

Skyletter

May 2021
RASC Kingston Centre



THURSDAY, MAY 6
STARLINK PASS

Rick (11:12): I'm not sure how clear it will be but it looks like there will be a good pass of the satellites from the recent launch. Several dozen at mag ~2.4 around 21:20 EDT. I don't like the satellites but I haven't seen enough multi satellite passes like this not to be kind of excited/horrified. Like watching a train wreck.

Kevin (11:37): Thanks for the alert. I keep forgetting! Yes, I want to document this as well, and as the cloud forecast goes, there will be a clearing around 21:00 EDT for an hour or so.

Starting in WNW at 10° altitude, going to SW 65° and then into the SE, disappearing at 23° alt.

Hank (13:19): Came in from setting up just before lunch, I am about to start looking at images. Visually I did not see any difference as the **Sun** is just a big white beach ball today so far.

It was more of an ordeal setting it up than I thought it would be. We all know that with astronomy change means another change, another adjustment and so on. After years of all the solar filter warnings burned into my brain it is strange and unnerving not having one on the objective.

I will have to write something up about

all this.

Hank (21:34): Thank you Rick, we just watched the "Ominous Omen" pass over Rogues' Hollow! Malcolm, Di says she saw one of your messages go by.

Malcolm: Not sure what that's in reference to!

Hank: She was saying she saw one of your emails or something come flying over in the **Starlink** satellites now that you are hooked up. Di humour.

Malcolm: Oh, well it's cloudy here so no satellite viewing tonight.

Hank: It was amazing as we had never seen a **Starlink** train pass before, such a straight line and such varied gaps between them.

Rick: Unfortunately it was overcast here. And it's getting worse—no sucker holes here tonight. I had the camera all ready to go—maybe that's what jinxed it.

Rose-Marie: Hangdangit I missed it. After a day of moving yet another truckload of stuff and then

tackling the job of getting the well pump going, flushing lines, putting water in the house and fixing one leak I was tired. Fell asleep right after supper and awoke at 9:45. Rats.

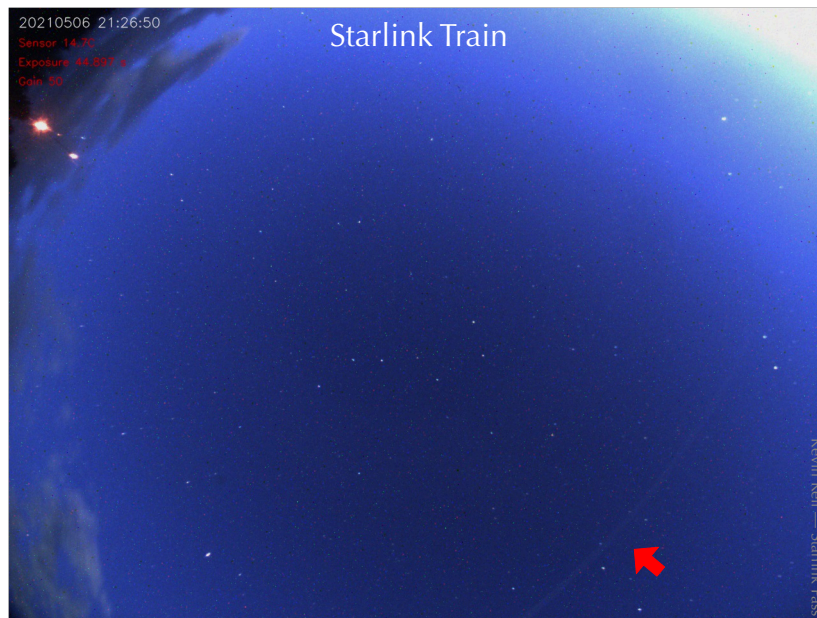
So then I'm browsing facebook and some gal on the Inverary list had posted about having seen a weird set of lights like a string of big dots going overhead, and several posts speculating on what they were...perhaps UFOs...LOL. Hate to burst your bubble kiddies but it's the latest batch of Starlink satellites going into orbit. And hangdangit I missed it. RATS.

Michael B: I was in the backyard, still had clear skies and was doing a little video imaging of **M51**. Looked up and as Hank says, "amazing." I haven't seen anything like that before, linear, but not perfect and fast.

Kevin: This is the best naked eye **Starlink** train I have ever seen. It was glorious, much like a large city nightscape—glorious, but horrible at the same time.

These were launched on Tuesday May 4th at 15:01 EDT. The pass was May 6th at 21:20 EDT.

That makes them 2 days 5 hours (53 hours) on orbit. Over the next month or so they will be changing their orbit using onboard thrusters, spreading out by changing height (and therefore speed). Once they land into



stable orbits, they will be further away and oriented to minimize solar reflections, making them no longer visible naked eye.

The skies were clear here... Malcolm was clouded out? It looks like he is only about 13km away, azimuth about 80°. Amazing clouds can be that different... I saw a bunch in the north, overhead and south was clear.

It was still pretty bright. A test exposure of the western horizon showed only 5 seconds was still overexposed.

So I reframed overhead on **Leo** and got 10 seconds well exposed. Then I waited.. and waited... 5 minutes sure goes slow.

So then I went back to the western horizon thinking I may pick them up there.. took some frames.. waited some more...did not see anything. Looked up as a goose flew by and saw them in full glory...90° of satellites. They fooled me by not brightening up until well above my field of view, at least 45° up.

Wow. Quickly reframed the camera and started taking frames... They were still all in perfect alignment it seemed. varying brightnesses, depending on orientation I guess. Wow. And it went on...and on... and on...phew!

On the AllSky1pi camera system [image, page 1], they are almost not even there (a faint trail on the lower right). This was a 45 second exposure as the sky was still too bright for a full 60 second exposure. I will have to watch for a darker pass and try again...

Malcolm: Two

different perspectives.

I was looking for the kind of clear sky you can run a pointing model and not have to fret about whether opening up will be a waste of time (see under “astronomy” and “sucker hole”). I very well may have seen them if I’d been looking for them. It never occurred to me to look.

Maybe now that you’ve seen “the best naked eye **Starlink** train I have ever seen” the novelty will wear off.

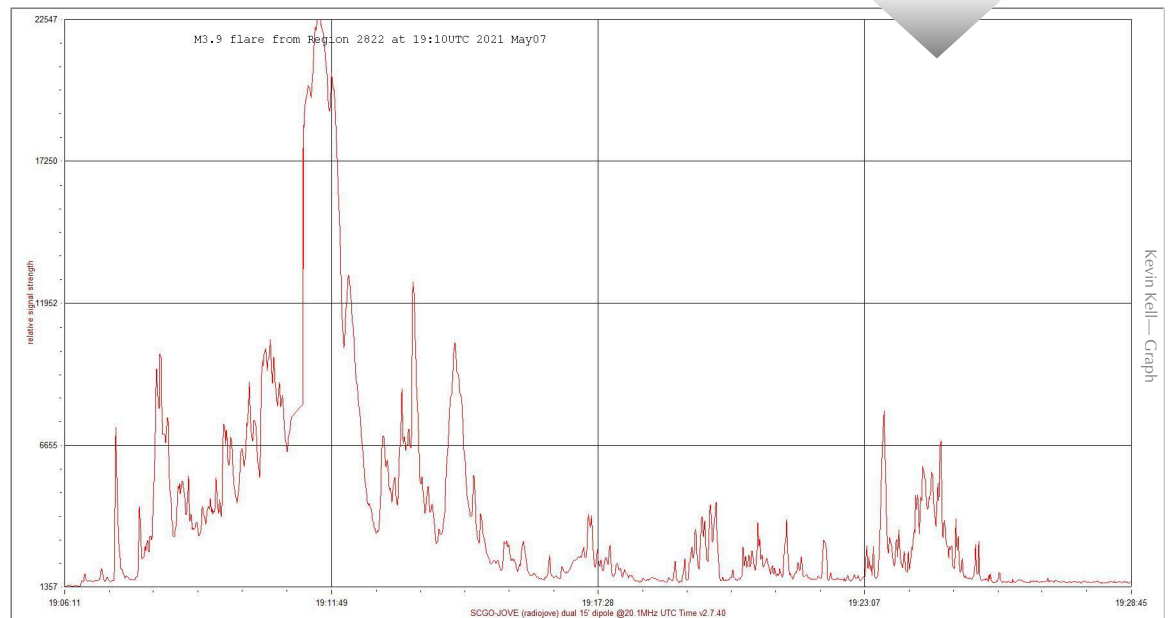
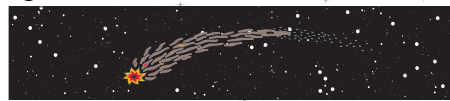
Personally, I’m not interested. I’d rather not see them again.

(Yes I sold my soul to the devil.)

Kim: I saw my first one November 2019, the 2nd launch they did, nice to see it once, but then they became light pollution in space. In the early a.m. SW to NE and they just kept coming...

I stayed in, did not want to see this again, because as Kevin has said they will be starting the polar launches and there goes the north.

I am simply amazed there are not more crashes in the space around Earth, considering what is up there.



FRIDAY, MAY 7
M3.9 FLARE 19:05 UTC

Kevin (15:32): Quick Hank! Get your solar scope out and look at the **Sun!** No measly peasy C class flares...this is an “M” class flare! From the new active region just coming on earthside.

Hank (15:38): Of course, it is raining here!

Walter (18:08): You guys get quite excited when an M-class flare approaches an M-class planet!

Hank: M&M!

Walter: Dare I say you get even more excited when they are X-rated?

Hank: X-rated and I am out there!

Walter: But depending on where you post the pictures you might have to censor your sensor!

