-alpha or vice versa. StarryNight shows the sun as 13° 21' above the WNW horizon at start so we will need a clear horizon or no go.

The plan is to be at Boston Pizza across the road from the Landmark by 5 p.m. for dinner if you want to be there. Set up after at the Landmark Theatre SW corner parking lot before the pass. I am going to be there if it is not clouded over, some are going to be there for dinner regardless.

Malcolm: Satellite looks good so far but unfortunately I can't make it have fun!

Mark: Thanks Hank. There are two Bostos across from Theatres in Kingston. Now I know which one to go to.

Mark: Four scopes and one set of 10x binoculars were aimed at the sun at 19:04:33. Laurie with a 20 cm SCT, Paul with a 10 cm refractor, me with a 7 cm solar scope, and Stephen with binoculars all saw the transit. Rick blinked. Eight minutes before the event, the sun had slipped into a cloud band, but it emerged in time so that even the small prominence on the side opposite to the transit ingress was visible. Kevin and Kim declared clouds and left early and I do not know what happened to Brian.

Paul: And wow was it ever beeyootiful!

Hank: Congrats! Glad it was a success. Weather must have been better there than here.

Susan: Yes, congrats indeed to all who saw it. I also had a hazy view but thought it would be OK. I set a timer for a couple of minutes before...you know how you can be so focused on the time and then slip up at the last!

Anyway I was nicely placed to observe a thicker cloud move in and blot it all out.

Kim: As we drove home the large cloud front moved into place and blotted it totally out; by 7:30 p.m. the sun emerged and shone until sundown.

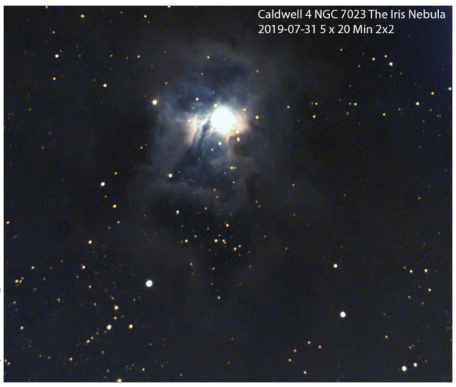
Congrats to all who saw it, it is a very cool experience to see.

Wed/Thu, July 31/August 1

Stephen: Last night was spent getting the bugs out of the system. First I had to wait for the sky to clear. That was about 11:30 I had taken off the infrared filter so I had to refocus the camera assembly. That went better than I had expected. Then I had to deal with glitches on the USB link. That happens once in a while. Seems to be a problem with my computer. I had to restart several times to get it to behave. Then my GOTO wasn't accurate enough. I had to re-calibrate the mount several times before I was satisfied.

I got down to imaging about 1 a.m. but had scattered clouds all night. I managed to get one decent image run of the Iris Nebula. It's not my best but it was not bad for a shakedown night.

I saw today when I processed the image that I have several dust bunnies. That can happen when you open the optical train. I'll do a rigorous cleaning this afternoon. Tonight should be a great night!



Stephen Craig — NGC 7023

Rose-Marie: Nice. Didn't have clear here last night, woke up a couple times and checked, always some clouds. Wanted to try out the new cable release that I finally got yesterday. Maybe tonight. Time to do some series runs, Perseids coming up.

Graeme: I was similarity trying to work out some bugs, testing out the NexStar SE mount and was having some trouble with alignment. It's been a while and I may need to read the manual again...

Greg: It was an easy decision for me...instead of thinning as the evening wore on it started to rain locally. Nice and cool, but much too damp to want to open up. Guess this is punishment for that set of narrowband filters. Sigh.

Thu/Fri, August 1/2

Stephen: I had a successful night. I imaged two targets: the Bubble Nebula, and The Little Dumbbell. I'm particularly happy with the Little Dumbbell. I got the faint nebulosity that I was after. I tried the Turtle Nebula last but it was too far down in the muck.

