2023 February Observations from Big Woodchuck Observatory

-------- Original Message --------

A night of Clusters (02/15/2023)

hi all,

Monday was a good day here in Pittsburgh, sunny blue skies with temps in the mid 50's, and a light breeze.
It was shaping up to also be a good evening for observing, so that afternoon, I headed down to the backyard observatory, opened up the observatory flip-roof for a little solar observing, (more on that in another post), and also uncovered and prepped the outside telescope for the night.
Once done with viewing the Sun, I closed the roof, and walked back up to the house.

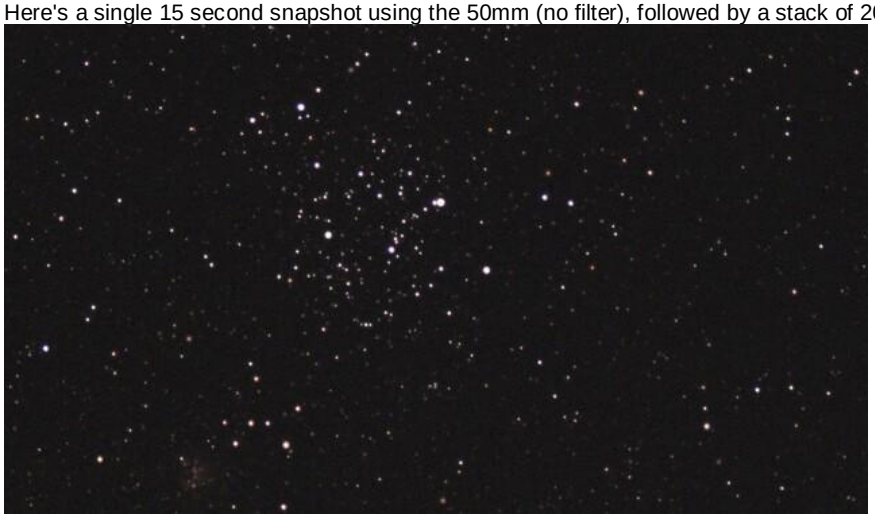
At dusk, I dressed in heavier clothes and went out to the observatory. It didn't take long for the propane heater to make the inside toasty enough that I no longer needed to wear my coat. □

My EAA observing plans for the evening was to first visit Comet ZTF E3, now near Aldebaran in Taurus, then move on to winter Sharpless nebula.
The +6.5 mag comet still looked very nice, with a bright blueish-green coma and nucleus, along with a nice dust tail.
Here's the comet observation using my 8" SCT f6.3 & Atlas Gem mount with the ASI294MC and L-Pro broadband filter, and with the EVO50mm & ASI290MC camera with no filter:

(with the 8" - 60 second exposure livestacked for 30 minutes, tracking on the comet, and for the 50mm - 15 second exp, stacked for 1.5 minutes).

My next planned target for the evening was going to be "Thor's Helmet", NGC2359 in Canis Major, using the main 8" SCT, but I needed to kill some time while waiting for the HII emission nebula to rise over the observatory fence. So instead I decided to drop-in on a few open star clusters, using the EVO50mm, that I hadn't observed for awhile. I started off with nearby M35 in the foot of Gemini. This was a twofer, as the EAA view also included the more distant smaller cluster NGC2158 in the same FOV.

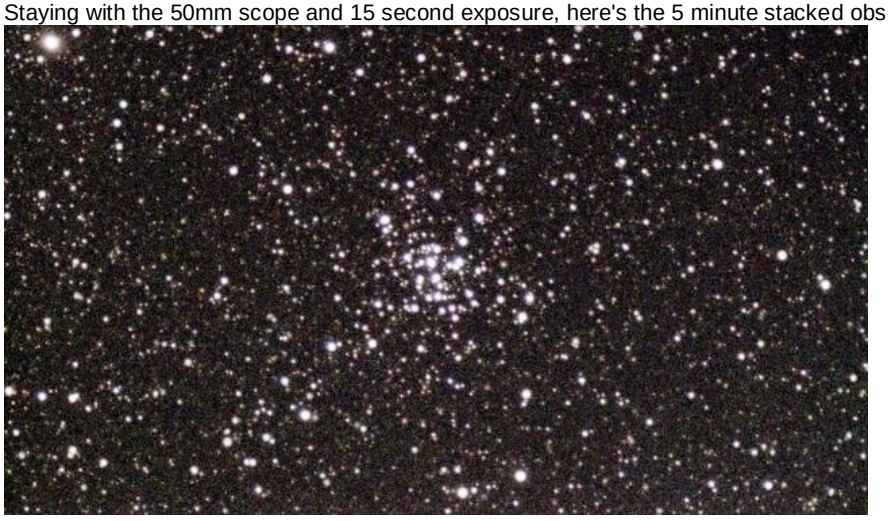
Here's a single 15 second snapshot using the 50mm (no filter), followed by a stack of 20 exposures for 5 minutes.



