April 2020

Skyletter

RASC Kingston Centre

Kevin Kell

Tue/Wed, Mar 31/Apr 1

Stephen (22:31): The sky is nice and transparent tonight, but a bit windy. It's throwing my guiding off from time to time. I'm keeping my exposures short because of the moon. Luckily I have some bright galaxies on my to do list. I'll get to the faint fuzzies after moonset.

Rick (23:17): Scarcely a breeze here. I took advantage of that useless gap between civil twilight (when I'm shooting my twilight flats) and the end of nautical twilight (when I can start photometry) to shoot 14 videos of the moon (8 of which will serve to create a mosaic of the whole Moon). Seeing is not very good but hopefully AutoStakkert! can pull something reasonably nice out of them. Now I'm into a full night of photometry of my RRLs and the GAIA Cepheids.

I did have one particular success—finally got my twilight flat script fully debugged and operational. I just need to tweak a couple of the parameters in it to better model the declining brightness of twilight to make it perfect.

Graeme (01:02): I'm comet hunting with the EdgeHD tonight, using the giant dome to block the wind; it's not bad at all.

Stephen (01:39): The wind died down around midnight here. I'm still on galaxies in Ursa Major. The latest two I imaged didn't have convenient guide stars, but the galactic centres were starlike enough to guide on.

Graeme (01:45): I just saw a very fast, bright shooting star: 01:41, ~75°/8.5^h heading W ~5° downward until about 50° line, well past Muscida; ¼s if that...

Graeme (03:20): The battery is about to die on me; I've had a very "Messier" night of imaging "not comet." I guess I'll have to try to find it another night with the EdgeHD 8" once I come up with a more surefire way of spotting it.

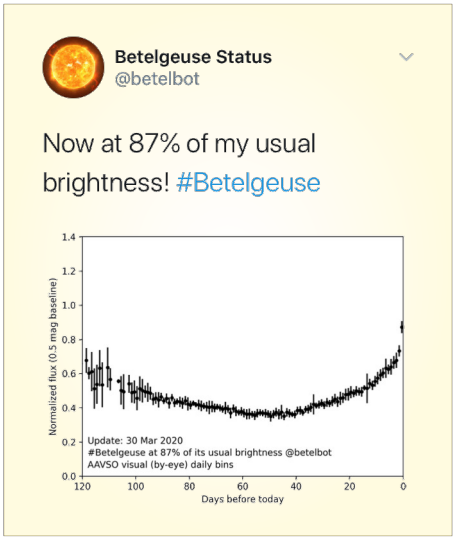
Susan: Pretty sure I saw the same one.

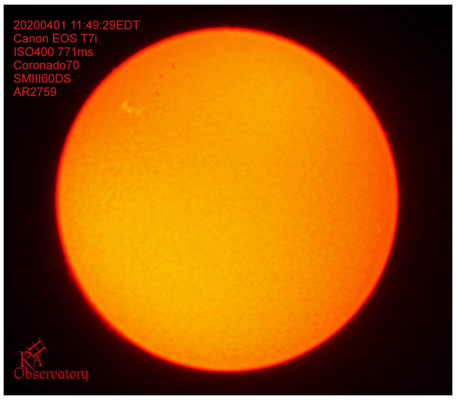
Keith: I really envy you guys. I went out last night also; there was so much moisture in the air with the moon, the sky looked luminescent—could have been fog? I tried for the comet but the 11-inch is an old one, so to turn to look at the N like that, the yoke and wedge are in the way, plus with so much dew everything was dripping. I did look at Venus—something to see with only half showing (Quarter Venus?). The Bahtinov mask I made worked great.

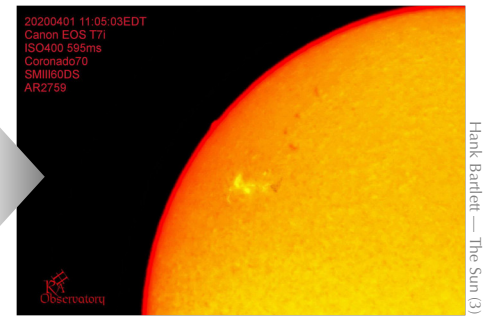
Wednesday, April 1

Hank: Here are a few pics from this morning of AR2759 near the solar NE limb, hopefully it is going to continue to grow.

Kim: I went out at lunch yesterday, and saw nothing. It must be very tiny; it did not show up in white light.







Hank Bartlett — The Sun (3)

Wed/Thu, April 1/2

Rick (22:48): I wasn't expecting it to clear this evening, but clear it did. It was already too late to shoot twilight flats (and I have yesterday's anyway) so I went straight to the moon. This is a great time of year to check out the First Quarter

Moon as it is nearly overhead in the early evening. And I particularly wanted to check it out again this evening as I noticed last night that the illumination of the Alpine Valley would be prime. The seeing was generally quite poor, with lengthy periods of positively bad. However, there were also occasional, brief (minute or two) periods of moderately good seeing.

I got out the ASI174MM Mini again, stuck it in one of the secondary focusers on the Boltwood 0.4m and shot some videos with FireCapture. Then I added a 2x Barlow and shot a few more. I did a little video of a pan down the terminator, unfortunately during one of the periods of the worst seeing. I hope at least a couple of the videos caught some of the good seeing periods.

The occasional good seeing was enough to entice me into putting an eyepiece in the scope—several in fact. I finally ended up with the Pentax 5.2 plus Televue 2x Barlow to give 735x. I spent an hour just cruising around the moon. There were several periods of a couple of minutes each of moderately good seeing. There were 4 craters very nicely defined on the floor of Plato (still haven't seen the 5th one near the big slump on the W edge). Many of the rimae to its E were very well defined. Rima Hadley was spectacular, the surrounding Apennines just brimming with extremely fine detail. Ptolemaeus had at least 2 dozen craterlets on its floor—far more than are shown in Rükl. The smallest of the ones I saw are about 1 km in diameter. Rupes Recta was great, Rima Birt next door showed its cobra head beautifully. It was neat to see Tycho just barely illuminated—there were no nearby rays, but clearly a quite new, sharply detailed crater. Finally, to close the session I had a good solid view of the rille at the bottom of the Alpine Valley, a very serious chall-enge and something I've been hunting for (on and off) for about 6 years now. It is only about 600m in width. I may have caught it in some of the images too, I hope.

I'd forgotten just how beautiful and addictive the moon can be; with a scope as good as the Boltwood it can be positively thrilling. It was hard to put that all away and get to work on my photometry.

Susan: Yes, it was another clear night, quite the gift. I was going to just step out onto the deck with my binoculars but opened the observatory and had a nice look about.

I searched for the comet. I believe I had a good map—better than the night before when I glanced at it and left the house without it (duh!) but I still was unable to spot it. Total failure...but very enjoyable... what a weird hobby! Was the moon too bright? Did anyone else see the comet last night?
Graeme: I could not find it. I'm thinking it could be that the moon makes it quite dimmer in comparison.
Paul: It was terribly foggy here, so I satisfied myself with an ISS pass.

Thursday, April 2

Keith: I went out today to view the sun; I could see the spot in the 5-inch but not in the Coronado. I did see a large prominence on the right.
Hank: Yes, you got it! I went out this morning but have not processed images yet. The spot shows in the double but would not otherwise.