Stephen Craig — NGC 7635

Stephen Craig — M76

Fri/Sat, August 2/3

Stephen: I had a fairly good night. At least the equipment all worked well. Sky transparency was not good enough for me to image the faint objects I had planned so I went after some brighter objects. They turned out pretty well. I wasn't planning on doing M33 any time soon but I'm glad I did. This weekend I will put on my focal reducer and try for wider angle shots. The other object I imaged was NGC 6781 in Aquila. I've done it before but I'm always trying for that perfect image!

Stephen Craig — M33, 5x900s

Stephen Craig — NGC 6781

Susan: Yes a nice night out. I have no photographic evidence but trust me, the time was well spent.

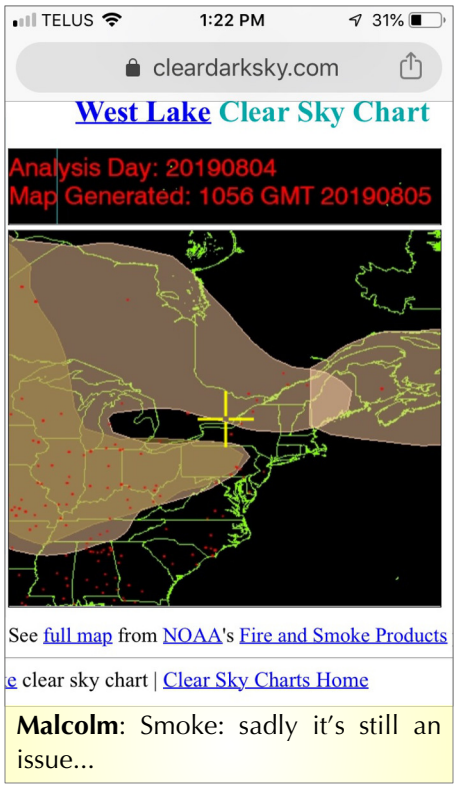
Not good for tonight but sleep is nice too.

Graeme: Ended up imaging the Iris Nebula for a second night and combining the data...

Graeme Hay — NGC 7023

Sun/Mon, August 4/5

Stephen: I had a fairly good night. I imaged some open clusters and the Cocoon Nebula. I had put my focal reducer on the camera. But I think it introduces too much distortion and I end up cropping the image. So there is not much point. I'll take it off again.



Malcolm: Smoke: sadly it's still an issue...

Stephen Craig — IC 5146

Rick: Very nice Steve. I too had a good night last night. I'm working to increase the density of my observing—I used to mostly pick a particular star and just shoot alternating B and V images for several hours then on to the next target. I've updated and robustified my multi-target observing Perl script and chosen one or two additional targets near each of my old targets. Now the scope hops in a cycle around the two or three targets shooting appropriate exposures. Instead of getting really too dense data on one target I'm getting more reasonable cadence on two or three. So last night, instead of 3 targets I was able to shoot 8.

I'm also investigating going to 2x2 binning (with slight defocus to

maintain proper sampling of the point-spread function) so I can use shorter exposures and faster downloads thereby allowing me to move up to 3 or even 4 targets in each set.

The job I really need to be working on is automating the photometry of this deluge of data but that is much more complicated and is proceeding more slowly. Partly as a result of switching from Perl to Python to be able to take advantage of the astropy software suite. Partly from trying to make it much more general so that it will database the magnitude of every star in every image rather than just my official target stars.

More work tonight—hopefully Malcolm's smoke won't get too thick (he brought it up so it's his smoke!)

Greg: Shocking, but it was a reasonable night here as well. Even the bugs were moderate. Been working on getting SGP configured and working with my kit and exploring the exposure calculation features of Sharpcap with RGB filters. Worked M27 as an easy target. I was happy with what I did some months back with my OSC image of it, this time did a few exposures each using L, R, G, B and Hα filters. Sharpcap seems to do a reasonable job of dark and flat subtraction on the fly, so the raw looked pretty clean. Now the fun of putting it together with PI. Quick test—no funky coloured backgrounds.