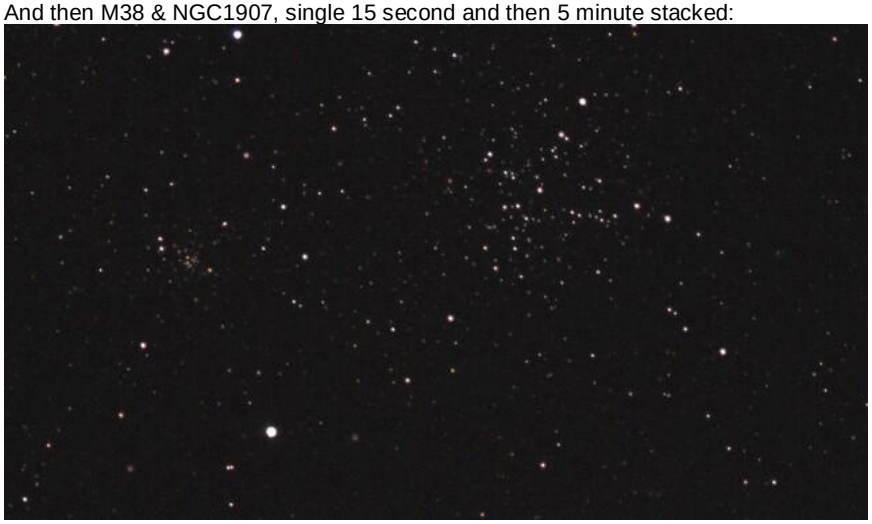
I probably should think about putting an IR filter on the ASI290 camera to help tighten-up the stars a little, but still, it was a pleasantly pleasing view using the small 50mm refractor. The single 15 second snapshot reminds me more of what you would see visually thru a small/medium size Dob.

I then moved over to Auriga for its three bright Messier clusters, M36, M37, and M38 (also a twofer with cluster NGC1907).

Staying with the 50mm scope and 15 second exposure, here's the 5 minute stacked observation of M36 & M37:

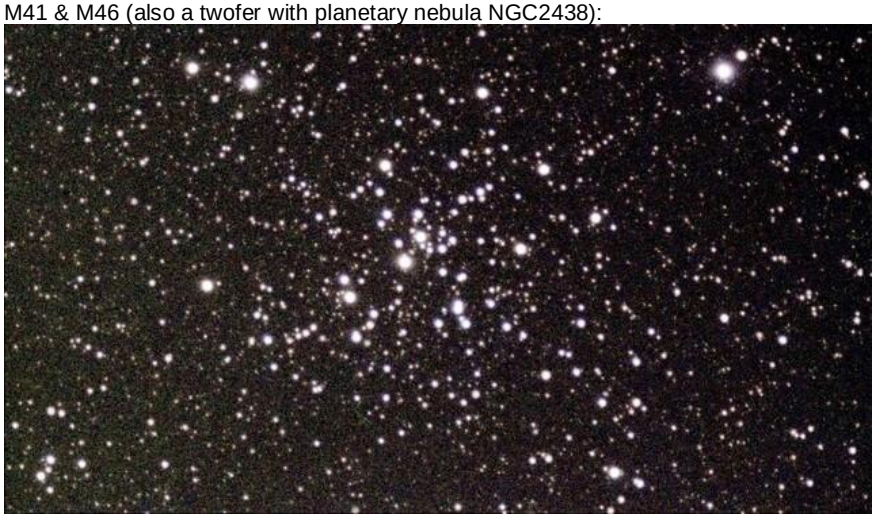


And then M38 & NGC1907, single 15 second and then 5 minute stacked:



At this point, I was cluster-hooked for the evening, and began searching out other Winter Messier open clusters to view with the 50mm. LOL! I dropped down toward the southern sky for M41 in the Big Dog, Canis Major. Then over into Puppis, (part of the great ship Argo), for M46 & M47, then up to Monoceros the Unicorn for M50.

M41 & M46 (also a twofer with planetary nebula NGC2438):



Then M47 & M50:

M50 was fun,,, kept getting zinged by satellites, and then by a jet!