SATURDAY, MAY 8

Kevin: Attached is the image closeup from the SCGO Radiojove radio telescope system for the M3.9 class flare from **Active Region 2822** just coming onto the **Sun** on yesterday (May 7th).

The spaceweatherlive Android app gave us a smartphone alert very early on, allowing us to watch the event in progress. Unfortun-

ately the audio recording system failed. Oh well, more time to fix it for the next time.

The Y axis levels are relative, but generally they are lower than 2000. We start recording after a 4500 value (when it works).

The Radiojove data gets saved out at 00:00UTC, then we can load it and generate a custom graph. You can see live data updated every 30 minutes at:

starlightcascade.ca/radiojove/

Hank: Very cool! This is a nice graph, I should start checking SCGO as a source.

Hank: I have never set up for the spaceweather.com alert as I did not think it would be adequate warning of events but of course that depends on how rapidly the event builds. Now that we are getting into more activity I will give it a try. Is that as high as your graph goes or will it catch the top of X level eruptions as well?

Kevin: spaceweatherlive app...not necessarily the same as spaceweather.com?

The graph is manually arranged from the raw data, so yes it will catch anything and everything. The web live views auto manually set for only a level of 4500 units. If it goes above that I would have to wait until 00:00 UTC, get the day's data file, and run it through manually.

If it gets busier in general, that 4500 upper display may be increased...

Hank (18:00): YES, that slipped by me. Dang! I will find out and we can compare, I signed up but it is USD \$4.95/mo. so I will decide if it is worth the \$\$\$.

Just got back in from a session, amazing spot, amazing prom, but bad seeing so images may be less than desirable.

Kim (18:26): Got to see the spot and sketch it. No H-alpha: the tree is leafing out and it is too late in the

day. Now its rain, sun, rain, dark... strange day.

SAT/SUN, MAY 8/9

Rick (22:22): I can't believe it's clear out! Last observing night was Apr 27—this is my longest break from observing in several years. However, things look really good—I'm observing **AM CVn**, a cataclysmic variable for Joe Patterson at Columbia University and the guiding is below a quarter pixel RMS. That's unusual for me. I also got something like 5 hours on the star last night with the remote scope.

There is a lot of cloud around judging from the satellite. We'll see how long the clear skies last.

Stephen (22:23): The sky cleared right on schedule. Clouds are passing to the east and the west but not here! I'm imaging a nice spiral galaxy in **Coma Berenices**. It should be a great night!

Malcolm (23:11): Yes! Finally doing my pointing model, then hopefully take some real pix.

Hank (23:54): Glad you have good sky Steve. I'm heading to bed just as fog is settling in here. Have a great night.

SUNDAY, MAY 9

Malcolm (13:08): Drove down to the county to pick up a prescription and saw this in Picton. Not sure if it's visible back home but hoping you get something like it. Note the **rainbow** under the **halo**.

Hank (13:11): Looks nicely shaped. Cloudy here, but did get some good imaging earlier before Mother's Day brunch.

John: Great catch. It was cloudy in Sharbot Lake also.

Kim: Caught only the bottom and top parts of the **halo** while out imaging the **Sun** in the morning.

MONDAY, MAY 10

Kim (10:06): There are **solar arcs** right now above and below the **Sun**. There is cloud in the area.

MON/TUE, MAY 10/11

Stephen (02:27): Clear sky at 1:40! I have time for a couple of image runs!

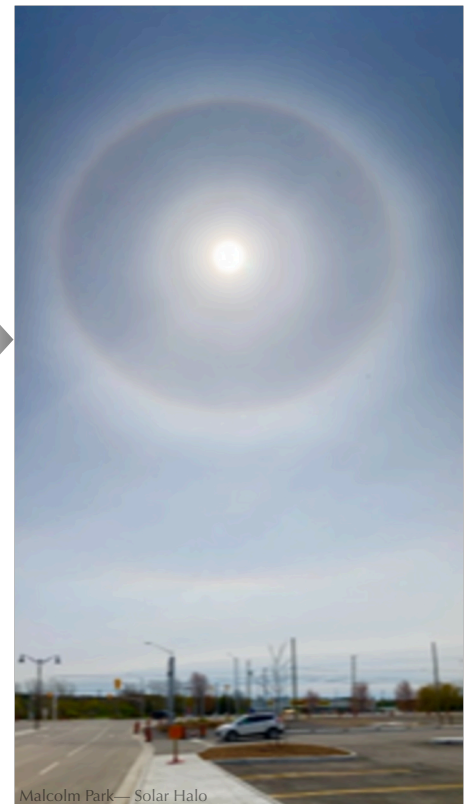
Malcolm (11:00): I saw that it has cleared and I decided to wait for tomorrow night.

I just couldn't.

I'm a bad astronomer.

Rick: It cleared off here about 10:30 p.m. briefly so I opened everything up and started imaging. Got one image of each of my first three targets and then it clouded over again. Fortunately I was already in bed because it cleared an hour or so later and I got another 45 images. The nights are getting so short that I don't get many images, especially when I get started late.

I was running the RASC remote scope last night and



Malcolm Park—Solar Halo

Rick: What software are you using for your modelling? Do you find it is necessary, makes a significant improvement?

My SiTech controller on the MI750 includes mount modelling which does the full job of improving pointing and also supposedly improving tracking. Honestly though, the mount seems to manage good pointing even without the modelling. And I usually do a pointing image, plate solve, and reslew after any longish slew so the model really just helps to get close enough that the plate solve is more likely to get a quick solve. I used to use MaxPoint for the Titan but its license seems to have expired. The Titan definitely did a lot better when running on a model though there were still issues (meridian flips were always a problem).

I know you were working with PlateSolve 2—are you still using it and how do you find it? I use PinPoint and find there are some places on the sky where it just won't solve even if I'm only off an arcmin or two—sometimes it just

says there are no catalog stars found. I bought PinPoint at the AAVSO AGM in 2019 because it was on ½ price but I'm not firmly attached to it. I could switch over to PlateSolve, 2 or 3.

Malcolm: It's Astro-Physics proprietary software called Astro Physics Command Center. Sounds very hoity toity but its really just telling you a lot of what you already know from the driver, but displayed in a new way. PLUS, it has the pointing model and tracking features.

I'm using the 30 day free trial right now to decide if I want it. The pointing model may or may not be beneficial. Same with PEMPro actually. The mount is likely just fine without any of that, it improves by about 10% RMS with PEC on, and I assume the same kind of incremental improvement from modelling.

Is it worth the money? Probably not on its own. But the Horizons tracking feature is the real carrot. It allows me to track objects in the JPL Horizons database and it seems quite likely that I will want to track a comet or the ISS or an asteroid, who knows

what.

APCC connects to whatever imaging software you have, which should already be configured for plate solving.

So all I do is connect to the mount with the APASCOM driver, and APCC uses an API to get everything it needs from SGP. SGP will take a frame and plate solve it, and send the details back to APCC. SGP is using PlateSolve 2 in my case.

APCC will then build the model and because it is integrated with the ASCOM driver it makes corrections on the fly seamlessly.

You can use Maxim with Pinpoint, or whatever image capture/plate solve combination you have to build the model.

Rick: I downloaded the PEMPro trial and did a run on the telescope but couldn't figure out how to get the resulting correction curve back into the mount. I should get back on that before my trial period runs out to see if it actually works well enough to pay for. I suspect the tracking errors are erratic enough that, as you say, it will only make a small fractional improvement in which case why spend the bucks. ★

shooting a cataclysmic variable with short exposures (to be able to resolve the ~17 min period) all night—got 240 images.

I closed the night in California with 7 images of **Barnard's Star**. This is one of the closest stars to us and has a high proper motion—it's just ripping across the sky at 10.36 arcsec/year according to my measurements. You can actually measure its motion over a few weeks if you're very careful. And many people have done that but I'm trying to measure its parallax which is around 0.6 arcsec. The problem is to disentangle the parallax oscillations from the much

larger movement across the sky. I have intermittent observations going back to 2017 plus one night in 2006 to get a long-term average proper motion.

Graeme: I got up at 3 a.m. to do some imaging of **Saturn** and **Jupiter** (film contest)...worst possible time to attempt imaging planets but I may have gotten "something"—will know when I check the data later today.

Malcolm: Chile was overcast!

Rick: OMG! We'd better start building an ark.

Malcolm: I may set the alarm for midnight tonight. Also, at 4:38 a.m. tomorrow morning there is a

nice ISS -3.3 mag, 65° pass.

Rick: Yeah, I've been looking at that one. Supposed to clear here by 3AM. I see a couple of -3.8 and -3.9 passes coming up in a week or so.

Kim: For local observing or is Chile still cloudy?

Malcolm (17:57): Local. Can't see M81 in Chile. But yes, it's still cloudy there too.

Stephen (20:44): I just looked at the satellite shot. Ugg. I can't see it clearing anytime soon. I'll take a pass on tonight and wait for tomorrow night.

Malcolm (21:59): I'm leaning that way too.

Kim (06:10): K index of 5, and 4 overnight. The storm hit sooner than predicted.

Malcolm (07:01): It was still cloudy at 1:30 a.m.

WEDNESDAY, MAY 12

Kevin: Nice! Finally! Found a wider-angle lens than the 2.1mm that came with the ZWO ASI120MC camera. This a 1.55 mm lens from Amazon for about CDN \$70.

We are now getting three whole horizons in the image, just not part of one! Also a lot more coverage to the south, for planetary and galactic core imagery. Should be nice. The focus is not perfect yet but we will see what happens over-night.



Hank (10:59): The sky is amazing. I just came in from a 1-hour, 147 image session and had to pull myself away. If you have not been out, get out!

Kevin (11:00): Absolutely nothing on RadioJove or SuperSID.