Keith: You guys are so lucky. I was also out last night but the thin cloud cover screwed everything I looked at. Every day and night is the same cloud.

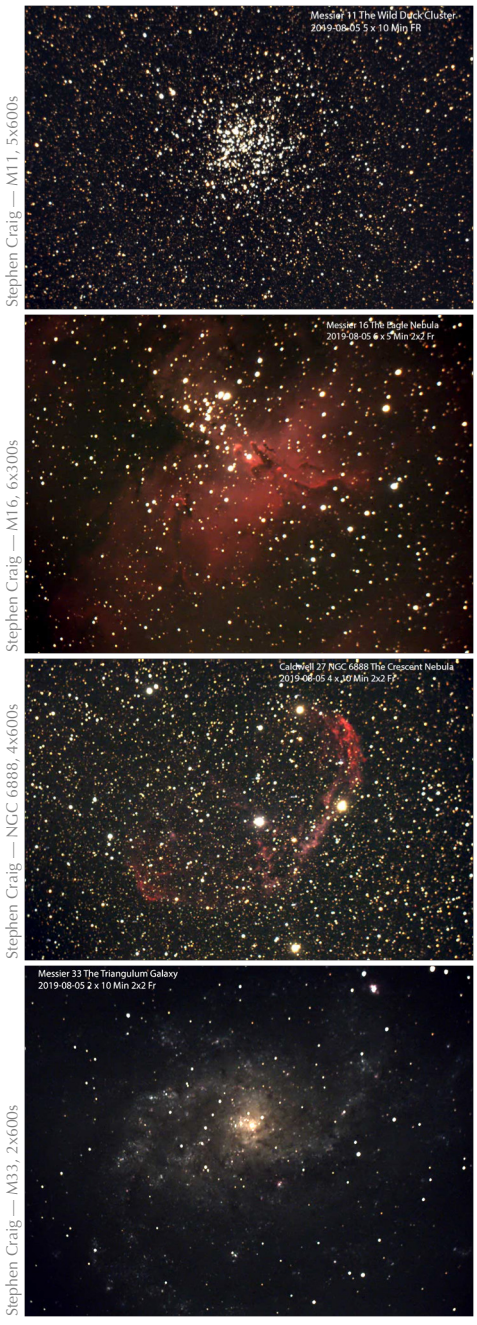
Mon/Tue, August 5/6

Stephen (22:48): I got set up a little early tonight. As I was waiting for twilight to end and the moon to go down I thought I would target M16. In keying in the entry I accidentally entered M11. I thought I might as well see what it was. Turns out it is the Wild Duck Cluster that I had on my observing list as NGC 6705! Talk about serendipity!

Stephen (23:26): Now that the moon is down I'm getting some good images of M16. I think it's going to be a great night!

Stephen (23:44): So much for a great night. It clouded over at 11:42.

Stephen (23:58): False alarm about clouds. M16 went into the trees. Now I'm onto the Crescent Nebula. Hopefully the clouds will hold of for a while.



Stephen Craig — M11, 5x600s
Stephen Craig — M16, 6x300s
Stephen Craig — NGC 6888, 4x600s
Stephen Craig — M33, 2x600s

Stephen (01:17): As of 1:15 I think I've lost my fight with the clouds. At least I finished the Crescent Nebula. I'll wait for a while and if it doesn't clear I'll pack it in.

Stephen (19:22): I had a successful night last night in spite off myself and the clouds. I was tired and made many mistakes but I still was able to pull out four good images. I lucked into M11 while I was looking for M16 then managed a good image of M16 before it hit the trees. Then I did a good one of the Crescent Nebula before the clouds arrived and even managed M33 in between clouds. All in all a successful night!

Kevin: An early Perseid meteor show night compilation. N is up, E is left, W is right...you get where S is... The fireflies used to be the prevalent trail over the last month, but they seem to becoming fewer and flying lower beneath the camera horizon.