It is small but a little darker than some of its size, and had some nice plage around it. It is some time I think since there was one this far north on the solar disc.
Kim: I did see it today!

Sun/Mon, April 5/6

Malcolm (13:02): There is an ISS pass below Venus and Pleiades tonight just after 9:15 p.m.
Malcolm (21:40): Well that was wimpy. Next time I'll pay better attention to the magnitude.
Susan (21:47): Nice and clear for a bit of lunar observing—if one had chosen the right coat. Spring is toying with me. I'm not sure how long I'll be here.
Graeme (23:18): It took an hour to find it (thanks astrometry.net!) but I'm now imaging it with my Edge-HD8 so I can stack it and see what I get for all my troubles...and the moon.

Fri/Sat, April 10/11

Stephen: I'm pretty well done with my "Galaxies in Ursa Major" project. I imaged my 52nd galaxy last night. I'm running out of good targets, so tonight I'm moving on to Leo (29 targets) and Virgo (42 targets). I doubt I'll get them all done this year!

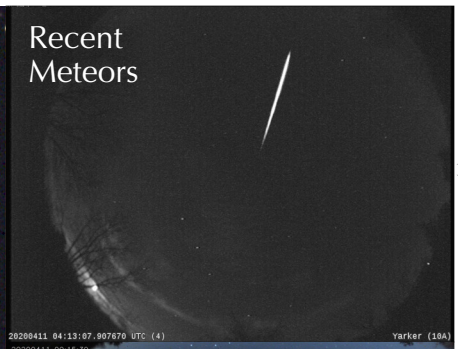
I'm happy with NGC 4102 from last night. It's a nice little galaxy:

Stephen Craig — NGC 4102

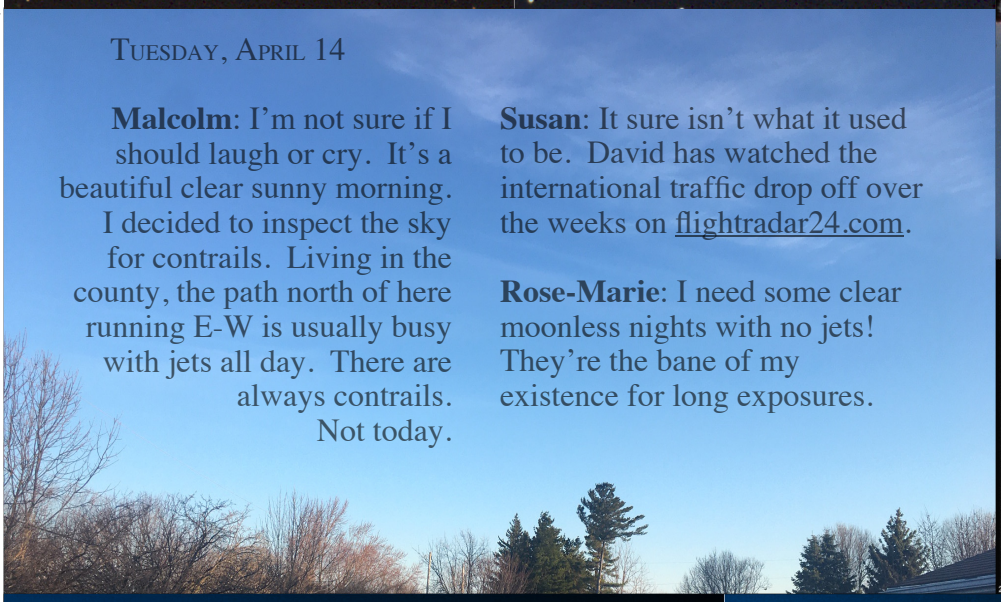
Sat/Sun, April 11/12

Stephen: I managed two galaxies in Leo last night. I've extended my to-do list to 135 NGC galaxies. That's going to take a while! Thursday night is looking good. If it holds I'll get five more!

Stephen Craig — NGC 3338, NGC 3433



Kevin Kell — Meteors (3)



Malcolm Park — Sky

TUESDAY, APRIL 14

Malcolm: I'm not sure if I should laugh or cry. It's a beautiful clear sunny morning. I decided to inspect the sky for contrails. Living in the county, the path north of here running E-W is usually busy with jets all day. There are always contrails. Not today.

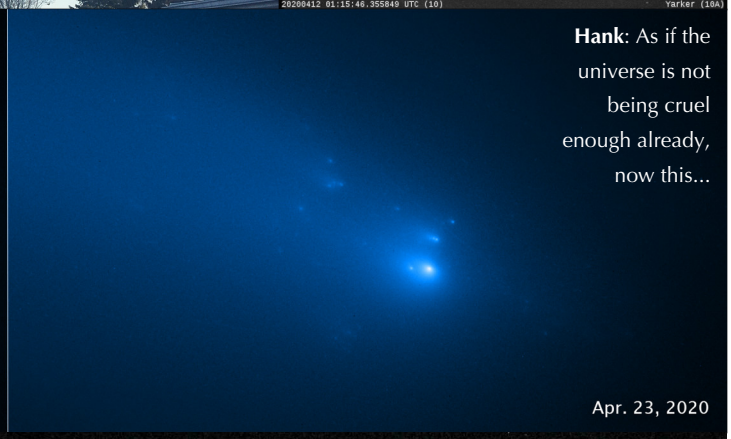
Susan: It sure isn't what it used to be. David has watched the international traffic drop off over the weeks on flightradar24.com.

Rose-Marie: I need some clear moonless nights with no jets! They're the bane of my existence for long exposures.

NASA, ESA, STScI and D. Jewitt (UCLA)

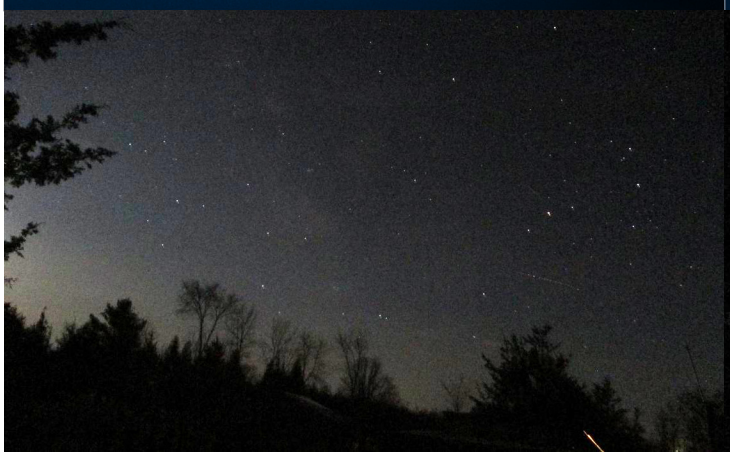
Hubble watches Comet C/2019 Y4 (ATLAS) disintegrate...

Apr. 20, 2020



Hank: As if the universe is not being cruel enough already, now this...

Apr. 23, 2020



15s, 04:40 EDT

Kim Hay — Canon PowerShot ELPH 120 IS, ISO 800 (both)

TUE/WED, APRIL 14/15

Kim (06:13): Here are the moon and planets this morning.

3.2s, 04:52 EDT

Wed/Thu, April 15/16

Stephen (20:01): It's clearing up right on schedule! It should be a good night. I have 140 galaxies on my target list so I need all the clear sky I can get.