Malcolm (11:06): Whatever it is you're seeing I wouldn't detect it with my setup.

Kim (11:07): Keep watching as the storm is still happening.

Susan (16:50): Just saw the message, got a nice little sketch in 1000 Oaks.

Hank (17:41): I think everyone was missing my intent, or I was in a seeing hole. The sky when I was out was so steady and clear. As it was a busy day I still have not

processed images, but it was so nice to get clarity.

Malcolm (17:45): When I looked at Gong earlier there was nothing in my detail range worth trying for. That was the intent of my reply.

WED/THU, MAY 12/13

MOON & VENUS

Malcolm (21:46): Great meeting tonight, I ducked out near the end to go see the [Moon & Venus](#). I took my 15x50 binos and my camera. Beautiful sight. I drove up the road for a better vista.

Mark: No sooner did you end the meeting and I got the [Moon](#) and [Venus](#) in the small scope out the front window. The Moon was very slim, there was just a crescent, not any details. Venus was nearly a round disk. I guess it must be on the far side of the Sun (makes sense) so it was not that large, but still very bright. I really need to get better prepared for events like this. Went to take an image and the batteries for the 7D were discharged. They last well when in use, but they do not keep a charge over time very well.

AURORA?

Cathy (21:22): Northern horizon over the hills in Quebec...very light, up to about 10°...looks like the sun set in the wrong direction...

Mark (22:07): It is not really fully dark yet, but as of now, there is not any hint of aurora.

Malcolm (22:23): My camera is running just in case.

Rose-Marie (04:27): Clear night, no Moon, temperatures not brutally cold, we're all watching with gear ready...and it's a bust. Classic aurora fail, no sparklies.

BigWetNose dragged me out at 3:30 a.m. and by golly I could just make out the [Milky Way](#). Oh well, today is moving day to darker sky

country. If I'm not too exhausted tonight I shall go down to the dock and enjoy the view.

Cathy: I thought, hey maybe, so got my camera and tripod set up by my balcony door. Then it got darker, and nothing...and checked later, and nothing. Was going to check mid-night, but slept through the night for once...

Kim: I went out at 2 a.m. and took some shots of the north. I also took several images of [Cassiopeia](#) and I believe I got the [nova](#). I also looked at it with binoculars.

Once I get the images off the camera I can confirm.

Kevin: Gotta love it! The first all night star trail image [*next page*] with the new wide angle lens. Looks awesome! Focus is not too bad so I won't futz with that right now. I will take a new dark frame. It processes the dark frame with each light frame image all night long...unfortunately it is very temperature dependent and the existing one is much cooler than the temps last night.

No aurora seen.

Many aircraft, some [meteors](#), and *no* Starlinks! The last test of limiting magnitude with this system was 4.75 at least, possibly up to 5.25. I will analyze this again but I don't think it will be too different.

You can see this and more (like the all night video) at:

starlightcascade.ca/allsky1

Hank: Looks really nice Kevin and decent "aurora" over what I think is Kingston. This camera is picking up nice colour.

Malcolm: Very nice.

No Starlinks? I caught a whole bunch last night pointing north. Some were even moving on perpendicular orbits.

Two [ISS](#) passes from last night [*next page*], and a bunch of [Starlinks](#) here: [photopark.ca/Videos/i-hmqc2hG/A](https://www.photopark.ca/Videos/i-hmqc2hG/A)

Rick: I had intended to set my alarm for the other morning to get up and photograph the **ISS** pass but forgot. But of course I still woke up—just as the pass was underway. So I could lie there for 15 minutes kicking myself for forgetting the alarm. However, it was only a -3.4 . I've already got my alarm set for tomorrow morning's -3.5 . It's at a convenient time since it's just into nautical twilight so I can get up and close the observatory. Then



sunspot counts and science.

Malcolm (11:14): That's cool, that's just not my "focus."

Hank (12:12): Yes, very little for sure. Just finished imaging

but have not reviewed the images yet.

Keith (13:16): Yes but there are some very nice **filaments** around the sunspots!

Hank (22:46): As Keith stated, some very nice filaments around the sunspots!

after all that activity there's little point in trying to go back to sleep so I may just head out in the canoe for an hour or two before breakfast.

Saturday has a -3.9 pass just before 4AM (darker sky than the earlier passes) and a -3.8 pass just after 10PM. Now, which one should I watch? Hmmm.

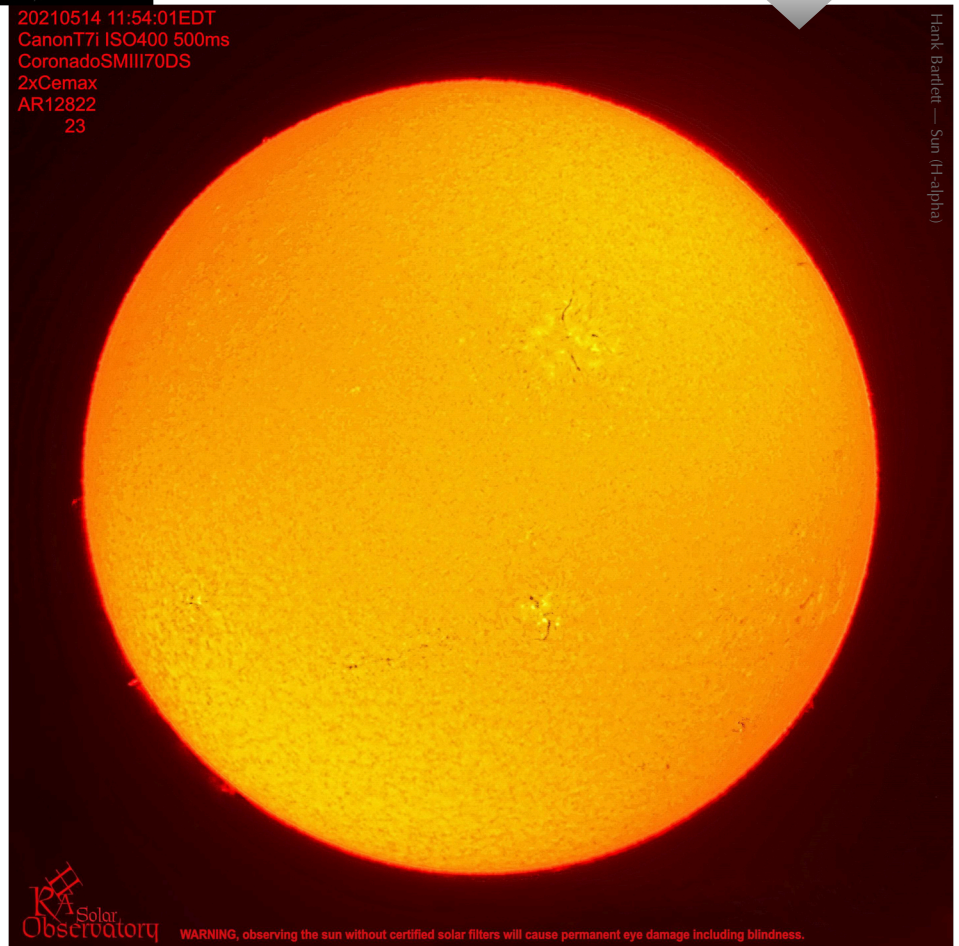
Friday, May 14

Malcolm (09:48): Today's the day I waited for: clear skies, wind (!) 3 knots! Wish there was something to see.

Kim (09:59): There are two groups and **prominences** on the southern eastern hemisphere.

Malcolm (10:32): Surely even an experienced solar observer would agree that those are tiny? I classify them as better than nothing. Have I become a solar snob so quickly? I might need to upgrade, LOL.

Kim (10:44): They still count for



FRI/SAT, MAY 14/15

Stephen (23:27): My 3rd night in a row is going very well. I'm currently imaging a nice little interacting pair of [galaxies](#) in [Coma](#). The satellite shot looks good. I think I'm set for the night.

SUCH A WASTE OF TIME

Malcolm (08:07): It happens to everyone...here for your amusement is my story:

Yesterday I thought I would give the ISS tracking feature of Astro-Physics Command Center a realtime try. I wanted to shoot the 11 p.m. transit, which was very nice, bright, and high. What ended up happening was a chain of events that would make the three stooges laugh.

It begins with me operating the scope from inside the house. That was mistake #1.

I used test mode to verify that the scope would follow the correct path, watching on my webcam. Initially it looked correct. But the mount seemed to stop moving at the zenith and I wondered what was going on. So I interrupted the procedure, parked the scope, and went out for a look. Parking went fine so I didn't think there had been any problems.

Once outside, I didn't see any problems so I decide to re-run the sim from the POD. This time, I watched carefully and closely to see what happened. At pretty much the zenith, the scope started to come into contact with the pier.

I also noticed that the filter wheel had been the contact point, and when I looked closer I realized that the wheel/camera had actually been rotated out of position on the scope due to the pressure from the brief contact. It was only a few degrees but the significance was huge. In one fell swoop, my pointing model was now useless,

and my flats were also not usable and I would have to reshoot them all.

I had planned after the ISS pass to take another few frames per filter of M81 until dawn just to boost my SNR for the data set. But I had no appetite for doing that and then reshooting flats. So I gave up on that.

But I still had time to prepare for the 11:00 transit so I decided to solve, centre and sync to tell the mount where it was but it couldn't override the pointing model! And the pointing model doesn't have an off switch. I could run a NEW pointing model, but that would take an hour and the transit would be long over with.

So after many tries to find a way to get the mount to sync, I was left with no alternative but to uninstall the APCC software to regain control. As soon as I did that, and rebooted the computer, everything worked normally again.