Malcolm: Awesome. I've been trying to catch some, but nada.


Kevin Kell — Perseids

Iridium flares are gone. Long live the Iridium flare! Heavens Above shows no known Iridium flares for my location. Assuming they are all gone, that doesn't mean satellite flares don't happen. YAY!

Maybe someone is motivated to figure out which satellite this was [*in a recent photo*]. I tried on

Heavens Above but couldn't find a match. The camera (as you can see) was pointing almost due N, with Polaris in the centre.

Kevin: Checking heavens above there were *many* possibilities during even a 30 minute window... many rocket bodies tumbling, etc. You would have to select them one by each and compare the orbital plot up against your image.

Malcolm: I think I clicked each one. I was hoping more along the lines of Brian (wink wink) having a better place to look than there.

Brian: I am working on it. Many satellites pass by in half an hour. There are only about 20,000 to check.

Malcolm: In my time lapse it seems that it was traveling from north to south-ish.

Brian: I suspect the satellite was a Chinese CZ-4C (Long March 4C) Rocket body launched in 2010 with a set spy satellites. It appears on Heavens Above with an overhead pass at 4:02 a.m. These beasts are quite large; 2.9m in diameter and 14.8m long.

The only question is that is was going the "wrong" direction (SSW to NE) but the path is a very good fit. I could not find any other likely objects with the correct inclination (about 65°) and timing other than scraps of debris.

Paul: I wasn't out last night but Sunday night [August 4/5] was awesome for me. I chose a particularly bad location (which I did not fully realise until after dark, at which point a nearby community centre's 40,000 un-necessary lights switched on!) On my way home I found a much more astronomy-friendly spot in my neighbourhood, so that was good. Other lessons learned: make sure *all* the power switches are turned off after you move your equipment around (that error meant no camera work, and early home because the dew strap wouldn't work!)

This evening was another test of my new 14mm 82° Meade Ultra Wide Angle eyepiece. (I also used it with great satisfaction on the 29 July ISS transit, with my smaller telescope.) This time, with the 235 mm Celestron Nexstar Evolution go-to scope, it yielded 168x magnification.

Because I have a go-to mount I was able to view:

- 7 GLOBULARS including Messier 5 in Serpens (very delicate), M22 in Sagittarius (I found a guy from the 1600's who agreed with what I saw, that it's very irregular; and he was using an 18-foot scope so you can't argue with that! Even though everyone else sees a globe.), M10 in Ophiuchus, M3 in Canes Venatici (my second-favourite), M15 in Pegasus (see article in this month's *Sky News*), M2 in Aquarius (very 3-D-looking), and M71 in Sagitta (which, presumably due to the outrageous glaring lights, did not look at all globular to me—and yes, I was so looking at the the correct object, those of you who disdain go-to's!);

- 4 OPEN CLUSTERS (I counted the Double Cluster in Perseus twice, once for NGC 869 and once for NGC 884; go-to wasn't very useful at 168x magnification on such widely separated objects), M11 (Wild Duck Cluster) in Scutum (the showpiece of the evening that I was delighted to spend time with), and M6 (Butterfly Cluster) in Scorpius (would have been better in a wider-field eyepiece);

- A BONUS CLUSTER, Messier 20 (Trifid Nebula) in Sagittarius (only the open cluster, not the nebular lobes—but don't give this a miss just because you don't have time-lapse eye, it's a real beaut!);

- JUPITER—at first I viewed it through my 35mm eyepiece, and it was spectacular as expected. Then I observed it in the 14mm, but the seeing was variable and I suspect I had the focus a little wrong. Still, a beautiful thing to see;

- SATURN—lovely as always, along with 3 moons;

- THE FIRST 6 "Things to See On the Moon." That's from the Centre library's book *50 Things to See on the Moon* which is quite an interesting read (ha ha—seeing as it was written by John A. Read!) Odd tidbits and features in this little volume; it's gotten me interested in going for a Lunar Certificate.

