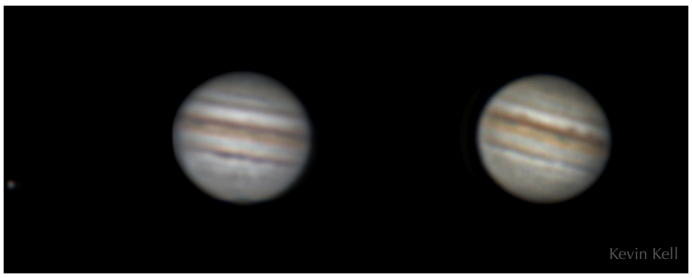
July 2021

Skyletter

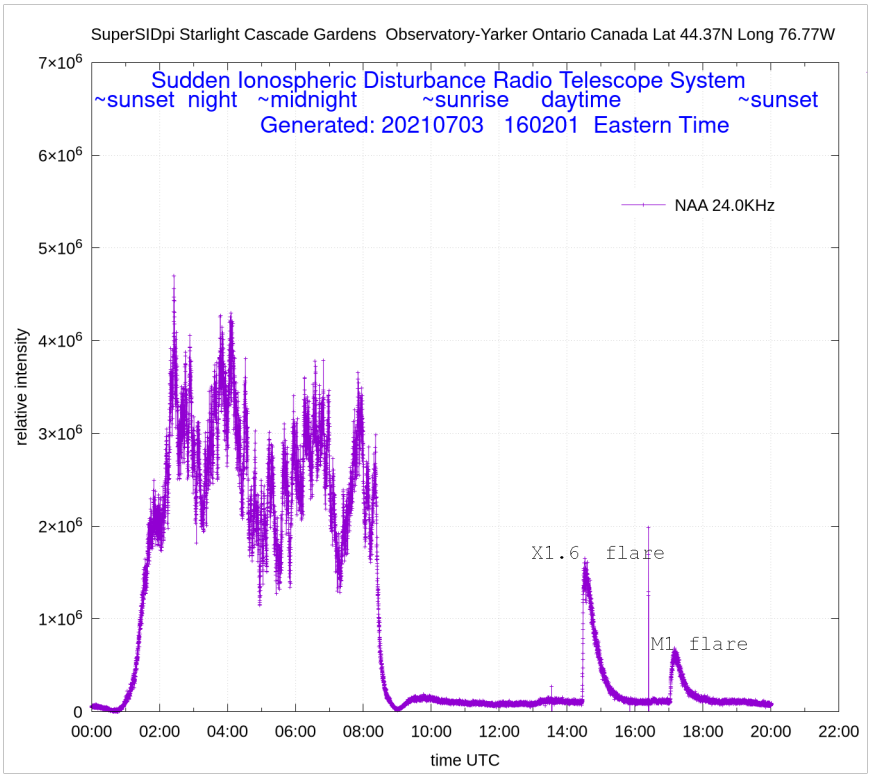
RASC Kingston Centre



Saturday, July 3

Kevin (11:00): Solar X1.5 flare... 14:30 UTC today.
Hank (11:30): Of course it was too cloudy when I received my first alert at 10:40 EDT (14:40 UTC). I have been shooting through the clouds in case there is prominence eruption but have not noticed anything yet.
Kevin (16:50): Wow, an X1.6 class flare at 14:30 UTC and another M1 Class flare at 17:10 UTC.
Attached is the annotated image from SuperSID (starlightcascade.ca/supersid) which monitors radio signals from Cutler, Maine bouncing off the ionosphere. Normally during the daytime the ionosphere is heated up, spreads out and does not reflect radio waves. Normally we pick up CME's (coronal mass ejections) 2–3 days afterward, when they slam into the ionosphere and cause all kinds of signal.

I am not sure what an X or M class flare can do to interact and cause signals like this in the daytime...unless it is not the Maine station we are receiving via bounce but rather the flare itself at 24.0 KHz.
Hank (17:14): The shape is different than this X-ray graph but similar. It would be really cool if I could build an antenna on the observatory roof.



Sat/Sun, July 3/4

Stephen (23:42): I noticed it was clear at 10:45. I got set up in record time! Back to imaging galaxies.

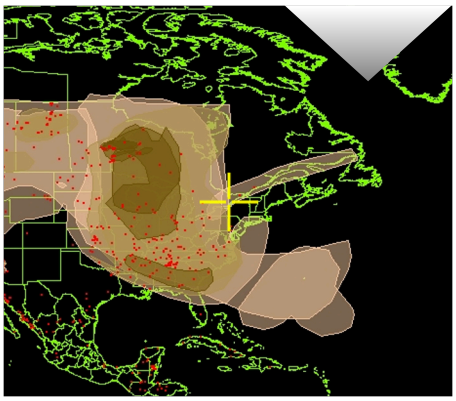
Rick (00:33): Yeah, I noticed as I was getting ready for bed. So I got the Boltwood started on photometry. I put the Sky90 on the newly installed Titan and most things seem to work great. It's running a short series on M71 just to see how the guiding is working, what the focus is like (just manual for the moment, I'll try autofocus soon). Maxim however, is being a royal pain. Although it is taking the pictures, it refuses to talk nicely to the mount. It says it is connected but doesn't read the RA/Dec so I don't have any plate solve, no point–scope–here centering function, and no mount modeling which was my main goal with it this evening. ECU connects fine and reads RA/Dec fine. I'm going to have to try a repair/reinstall of Maxim to see if that gets it working. The only other option is to try an upgrade of Maxim or move the whole operation over to Linux.

Looks like it should stay clear for the rest of the night. Although it is very heavy dew here—may get fog later. Jupiter is rising in the SE and it's a deep orange colour.
Malcolm: Time to dump Maxim, lol.
Susan (09:52): So unexpected. Unable to take advantage of the sky that was. I had been painting in the observatory during the day and it was such a jumble (assuming cloudy night) that there was no way to get it sorted at 11 p.m. when I looked out. We had some cloud but where you could see the stars the views were pretty crisp. I hope those of you who got out had a good night.
Susan: PS: Was out finishing the painting at 7:30 this a.m. so that all

can be set up for observing tonight. I fell in love with the blue paint and did the whole inside of the observatory, save the 'holo-deck arch' around the door. I hope I do not end up black and blue with my new invisible walls!

Stephen: I had a great night, only a half hour behind schedule. I managed two galaxies and two nebulae. The air was clear and crisp all night. The forecast fog never developed.