But now I had a decision to make. Reinstall software that can mess up my night like that (AP would say it's my fault, not the software's) or go back to the way it was and forgo ISS tracking and pointing models. Either way, I still de-oriented the camera and have to do a new set of flats.

I decided that the decision can wait, and I still have 20 days or so in the free trial. But I lost the whole night, never got an ISS tracked shot, and didn't get my extra data on M81.

Stephen: I'm sorry to hear of all your trials and tribulations. Maybe next time it will be better. I hate to gloat, but my night went perfectly!

Malcolm: Great. Good for you, lol. All is well in the end, and I'm ready for tomorrow night to begin shooting the Moon. This is what the hobby is all about. Discovery, experimentation, fixing things.

It wasn't a great result but I may have learned enough to not

spend my money on the software!
Hank: That totally sucks Malcolm. This one reason I avoid any of this control stuff. I would be constantly running out to check everything as I would not trust it all working.

Rick: I too had problems last night with the Sky90 and iOptron.

I'm trying to guide with PHD2 and an ASI120MC camera. About half the time PHD2 times out trying to read the camera (worked fine the day before). After a while I gave up on it and decided to guide with Maxim which has no problem with the camera. However, when I slew to a target, shoot and solve a pointing exposure then try to re-slew to the target, Maxim says either the telescope is busy or it isn't tracking, neither of which is true.

So I had to manually identify the field, pick out the target star. At that point I should be able to click on it and say "point telescope here." But the scope is still busy. So I had to centre the target manually, taking continuous exposures and slewing slowly with the hand paddle. I don't know what's up but I think it's something with Windoze 10 and the software because it does other flaky things too. (Like if I cancel an exposure the status window turns yellow and says scope slewing which it clearly isn't.)

Interesting that you could collide with the pier. It sounds like you don't have your cross-meridian limits properly set or the software ignores them.

NOVA CAS 2021 (V1405 CAS)

Kevin: Our first confirmed image of [Nova Cas 2021 \(V1405 Cas\)](#).

The hardest part was to actually find a star map that showed its accurate position. As it turned out, did not need that: Stellarium v0.21 automatically updated and the nova appeared in it!

So, using a ruler to measure the distance on Stellarium between **Shedar** and **Caph** and then to the nova, I did the same on the image itself to get the general location, then star-hopped from **M52**. Compared it against the next star to the lower left and it all looked good.

SATURDAY, MAY 15

Hank (15:51): Just came in from a brief imaging session, about 85 images to go through tonight. A couple of nice proms, especially in the SW, spot 822 is getting smaller so we need a new one.

SAT/SUN, MAY 15/16

Stephen (20:28): Well, the showers have moved off to the south and the clouds are evaporating. This will be my 4th clear night in a row!

Stephen (21:04): I'm all set up for tonight. The observatory is open so it can reach thermal equilibrium. I had a good 1½ hour nap this evening. So I am in great shape.

Rick (22:46): Finally cleared off here too so the scope is busy taking images. We kept getting patchy cloud going through and blanking out images, mostly when I was trying to solve pointing images. Fortunately it cleared off in time for the **ISS** pass at 22:15—we both popped out onto the deck to watch it go by. It was the brightest pass I've seen since, well, this morning. But at -3.8 it's probably number two. And horizon to horizon too.

Last night I had two scopes going, plus the remote scope in California, so I collected a lot of data. And I may soon start collecting some deep galaxy



images for Connor Stone at Queen's. I just have to find out exactly what he's looking for.

Stephen (00:14): I had one annoying cloud that seemed to hang over me forever. But once it cleared it stayed clear. I'm currently imaging **NGC5350/53/54/55**, a nice galaxy cluster in **Canes Venatici**.

Mark (09:51): At 0430, it was actually raining lightly on me here. But it has since cleared up nicely, now that the **Sun** is up. I guess Hank will be happy.

Stephen: I had a brief cloud at 3 which ruined one exposure. Other than that it was clear!

Rick: I missed one image shortly after opening up and several images that got very dim just before morning twilight. Otherwise a good night. Looks like another one tonight!

STARLINK

Rose-Marie (00:29): Kerrie had to go out. Lovely clear night and again I'm too tired.

I saw a streak of light moving slowly across

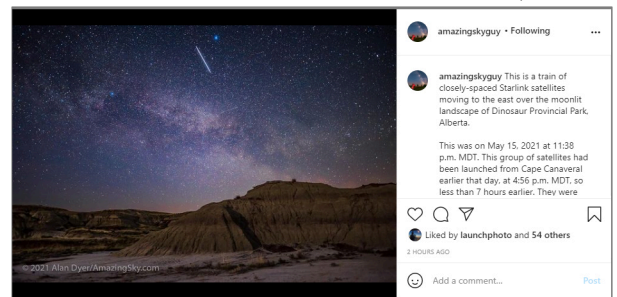
the northern sky, was about as long as the Full Moon is wide. **Starlink?** Kerrie had to poo so she dragged me over to where I could only see it through trees, then where it should have come out into a gap it disappeared.

This was a line of light in length roughly the same as the width of the Moon, moving slower than the ISS usually does. It was a couple minutes or so past midnight moving from NW to the NE.

Brian: Your sighting was almost certainly the stack of Starlinks launched a few hours earlier. A sighting from Colorado a few minutes earlier described the stack as a line about 0.3° long. That sighting was consistent with pre-launch predictions of the orbit.

Malcolm: Alan Dyer got this, was that how it looked?

Rose-Marie: Yes!



Stephen (22:12): It's a beautiful evening. The air is calm and clear. The stars are out. No sign of clouds. The Whip-poor-wills are singing. It's going to be a good night!

Rose-Marie (08:09): BigWetNose had me outside around 3 a.m. I had duelling Whip-poor-wills, three of them. They really went into a frenzy when I started whistling.

Ah, the **Milky Way**, nice to see you my old friend. At that hour **Scorpius** and **Sagittarius** are up high, not low on the horizon where haze and light from Kingston fuzz them out. As we were headed back in the **ISS** went over the lake.

Cathy: Well, I saw **Starlink** for the very first time. At 12:11 a.m. Monday morning, a bunched up Starlink series did a pass through **Cygnus** heading east, right out my front window.

I wasn't expecting it...and it was so cool. They were moving pretty quickly...a sparkling line, maybe a degree long, seemed more bunched up and brighter on the trailing end, perhaps about mag 3 and fainter, perhaps mag 4 on the leading edge. They hit the Earth's shadow pretty quickly.

Wow, it was neat. You could see the individual satellites as points, but it gave the effect of a fast moving sparkling line.

Rick: Seems like you and Rose-Marie have hit the jackpot—views of Starlinks probably don't get any better than that. And I don't know if, other than by standing outside watching for hours the night after a launch, you can arrange to get that view.

Rose-Marie: The kicker is that when you are alert and standing outside for hours, you don't see your target sparklies and are disappointed. When you're falling asleep on the couch and the dog

Dark Side of the Moon

Kevin: One of the better dark side of the moon images taken 3 days old, positioned low to our horizon between some power lines.

This was a 1/2 second exposure on a tripod, unguided at 300mm f/5.6 and ISO3200. A one second exposure also showed the dark side details but they were... dark!

(Image: May 14 @ 22:26.)



Kevin Keil — Earthshine

drags you outside and you're blurry eyed and groggy THAT's when you see important stuff, and are too half-witted to really appreciate it.

Kim: The life of an astronomer...

MONDAY, MAY 17

Hank (17:06): Just processing the day's images and the afternoon 16:13:13EDT image shows a new spot in the NE and larger as well! The **Sun** is NOT going to be spotlessly clean.

MON/TUE, MAY 17/18

Stephen (18:10): It looks like I may get the night off. The satellite shot isn't looking promising. I think they are right in forecasting cloud by midnight. Tomorrow looks promising though.

Rick (22:00): I got things up and running a couple of hours ago (I seem to be still on winter schedule, expecting supper to get in the way of getting the camera cooling, roof opening *etc.*) when I was expecting the cloud to move in midnightish or later as per some forecast or other. As it turned out, it's clouding over within a few minutes

of the end of nautical twilight. I've got two images done, I don't think the third is going to be usable.

Ah well, it will be nice to get a good night's sleep.

TUE/WED, MAY 18/19

Kevin (10:13): **Werner Lunar X** tonight.

Rick (18:06): Unless it's in the trees like here. Sigh.

Walter (18:45): Or unless it's cloudy like here.

Mark (19:05): Well that just about guarantees the clouds will roll in.

Malcolm (19:09): It will be clear!

Graeme (19:10): Woot!

Stephen (21:17): It looks like a fair night. For the most part the clouds have moved off just leaving a bit of haze. The only factor for me tonight will be the Quarter Moon. I won't know how it will affect me until I try a long exposure. I'm looking at imaging either in eastern **Virgo** or **Canes Venatici**. Which I do will depend on the Moon and the haze.

Rick (22:23): I lied! I went out at ~9 to turn everything on and open the observatory and lo and behold there's a **Moon** standing there well

out of the trees! I took a single shot with the CCD camera, 0.05s V exposure, that shows the X nicely. But it's not dark yet! Run into the office and get the ASI174 camera, twirl the secondary and start imaging. I did some shots of particularly attractive areas then did a mosaic of the whole thing. Wait, still not dark! Back into the office for the 2x Barlow, repeat the whole imaging process again. WHAT STILL NOT DARK!?! Once more into the office for the 1.8x Barlow to shoot a few photogenic areas. Well, now I've really exceeded the seeing and the Moon really is about to disappear into the trees so I packed all that away and started my normal photometry run, about 5 minutes later than it would have begun anyway.

The sky is pretty bright with, I think, some very thin cloud and that stoopid Moon (I can say that now that I've moved on to other things). But it's clear and the data will be good.