Then there were the failures (not unexpected with the monster light pollution factory right beside me):

- NGC 6144 and Messier 4 globs in Scorpius (might have been the dew—not certain as I was also getting thoroughly bitten by that point)
- IC 1805 Heart and IC 1848 Soul Nebulae in Cassiopeia (poor observing location)

- M8 Lagoon in Sagittarius (poor observing location)
- missed an occultation of Jupiter's moon Io—I just didn't do my homework!
- missed the Great Red Spot—again, insufficient homework. However, from my observing location I don't believe it would have been visible due to glare.
- Messier 27, the Dumbbell Nebula in Vulpecula (I *may* have seen it...if I did I observed only a few surrounding tiny stars, zero nebulosity. Need a dark sky site)
- I *did* see the Ring Nebula Messier 57, but not to observe, just to visit to make sure it was visible after missing M27; I've had practice observing the Ring, so I don't find it difficult any more; it's a good checkpoint.

In conclusion, "location, location, location" always seems to best explain the good and the bad of observing. And also, having a go-to system definitely allows me to get more observing done than star-hopping. As well as making it possible to locate objects that you can't star-hop to when the sky conditions mean the stars aren't even there to be hopped from!

I started observing the moon around 7:45 p.m. After the Ring I was packing up by about 10:15 p.m., when the insects, and the dew became pretty bad (the dew was expected to become much worse according to Environment Canada.)

The Great Red Spot on Jupiter should be front and centre this Friday at Elbow Lake (see? I'm learning to do preparation!) The Spot is mid-disk around 9:15 p.m. and will probably rotate out of view by 10:30-ish. No moon phenoms until 4:08 a.m. on the 10th (an occultation of Io begins); only the most *fascinated* members of the public will be left on site to watch it. I suspect they'll be alone. I'll be curious to see if the weather cooperates; at least the location sounds good.

Rick: Thanks for sharing that Paul. Sounds like a nice evening, too bad the skies weren't darker.

I think you'll find the Heart and Soul nebulae to be extremely difficult so don't be disappointed if you miss them. They are quite large, very very faint and diffuse. I've glimpsed them once on a particularly good night here at home and with a smaller scope that gave a wider field of view to make them stand out better.

Hank: Paul, you are rocking the observing! Good for you, enjoy. Great report.

Wed/Thu, August 7/8

Graeme: It's a cloudy night, so I decided to revisit older data I had to see if I could squeeze a bit more out of the image (mainly as it's now taking me 2–3 nights per image as I'm going for longer exposure time)... found out I had a lot more detail then I could ever imagine!

I may of over processed a bit to get the detail out of the image but its still surprising how much I got out of some old data. I'm going to dip into other old data and see what else I can find when clouds, the moon, or real life crimp my imaging.

Graeme Hay — M42 (both)

Fri/Sat, August 9/10

Rose-Marie: [*On the moon and Jupiter*] I had looked forward to the conjunction last night but there was haze in between the clouds, had it been clear I would have got out the camera and photographed it. I was just too tired after a long day of moving furniture around and then those 3 glasses of wine at supper with friends didn't help any.

I woke up at 03:30 and thought oh, better check the sky, set up the camera to do a series in case I can catch a meteor, but.....clouds. Grrrrr!

Paul: Elbow Lake on Friday was a blast. The weather was variable (we had rain while the speakers were at work—aack! my fluorite lens!) but there was an extraordinary little band of mainly clear sky containing the moon, Jupiter, and Saturn that persisted most of the evening. Lots of young kids grabbed eyepieces and happy parents said thank you. I think the organisers were happy too.

Sat/Sun, August 10/11

Malcolm: I started a camera at sunset, fishing for Perseids. Woke up just before 4 a.m., decided to take a look outside. Camera is running nicely. The sky is clear and calm. The moon set a while ago. Shooting in Darkness.