Stephen (01:31): The problem with imaging faint galaxies is that they tend to be in areas largely devoid of stars. This makes finding suitable guide stars a problem. I'm guiding on very faint stars. As a result my guiding is very ratty so far tonight.

Graeme: I've been running into the same issue, Steve. This is why I've been mulling over a more sensitive guide camera so I can capture those faint fuzzy stars better.

Rick: I've always had guide star problems with the Boltwood 40cm. My guide camera field of view is only ~7x5'. Plus an internal guide chip can't be shifted and the camera cannot be rotated so either there is guide star on the chip or I'm diddled. So I can image M81 but not M82, M65 but not M66... Except that I'm lucky in that almost all of my targets are point sources, so often I can displace them from the centre of the field in order to get a guide star. Even so, there are variable stars that I just can't image because of lack of guide stars. I'm trying to build a 15cm f/4 guide scope but haven't ben able to figure out how to do the spider and how to mount the camera in the spider at prime focus in such a way that it can be accurately focused.

It was a really good night last night—I hadn't expected it to clear so it was a nice bonus. Guiding was great, and I got 160 images of about 10 different stars. One of my GAIA Cepheids has several dozen tiny galaxies in the field so at some point I'll have to collect the best couple of hundred images and stack them. See how deep I can go.

Malcolm (05:07): This morning:

Malcolm Park — Dawn Sky

Nikon D810A, 14mm f/2.8, ISO 1600, 30s

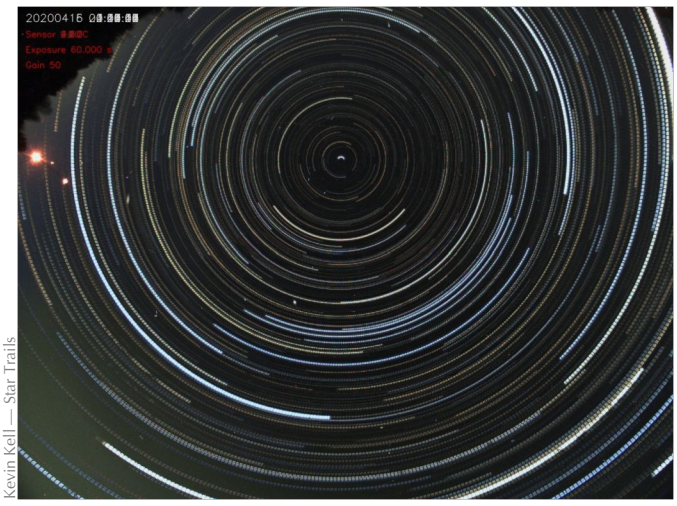
Kim (05:09): It is beautiful out there. I took some shots too, just came in. It was –8C and I watched a train of Starlinks go over, the launch from November track. That was a sight I will never forget. There were around 15 that I saw, still around mag 2.5.

Malcolm (05:21): Agreed, it's beautiful out. Not quite as cold here just –2C. Amazing how much just a little moonlight washes out the sky and Milky Way.

I never even thought of looking for artificial objects like those. After I saw Starlink the one time that was enough for me.

Kim (05:23): There was one coming from SSW overhead, and I wondered if it was the ISS, but not very bright...then they came.

Kevin: Here is an AllSkyPi1 autogenerated image from last night. A dark frame was applied to each of the individual component images, so it is fairly clean. The green haze in the lower left is the Kingston skyglow. Just on the edge of the upper right is Venus.



Kevin Kell — Star Trails

Particularly interesting are the multiple single points of light that are not moving/repeating. Some are meteors to be sure but the others? Satellites? Satellite flares? airplanes? There are at least 20 that I can see at first glance...they almost look like the shepherd moons in Saturn's ring system.

Rick: Great image—it's good to know the little ASI120 can do such a good job. I'll have to get to work on building my own most-sky camera (of course my sky is so hemmed in by trees that I could use a telephoto lens.) By the way, have you thought about going into marketing? "Buy our new ALLSKY CAMERA!! Images a largish fraction of the sky!" You might add: "Encased in genuine plastic (not the imitation plastic like our competitors!)"

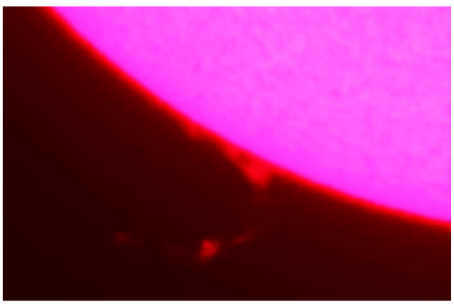
My theory is that probably all the point sources are satellite flashes. I believe the likelihood of a point meteor is very small. Even though your camera resolution isn't great, the chance of a reasonably bright meteor staying within a couple of pixels I believe is virtually nil. If you recall the possible meteor shower event a few years ago (clearly I don't recall much since I've forgotten the comet and the constellation) that was to occur in the northern sky in the pre-dawn hours? I went out to watch it for a couple of hours and saw a half dozen bright point sources of very short duration — three of which occurred in a straight line spaced out evenly in time and space exactly as if a satellite was

rotating or tumbling and giving a periodic bright flash. Like an Iridium blast but of very short (0.1s?) duration—in particular much, much shorter than a point meteor would be. At the time I had been shooting some time-lapses and was in the habit of very carefully blinking every pair of images (1–2, 1–2, 1–2, 2–3, 2-3, ...for an hour or more) to look for meteors or other transients. I was finding a lot of these bright point sources (with point spread functions that preclude them being cosmic rays)—say a half dozen per night and that on nights with no meteor showers.

If you were to pull out a few of the images with the point sources and send them to Mike Earl, I bet he even could tell you which satellites caused them. Which would be very interesting—it might finally kill the whole point meteor idea. If point meteors exist shouldn't we see them in greatly increased numbers during meteor showers? At which time every one would be exactly at the radiant and I don't believe that has been shown.

Thursday, April 16

Hank: Got up lazy this morning and broke with routine— I did not check the GONG Hα until 9:57 EDT, DAMN! The long hedge row on the SE limb started tearing away from the surface about 8 a.m. our time and I missed it. I did however get some 150 images of the ending of it. I hope to get some processing done later today.



Hank Bartlett — 10:14 EDT, ISO 200, 0.8s

Thu/Fri, April 16/17

Stephen (21:40): Again the clouds cleared out and the wind died down right on schedule. I found my first galaxy with a good guide star, so I'm on a roll!

Hank (21:41): Good for you Steve. I'm always here watching, I just do not comment often.

Stephen (22:04): I always view your posts with interest Hank. I was a solar observer back in the 60's. Technology has come a long way since then!

Rick (22:57): I too am hard at work—third night in a row (though the first one didn't start until 3:30 a.m.). Tonight my guiding is crap—lots of oscillation in Dec which shouldn't be. Last night it was great. It's like the mount has occasional bad moods.

Stephen (23:21): Guiding on my first galaxy was rock solid. Did a meridian flip to get the next galaxy. Now my guiding is crap. Maybe I have a balance problem. I'll sort that out tomorrow.

Stephen (01:59): I was having some problems finding my targets. I realized my goto pointing was off, so I went to recalibrate my mount. Then I realized I had some cloud. As well, the wind has been affecting my guiding—though not as much when I'm pointing east of the meridian, so I'll stay with targets there.