Sharpcap can handle satellite trails pretty well, but aircraft wing lights, not so much,,,, LOL.

My last cluster stop for the night was M44 in Cancer:

Even in the 50mm, it's still fills the FOV.

Feeling guilty about neglecting all the Winter nebula that wasn't getting observed, I pointed the main scope over to the large emission region of

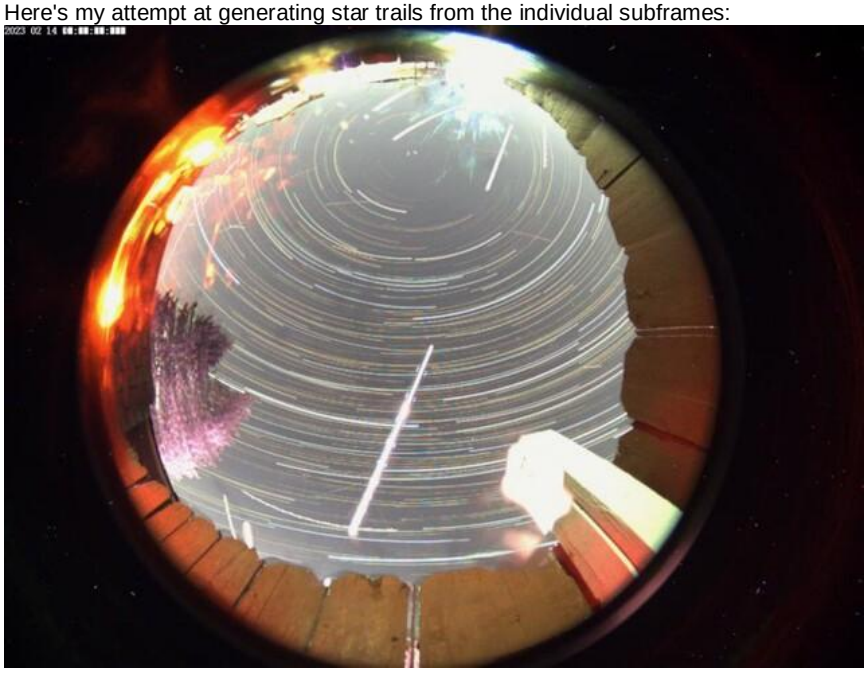
NGC2264 in Monoceros to observe the Cone Nebula, and then the Fox Fur Nebula (SH2-273) using the 8" SCT and L-Pro filter:

(both 3 minute exposures, stacked for 30 minutes).

By now I had missed my opportunity to observe Thor's Helmet, as while I was in cluster-mania, the nebula has risen over the fence and then rotated back down below. LOL! Have to try another night for NGC2359.
But I did get my first galaxy observation in for the season with NGC2841 in Ursa Major: (3 minute exp, stacked for 30 minutes)

Thru the 8", I was able to EAA observe several dark lanes in the galaxy's spiral arms.

With the clock heading towards 2am, I decided to call it a night, and after closing down the scope and covering up, I headed to bed.
But I did leave the AllSky camera running all night, and here's a time-lapse of the evening: https://youtu.be/1TIg_Rtb1j8
Here's my attempt at generating star trails from the individual subframes:



My neighbor's new patio motion-light is a killer! One of the local raccoons must have set it off. □
Larry

-------- Original Message --------

Re: [KiskiAstronomers] A night of Clusters

Just realized that I forgot to include my observation of NGC2261 - "Hubble's Variable Nebula" in Monoceros.
Here's the observation (wide-field and cropped) using the 8" and ASI294MC camera & L-Pro filter:

(180 second subs, livestacked for 30 minutes)

While studying astronomy at the Yerkes Observatory, Hubble made his very first discovery in 1916 using the observatory's 24” reflector, that the brightness of reflection nebula NGC2261 in Monoceros was variable. This nebula has since become known as “Hubble’s Variable Nebula’. The comet shaped nebula is illuminated by the nearby bright variable star R Monocerotis. The nebula’s variability is caused by shadows cast by dense dust clouds that lay between the star and nebula.

As part of the grand opening on January 26th, 1949 of the new 200” Hale Reflector Telescope on Mt Palomar, Edwin Hubble was chosen to lead the first night of observing. Hubble selected the reflection nebula NGC2261 to be the first object to be imaged as the 200” telescope's first light.
After a 15 minute exposure, the first astronomical photograph taken with the 200” was done.
The plate was labeled: “PH-1-H” (Palomar, Hale telescope, negative No.1, observer Hubble).