Stephen (23:04): Virgo was just a little too far down in the haze to do tonight. **Canes Venatici** is at least doable so I'm sticking with that.

Rick (23:24): As I was taking my lunar images I could see the haze. Just poor transparency, but it reminded me of smoke in fire season.

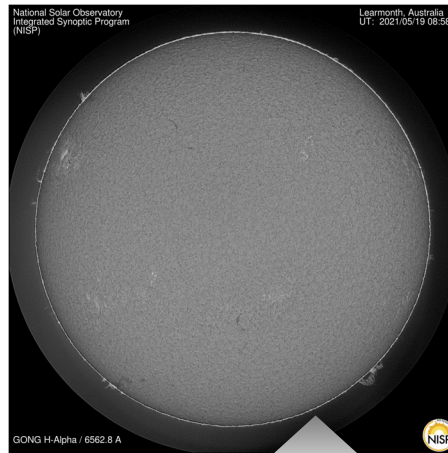
Kevin (12:31): We went out last evening around 21:00 EDT and attempted to get some images of the **Werner Lunar X**. This is from a Canon T7i on a tripod with a 300mm f/5.6 zoom lens. Focus is not sharp at all (used live view and max zoominess). So neither the 500mm mirror lens nor the 75–300mm lens do the feature justice.

I was going to use the telescope but even though the black flies majorly diminished in yesterday's heat, they were replaced by locusts of mosquitos. Swarming was too

kind a word out back in the field.

Yet Kim inside the SCGO reported very few of any flying insectoids.

WEDNESDAY, MAY 19



Malcolm (08:43): Gong H α shows a huge arch on the Sun today. *Windy* shows the atmosphere is very stable here with winds at one knot. It's now or never!

Mike H (08:58): Thanks Malcolm, that is a good web site!

Hank (09:00): Yes, go for it, that **prom** has been building for a few

days now and is currently humped up like an inch worm. My obs is still in tree shade but I will get out shortly—just got up shortly ago.

Malcolm (10:30): Call me crazy: I just took some shots with both the 2x and 3x Barlow stacked.

Hank (10:48): DSLR or astrocam? I have done the same for sure. Looking forward to seeing them. I am heading out shortly.

Kim (10:53): The 2x CEMAX Barlow and astro camera gives Newton's Rings so there is an issue in focus for me. Tried the regular 2x Barlow as well. Imaging through the Solar Max 60.

Back to just the astro camera for me. Been taking images of H-alpha **proms** and surface detail since 10 a.m.

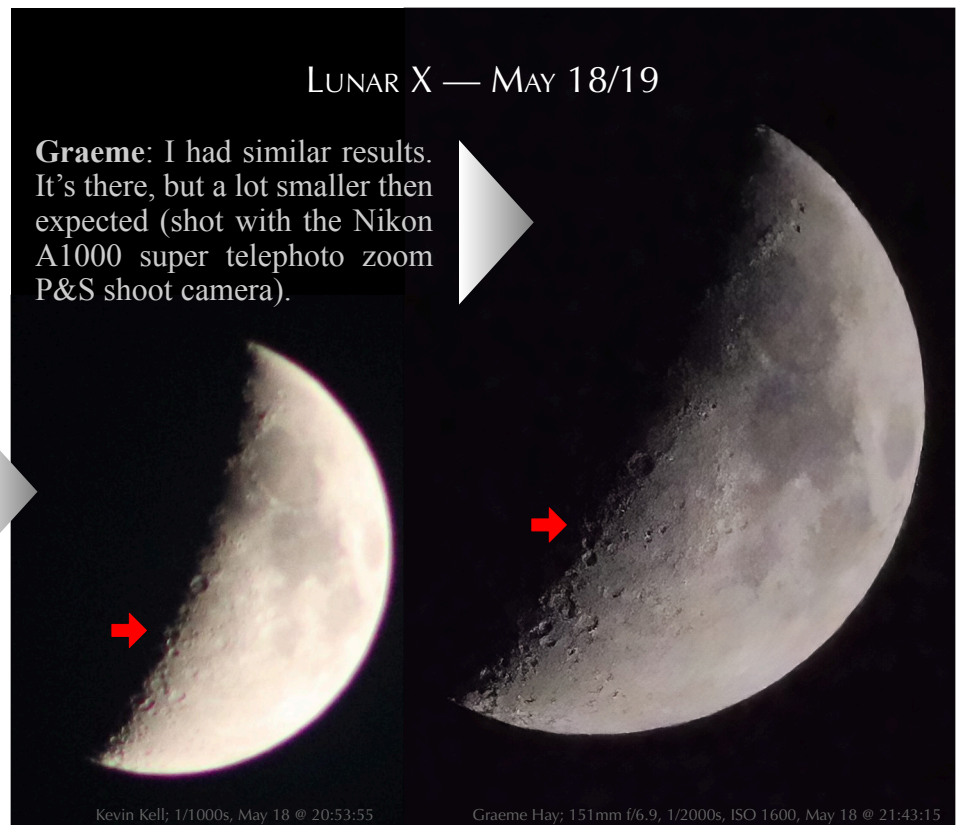
Malcolm (10:55): ZWO Astro.

Malcolm (11:16): This is hard work! You can hardly see the screen because it's so bright. So focusing is a challenge and the Sun is hot! Very hot. And I'm getting dive bombed by wasps!

New respect for solar!

LUNAR X — MAY 18/19

Graeme: I had similar results. It's there, but a lot smaller than expected (shot with the Nikon A1000 super telephoto zoom P&S shoot camera).



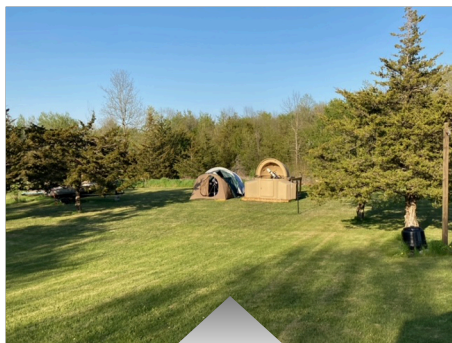


Hank (11:27): You need some shade!

Malcolm (11:49): I'm not looking at the Sun either in an eyepiece or a DSLR screen, I'm looking in the POD bay at my computer monitor, so it's away from the Sun.

It's not as tough as what you have to manage.

Rick: I use a LapDome—a little tent for the laptop—when I'm observing/imaging outside the observatory. It works great—keeps the computer warmish in the winter, at night it stops me from light polluting the area and reduces the bugs on the screen, and the opening is small enough that with my Tilley hat on I can fill the opening and look at the screen in relative darkness when doing solar.



Malcolm: My LapDome is in my Kendrick observatory tent with my lunar imaging set up. The problem with the LapDome is getting the right angle to see the screen from

the mount. And of course I'm not using the laptop to control the solar equipment. That would be a whole different configuration.

I agree that it's a handy device.

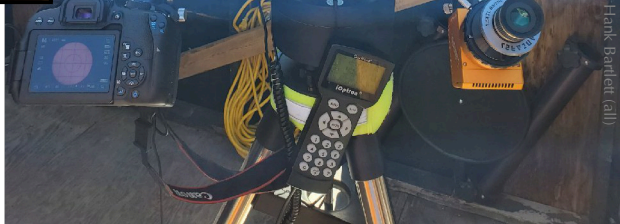
Keith (13:57): I should live in Yarker because I have clouds here: they are thin, but full sky covering; was like this since I got up. That one **prom** looks very nice, lots of **filaments** on the surface. Hank is 23 next to 22 or is it in the south? There is a **spot** in both locations plus 24 is coming on.

Hank (16:20): 23 was below at about the same southern latitude and just east of 22. You may have seen a transient spot. There were some just east of 22 in the north yesterday.

Graeme: Have you ever thought about doing a time lapse of a day on the surface of the Sun? (Thinking now would be a good time, with long days and plenty of sun activity.)

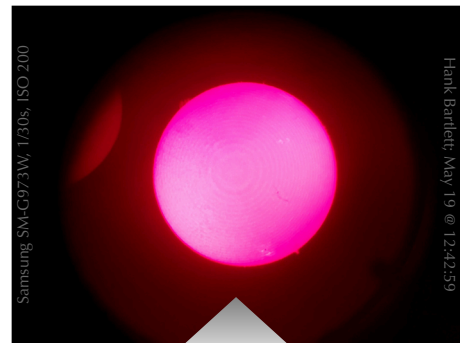
It's something I know I'd love to try but I'm still just trying to get clean shots of spots.

Hank: I have not, reason being is that I am not much of a techie in that way and my attention to detail in framing is poor at best. Given



that I can get constant images on SDO that are all aligned and equally processed I would not attempt it myself. Thanks for the query and encouragement but I will leave that to the geniuses around me.

Hank: I get Newton's Rings with my S10 phone and adapter unfortunately. Thing is, with my BlackBerry phone I did not.



Hank: These are the rings I get with the Samsung S10 camera and the 23mm adapter/holder we bought at the London GA. I do not know if there is any way around them.

Malcolm: Flats?

Rick: I don't know what causes these—technically speaking I don't think they are Newton's rings, though that is exactly what they look like. I just don't see anything in your optics that would produce true Newton's Rings. I suspect that to get rid of them with flats would require that the positioning of the camera, eye-piece, and Sun (in the FoV) be exactly the same, far beyond what could be managed outside a lab setting, *i.e.* to fractions of a wavelength of light.

Hank: The fact that they only appear in H-alpha leads me to think it is a lensing effect between the etalons in the refractor with the 23mm eyepiece and the camera lens. These do not seem to appear in white light where there are no etalons.