Kevin: 6 meteors were captured on SCGO AllSky2 overnight. Ramping up for more (Lyrids) soon!

Kim: I saw one this morning while out taking planet pictures. It was just like a tear drop falling.

Stephen: I had a fairly good night last night. I had a few problems. My goto pointing went off base and I had to recalibrate the mount. There were a few clouds around midnight and the intermittent wind degraded my guiding.

I managed to get four fairly good galaxies. My favourite is NGC 5584 which has an interesting double nucleus, probably due to a galactic merger.

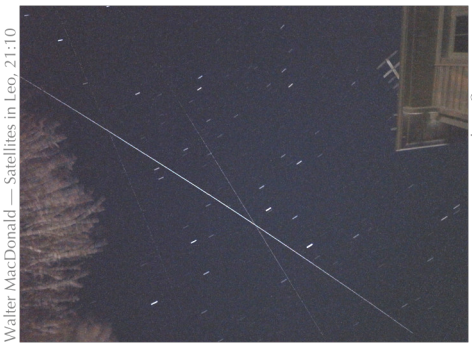
Stephen Craig — NGC 5584

Saturday, April 18

Kim: I'm glad that Big Bear reports the same thing as me on the GONG solar page: nothing to see, no prominences today.

Sat/Sun, April 18/19

Walter: Such a busy sky! I observed a bunch of Starlink passes and a few other sats. Here are the 3 best shots of the night:

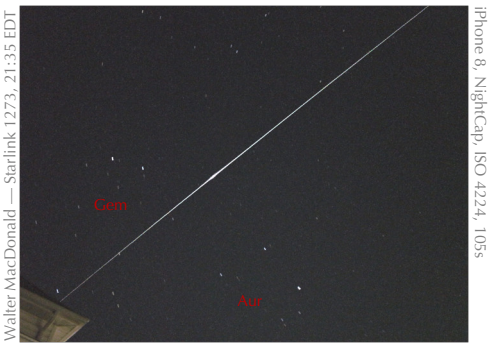


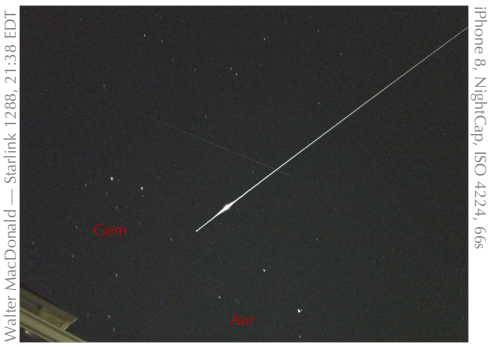
Walter MacDonald — Satellites in Leo, 21:10

iPhone 8, NightCap, ISO 4224, 213s

Resurs 1-3 (left, predicted mag 3.6),
Iridium 4 (right, southbound, predicted mag 3.0),
and Cosmos 2082 (brightest, predicted mag 2.1).

Kevin Kell — Meteors





Left: Starlink 1273, mag 1.6 (predicted). Note the bright flare.

Right: Starlink 1288 (mag. 1.7 predicted) with a very bright flare—I almost missed this one! The faint trail is Okean 3 Rocket (mag. 3.9 predicted) which was moving leftwards.

Kevin: We were wondering if Starlinks flared at all because we were capturing a lot of anomalies on the AllSky1Pi camera system. Starlinks flaring would explain them!

Sun/Mon, April 19/20

Stephen (01:26): Well, it cleared on schedule at midnight. So now I'm back into galaxies, this time in Virgo and Coma. There are lots to choose from! I'll be up until dawn.
Malcolm (02:01): Same here. Beautiful night. Using the 12" RC; going well so far. I had to improvise to achieve focus. But I'm back on the Needle Galaxy, NGC 4565. Stars are much better with the RC. There may be a pretty picture tomorrow. Guiding is excellent tonight. I think the seeing must be better than advertised on the CSC.
Rick (05:17): I agree—great night. The SQM was reading 22.13 through much of the night—the best I've ever recorded. And good guiding.

I was out checking the sky about 03:30 and saw two Lyrids, so I decided to set up the camera inside the observatory to trial a time-lapse with the telescope in the foreground. Then I set out my zero-gravity chair up and lay back to watch meteors. I put on my snowmobile suit, added an ensolite foam pad under me, and lay back to watch meteors. I noticed that the camera had quick clicking, so I checked and found the battery dead. (However, I got more than enough pictures to see how the time-lapse will turn out.) I put the camera away and lay back to watch more meteors.

I did see two more Lyrids: one about mag –1 and the other a 0. And a really nice long, slow mag 0 sporadic moving straight W to E—along the motion of the earth in its rotation and, somewhat, revolution

Data Management

Kevin: I was just taking a quick look at the image data generated by the AllSky1Pi camera system. To date we have 109 days of archived images taking up 18GB. That works out to 165MB/day or 60GB/year.

I am not sure what the policy should be going forward. It would be nice to keep all of the data, even cloudy night data, as a historic record of the sky conditions from dusk to dawn. On the other hand, what is the end purpose behind the imagery? AllSky2 for instance only keeps bright meteor events and throws everything else out. Locally on the control computer, it stores only about 1 month's worth and then deletes it. UWO itself may be storing images for longer periods of time, but then they also have more storage resources. Even so, we have accumulated approximately 1200 days of imagery totalling 191GB, averaging about 159MB/day.

Graeme: Perhaps run a batch compression algorithm? I know there is software (like Adobe Media Encoder; there is also a macro record tool in Windows/Mac; other software has similar functions) that lets you assign "watch folders" where it will apply a specific task to any file that falls into that folder. Like: Take photo file, compress it, resize it, and save it into a different folder as a jpg file.

Could you use something like that? That would save a lot of space and allow you to store all your photos if you had the software save the "non-important" images to a separate folder from the images with meteors, etc.

Hank: At first I kept ALL of my solar images, then I decided to resize them smaller—that was stupid. Then I kept only the processed images and all stages of processing. Now I am keeping only the original and finished image. I have over 12,000 files @ 22GB and I never look at anything but the best, so I am going through and keeping only the best now.

I realize this is a lot different from the AllSky, but I came to the same conclusion you are stating: "what is the end purpose behind the imagery." To me, the end purpose is the immediate record of an event and the possibility to add data to a tracking of the event. Other than that they will likely never be viewed again after the first month.

I am slowly going through and deleting all uneventful images. Although it is historical record, there is now so much historical record out there that it is becoming overload. My thought is to keep only clear nights and even then only ones with events, if this can be done by program. ★

about the Sun.

But the satellites were the highlight of the show. I saw several moderately bright to faint ones. Then I saw one of the brilliant point flashes that I talked about the other day. It was so bright and so short that I was about to dismiss it as my imagination or glint off the eyeglasses frame when it happened again a few degrees north. The flashes were about mag –5 and essentially instantaneous to the eye. With care I could finally see the mag 5 satellite which then gave two more much slower dimmer flares before disappearing into the trees to the north. This was followed by one of the satellite triples (US Navy surveillance satellites IIRC?)—three satellites in a right-angle isosceles triangle moving along parallel to the hypotenuse, roughly SW to NE. Each of the three gave a long slow flare to about mag –1 as they passed a certain point in the sky—clearly they all have exactly the same orientation so all flared at the same spot. As the triple was fading from view a slightly brighter satellite crossed at right angles right through the group which gave the impression that one of the three had suddenly taken off towards the SE. Quite amusing.