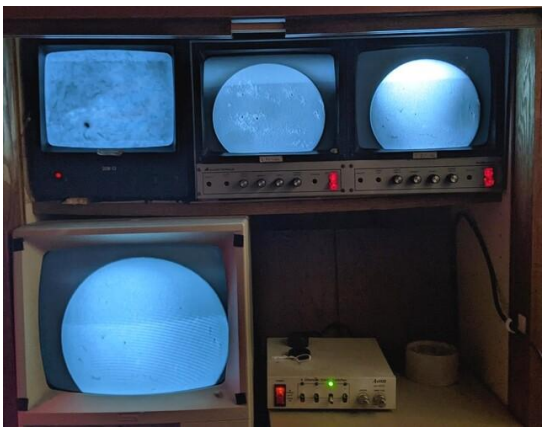
Larry

-------- Original Message --------

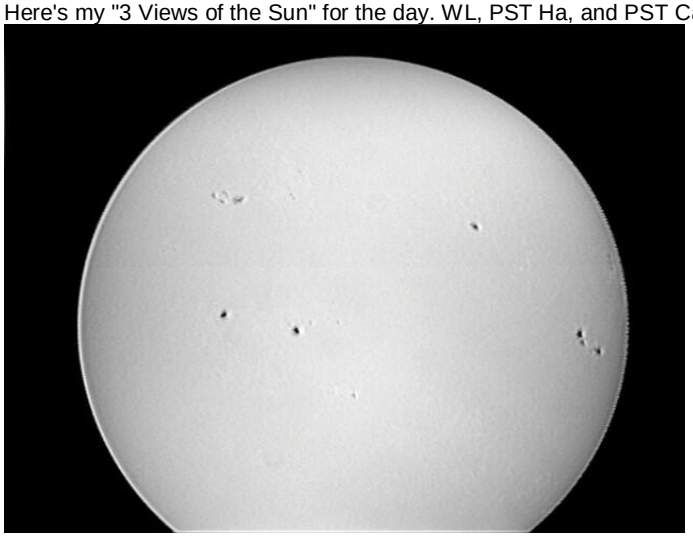
An afternoon of Sunspots (0216/2023)

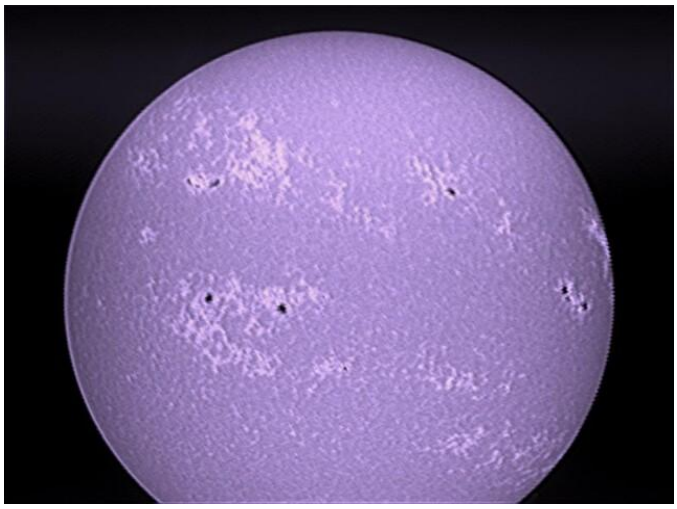
hi all,

As I mentioned in my "cluster" email, Monday Feb 13th here in Pittsburgh was a good day for solar observing.
So I grabbed my Daystar .65A T-Scanner Ha filter for the 8" f10 SCT and headed down to the backyard shed observatory. (the PST's were already piggybacked on the scope). I started off doing White-Light visual observing using a 1000 Oaks glass filter on the 80mm and a Baader solar film filter on the 8" SCT. Lots of good details were visible in the 5 major sunspot groups that day, with a number of the larger spots having interesting penumbras and smaller associated sunspot cores. Several areas of faculae were visible around the solar limb and intertwined with the larger AR regions.
After viewing the visible Ha details thru the PST Ha scope, (limb prominence's and disk filaments, but no flares), I attached my old security cams to both the PST Ha and PST Cak and continued my observations using the video monitors. Also switched the 8" over to the Daystar Ha filter, first visually, and then with a camera attached.