THU/FRI, MAY 20/21

Brian (11:45): A quick heads up: there is an ISS transit this evening at 19:58. Newburgh and Harrow-smith are inside the track and Yarker is on the centre line.

In daylight and the forecast is Clouds.

Kevin (12:05): Confirmed with my Android app "ISS Transit Prediction Free" for 19:58:08.80 EDT. Thanks for the heads up. I had stopped checking the app on a regular basis.

Clearoutside shows 42% medium cloud, 96% high cloud. High cloud is mostly transparent except for the times when you want it to be transparent!

Malcolm (13:32): Thanks Brian. AND the Kp is 5.

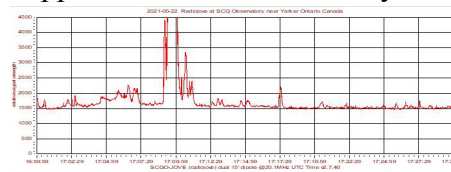
MarK (20:02): No sign of it going by the [Moon](#) here. Must have been too bright out.

Kevin: Kim got 4 frames, I got 1 frame...damn &*@#\$\$& sub Moon/Sun disk too-small sensor cameras!

Hank (08:56): [AR 12824](#) has been very busy overnight as shown in the GONG H-alpha video from Learmonth Australia. Check it out and watch for open sky in your area.

Keith (13:39): Many [proms](#) around the rim, one really big one in the south. Nice large [filament](#) just off from 24.

Kevin (13:40): The 30 minute output from Radiojove showing the M1.2 class solar flare that happened at 17:10 UTC today.



Hank (14:01): Keith, I have not been out yet today, busy busy. Opening in a few minutes and waiting. I got an alert at 1:29 p.m. but was busy and did not check my phone. It was 13 minutes past over with at that time anyway.

Too late of course for the M1.2.

Hank (14:09): Your graph shows much more detail than the one I follow for sure as it is condensed for time. What time did you get an alert? Mine were 13:24:51 (email) and 13:29 (text) EDT.

Kevin (14:42): Don't know what time the spaceweatherlive Android app alert came; no way to bring up a log after the fact. Radiojove generates a new graph every 30 minutes, so waited until 17:30, saw it, saved it, sent it.

After midnight UTC I'll load the daily data and generate a custom graph showing the peak.

Keith (15:27): What alert are you talking about?

Hank: I signed up with [spaceweather.com](#) for M & X solar flare alerts as well as aurora *etc.* They come as text on phone and email, for USD \$4.95 a month. I thought I would just try it now that

activity is picking up. However they are coming too far after the fact; only slow rising flares can be alerted in advance but I would think the alert should be to me within a couple of minutes after the fact. A fast-dropping flare would still be missed but if the degrading is slow one could still catch it. Kevin gets his from a free source so I was wanting a timing comparison. There was an M1.1 at 7:08 EDT this morning, the email came at 7:19 EDT and the text 7:24 EDT which is too much lag time to pay CDN \$6.19 for, so I will likely cancel after this month. But the Kp alert for aurora I would like to have as it is not as time sensitive. If Kevin's source is reliable I will give it a try.

Kim: Try [spaceweatherlive.com](#) that is what we both use and we get close to instantaneous notifications. No charge unless you wish to contribute.

Hank: I will do that, I expected what I am paying for to be quicker for sure, it is all linked and shouldn't need any human input so 10-30 minutes is too much delay.

Malcolm: Maybe that's not what the alerts are for. My interpretation was if there's a flare notice today, stay tuned because it's the first chapter of what could involve a CME, which upon further investigation may be Earth-directed, which may become a Kp event and ultimately aurora.

Hank: Oh definitely that is the major part for most Malcolm, but I still don't want to pay for that lag time. M and X flares are short duration but sometimes they go back down slowly and there is some good imaging then. If the alert comes late the chance of even seeing this is unlikely.

Hank: Besides, the "stay tuned" is usually days later or at least 24 hours, so by then the news is out everywhere. Let us hope today's

flare and yesterday's have some Earth-directed elements.

Hank: Just got a [spaceweather.com](#) story and this was attached:

Instant Solar Flare Alerts: Would you like a text message while solar flares are underway? Sign up for Space Weather Alerts and never miss another eruption.

I will give it this month to prove it can do this, but I am not optimistic.

SAT/SUN, MAY 22/23

Rick (21:54): It seems to have cleared off outside. Satellite image is kind of neither here nor there—cloud in some images and not in others. However, I'm just heading out to start everything up.

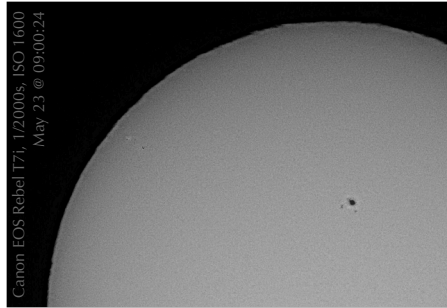
SUNDAY, MAY 23

Hank (13:49): Just had a short image session a few minutes ago. King joined me and witnessed his first **C class eruption**, a 2.2 right at peak! I am training him to take over after me. The images below are ~16 minutes apart as we went away to take the solar cover off the pool. Speaking of the pool, it is up to 26.6C or 80F today and no solar heaters connected yet, DANG if they were on the roof and operational it would be at least 85F. LIFE is GOOD!



Mark (14:00): What are the spots like on the companion?

Hank (14:15): The wind is playing some havoc and seeing is not best, this is a quick process, they are in



the upper left and barely showing here after sharpening/detailing. Visually they were there with **plage** but small.

SUN/MON, MAY 23/24

Stephen (14:15): We get two clear nights in a row! But I can't use them. The nearly Full Moon is right in the middle of my galaxy targets! Maybe Rick can get some photometry done. And the days are great for solar, way to go Hank!

Maybe I'll get some more clear sky in a week or so.

Hank (15:42): You are going to have to find some moonlit targets Steve. You are doing well with your project. Watching the Jays right now after enjoying a little Covid Corner (beer and bull session around the stop sign). I should go out and see if the seeing has calmed down; 9th inning and leading so I better wait.

Kim (18:04): Very windy.

Graeme (19:04): I'm hoping to convince myself at 12:30 a.m. to go out and grab a wide shot of the



galaxy...I pushed too much last month and am still catching up on sleep.

Malcolm (19:59): I'm waiting for the cirrus to dissipate and

hopefully shoot the Moon.

MONDAY, MAY 24

Hank (13:10): Just in from a session, a couple of nice **proms** today in the SE & SW, a little faint and took some tuning but worth it. Unflipped partially brightened image attached.



Mark: The double is still there, hovering almost out of view. I never realized the **Sun** was a double star.

Hank: It is a stealth double and actually it is triple at times.

Hank: Quad system actually! [image A, next page] Or if one removes the Barlow it is a quindecuple system! [image B, next page]

Mark D: What causes that?

Hank: My SolarMax is two 60mm etalons on a 70mm refractor; the etalons tune the H-alpha by tilting slightly off the plane which is parallel to all the over lenses in the refractor as well as each other. The single extra reflection is all that is seen in the observation. Tilting the objective or end etalon moves it out of view mostly and out of image view entirely if wanted. It is easily removed in processing from the peripheral otherwise.

A single stack does not have this interference but the gain otherwise is worth it with the double in tuning.

This looks serious but it is not, I was just having some fun.

Note that the processing only affected the true image in the lesser image.

TUE/WED, MAY 25/26

John (10:35): I went outside at 0230 this morning to see what the sky looked like and found the **Moon** in the SW very bright and in thin clouds. Most of the sky was this way, making everything very bright. There was a small spot overhead that I could see two stars but that was all. Braving the mosies I stayed out for about 1 hour and the clouds got thicker and I could not see any dimming of the Moon from Earth's shadow. Finally I packed it in and went back to bed and will check out online for some good views of the eclipse. I think I am down a pint of blood.

Mark: You should have checked the Handbook. The eclipse did not start until about 0447 EDT and we would never have had view of any thing other than the penumbral phase. By the time the umbral phase began, it had already set for us. This would have been an interesting eclipse to watch as the length of totality would have been very short, under 15 minutes as the Moon would have raced past the edge of the Earth's shadow.