Finally I got too cold and decided to pack it in. But I went down to the water's edge to look at the dawn planets—lovely. So lovely that I dragged the camera back out hoping to get a few quick pictures with a slightly rested battery. Worked perfectly. I'll download the pictures in the morning and share the best one.

And now we're into nautical twilight so it's time to shut down the scope and take a nap.

Mon/Tue, April 20/21

Stephen (18:28): While I was waiting for the intermittent cloud to clear [last night] I thought I would target a relatively bright galaxy. I chose NGC 4244 in Canes Venatici. I started my image run at about midnight when the cloud cleared for good. I was on my third sub when the mount decided it was time for a meridian switch. After that I abandoned that target and went on to some faint targets. NGC 4244 turned out pretty well considering I only had two good subs. I may return to it some other night. It looks like we will get at least two good hours tonight. I'll take all the clear sky I can get!

Stephen Craig — NGC 4244

Stephen (19:26): I see cloud on the horizon. Looks like this evening will be a no-go. Wednesday through Friday look promising.

Kim (19:32): It is cloudy in Yarker.

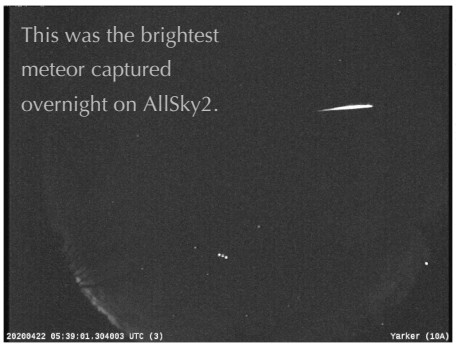
Malcolm (20:02): Same here... crapped out...

Rick (22:10): I managed to shoot flats at twilight with adjusted parameters in my flat script—the drop in brightness between images is now only about 0.3% so I'm getting better. I don't think I can go much further without being in danger of flats actually getting brighter through the evening. The goal is that they should all have identical signal levels.

Then, since shortly before 9 p.m. (*i.e.* shortly before the end of nautical twilight) I've been shooting 4 of my variables—including one at about mag 16.5—even with the increasing cloud I'm getting pretty good S/N (unfiltered exposures.) However, given that the cloud is continuing to increase and I need to change targets and focus for different filters in the next few minutes I think I'll shut down and get some much needed sleep. It's a shame—I got an email about 4:30 this morning about a cataclysmic variable in Hercules that has gone into outburst and observations are urgently needed. I guess that'll have to wait a couple of days. It's even cloudy in California at the RASC remote scope so I can't use it either (not that they've let me start using it yet anyway. Very soon I hope.)

Tue/Wed, April 21/22

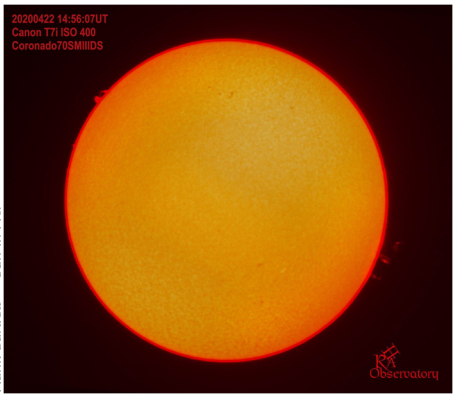
[See full image next page.]
Kevin Kell — Fireball (crop)



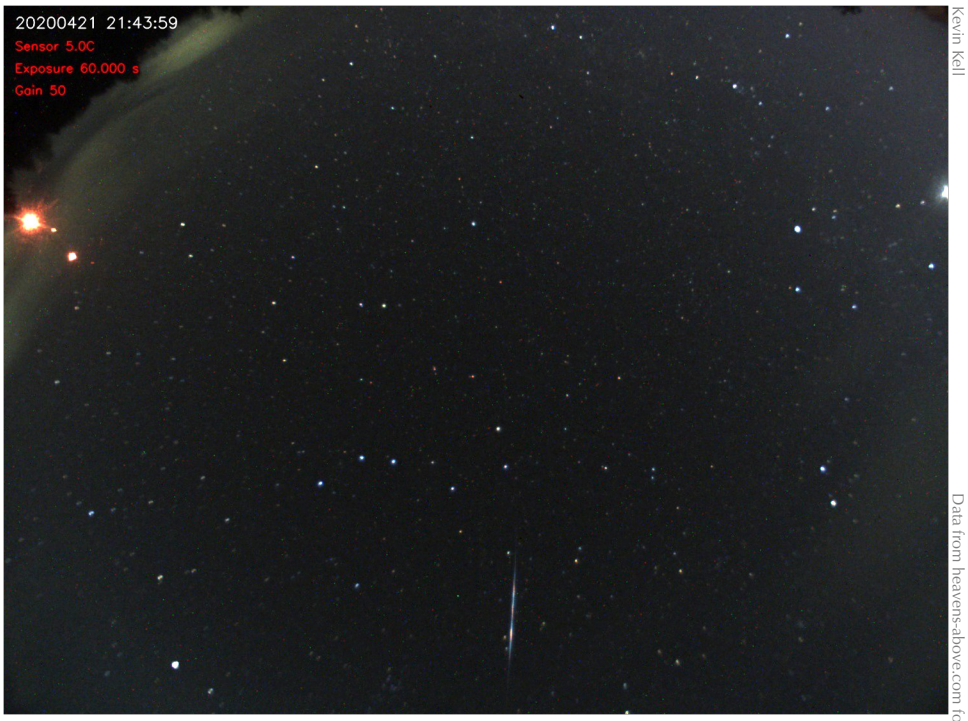
Kevin Kell — Fireball

Wednesday, April 22

Hank: This morning when I checked GONG I was drawn to go out to the RHA Obs to image the two beautiful arching prominences that were flowing over the NE limb, there were also a few small proms and some hazy long ones in the SW (barely visible in GONG). I didn't think much about the SW ones as they were very thin and whispy; I never did actually observe them either. When I downloaded my images later, I was shocked to see how well they were showing—actually I was amazed and wished that I had imaged that area more. I am loving the double-stack more every day. (It is amazing the difference the double-stacking makes, but it also has its bad points as well as being more complicated.)



Hank Bartlett — Sun in Hα



Kevin Kell

Data from heavens-above.com for Winchester, ON

Event **(Starlink 6)**	Time	Altitude	Azimuth	Distance	Brightness	Sun Altitude
Rises	21:52:12	0°	305° (NW)	1 771 km	6.9	–18.4°
Reaches altitude 10°	21:54:01	10°	312° (NW)	1 000 km	5.2	–18.7°
Enters Shadow	21:55:22	30°	331° (NNW)	483 km	3.0	–18.8°

Wed/Thu, April 22/23
Starlink & Supernova

Malcolm (20:07): Anybody NOT excited about tonight and Friday's prospects too? I've been thinking about this all day. I'm going to run two time-lapses, one from inside the POD and another from my deck.

I've taken the DSLR off the main scope and put the QSI683 on. I'm still focusing with a Bahtinov mask so I'm not expecting perfection but hopefully I can cobble some data together over these two nights.