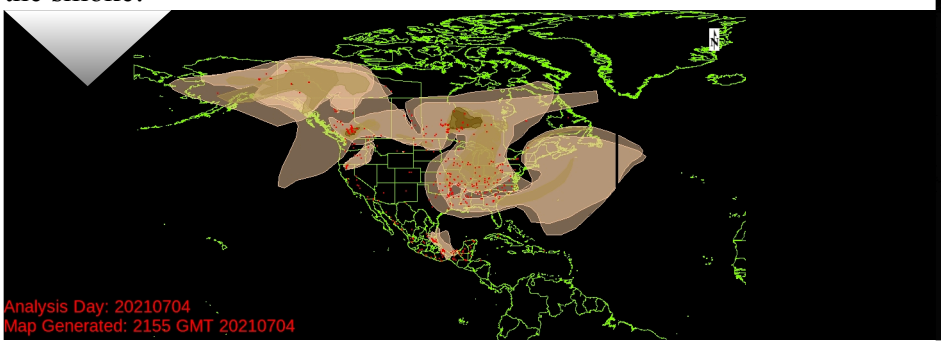
Malcolm: With the angle of the Sun in the morning around 9 a.m., it appeared that there was a fair amount of smoke in the atmosphere. It was clearly visible looking...east!



Hank: A nice blue sky overhead. I am busy the next few hours so I hope it holds until 2ish. The M flare early this morning world have been a nice catch with a prom release off of it, too early for the western world.

Cathy: When I opened a window in the middle of the night, I could smell smoke.

Malcolm (18:46): Looks like we have pretty much the only hole in the smoke!



Hank: Holy smoke Malcolm!

Sunday, July 4

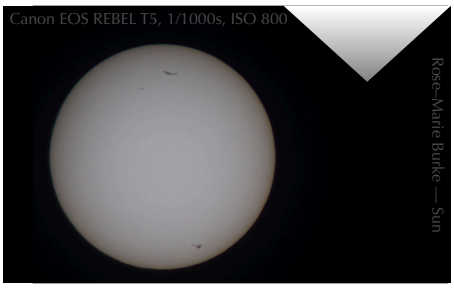
Rose–Marie (20:33): Okay Hank, I done seen it. The Big Spot. It was a very frustrating session, but I figured I'd better get out there and try before it rotates off.

First I got out that little 4–inch telescope with the Thousand Oaks filter. Now, the Sun is a big target, but do you think I could find it? Hell no, and with about 235 deer flies swarming around me, I said to hell with it. So I marched it back up to the house before I relented to a very strong desire to pitch the whole off the dock into the lake.

Had some coffee and sat down for a bit. Next try. Find the little spotting scope, and the Baader film homemade filter. Spent 20 minutes trying to figure out, when I'm doing my test view out the window, I have no focus. Idiot. Put the little eyepiece on you dummy. There, now it has a view. Grab tripod and stuff and clumsily try to get out the door and down the hill. Did I mention the Sun is a big target? Yeah, right. Blow my eyeballs out trying to find it while sweat gets in my eyes, my glasses fog up, and now 250 deer flies swarm around me. Swing the bug bat, zap a few, hold the trigger and watch their bodies snap and fry. There, that little wisp of smoke coming off them makes me feel better.

So. FINALLY get the Sun, now try to get good focus. DAMMIT that Sun keeps moving. Crap, forgot the cable release. March back up up the hill, snap and sizzle a few more flies, root around in camera bag, snatch up cable release, march back down the hill. The Sun has moved.

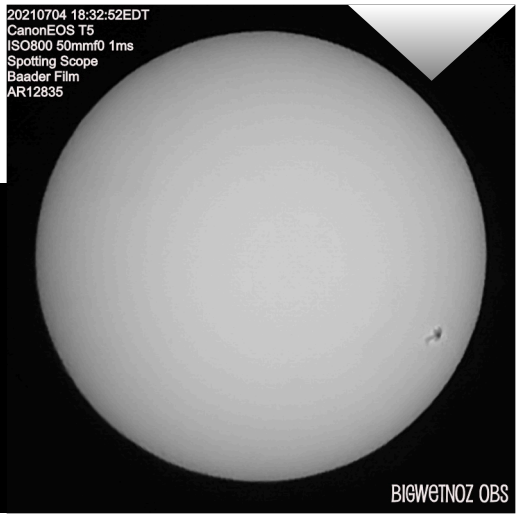
Reset. Focus, focus, bracket several shots, check view on camera...and oh crap, there's a big comma–shaped something, probably dust on the mirror. Hell with it, take a few more shots, call it a day. Fumble around with camera on scope on tripod, filter back in box and tucked under arm, carry tripod in hand, swing bug paddle while tottering back up the hill.



Once again I am reminded why I only try to shoot through the scope once a year. Leave the little scope for bird watching.

Hank (22:26): Yay, you did it! Now next time, point scope, find its smallest shadow with filter on and NO EYEPIECE, look into scope and centre the big white blob, now put in eyepiece and focus.

Congratulations to BWN Observatory.



Cathy: The dome is still on the Experimental Farm, borders the new hospital expansion, but being kept for heritage reasons last I heard...

Last time I saw inside it was when Hale-Bopp was around...I was over by the dome, and peeked in the door...and the night watchman was kind enough to let me take a last look at the murals on the ceiling just inside...

MarK: When I was a kid, we would visit with family friends regularly who lived on Melrose, just across Carling from the Dome, I would go up and look through the scope on public nights. One member of the family ended up living around the corner from us here at The Observatory, so I have been seeing him for more years than I can count. I remember views of Jupiter that where stunning, better memories of it in that scope than seeing it in the DDO [74"].

Cathy: I didn't visit the Dominion Observatory too much as a kid. I remember one time my best friend and I stood in line outside for about an hour and a half, to get a look at Mars. Just as we got close to the telescope, it clouded over.

After that, I mainly tried to look through telescopes belonging to the amateur group in Ottawa, at star parties out at Quiet Site, a radio quiet zone owned by DRB, Defence Research Board, west of Ottawa near Dunrobin. Most of the scopes were handmade, the crew ground their own mirrors, and most of the tubes were wood or sonotube. I helped grind a mirror for our high school club, then set up my own grinding station in my bedroom—oil drum, made a wooden base and top. Ran a garden hose into my bedroom at home to fill it. It was an 8 inch mirror. After a lot of grinding and grit...I decided I really preferred using telescopes as opposed to grinding mirrors...so I parted with it to a friend who was more into constructing scopes.