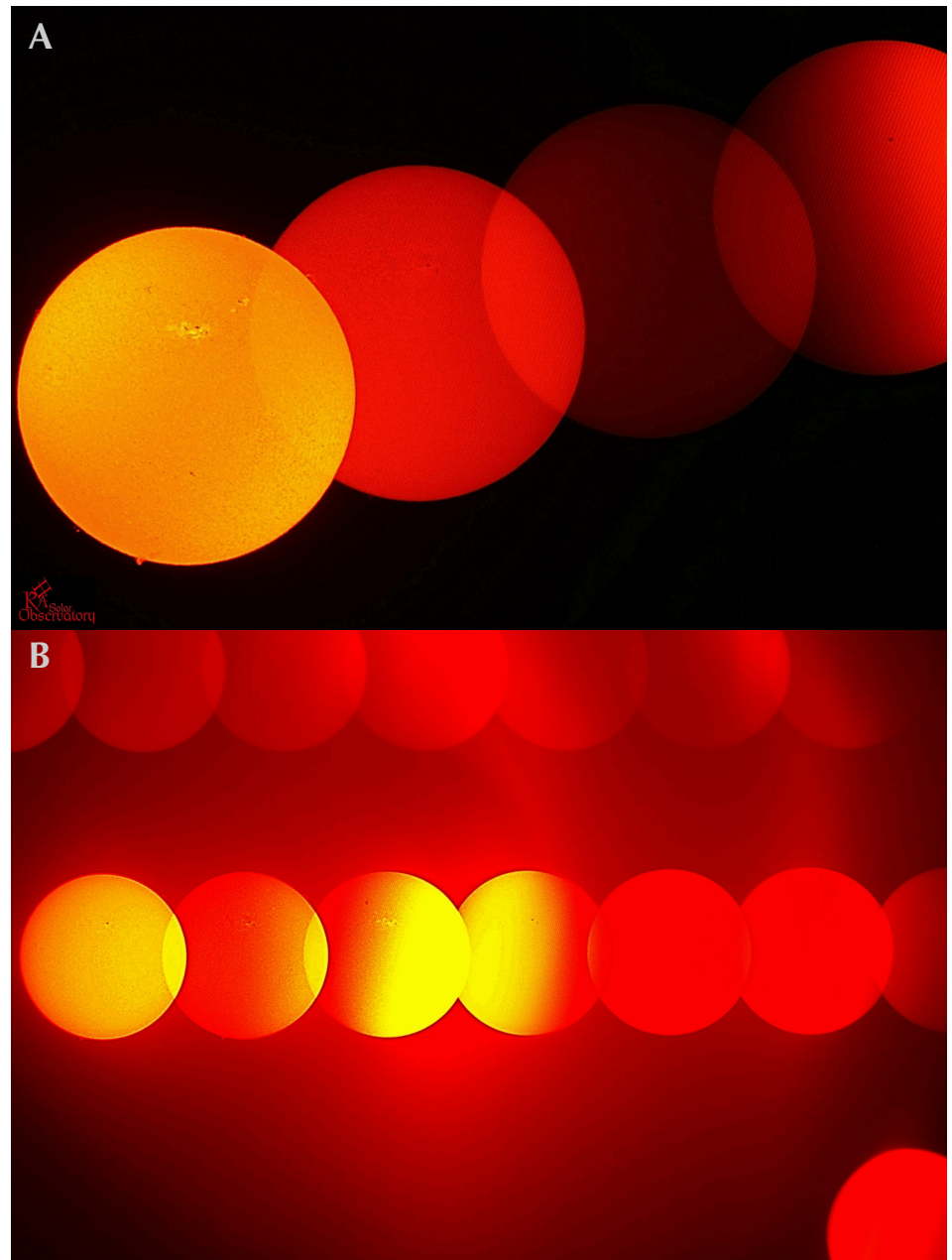
WEDNESDAY, MAY 26

Walter: Stats for today's launch:

- 2nd flight for this booster,
- payload fairing halves were on their 3rd and 5th missions,
- 85th successful landing of a Falcon 9 first stage

Looks like Malcolm's internet will be getting faster.

BTW, Eastlink sent me an email a few days ago saying they were going to boost my speed for free! I just tried speedtest.net and it is now reporting 349 Mbps down and 10.8 up. Nice! (I don't think the upload has changed.) speedtest did say that for speeds over 100 Mbps I should be using their app



instead of my browser, but I didn't feel like doing that. Hopefully the download number is not too far off.

Mark D: I had 0.45 Mbps download speed the other night during our meeting using Xplornet. Great service.

Mark: That is so weird. We are also on Xplornet and I did not have any troubles during that session or the one I had last night with the NYAA.

You should say something to Xplornet. Years ago, we had problems and they sent someone out and they really improved our

reception with the service call. Since it is line of sight, there may be something new between you and their broadcast antenna or maybe something has moved or is broken. I know it is a shared service, but that speed is not acceptable.

Mark D: I get my service line of sight to a tower located on Basswood Hill, very strong signal. The bandwidth drops around 7 at night, I assume because of too many users at this time. Normally the bandwidth is acceptable during the day. I did contact Xplornet and

Kevin: This is my *single* frame capture of the ISS lunar transit on Thursday, May 20th at 23:58:08 UTC. The ISS is the little lighter blotch in the lower left of the frame. You can imagine two major solar panel components.



ISS Transitting the Moon 2021May20 23:58UTC

If we had better cameras with bigger FOV sensors/pixels, a lower focal length telescope, or a better predicted path over the Moon itself, I would have framed this and captured many more frames as it crossed.

Specs: Meade 102mm f/10 SCT on a Meade LXD55 mount captured with a ZWO ASI290MC camera with FireCapture software. Focus was manual of the primary SCT mirror using the “warrior” yoga pose: reaching into the too-small observatory, under the counterweights, around the camera and finally to the coarse focus knob.

Processing (all with Irfan-

View): Load the AVI file, extract all 1242 individual frames, and convert them into BMP files. I then went through them one by one to identify the single ISS frame, kept one before and one after, and deleted the rest. Then I changed them from BMP to JPG and annotated them. IrfanView is becoming my goto software!

If Brian and others can help remind us when these events may be coming up for folks in the local geographic area, that would be great!

Mark: I have three videos of the ISS crossing the Sun, but I have never seen it cross the Moon.

There are a couple of real close calls over the next month, but nothing actually hits.

Exposing for the Sun is easy, just get a good image of the Sun and the ISS is a black spot crossing. But what exposure will work on the Moon for me is a mystery. If it will be bright on bright, then the ISS will be hard to expose for. If the ISS is unlit, that will be easier.

transit-finder.com is what I use. Google complains about the map, but it still works.

Unfortunately, the much more complete *CalSky* site has gone away.★

THE IMPORTANCE OF “NOTHING”

In a paper presented at the Potsdam, NY. meeting of the A.A.V.S.O. in May and reproduced in the August *Solar Division Bulletin*, Prof. W Gleissberg, in speaking of the approaching sun-spot minimum (which is expected in 1954 or 1955) says, “Solar observers generally do not like the spotlessness of the Sun. They find solar observations more interesting when spot-groups crowd the Sun’s disk, and

it seems to them tiresome to look at the clean Sun and to wait day by day, patiently, until a small group becomes visible. But they must never forget that the value of a series or observations depends mainly on their length and homogeneity. Thus observations should not be neglected during the periods of quiescence in the Sun.”

The same remarks could apply to other fields of observation. Dr. Gartlein has commented on the fact that there are gaps in auroral records

due to the falling off of interest during periods of minimum. Negative reports are necessary to give an unbroken record and observers need to be reminded of their importance. Remember, the time of the appearance of a nova or the fluctuation of a variable star is narrowed down with the help of negative reports. So don’t get discouraged or lose interest when you have “nothing” to report. It can be important.

—Skyward, August 1952

they are taking \$30/month off my bill until it gets better? This morning I had about 8 Mbps.

WED/THU, MAY 26/27

Hank (23:25): WOW! Just caught the near-zenith -3.8 pass of the ISS, NICE!

Kevin (12:00): Thanks for this note. It brought up an interesting bug in the AllSkypi camera system: when the sky is bright with Moon, the exposure drops from 60s to say maybe 17s, but the interval to the next image is not zero! I will have to take a look at that.

So we captured just the one 16s image of the ISS, not a bunch of them.

Hank: I will have to see this on the desktop later, but on phone it is a very nice image. Modern cameras amaze me with their ability to handle lighting.

Mark: That new camera lens combination sure works.

Kevin: It certainly does do a better job but was very hard to find at a reasonable price. Now the system needs more dark frames at higher temperatures and then I need a way to programmatically use the nearest dark frame to auto-process throughout the night. Right now it is using the only dark frame I have which is at 0C.

The Raspberry Pi is awesome, takes very little power (still prototyping the next one to run off a solar panel and battery wayyy in the back field for another radio telescope. It is rock solid stable.

Another issue is the camera sensor temperature. I already have a fan blowing cooler air into the housing but sensor temps still hit 50C in the daytime...not good.



Kim: Here is an image that I took of the sun in H-alpha.

Rick: Looks more like white light.

Kim: The camera is a mono camera (ZWO ASI120MM) which is better for Solar imaging.

Hank: WOW! Very nice Kim, I hope you posted this!

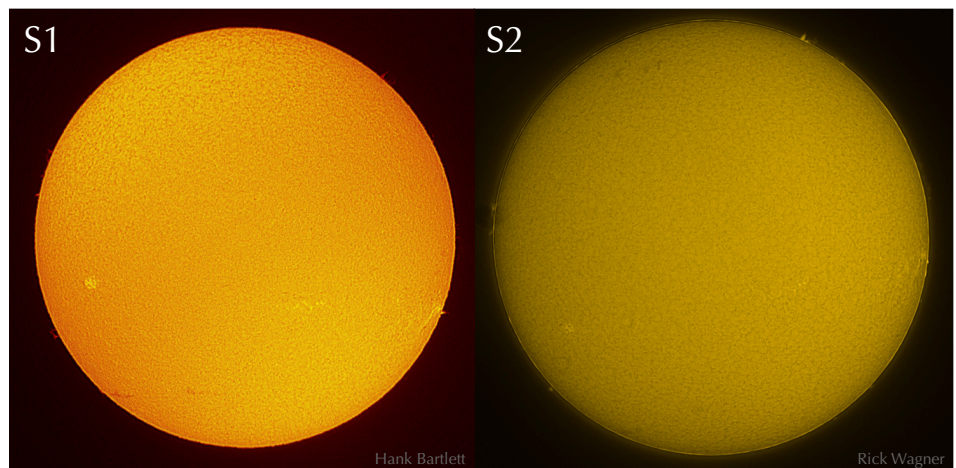
If you would like to try out the Continuum/UVIRcut filters to see if they work with this camera just say so and I will hand them to you for a week to try out.

As you know I have found even converting DSLR images H-alpha in monochrome for conversion to colour is an improvement over straight colour imaging.

Kim: Thanks Hank. I have only posted to this list.

I do not colourize the images because it tends to cover up the plage around the sunspot groups and I am looking at surface detail.

Kim: The Continuum filter came Wed night and I tried it Thursday—yes, a green Sun. The IR was 8-10 days behind.