Brian (20:18): There may be a visible pass of the latest Starlink group at approximately 21:55 due N at 33° elevation. They will still be very close together. Brightness is anybody's guess.

Graeme (20:21): I've got a southern time-lapse going from a clear vantage point. About to open the POD myself and do some imaging with the Edge.

Brian (20:31): A revision: Look toward Cas. Shadow entry is close and N may be too far E.

Rick (21:25): I have the Canon 60Da inside the observatory doing the cliché time-lapse of the sky with the telescope slewing about in the foreground. Hope it works. Trying to get the pointing right, exposure, *etc*. is difficult with the camera pressed tight up against the N wall.

Stephen (22:34): I just got my first sub. The supernova is quite noticeable. The current estimate for its brightness is mag. 15.3.

Graeme (22:34): Got a video and some photos of Starlink, basically a giant line travelling across the night sky, finally lost it about Serpens.

Malcolm (22:37): I saw zip.

Rick (22:54): Me too. But then it was in the trees.

Malcolm (23:21): I didn't try very hard. But I did try.

Rick (22:52): I've just started imaging 4568: the SN is so bright it stands out like a sore thumb in 10s 4x4 binned pointing exposures. And it's in one of a great pair of galaxies with another elliptical galaxy within the field of view.

Malcolm (00:20): Can you imagine how bright that SN would be if you were in that galaxy (NGC 4568)?

Rick (01:06): If the SN was at the distance of Vega it would be about mag –17 or ~100 times brighter than the Full Moon.

Malcolm (01:40): How would we survive?

Graeme (01:10): So after finally finding the galaxy and getting ready to image I bumped the scope...so I just packed it in.

Rick (03:01): Looking for a galaxy in the Coma/Virgo group reminds me of the comparison between trying to find a needle in a haystack *vs*. trying to find a particular piece of hay in a haystack.

I just imaged V544 Her and got a magnitude of 18.591 which is ~4 magnitudes below outburst levels. Poop. Back to my regular targets.

Stephen (03:59): It may take me several years, but I'll have that haystack picked apart.

Malcolm (05:25): Just checking my time-lapses...I got SpaceX-bombed this morning.

Walter: I observed a very spectacular pass (*see table on p.8*) of the Starlink 6 group of 60 satellites (launched earlier today) just before 10 p.m. in Winchester:

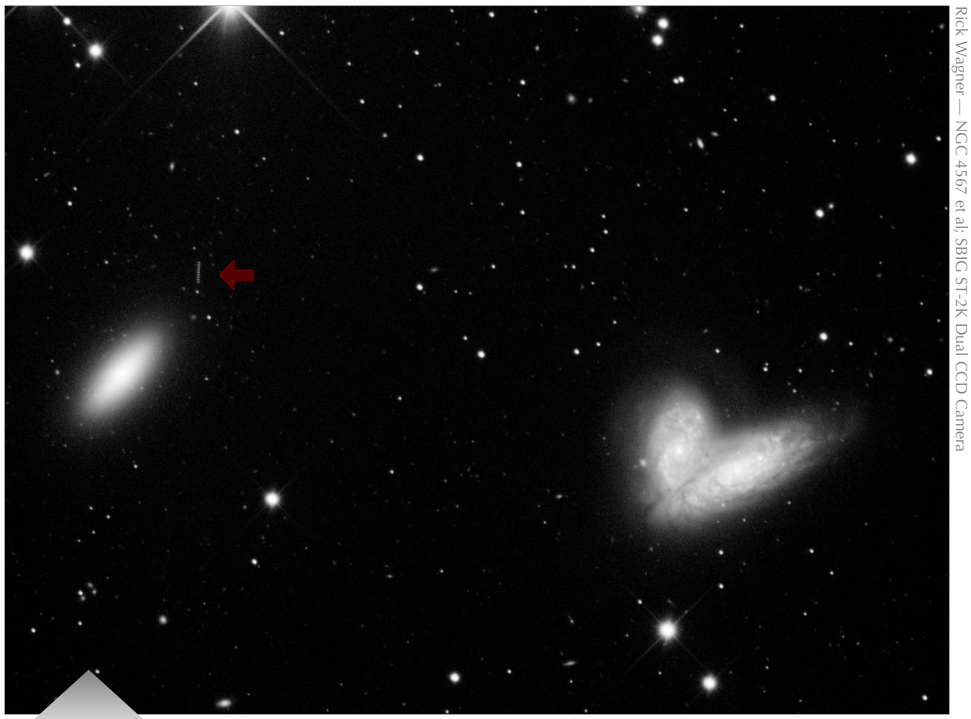
Walter MacDonald — Starlink 6

iPhone 8, NightCap, ISO 4000, 81.4s

It was visible to the naked eye as a faint streak several degrees long (third mag?), but is smeared out in this 81s exposure. I cursed myself for being so intent on getting a photo and not having binoculars with me, and the pass was too short to allow time to run inside and grab them.

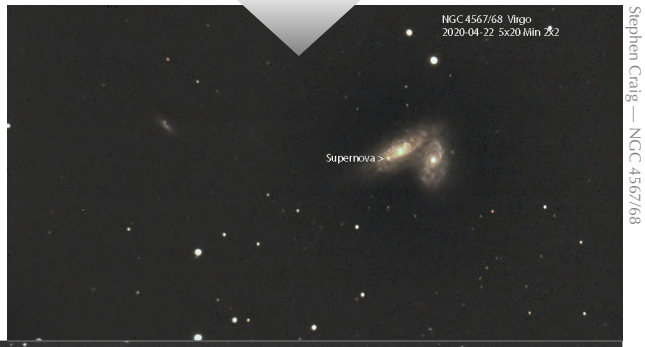
Malcolm: Have I got this right? Why are there so few images of this on the interwebs? Anyway, here's my picture from last night. Guiding was miserable so I took nothing but short exposures, and this was the best of the lot. Did anyone else find guiding impossible? Looking forward to seeing others pics of this supernova.

Rick: Guiding was fine here, not superb, but good. Here's my effort from 10x400s unfiltered exposures (N to the left.) There are some extremely faint tails beginning to show up SW of NGC 4567 and S of 4568; also 3 asteroids including a bright 16.3 mag one (arrowed) that shows up as a trail of dots just SW of NGC 4564. The other two are mag 21 and don't show up in the stack.