I saw a nice bright Perseid in the south. Always a great experience looking up and being rewarded even if only for a moment.

I took my one little victory and am going back to sleep. Pictures at 11.

Sun/Mon, August 11/12

Stephen (00:29): Even though there is an almost Full Moon out I couldn't resist a good clear night. I learned several things:

1. Don't image too close to the moon. It blots everything out!
2. Using a 0.5x focal reducer effectively doubles the exposure.
3. Bright objects can be effectively imaged, however I've pretty well mined out that data set.
4. Dim objects are effectively blotted out by the moon.

Now I have to decide whether to stay up until moonset at 3 a.m. to image my next nebula.

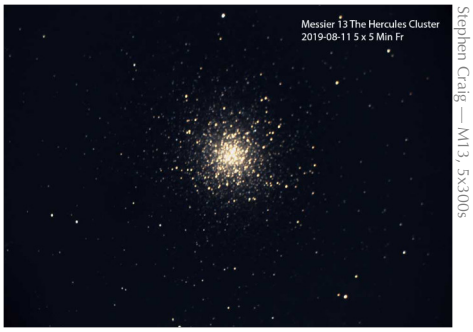
Graeme (00:48): My understanding (I haven't tested this yet) is that a Hα filter cuts a lot of moon glow out; otherwise OSC or other narrowband filters are almost useless when the moon is up.

Stephen (01:27): I haven't tried that yet. I might, but as for tonight I'm packing it in. A 3 a.m. moonset doesn't leave me enough imaging time.

Greg: My experience as well. 30° away from the moon is as close as I have ever been able to get for a bright target. How much the moon interferes depends on how much crud is in the air around the target —either clouds or smoke. We seem to have an abundant supply of both this year. Problem is that moonshine (not the liquid) is just attenuated sunlight and is bright across a broad spectrum. This is why the Mark 1 Eyeball can see colours on a bright moonlit night. And Hα was first discovered in sunlight. But the blue end of the spectrum is scattered more than the red, so Hα and maybe even OIII might be useful—I am just edging into narrowband at this point and have had few chances to experiment. What I have read suggests yes, but then the literature suggests many things.

Stephen: I managed to get three decent images last night. I was tired and couldn't stay up for a 3 a.m. moonset. That wouldn't have left me enough time for an image run anyway. I'll have to wait until after Full Moon has passed and I get some moonless nights.

Stephen Craig — Moon, 10ms



Stephen Craig — M13, 5x300s

Stephen Craig — M57, 5x300s

"It's only just possible to travel to Mars, just barely. If G was 10% more, wouldn't work really. If G was 10% lower it would be easy."

—Elon Musk, 2019

Perseid Meteor Shower

Sat/Sun, August 10/11

Cathy: Sunday early morning I took a look out the window for Perseids just before 4.00 a.m. Saw a nice magnitude 1 coming down from the radiant...just as a satellite went scooting by through the Pleiades. Checked on Heavens Above: it was CZ-2C R/B, a Chinese rocket body, launched in 2004.

Sun/Mon, August 11/12

Walter: I was out for a couple of hours (01:30–03:30) and only saw half a dozen (looking NE), though there was one very nice fireball that went just under Polaris and had a nice terminal burst (unfortunately not caught on camera). I'm not sure if that makes up for an otherwise weak display or not. Near the end of the session there was a fair bit of cloud coming through.

Ironically my phone was imaging the field with the fireball but somehow did not record it. I was experimenting with Meteor Mode in NightCap but it failed to detect it and so did not save an image. (The idea behind meteor mode is that it compares successive exposures and only saves the latest if it detects a significant difference.) Of course, learning such software details is difficult when there is less than one good opportunity per hour… Interestingly there was a faint satellite going S through Cassiopeia that I could not see naked eye, but could see on several consecutive exposures on the camera screen—and I did notice that the software did not consider it to be a meteor, so perhaps that was a clue I missed that my much-hoped-for meteor pictures were doomed from the start!