SATURDAY, MAY 29

Hank (12:35): There appears to be a small eruption going on at 2824 and a prominence is growing out of it. Worth checking if you are observing. Some cloud moving in but I got my imaging in under clear sky. [image S1]

Rick (17:40): Here's an image [image S2] of the Sun from this morning—it's a combo of two images—Hank's 40mm Coronado, ZWO ASI174MM mini monochrome camera, Televue 1.8x Barlow; prominences are a 30s video of 10ms exposures, gain 313, best 20% of 665 frames; the disk is 30s video of 2ms exposures, gain 306, best 20% of 665 frames. Both stacked in AutoStakkert!3. There are the remains of two small dust donuts in the lower left (say about 7:45 on the clock face at ~60% and 90% radius.) Seeing was below average. Enhanced slightly and colorized in Photoshop. Still just learning.

Hank (18:02): I think this is looking good Rick, I still do not know how to add two images together like this. Still working on the attached resized image from this morning for comparison.

Mark D: A quick try at processing from image taken last night [M27].

Hank: Very nice MarkD, I always think it should be the Green Apple Core Nebula.

Stephen: That's looking good Mark. You're getting better!

Mark D: Sure Hank. This Affinity software is something to tackle during the winter. I am proof you can make a silk purse out of a sow's ear.

Hank: Ah yes, there will be a lot of time to sit and "play" with settings. I am still learning with Photo Editor 11 and have a long way to go to understanding it.

Kim: Mark did you use Affinity? Just wondering as I am still debating getting it. There are 68 days left on the free trial. There are some things that cannot be done with the trial version.

Mark D: Kim, I cannot remember if I processed this version of the Iris. I took another shot last night of the **Iris** and other nebulae to see what I can get out of Affinity.

Here is **M52** and **The Bubble Nebula** [next page] processed as best as I can do in Affinity. 32 frames for 8s each with my ZWO 294 camera.

Stephen: You have some nice round stars there Mark. That's a sign that you could probably get away with longer exposure. Otherwise a good start!

SAT/SUN, MAY 29/30

Stephen (23:25): It's a clear moonless night, at least for now. I'm imaging **NGC 5850**, a nice barred spiral in **Virgo**. I don't know what I will do after moonrise. I'll take it as it comes.

Hank (23:35): Enjoy the night Steve, I am sure it will be galactic!

SUN/MON, MAY 30/31

Rick (20:48): I'm torn between thinking this cloud deck is moving northwards so we'll be mostly cloudy tonight (or at least on and off) or is it drifting slightly eastward and going to clear off.



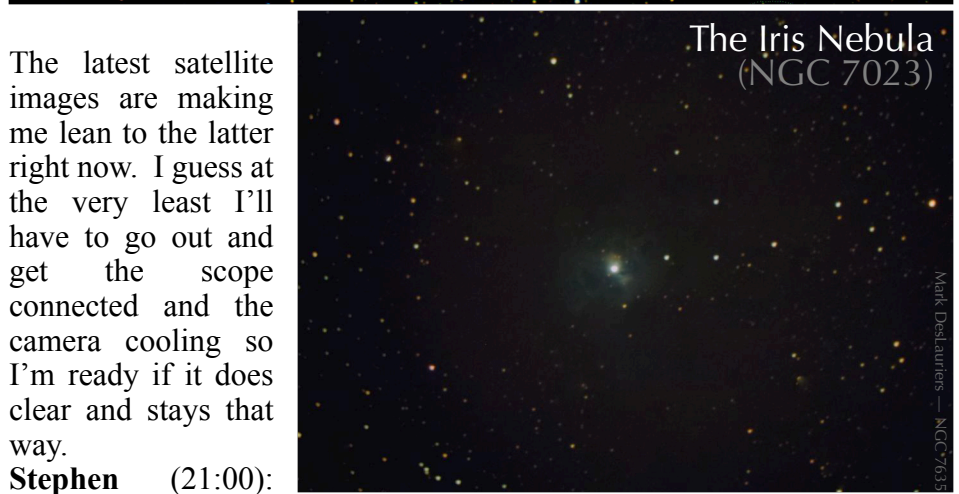
The Dumbbell Nebula
(M27)

Mark Deslauriers - M27



The Bubble Nebula
(NGC 7635)

Mark Deslauriers - NGC 7635



The Iris Nebula
(NGC 7023)

Mark Deslauriers - NGC 7023

The latest satellite images are making me lean to the latter right now. I guess at the very least I'll have to go out and get the scope connected and the camera cooling so I'm ready if it does clear and stays that way.

Stephen (21:00):

The cloud deck certainly seems to be evaporating off to the southeast. I'm going to open and hope for the best. If the clouds remain it only takes a couple of minutes to close up again.

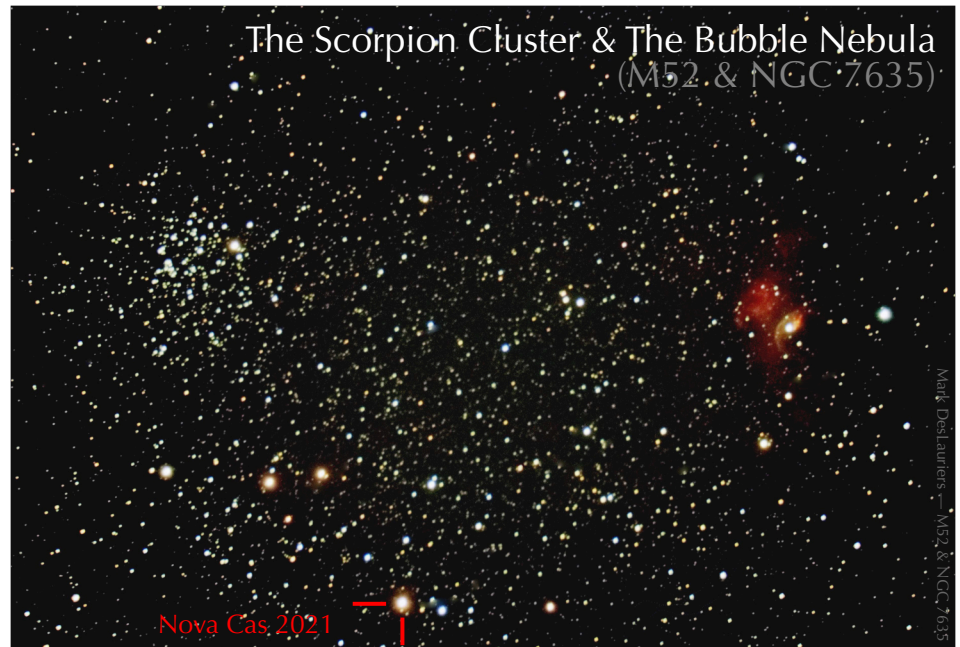
Mark D (21:40): Not a cloud in the sky here in Centreville.

Stephen (22:28): I'm up and running, imaging **NGC 5713** in Virgo.

Susan (17:01): Got in two hours last night. Seeing was crazy and parts of the sky would disappear at times, but still nice to be out until most of it went white at 1 a.m.

Rick (22:28): Weird—we were perfectly clear with good transparency all night. At least, once it cleared about 10.

I was shooting with the DSLR and 70–300 zoom lens on the iOptron mount with a 50mm guide scope until about 1:30. Guiding was a waste of time. I'm using my little HP Stream notebook running Win10. But so much software is flaky—PHD2 guiding software often can't read images from the ASI120 guide camera, Maxim absolutely wouldn't calibrate the guider for some reason—kept moving the scope far longer than it was supposed to and in random directions—not along the RA and Dec axes like it's supposed to. And Maxim is coming up with stupid error messages (can't slew because the mount is busy, can't sync on the sky while the mount is slewing, etc.). By the time I finally gave up on guiding and got everything else sort of working and this very faint target properly framed I was only able to get an hour's data on my pretty picture target. So it shows up in a heavily processed stack but it's noisy, lacking in detail and the faint areas are missing or have no colour. No details yet on what the target is as I don't want all of you scooping me on this rarely seen but beautiful object.



Mark D: The suspense continues.

TUESDAY, JUNE 1

MON/TUE, MAY 31/JUNE 1

Stephen (17:47): It looks like the clouds will arrive at about sunset. I sure hope they are right about tomorrow night!

Rose-Marie (20:43): Well OF COURSE there will be clouds tomorrow night, when the CME/aurora are scheduled to arrive. If it's going to be cloudy at least have the decency to dump some much-needed rain upon the dry landscape.

Rick (22:08): Yeah, I've been watching them approach, debating whether to open up to try to catch an hour or two but finally decided not to bother. I was out working with the Sky90 Saturday evening and the DSLR last night for several hours each, only getting to bed by 1:30 so a good night's sleep looks better than the sky does. Unfortunately I'm running the remote scope tonight and can't start it up until after sunset (shortly after 11 ET) so won't (in fact already didn't) get to bed as early as I would have liked.

Rick: Looks like Meade has been bought up by Orion. They plan to keep the brand-name and honour current warranties. Hopefully they'll improve the quality of the products.

Hank: Such a realist, but such a dreamer as well.

Hank (12:34): Just had a nice 40 minute session before the boys arrive. Seeing was good and clear as well. Nice features, nothing great activity-wise but I did try some 5x Barlow (2+2.5) for some close-ups in H-alpha.

Kim (12:36): I am out now, and do see a new active area in the south. Going to see if I can get more images.

Have not done the prominences yet, still doing the surface detail. ★

"The bulk of our knowledge of the outer solar system has come because JPL did such a brilliant job with these extraordinary [Voyager] spacecraft, coming on time, under cost, and vastly exceeding the fondest hopes of their designers."

—Carl Sagan