The professionals were always very kind to the amateurs in our group back then. I remember one winter day when a number of us decided to snowshoe from where our meteor coffins were, back through the bush to the Ottawa River and the NRC solar telescope. I gave the head of the solar scope a call, and asked if we could visit—and he said no problem. He was always very kind.

We were very fortunate to have many people from NRC who came to the Ottawa meetings, gave talks on a wide range of topics related to astronomy, and were very down to earth at helping our Observers Group crew.

It was not a diverse group back then, there were only 3 girls in the Observers Group—me, my friend Lins (recently retired from the radio data team at Socorro NM), and my friend Sylvie (software designer in California). We were all also a lot younger than the guys—but we held our own, and soon they realized that we were just as dedicated.

Most of the professionals we knew well have since passed away. Dr. Fred Lossing, the founder of the Ottawa RASC Observatory, was the assistant head of chemistry for NRC. He and his wife were both also talented musicians—him on cello, her on piano.

Time goes on, the bricks on the old Dominion Observatory get a bit more weathered year by year...

Dieter: A lovely reminiscence that I have enjoyed reading.

Rose–Marie: Cathy, when you were a kid, did you come across an old engineer by the name of Judson Pulford Henderson, known to everyone as J.P.? He was very much involved with the Dominion Observatory at one time, worked with the crew that developed the "time signal," that beep beep beeeeep you hear at 1:00 p.m. on the radio. Really neat guy.

Cathy: No, I don't recall ever meeting Judson Henderson. I tracked down a couple articles that people may be interested in, regarding the time signal, listed below. When I was growing up in Ottawa in the 70's, Henderson would have been in his mid–80's.

I did know Malcolm Thomson, who worked with him on the long dash. Malcolm was a wonderful gentleman, and the organizer for the 1973 GA, which I helped out with. Still have the wonderful thank you letter that he wrote to me. Have old photos from that GA that I should scan for the archives...

- Obituary for J.P. Henderson: adsabs.harvard.edu/full/1986JRASC..80..221T
- Information about Malcolm Thomson: rasc.ca/malcolm-thomson
- Original manuscript on time by Malcolm Thomson: rasc.ca/beginning-long-dash

Rick: One of the Ottawa members was in Ecuador (?) few years back and in the capital came across their national observatory. He said it is identical to our Dominion Observatory. Freaky, like suddenly being transported back to Ottawa. But this disadvantaged, poor, dare I say backward, nation has theirs running, open a couple of evenings a week to public viewing, museum, pictures. A vibrant educational facility. So I have to ask myself: which one is the backward country? I mean, look at the Science and Tech museum. Maybe I'm too critical, being a wannabe scientist, but it feels to me more

like an eclectic garage sale than a science museum. And their new construction gives offices and labs like six times the space of the museum.

Kevin W: Cathy, what is a meteor coffin?

Cathy: Basically, it's an enclosure to keep you warm while meteor observing.

The NRC group at Springhill, Ontario (under Dr. Peter Millman) built individual enclosures for their meteor team back in the 50's (I think it was during IGY, International Geophysical Year). They were nicknamed meteor coffins, each faced a different compass direction. The recorder for the group sat in a separate little booth.

The Ottawa RASC meteor group (under Les MacDonald, then Ken Hewitt–White) built their own version in the 60's, but to save wood made a pie–shaped structure, feet toward the middle, with a heater in the center. Observations were sent to an old Ampex tape recorder in a nearby van, and the tape decoded by the meteor coordinator the next day.

Rolf Meier and his wife Linda built a set of 4 coffins on their property near Almonte years later, for their own use.

Pierre Martin of the Ottawa Centre has constructed a portable fold–up coffin for his meteor observing, with a wooden frame to go around the perimeter of his lawn chair, and an emergency tarp to go over the top, to help shelter from wind and cold.

An even more portable version is the 'body bag' type I used years ago. Use Canadian Tire emergency blankets/tarps (red or blue), cut off the grommets, measure what size you want for your body bag, and sew yourself a rectangular bag with the silver side on the inside. Pick up a construction site zipper, also Canadian Tire, meant to stick plastic sheets at house building sites to open and create a 'door.' Use the zipper for your body bag, stick it on, but helps to sew as well on the sides. Doesn't necessarily keep you a lot warmer, but keeps the wind off you, and keeps your sleeping bag from getting all dewy.

So... different versions... and origin of name 'coffin.'

You can find a bit more info, and some photos, at the following link, an article I did for the IMO, International Meteor Organization, back in 2001. It was a long time ago, and my interests have changed a bit, as have my work commitments, and family commitments. I keep a membership with the IMO over in Germany, to help support them, but have not done meteors in a very long time. The NAMN group, North American Meteor Network, no longer exists. I wrote the monthly newsletter for NAMN for 9 years. I still keep in touch with the co–founder of NAMN and his wife, and catch up to Pierre Martin on rare occasions, but that is the extent of my contact with the meteor community now.

Meteor Roots
of a Canadian Amateur
articles.adsabs.harvard.edu//full/2002pimo.conf..
.36H/0000036.000.html

Rose–Marie: Cathy, thank you for the links. I had found a couple things about J.P. online but hadn't seen these. He was such a neat guy. I don't know exactly how Mom and Dad came to know him, it was through mutual friends they had in Hamilton during the 50's. When Mom and Dad had the farm on Opinicon Rd., J.P. visited and saw the empty barn and asked Dad if he could store some stuff. He had a few rental houses in Ottawa and in the early 60's the city expropriated a couple properties to build the water treatment plant on Britannia Bay (?), and he had a lot of old stuff he had hoarded. Old radios, big old glass electronic tubes, all kinds of gadgets and equipment I can't remember, seismograph, things that buzzed and beeped and lit up and fascinated us. 'Tis how my brother got into electronics. J.P. gave my brother a ham radio that he played with, talked with people from distant places.

The article mentions his adventures up north. For some reason J.P. gave Dad a stack of old negatives that I have tucked away somewhere in this mess of one of those trips to Selkirk. I've been wanting to scan them and see if any museum up north has interest in them.