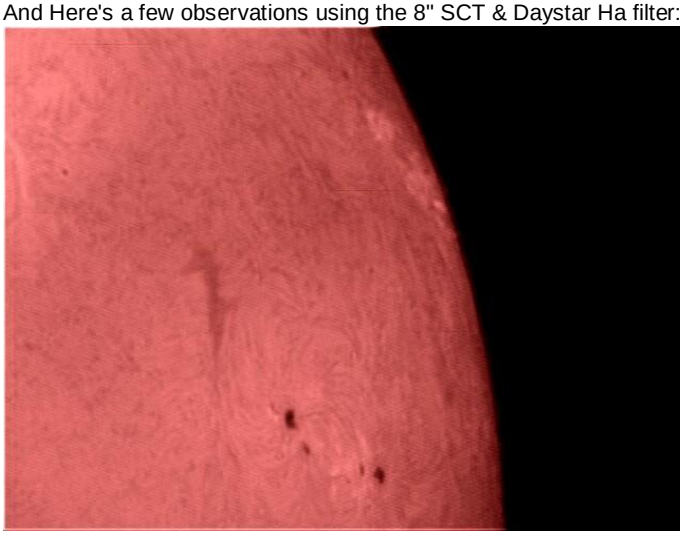


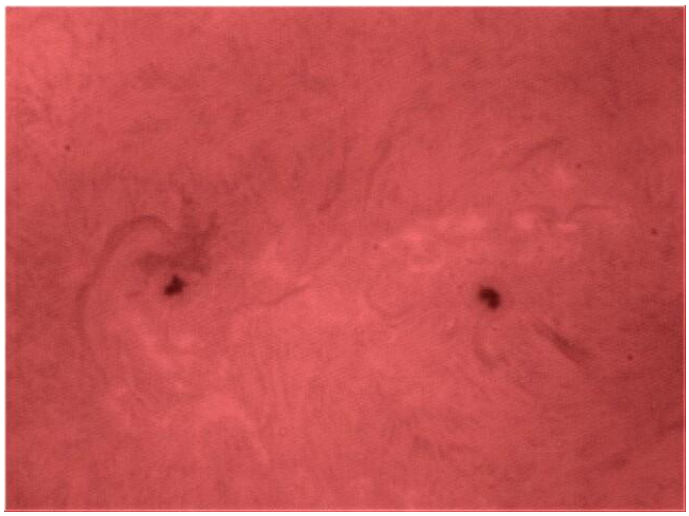
Here's my "3 Views of the Sun" for the day. WL, PST Ha, and PST Cak:

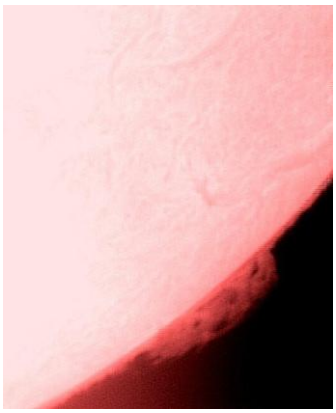




And Here's a few observations using the 8" SCT & Daystar Ha filter:







(all images were ~20 second monochrome AVI clips of several hundred subframes, aligned/stacked/processed using Registax, and then colorized).

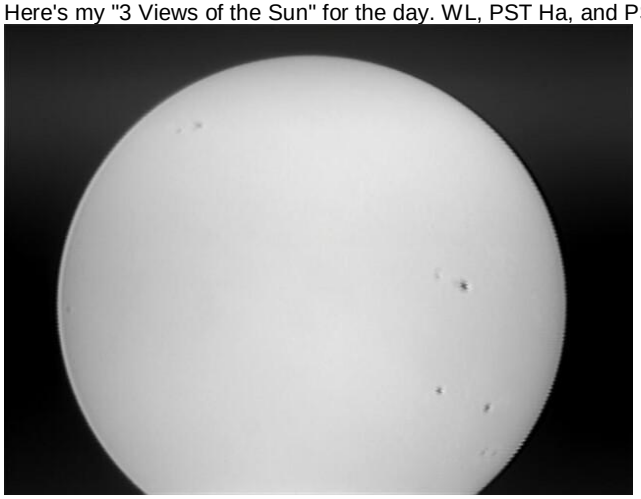
The Sun continues to put on a good show as it builds towards Solar Max!
Larry