There was no dew and I had my phone plugged in to a power bar so I was able to image the sky continuously with 60s exposures (not using Meteor Mode, after the fireball debacle). Alas, none of those have a meteor in them.

It was nice that the phone made a camera shutter sound at the end of each exposure so I knew it was still working without having to look at it. The screen stayed dim as long as I didn't touch it so it was easy to look once in a while to see the exposure count and it didn't blow away what Full Moon, in-town night vision I had going. Except for a few mosquitoes (despite a light breeze) it was a very comfortable night to be sitting out in a lawn chair.

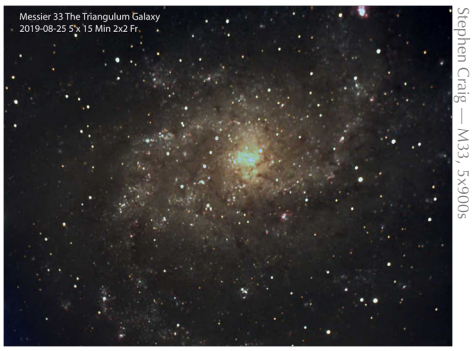
Rose-Marie: I had the alarm set for 3:00 a.m. but the call of nature had me rousted out at 2:30, so I got up and set up the camera to do a series run of 30s exposures. Finally got to try out my new cable release. I only got one shot of a meteor. I saw about 5 really nice ones. Was about to go crawl back into my nest and let the camera do its thing but then BigWetNose had to go out, so put her on the leash and we wandered down to the dock. There was haze to the south but the north was clear. Just too tired to go back up and bring the camera down. There certainly weren't the "30 per hour" as reported on spaceweather.

Tue/Wed, August 13/14

Mark: Caught another ISS transit last evening at 18:03. I had to use my small scope on the lawn as the big scope's view was blocked by the Trembling Aspen. I was all set up, did a test exposure, overexposed, adjusted, ran a short video, still a bit overexposed, adjusted, test, good. Then at 18:00 the camera gives me a warning, no memory card installed, re-insert or put in another card. After a frantic episode of removing and re-inserting, I dashed into the house, ransacked my camera bag for another card (compact flash, not SD) and ran back out, replaced the card and started the recording. I was lucky. This one was a short chord, definitely a do not blink. I also captured a double pigeon transit. One of our neighbours has a coop of homing pigeons.

Sun/Mon, August 25/26

Stephen: When I imaged M33 last night I was not very impressed with the raw images. But when I processed it today I was quite happy. This is probably the best I've done on M33 yet. It just goes to show that you can't rely on first impressions!



Stephen Craig — M33, 5x900s

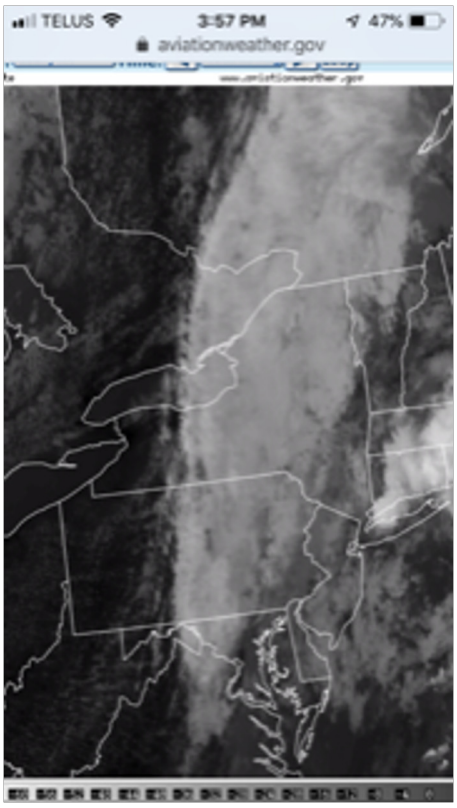
Kim: Really, we got home from a Queen's football game, skies clear, observatories open. You go inside to get the binoculars, come out, and boom—cloud...that was it, done by 10:15 p.m. I did manage to catch Jupiter through the trees, Saturn, M31, M32, and M110. Got a few sky images, so it was not a wasted night, but the dew was falling as well.