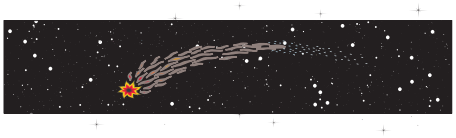
He had a small airplane engine and a propeller; when my brother was in high school he was watching Gentle Ben with the airboats and some light bulbs lit up over his head with the idea to build an air sled. My brother, never one to ask permission, gaffled together old water skis, Mom's snow skis, the handle off the old reel push mower, two mismatched car seats, and dug into Dad's supply of lumber for 2x4's and 2x2's and plywood to create the frame. After several consultations with the shop teachers he got that engine running and attached on the back. Pedals, cables and propeller were attached. We were all set to take it out for a test drive on the weekend but we came home Thursday afternoon after school, headed out to the barn and...screaming. The engine was gone! My brother comes barrelling into the house yelling to phone the cops and demanding if Mom had seen anyone. She said J.P. had stopped by to get some stuff. J.P. had come into the house and asked Mom, "Do you have ANY idea of what your son is DOING out in the

barn? He's got a great idea but he has NO idea of the power of that engine, he's going to kill himself!"

Instead of the stuff he came to get, he struggled to dismantle the engine and heave it into the back of his little Volkswagen Beetle. I am convinced he saved my brother's life and probably mine (I was booked in as co–pilot and weight distribution) that day. My brother, however, still hasn't forgiven him.

I really wish that I had been older when J.P. was around. He was a walking encyclopedia, interested in everything and willing to teach you anything he knew. He helped Dad with household electric a few times, although his methods had Dad cringing sometimes. To test a circuit he'd lick his two fingers and touch them against the panel, hand backwards, if it made him jump he'd say, "Yeah, that one's live." LOL!

I learned to make myself scarce if he was "testing" things in the barn. He had these little hand crank generators; one day he says "Rosie, come here and hold this down on the bench a sec." He cranked the handle, my fingers tingled, the jolt went up my arms, I was yelling, he just smiled and said, "Yup, this one works." What a character. I really miss him.



Sun/Mon, July 4/5

Stephen (22:59): My night is off to a good start. What clouds we had evaporated right on schedule. I'm starting off with NGC 3212, a nice little galaxy pair in Draco. It's pretty close to the pole at a declination of almost 80°. I wasn't sure how my goto or guiding would be this close to the pole. But everything is working superbly! It's going to be a good night.

Hank (23:14): Enjoy my friend, already down to 14C here so clarity may be yours for the night.

Malcolm (23:21): Nice. And same here. I started off in twilight by orienting/rotating my camera to match the frame, so that the diffraction spikes from the RC vanes are vertical/horizontal. Ran autofocus, and got those settings right.

I wanted to use my OAG tonight so I tried adjusting it, but it was getting dark so I'm just using the 50mm guide scope. I didn't want to waste imaging time working on focusing the OAG when I had the alternative to use a guide scope. I'll save that work for a moonlit night.

Tonight I'm shooting the Fireworks Galaxy, 12x300s each LRGB. Only 1 hour of data per filter but I wanted to get a semi-complete set tonight and see how it all works out.

Effectively, it's first light with this scope/camera combo.

Stephen (10:12): Amazing! When I went out to close up the observatory at 3 this morning I saw all the scattered clouds and I was amazed. I had been cloud free all night. I just managed to image through the only cloud–free holes in the sky!

MarK: Everybody in the club is going to be moving to Battersea!

Keith: I have been thinking about that for a long time, a very good idea!

Susan: We had weird, wispy cloud for a while but then it all went away and the sky was super steady. Great views of Saturn and Jupiter, so crisp.

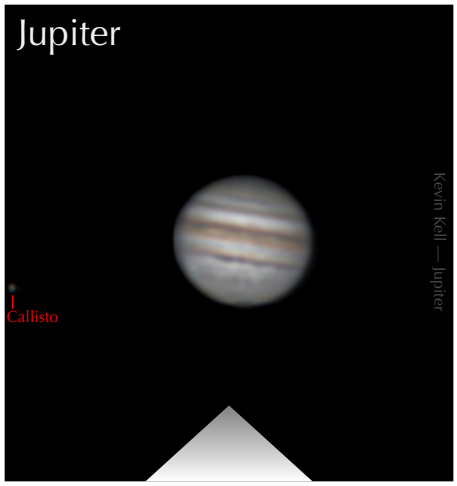
Love my new paint job, no collisions with walls. That looks like it for a few days. I suppose that sunspot is gone off the disk now. Sorry to have missed it, daytime distractions.

Kim (11:47): The sunspot is still there Susan, saw it this morning.

Your computer time is off by an hour...you're in future time.

Susan: My computer selects 'the current time' from a hat filled with little pieces of paper with random times on them.

My time display is always correct. Mark is forever finding my replies before questions asked. I'd like to take credit for it but alas it is probably more to do with my Cogeco Internet service or perhaps a Google gremlin.



Kevin (16:42): Attached is the best image from this morning's run of Jupiter, from 03:58–04:40 EDT. Meade LXD55 mount, Meade 102mm SCT 1000mm FL, plus a 2x Barlow and the ZWO ASI 290MC camera. 180 seconds of imaging runs at 13ms exposures for about 13500 total frames.

I processed the best 25% of them with AutoStakkert!3 and RegiStax for this image of Jupiter and its moon Callisto.

My annotation system is in ruins, so no annotation on the image today. North is up, rotation is left to right. Seeing was poor, transparency was poor.

Possibly, for the first time *ever*, I think I may have used dark frames to help process this. It's hard to tell with FireCapture... I

took dark frames but am then unsure if FireCapture itself subtracted them away from the realtime light frames or not. The dark frames got stored as .dark files that do not look like any image file format I have seen, and AutoStakkert! cannot load them in as dark frames. Ditto for flat frames: took them, don't know if they got used or not, again stored as .flat file types that cannot be imported into FireCapture.

Just went through the FireCapture video tutorials and did not come across any useful info.

Susan: That is a pretty nice image. I stopped observing at 02:30 and found the seeing pretty good then. But we are in very different 'weather–hoods.'

Mark D: Is the focus off? Colours look good.

Kevin: Obviously you missed the post about telescope focus yoga!

This is a small SCT with only a coarse focus that has a lot of backlash. The observatory is too small to get inside without using the technique called astronomical limbo yoga, which involves lowering oneself until the counterweight bolt just clears your throat as you move carefully into the labyrinth.