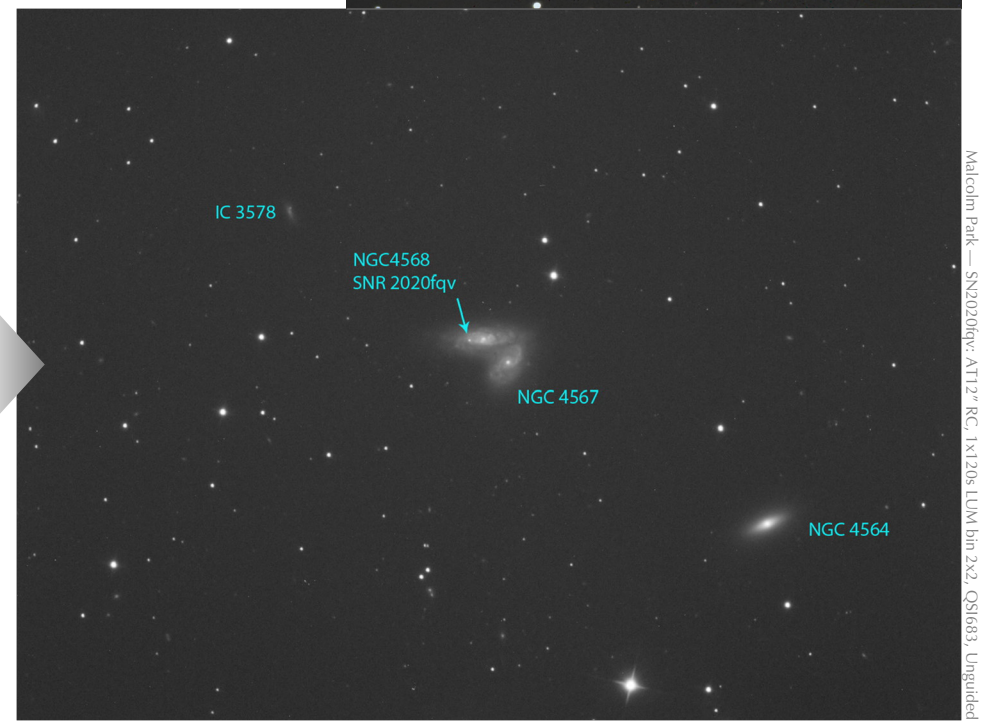


Rick Wagner — NGC 4567 et al; SBIG ST-2K Dual CCD Camera

Stephen: I had no problems with guiding last night. I got 4 images in Virgo, including the supernova.



Stephen Craig — NGC 4567/68



Malcolm Park — SN2020fqv: AT12" RC, 1x120s LUM bin 2x2, QSI683, Unguided

Thursday, April 23

Rick: So I just got back from canoeing about an hour ago and it was so *kuhl*: I saw an airplane—in the sky—flying. Imagine! What a thing!

There really aren't very many of them any more. In like 8 hours of time-lapse last night I think I only caught three. While this pandemic is a terrible thing, it is definitely improving some things. I hope (very faintly) that we may carry some lessons forward about not needing to fly somewhere every week, eat 10 meals a week in a restaurant, or drive so much. As Trevor Noah said last night, it is one of the best things to happen to the earth in a long time.

Hank: I understand exactly where you are coming from with this. I was in the observatory this afternoon getting ready to image and I heard a jet. I stopped everything to try to see, but did not. I have not seen such blue sky in many years.

Walter: OTOH there are lots of satellites! (Or perhaps they're just more noticeable without the airplane traffic…) The other night I had 3 in a pic of Leo [*see image on p.5*], and this morning I was shooting Sgr when a bright south-bound Chinese rocket body went through the frame.

Thu/Fri, April 23/24

Walter (22:22): The sky was too bright for the early Starlink pass this evening, but I did photograph the later pass—it was much fainter than last night's late pass (H-Above says mag 5 at 10° alt, and mag 3.2 entering the shadow) and barely showed up in my phone pic (the local light pollution did not help—had a good horizon though). I did not see it in binocs. Darn.

Private beta testing for Starlink Internet service is to start in 3 months and public beta in 6 months, so the program is moving along. I'm betting they go for the full 43k satellite constellation this decade rather than just(!) 12k. Add in a few other companies with equally large constellations (giga-constellations?) and we will be well and truly within a Tholian web...

Rose-Marie: Now...if we could just get a good quiet moonless night with a couple hours of power outage...just think what pretty pictures we could take! Oh crap, along comes Starlink…

Luminance: To Filter or Not to Filter

Malcolm: I have never shot unfiltered so I have only your experience to draw on. I thought that the LUM filter was introduced because it filters for IR that may bloat stars, for example. Rick's results seem to dispel that notion so I'm wondering why I don't see more unfiltered images. The implication to me is unfiltered gets you more signal; the question I have is at what cost?

MarK: If you shoot with a refractor, filtering for IR and UV would likely be useful. Our scope focuses visible light well, but abruptly goes out of focus in IR and less quickly in UV. But a reflector does not suffer from this.

Malcolm: Eureka!

Walter: It offers the opportunity to add IR filtering of course, but I thought the usual reasons were to make things parfocal with the other filters or to help balance out the filter wheel, weight-wise (perhaps only for the cheaper units…).

Ideally you would not have a Lum filter since that is another piece of glass you would be shooting through.

Malcolm: Well I'm just going to have to test this for my own edification. I have an RC and a QSI CCD and I do have an empty slot on my filter wheel. I'll shoot filtered and non filtered and see what happens. All my filters in this camera/scope configuration are parfocal so it will be a good test of that. What should I expect? Higher SNR? Noticeably higher? Or statistically higher? It will be interesting.

Rick: Others have already addressed most of the issues/benefits. How much difference shooting with no filter makes depends a lot on your camera—it if has extended deep red/NIR sensitivity then it can make a big difference. An 8300 chip you probably won't see much. I think you'll just see slightly higher signal levels for the same exposure—most particularly on objects with lots of deep red and near IR. I don't think there would be much difference in the blue/UV end since the atmosphere is opaque to UV. You could try shooting something with extended blue emission like a white dwarf (planetary nebula central star?) or other very hot blue star (Orion, very young open cluster?).

The parfocalization would be great for me—I currently have to run out to the observatory to refocus when switching from unfiltered to filtered. And it means I can't mix filtered and unfiltered targets in the same script. I've been dithering (←pun) on buying a Clear (no IR blocking) filter which should give pretty much the same benefits as unfiltered but with parfocalization. Except that I was trying to develop the software for my Arduino to emulate a MoonLite digital focuser in which case the parfocalization would be unnecessary. And that stupid little 1.25" piece of glass would cost ~$300 all in. Given how busy I am and how well I'm progressing on the MoonLite emulation I probably should just bite the bullet.

You'll find you have to adjust focus inwards quite a bit to reach focus without a filter. ★

Friday, April 24

Keith: Hank, I was out looking at the sun also but I saw nothing with my scope. How about you? Of course I had to recalibrate the iOptron before I could start.

Fri/Sat, April 24/25

Stephen: The clouds mostly cleared out by 1 a.m. My target of choice was still obscured by clouds in the S so I decided to try an easy target, M57, while I waited. Then I did NGC 6384 in Ophiuchus:

Rick: I had a very good night—it cleared off by midnight here so I was imaging from then until dawn. But, to make it a double night, I also had a script running on the RASC remote telescope. I got about 4 hours of images from it. It has taken a long time to get there, but I think things are in position for the Science Team to take advantage of all the two nights per week that we've been allocated. It's my first real trial of CCD Commander scripts, so we're starting slow, but I hope to ramp up quickly to completely filling each night from dusk to dawn.

If you have any science images that you want taken let me know and, depending on the object and how it fits with science team priorities, we may be able to shoot it. We're trying to focus on projects that will be exciting and entice members to join the Science Team.

It looks like I may get a few hours this evening of usable time before the thicker cloud comes in. I was saying to Malcolm (before the social started last night) that since the 10th of April I've only had three nights with no observing—several times I got only a couple of hours in the evening, and a couple of nights when I was able to image only for the last couple of hours before dawn.