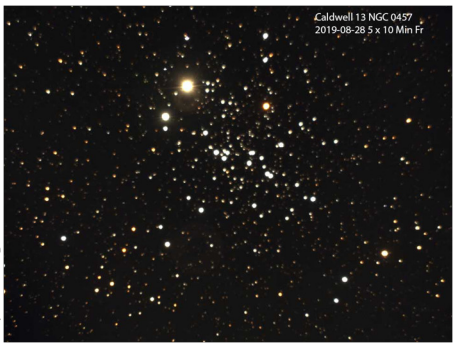
Greg: Charming, wasn't it... formed just about sundown and ensured that nothing could be done beyond ensuring the equipment worked. And me wanting to try out my narrowband filters with a couple of bright targets. I share your pain.

Rose-Marie: Well I lucked out last night, went down to the dock at 9:30 p.m. With the camera and took several pictures, had a beautiful clear sky. About time I got out there! Was tired and only stayed about an hour. Just before going to bed at 11:20, I looked out and saw clouds to the south.
Stephen: The clouds completely missed me. I had a great evening of imaging. I was tired from my drive home from Starfest so I packed it in once the moon came up.
Malcolm: Good for you Stephen, nice seeing you at Starfest.
Susan: I also found the evening confusing. Earlier in the day the Clear Sky Chart reflected what I had in the end, but as evening approached it showed a great clear sky with decent transparency so I made plans.
Rick: I'm with Steve. Never saw a cloud all night. (Gloat gloat gloat.) Shot an even 100 images of my targets, including 5 of M31_V1—it's back in my sky! And, for a future project of doing HR diagrams of a bunch of open and globular clusters, I shot some really nice B and V images of M13. I'll process them up for pretty and share them later.

Wed/Thu, August 28/29

Malcolm (15:38): Will it...or won't it?
Rick (18:00): This will be when you guys can gloat—it will clear here a lot later than in PEC or Kingston. I have a gamma-ray burst after-glow to try to hunt down if it clears by 10.
Stephen (19:01): As of 7 p.m. it's clearing in Battersea. At least the sun is shining! There is hope for tonight yet.
Graeme (19:05): Clouds in Napanee.
Malcolm (23:27): Shooting NGC 6992 since 9:30!
Stephen: I had a fairy good night after dealing with a wasp nest and a few clouds. My telescope mount is misbehaving so I'll swap it out for my backup mount. I got two good images before the clouds rolled in again at 3.





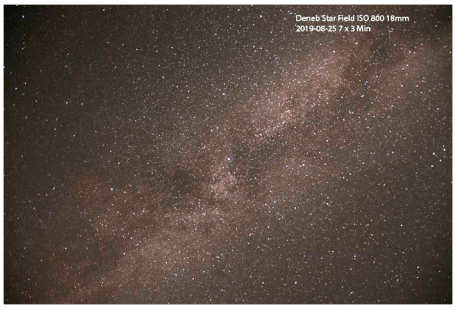
Stephen Craig — NGC 457, 5x600s

Stephen Craig — NGC 7380, 3x1200s

"The dinosaurs didn't have a space program."

—Larry Niven


Stephen Craig — Starfest



Stephen Craig — 18mm, ISO 800, 7x180s

Stephen: During my last night at Starfest I tried a 6-image panorama from the top of the hill. It actually shows a lot more than could be seen visually. There were a lot of people there that night, probably near a thousand and hundreds of telescopes!

Also at Starfest I learned how to properly use my Canon T7i DSLR. When I returned home I found that my new mounting bracket for the telescope had come in. Now I have it properly mounted on the telescope. This is my first light photo. It is centred on Deneb.