Telescope focus yoga involves turning the laptop, tilting the screen, putting one foot inside, stretching with your left hand, looking under your arm and turning your head to the left, finding the focus knob at the tip of your fingertips and then attempting to turn it whilst keeping your eyes (now watering) focused on the screen in an attempt to get good focus. This technique normally fails.

My very first accessory in a new telescope will be a remote electric focuser!

So yes...focus is not great.

Mon/Tue, July 5/6
Storms a'comin'

Rose–Marie (19:30): Get your camera ready Malcolm, looks like a line of storms with some lightning headed our way, hopefully after dark so we can get some pictures.

Malcolm (23:34): Fun chase!

I went down to the parking lot at Fort Henry for a view of the approach. Wish I'd arrived about 20 minutes earlier. As it was, I arrived just as the gust front arrived so there was no time for pics.

Being run over by a storm is fun too, as long as you are indoors or in a car.

Then I went to the waterfront and got some lightning shots. Nice storm!

Rose–Marie (00:21): Oooohhh, nice! We only had that kind of sloppy wet storm where the flash is all up in the clouds, no defined streaks. Then I fell asleep in the armchair waiting for it to pass, sometimes on the backside of it you get some good ones. BigWetNose woke me up, had to take her out, now it looks like another round is headed this way.

Kim (06:17): Battened down the hatches after 8 p.m. The thunder had started by then, actually had sky–to–ground lightning. Good storms went through well past 10 p.m. Another around midnight and 3 a.m.

Rose–Marie: Sat up for a bit watching for the second round, just some rain as the storm went around us. Went to bed, no photos of lightning.

Tue/Wed, July 6/7
Clear but Hazy

Stephen (23:00): It's a little hazy but at least it's clear. I've opened up and I'll run as long as it lasts. I'm ready to image NGC 5832, a nice little spiral in Ursa Minor.

Hank (23:45): Go for it Steve, I am going to BED!

MarK (23:58): I am figuring out PHD2. I at least have the camera guiding the mount and I have done a polar align. It sure is hazy, but at least the wind has gone down. Good night to learn new gear.

Stephen (01:26): Cloud at 01:25. Time to quit. Well at least I got something done.

Malcolm (07:06): Progress!

Friday, July 9

Malcolm: Kevin asked how the POD is connected to the floor. Two bolts per panel, 6 panels. Lag bolts

go into pre–drilled pilot holes into the standard decking.

FWIW this setup has no real connection to the ground other than gravity, but in the county it withstood sustained winds in the 60's and 70's with gusts over 100 [km/h] and didn't budge.

I'll be fine here.

Sat/Sun, July 10/11

Stephen (14:57): It looks like it's going to be a good night tonight! My galaxies are getting too far down in the east to easily image. So I've indexed the first 130 entries from the Sharpless catalogue. That gives me lots of nebulae in Aquila, Vulpecula and Cygnus to try. It will be a challenge as they can be very faint. But I'm going to give it a go tonight.

Malcolm (15:33): Looking forward to getting my off axis guider operational tonight. Then hopefully getting four (!) more hours of Fireworks Galaxy data.

Stephen (00:31): I'm picking up some cirrus cloud at 12:30. It may be a short night.

Malcolm (00:34): I just closed up.

Stephen (00:55): I must be looking through Battersea's hole in the cloud. I'm only seeing a 10%

Thursday, July 8
Outrageous Lumber Prices

Kevin: Stopped at Home Depot to price out lumber for the new mini–observatory. I'll post the size and two prices, you pick the price that was May 2019 and which is July 2021:

2x4x8	$2.85	$8.98
2x6x8	$4.65	$13.68

I don't have comparisons for plywood, so here is today's price:
4x8x½ standard plywood $70.98
4x8x7/16 OSB plywood $59.98

Kevin W: That is less expensive than in Hartington. A pressure treated 2x4x10' was almost $20 at BMP/Home Hardware in Hartington a few months ago. Last year ½" spruce plywood was about $35 a 4'x8' sheet.

A few weeks ago I thought of using 4'x8'x¾" brown pressure-treated plywood for my dome frame, but it was $135 per sheet before tax in Hartington, and $105 before tax at Trousdale's in Sydenham. I don't think astronomy should make my wallet feel that sad.

Searching Kijiji.

Hank: No, astronomy is supposed to make your wallet feel lighter and happier by buying super great equipment!

Kevin W: Perhaps I need an attitude adjustment towards expensive 2x4's…but ONLY if they are related to astronomy. And especially if they're made out of cedar. It's OK for cedar to be expensive.

Otherwise, me and expensive lumber is like Malcolm and the Habs. I am not sure if I will be able to adjust my attitude! Lol.

Walter: Lumber is like cars: it's better to avoid buying anything this year. Cedar was always expensive, or so I thought until I saw the price of Trex! Cedar also doesn't have the chemicals used in PT lumber. (At least the new PT lumber has a much nicer cedar colour than that dreary old green stuff.)

Go Habs! (13/16 wins needed was still pretty satisfying!)

Susan: I continue to mine our old stock. I have pressed into service old rabbit fencing and model railway remnants along with other bits. I also recycled a couple of screws for the second time. It is time consuming to execute projects with odds and ends, but as a result of the situation the projects are getting done and there is space opening up in the shop. However, not all results are attractive.

Rick: I bought a couple of 2x4x12 to make a ladder for working on the roof of the shop and, with taxes, it was $50. Even compared with your listed prices that seems really high. Though I see homedepot.ca has them $17.26 so mine weren't totally outrageous.

Looking at the plywood *vs.* OSB price, and considering the plywood is slightly thicker, I wouldn't even consider the OSB.

Let us know your design ideas for your mini–observatory. I have to make one for my lakeside site. Mine needs to be a little over 4' square. I'm debating between roll-off building (riding on rails? protecting ground-level rails from snow...?), roll–off roof (I need to keep the south wall very low as my southern horizon is literally at 0° so—giant floppy board? Shed roof that rolls off very low to the south?), some sort of double-hinged roof (Andreas Gada has a really low double–hinged roof?) Maybe something like Dave Lane's little automated observatory (though I won't automate mine.) I'm probably going to start with a Telegizmos 365 cover or home–made equivalent so I don't have to buy any more lumber than necessary this year.★

reduction in SNR. I'll keep on imaging as long as my SNR holds up!

Mike H (00:59): Still clear here in Morrisburg.

Stephen (01:24): At 1:20 my SNR has dropped enough to degrade my images. That's significant cloud. Time to pack it in.