Malcolm: Aargh! I was so frustrated last night. I set my alarm for 12:30 a.m. and I looked outside and there was a cloud deck N and S of me as far as the eye could see. I looked at the satellite and it appeared that it was close to clearing but I couldn't tell how long it would take. So I bailed. As I saw it, I needed three hours to get all my data, And I didn't know when it would clear, but I am disappointed for sure. Last chance this lunar phase, maybe for a couple of weeks, based on the forecast

Stephen Craig — M57

Stephen Craig — NGC 6384

Saturday, April 25

Hank: Today the sun was far from exciting, and the sky was a little hazy, but that unnamed active region is still trying to come to life! As well as numerous small prominences.

Keith: Now I know why I could not see anything.

Hank Bartlett — Sun 2020-04-25

Mon/Tue, April 27/28

Stephen (20:33): The cloud deck is breaking up nicely right on schedule. Twilight isn't over until almost 10. The sky should be perfect by then. I'm back onto galaxies in Virgo.

Graeme (22:57): Not sure the seeing is up to promise, there is a breeze (not a huge deal but not great) and Vega is twinkling to beat the band (I'm pointed away from the moon).

I'm Imaging IC 1265 for 10 minutes, as I happened upon it; then I'm continuing my search for easier targets.

Walter (April 24): I don't know how many of you have been attending the multitude of RASC online meetings this month, but there is another big one tonight at 7 p.m.: Chris Gainor (RASC President)—the guy hired by NASA to write the history of the Hubble Space Telescope—will be talking about "30 Years of the Hubble Space Telescope."

In another great coincidence (the previous meeting in this online series was on the 50th anniversary of Apollo 13) today is the 30th anniversary of the launch of HST on STS-31! ★

Graeme (00:12): I went from imaging the crescent Moon to the Crescent Nebula. The wind has finally died down, but the seeing still isn't perfect, but I'm already here...

Stephen (00:17): Yes, seeing is not the best. But it is clear so I will take what I can get. My Virgo target was in the trees, so I took a target in Leo. Now I'm back in Virgo again.

Graeme (05:05): I'm calling it; the sky is lightening, so subs on the Crescent Nebula are finishing.

I think I saw an ISS pass in the S ~4:45 a.m.

Surprisingly there were zero meteors of note (there may of been 1 or 2 minor ones, or it could have been glints on glasses). I have a GoPro doing a time-lapse so I'll check and see what footage it captured in the morning as I want to see if the extended battery will last from dusk to dawn.

Closing up and heading to bed, photos to come over the next few days.

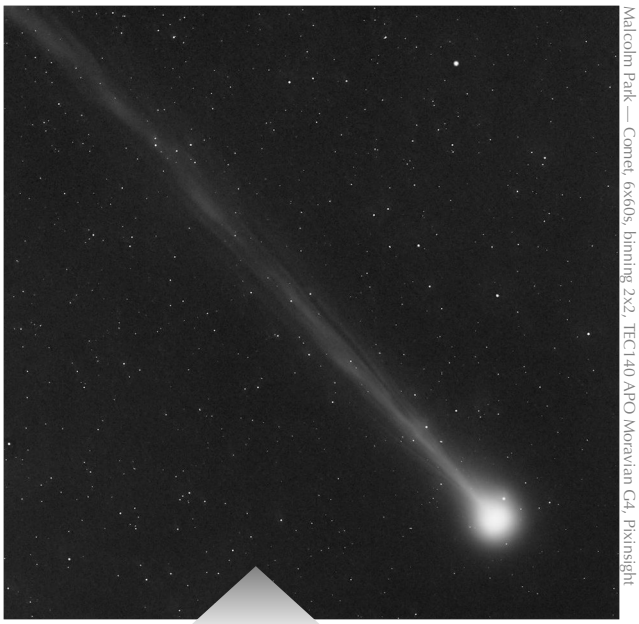
Rick (05:36): I've just packed it in as well. A good night with another new target added in Boötes. Also did a long run of B exposures of a maximum of SX UMa for a researcher in Czechia. It is the first time I've ever had Maxim report photometric accuracies better than 0.001 mag.

Malcolm: In every way except results, it was a perfect night. Guiding was great, the sky was steady, and the temperatures were easy to take.

My mount/optics combo seems to be handling the weight OK. She fits snuggly in the POD with a few inches to spare. Software (SGP) issues I have been working on seem to have been resolved. There are some important settings tucked away here and there in SGP that help improve performance and I'm happy with those settings now.

But I can't get past one glaring issue and that's my malfunctioning TCF-S focuser. With a Bahtinov mask I got close enough to focus that I was fooled into thinking I was focused. Without focus from a V curve that's just not going to happen to my satisfaction anyway. So now I have to bite the bullet and ship the focuser back to Optec for assessment and repairs.

One little precious moment last night came as I was just opening up the POD. Amid the sound of the frogs I heard a couple of loons calling over the lake—a hauntingly beautiful sound.



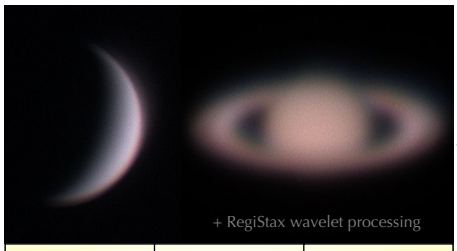
Malcolm Park — Comet, 6x60s, binning 2x2, TEC140 APO Moravian G4, Pixinsight

Malcolm: On the bright side, the focuser in Chile is working fine so here's a luminance test shot of comet C/2020 F8 (SWAN) taken this morning. Dawn begins at 5:35 a.m. down there, so I got up at 4:45 to go to work.

This was my first time imaging a comet remotely and I had to work out some software settings before finally getting some subframes.

Kevin: On last night's RASC-KC weekly social, Malcolm was sharing his remote desktop in Chile. I missed getting control of it by mere seconds and a large distraction! Maybe next time... ★

Kevin: I got my first images of Venus and Saturn in quite some time:

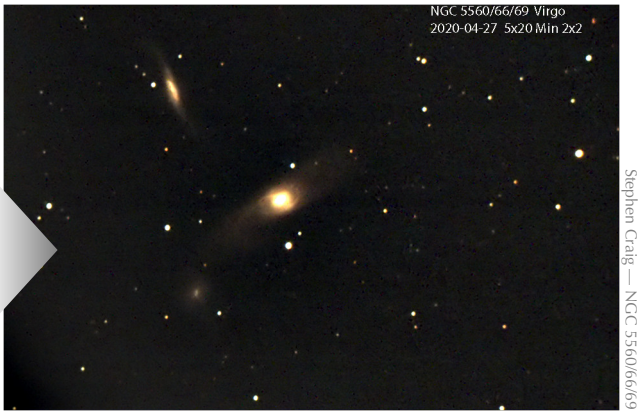


Kevin Kell — Venus, Saturn

Image	Venus	Saturn
Diameter	38'	39'
Altitude	37°	21°
Exposure	0.2ms	20ms
Frames	25% of ~860	25% of ~1470
Camera	ZWO ASI290MC	
Software	AutoStakkert!	

Walter MacDonald

Stephen: I had a great night last night. Everything worked properly. I imaged galaxies in Leo, Virgo, and Serpens. This is my favourite. From top to bottom are: NGC 5560, 5566, 5569. That was probably the last of the clear moonless skies for a while.



Stephen Craig — NGC 5560/66/69