MarK (02:25): Just complete frustration here. I could not guide north in Dec. The other three axes move, but not north. A cable? The camera is toast? The hand controller moves all four directions, so it is not the mount.

Everything worked beautifully on Tuesday night. I am going to bed!

Rose–Marie (08:04): Haze and cloud were for sure moving in last evening. I had fallen asleep on the couch, woke up at 10:00, went to the window and watched a couple dozen fireflies putting on a show in front of the house. Of course I ended up going down to the patio with the camera to try and get some shots. I could not see stars just above the horizon over the lake, it was only about 40° high that they started to show naked eye. I tried several shots of the fireflies, saw Scorpius coming around the big pine tree and off course had to try a couple sky shots. In the photos you could see the clouds on the horizon moving in.

BigWetNose had me out at 4:00 a.m.; by that time the only light above was Venus just making it through the haze. There were a few mosquitoes, not too bad, it was cool enough to slow them down. I heard a rustling on the hillside to my left, shone the flashlight and could see the eyes of what I thought at first was a raccoon, but it remained silent when I talked to it, must have been the porcupine trying to get up into the basswood trees. Too much brush to see what it was. A band of coyotes started howling off in the distance, and a bunch of bullfrogs all around were making a bit of a roar. I saw about 4 satellites crossing overhead. The one nice thing these days is the lack of a continuous stream of aircraft.

Tuesday, July 13
Solar & Storms

Hank (16:05): The sky cleared, only for a short time, but long enough for an imaging session, yay! There are some very good proms and filaments available to observe and image today. I have lost touch with all the gloom this week, it was good to get out there but damn it was hot!

No images to share yet; in Bath right now and the sky is getting darker. Malcolm must be out and about chasing somewhere.

Rick (22:06): We were in Kingston today for an appointment and to pick up a new laptop (more on that later) and coming home got caught in a terrific thundershower—all the way home. Before we left Kingston we got a great view of the lightning so we even stopped at 15 and the 401 to watch. Once it started to rain we continued on our way. Turns out we drove the whole way home right in the middle of probably the heaviest thundershower I've seen in many years as it moved straight up Hwy 15. There were times there must have been an inch of water standing on the road. Great lightning, several hits right beside the highway when the flash and the crash were absolutely simultaneous. I'm surprised we didn't get any hail. It stopped a few minutes after we got the car unloaded and were in the house trying to dry off. I don't think we got more than a few mm here unfortunately, but I sure enjoyed the storm.

My old laptop (this laptop) is getting harder and harder to start—it frequently can't detect the display and won't start. Requires cranking the display back and forth and retrying, up to a dozen times. I only restart it every few weeks and then only when Windoze does something stupid (like connecting to the home network but refusing to connect to the Internet for the past two days). So I finally decided to replace it with a nice little Asus from Staples. Unfortunately I can't plug it in to charge it, so there it sits in its box.

Wed/Thu, July 14/15

Malcolm (08:37): Last night: *soupy* is the word that comes to mind. The air was thick and heavy with humidity and smoky haze. The mozzies were the worst yet (for me) this summer. Like a horror movie.

And then once the scope was up and running, I got in the car and drove 45 minutes north up to Sharbot Lake. The spot I talked about at the cement dock was absolutely perfect for south pointing Milky Way exposures. Not much view of the north at that spot, but north can be found elsewhere in the park. The mozzies up there were nowhere near as bad as in Harrowsmith. I got a few pics and thought at first glance (back of the camera) they would do. Looking at them now, they are noisy and hazy. There is some cloud in the south obscuring the Milky Way. Looks like I'll go back again at August New Moon.

The highlight of the night was the loons, beavers, raccoons and everything else that makes noise at night on a moonless night under the Milky Way. Those of you that live on the water know. But when a loon is calling from so close you think you can touch it, that's pretty cool. All while your camera is

capturing photons. I'm not sure who was more scared, me or the beaver. But my heart skipped a beat when he flapped his (her?) tail.

When I got home the scope run was going well, so I waited for it to finish and was done around 3:30. I looked inside the tube and the primary was just covered in water. So I expect to toss a lot of sub-frames. Time to figure out an RC dew–prevention solution!

MarK: When you decide to heat the back of your primary, I have lots of nichrome wire in two gauges.

Malcolm: Would that necessitate the removal of the cell, dismantling the OTA, re–assembly, and re–collimating? My appetite for such a project is just non existent! There must be another solution.

Maybe you should come over for a consultation, lol.

Kevin: Outside at 03:00, set up in backyard like people without observatories are said to do.
...fog rolls in...
...mirror all dewy...
...cried some more...
...went back inside.

Stephen: I had a good night last night. It was clear all night with just a bit of haze. I had five minutes of cloud at 01:30. Just long enough to spoil one exposure. I had no fog and just a bit of dew on the lawn. I'm happy with my night.

Saturday, July 17

Cathy: Observatory roof photos for Kevin W... Pulled a couple photos from my other computer, of Rolf Meier's observatory roof from years ago. The colour photos show the construction a bit better...

Kevin W: Thanks very much for these Cathy! VERY helpful. I did not notice the door in the top front before.

Rolf had a great concept design! I hope he doesn't mind if I steal his intellectual property. I am going to modify the shape a bit but keep the same roof idea. Starting on it in August, after I take care of a few other things around the house. Hoping to be done by the end of August (2021, maybe 2022).

Now I just have to figure out where to put the comet coffins on the roof…

Kevin W: I meant meteor coffins. Maybe both?

MarK: Unfortunately, Rolf is not with us any longer, so stealing his intellectual property would be an homage.

Kevin W: Thank you Rolf. I hope I can do your design justice.

Sat/Sun, July 17/18
Mega–comet C/2014 UN271
aka Bernardinelli–Bernstein

John (July 16): They have found it has a comma already.

Walter: Is it really a comma or the beginning of a semicolon? Further observations required!

Rose–Marie: Well....rats. The darned thing won't be in our planet's orbit. Can you just imagine the meteor shower off that thing's dust trail? Oh, the sparklies! We will be deprived of my beloved sparklies!

Rick (July 17): Well, poop! I was really looking forward to trying to image this thing. But it's at –50 something Dec and heading south. Given its likely orbital period I don't think it will be visible from here for years.

Malcolm: I'll give it a go tonight in LUM. It rises about 11:00 p.m. in San Pedro.

Rick: Oh yeah! I forgot we have someone with access to southern skies.

Malcolm: Moon will still be up but worth a try. Once the Moon sets I'm off to other targets...

Kim (July 18, 05:06): Now that would be cool if you catch it.

Malcolm (05:20): I got some weird pixels on my image that are where the comet should be, but its inconclusive.

I'll shoot the exact same field again tonight and see if they move.

Mon/Tue, July 19/20

Mark D (18:28): Hank, check out the Sun through the haze. Must be my barbecue.

Hank (18:42): Just went out, wow, such colour! If

only there were large sunspots.

Hank (22:25): Nice image Mark! I saw similar but did not image. That must be a smoker BBQ you have.

The haze has been heavy for sure, I waited all day and then just after 4 p.m. said the hell with it and jumped in the pool, I surfaced and the sky was brightening! Got out semi–dried and headed to the observatory, first image at 4:27 p.m., 124 images later through that haze I called it quits and I am processing now. Hopefully I got something decent.

Rose–Marie (22:41): Was just out Kerrie, the Moon was orange. Too tired to try to photograph it.

John (07:54): Up here after dinner (~1800) the Sun was blood red and still high in the sky. It was a very foreboding feeling. This morning the Sun is just a very large bright patch in the eastern sky.

Just for information, I did not get Hank's message except in RoseMarie's message.

I am not going out to buy a smoker BBQ.

Susan (09:23): I too was impressed with the colour of the Moon! We lost the Sun, what there was of it, here at 3:30. Continuous rolling thunder for some time but just a tiny sprinkle of rain.

MarK (10:10): Here in Gtown, the setting Sun was a completely comfortable unaided, unfiltered view for a couple of hours before sunset. Sort of surreal to look at the Sun, feel the 31C heat and have it a dull orange ember so high in the sky.

Malcolm (12:07): I believe the appropriate response should be terror.

Tuesday, July 20

Rick (16:35): The line of t'storms has just passed us by. *Purple splodges of doom* (my daughter's term) passed by north and south of us but we got a nice downpour, lots of thunder and in–cloud lightning. I'll be watching the evening news for reports of tornadoes near Perth, Smith's Falls, Winchester?

I am working to get the HankScope installed, and mounted it yesterday afternoon to try to dial in the finder using a tree across the lake and, in twilight using the Moon, align the guide scope to the main scope (then I can use it as a digital finder). However, the scope is assembled for imaging so I can't reach focus with an eyepiece well enough to see trees so I decided to wait for the Moon and do both. Well, the sky was so hazy that I couldn't see the Moon until it was quite dark and by then the mosquitoes were too bad to stay out there and work. However, the Moon was quite spectacular in colour. As Bob Olson said on the OAFS list—the Internet was right—Mars is as large as the Moon!

I recall some years ago there was a really serious fire season. A group of us was flying back to Winnipeg from Eureka at (IIRC) ~8000' and the Sun was a deep brownish purple in the early afternoon. Even at that altitude.

Walter (17:06): Heavy rain, some good lightning, windy but not dangerously so. Pea–size hail for a few minutes starting at 16:12. Still some thunder around. We've just had a couple of one–second power failures several minutes apart so my boiler system is doing its automatic de–air sequence.

The cooler, cleaner air is welcome. Golden Glow is still vertical, but it looks like I'll have to re–stake a bunch of Hollyhocks. I'll inspect the gardens tomorrow morning and see how things are.

Wednesday, July 21

Hank (09:57): Over the RHA Obs the air is very clear and still right now. The spots may be small but I easily see 4 groups with good place. H–alpha is also quite nice with a small prom releasing in the solar ESE.

Kim (10:37): Imaging between garlic harvesting. Nice day, some slight haze on horizons, but I think the worst of the smoke is gone.

Fri/Sat, July 23/24

Stephen (21:16): It looks like tonight would be a perfect night, if not for the Full Moon. Not much I can do about that. Hopefully next weekend will be just as nice.

Rick (21:33): I'm not sure how good the sky really is, Steve. I was out about an hour ago to get the computer running in the observatory and get the camera started cooling, and the sky looked quite murky. I wondered if our smoke is coming back in.

I'll be shooting with the Boltwood scope (my normal RR Lyrae variables), the HankScope (first official night actually observing with it: V0627 Peg is a cataclysmic variable in outburst and I'll be shooting it from dusk to dawn), and the RASC remote scope (some

Interweb Speeds

Rick: You may recall we were without Internet for a couple of days back a couple of months ago. It turns out they were installing a Bell ADSL feed for the trailer park down the road from us. Looks like this has not been a good thing. My Internet speed over the past week or two is now consistently below 200 Kbps—down by about 55%.

I will be following up with Bell and moving to a new provider unless they can give me a huge improvement.

Walter: The more people Bell hooks up, the slower it gets. Bell simply doesn't have the infrastructure to support decent speeds. That is true even here in Winchester. (10 Mbps was fine a decade ago, but 100+ Mbps is really needed today to deal with video, multi–gigabyte downloads, and online interactive applications.)

Is there even an alternative in your area that doesn't also suck? STARLINK!

Rick: I may have to break down and try Starlink, in spite of its appalling environmental impact. The other option is one of the local microwave (?) services like WTC or Explornet. But they say I need a 30–50' tower which I really don't want attached to my house.

Malcolm: Install the Starlink app on your mobile device. Use the site analysis tool in the app. It uses the phone's camera and tells you if your location has an acceptable view of the sky. Good to know before forking over any cash for equipment.

Rick: I'll do that. I hadn't considered that our trees might be enough to interfere with its functionality.

Roger: Are you happy with Starlink, Malcolm, now you've had it for a while? Has it handled the recent thunderstorms?

I agree with Rick that, despite its impact, I'm going to have to look at it.

We have both Bell and Eastlink (my wife's business needed a constant connection, so we got both—Bell is slower, but seems more reliable). Bell is giving us 8 Mbps, while Eastlink manages 12.

We like the idea of Starlink, as we intend to travel places in our trailer, and we can take it with us.

Kevin: Hah! Just do *NOT* mount it on your bonnet! (News story: *Police ticket driver for sticking Starlink terminal on car's hood.*)

This morning's speedtest.net (Eastlink): latency: 15ms, down 70 Mbps, up 11 Mbps.

We used to get 20 Mbps down and 2 Mbps up until I called, complained that we were constantly going over our arbitrary 150GB/month limit and what can they do for me. Five minutes later, BAM!

BTW, I *HATE* the concept of squeaky wheel getting greased! Now I live in fear of someone discovering a "mistake" and putting it all back again.

Rick: My sister's area was mostly Bell and the complaints cycled around the neighbourhood. She would complain and get doubled speed until someone else complained when they would drop back to the slower speed. Round and round the neighbourhood.

John: Back when Malcolm was getting his Starlink up and running I gave in to the dark side and placed an order for a dish and was told that they should get to me this fall. Good news: I have cancelled it. Peggy and I are now able to access the Internet by a fibre optic line that was hooked up this morning. We went from ~3 Mbps to 99 Mbps. WOW. I did not think this would happen up here any time soon.★

high–amplitude delta Scutis and also on V0627 Peg after dawn starts here).

MarK (12:15): We had thin clouds move in here just after sunset. Looked like clouds rather than smoke, but how does one tell the difference?

Kevin: My first substantial mount and telescope are installed and working. The SCGO Serenity Observatory was renovated to allow them to be used, and the first light was this morning, between 03:00 and 05:00 EDT.

The Mount is a used Skywatch AZ–EQ6GT in equatorial mode, sitting on a brand new concrete pier, and a used Vixen VC200L, a 200mm f/9 Cassegrain telescope. The ZWO ASI290MC camera I have had for a few years now, but was only using it on a small 102mm SCT.

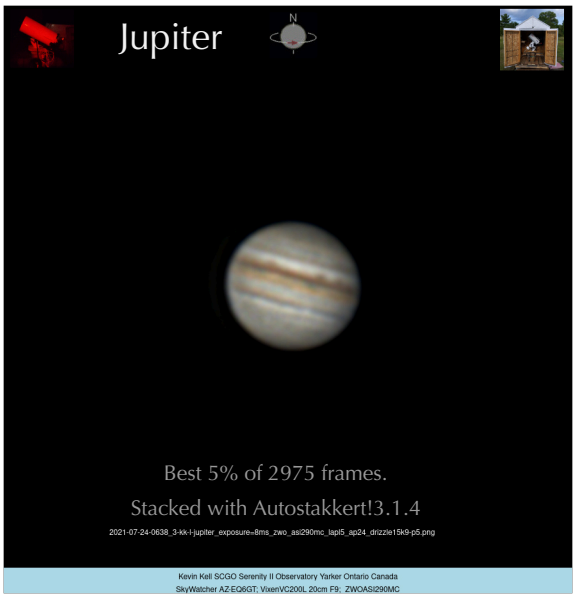
This is the first–light image [*next page*], a 30–second run with FireCapture (no auto–align) on the mount which has not yet been polar aligned or three–star aligned, just roughly polar aligned by eye in the daytime and manually driven to Jupiter. After stacking, RegiStax wavelet processing was next where the RGB colour was balanced as well.

All in all, a great first light. Seeing was good, transparency was poor (the Full Moon was nearby), focus was rough (using an electric remote focuser hand controller for the first time, at some distance from the display). Tracking was excellent for a mount that had not yet been really setup.

Image exposure increased over the 95 minute session, probably due to a brightening twilight sky. Near the end, at an 11ms exposure,

a Jovian moon makes an appearance.

Interestingly, the ASI-290MC camera does not come to focus with the telescope. A 90° diagonal was used to bring the focusing point further out.



Fri/Sat, July 30/31

Stephen (22:46): My new guide camera arrived yesterday. It has four times the field of view as my last guide camera. And naturally it has a different back focus so I had to refocus both my cameras. That went a lot better than I expected, taking only 20 minutes. Now I'm doing a test run on M13. It's guiding using 9 guide stars simultaneously and its guiding is spot on!

Hank (00:02): Wonderful Steve, looking forward to seeing the results.

Stephen (01:18): I have cloud at 01:15 together with a Quarter Moon in the sky; it's time to quit. I got a couple of good images. That's good enough.

MarK (07:42): What camera did you get? What do you have to do to use multiple stars and what is the advantage?

Mike H: This sounds interesting. What kind of guide camera is it? I have been thinking about getting a good guide camera as well.

Stephen: I got a Starlight Xpress Ultrastar. It has a very large chip and great sensitivity. I fit most of M13 onto the guider. I was very lucky to find one. Most places are out of stock. PHD2 now has multi star guiding. It gives much finer control than single star.

MarK: I noticed that PhD2 has multi star guiding. I clicked on it, but it still only selected one star when there were multiples in the field. If I tried to select more than one, it just moved on to the next star and ignored the first selected. So I am doing something incorrectly.

Stephen: You have to select "Use multiple stars" under Guiding, then "Auto select guide star."

Transformation Coefficients

Kim (July 24): For those who are submitting photometry to the AAVSO, are you using VPHOT or Maxim DL? Did you have to do transformation coefficients? Once these are done and submitted in the AAVSO telescope information, do these ever change?

Rick (Aug 1): I don't often use Maxim for photometry any more. For my own personal work I'm now using SExtractor and Astropy and my own Python scripts. I tried VPhot once or twice but having to upload images just makes it impractical. I've started also using AstroImageJ for cataclysmic variables. It seems to work well and fairly easily once you figure out how. There is also LesvePhotometry which is free and I know a few people (including the author) who use it and like it.

I have determined transformation coefficients for my system and used them in a few cases. I also determined them for the RASC remote scope (yes, you can transform pretty picture filters to standard photometric magnitudes—B is pretty poor, V is quite good and R is very good). But for doing hundreds of observations transforming magnitudes really needs to be scripted. So I've been submitting untransformed obs, as do most people. My intent is to start submitting transformed magnitudes for at least some targets once I can write a script to do it for me. Some projects just don't require transformation—measuring periods, looking for period changes, light curve changes, measuring times of minimum/maximum can all be done with no or any filter.

I don't think coefficients should change very quickly as long as you keep your equipment unchanged. Once or twice a year would probably be a good schedule for redoing them.★

Wednesday, July 28

Hank (10:49): Wow, a beautiful H-alpha arch prominence this morning and clear, steady air. Get out there if you have not, before it collapses or releases.

Kim (11:06): And now the clouds are coming in.

Keith (11:16): Just went out to look, can not see much, a bit of a ghost but really nothing at all.

Kim (11:23): Here is an unprocessed image.

Keith (12:01): Well, I finally found it, but I had to constantly adjust the etalon and the RichView to keep it in view. It would be there, then fade out. I'm not sure why this was happening?