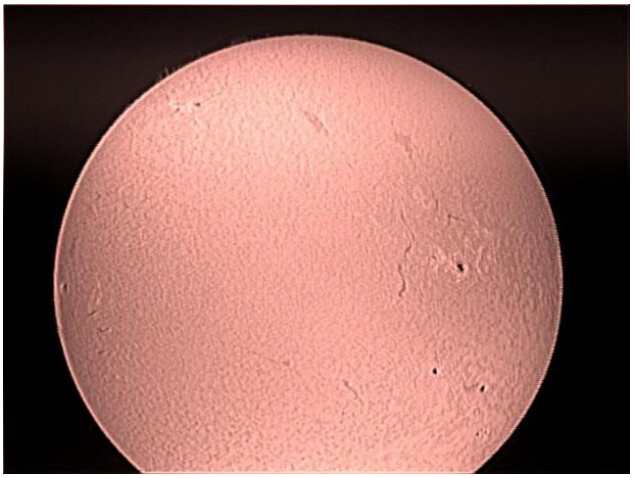
-------- Original Message --------

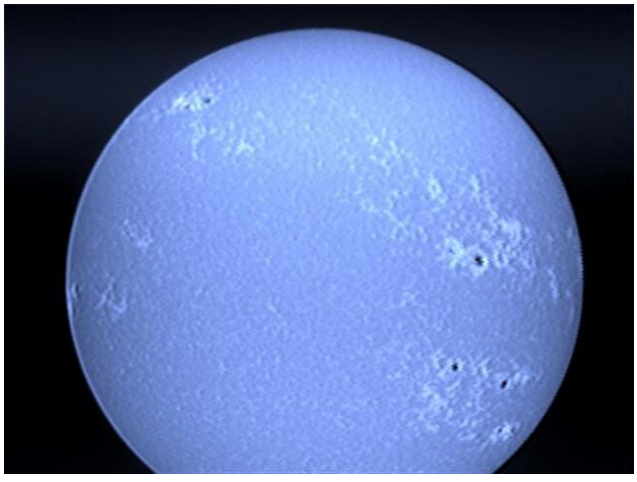
Today's forecast - sunny with a chance of flares! (02/18/2023)

hi all,
Another good day of solar observing.
Once again, I was outback in the observatory using my Daystar .65A T-Scanner Ha filter with the 8" f10 SCT and the piggybacked PST's.
Still plenty of great details visible in the major sunspot groups that day, with several new, very active groups having rotated into view.
Including one (AR3229 in the upper left) that kicked out a major flare and CME, causing a major shortwave blackout:
https://spaceweather.com/archive.php?view=1&day=19&month=02&year=2023
(I was wondering why my shortwave radio reception was so terrible on Friday evening,,)

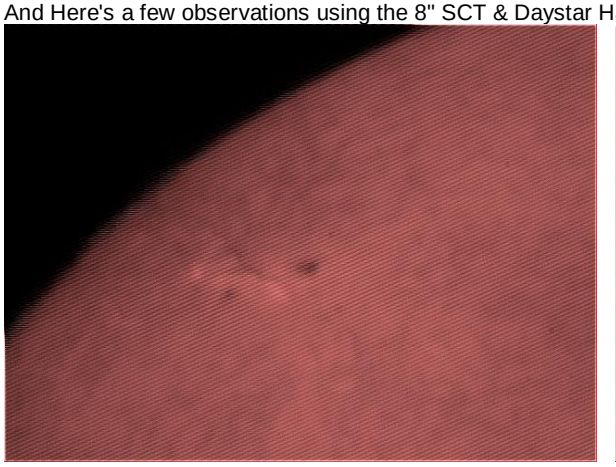
Here's my "3 Views of the Sun" for the day. WL, PST Ha, and PST Cak:

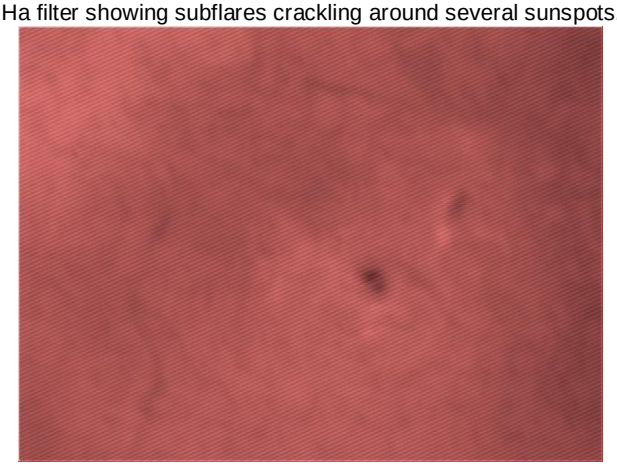


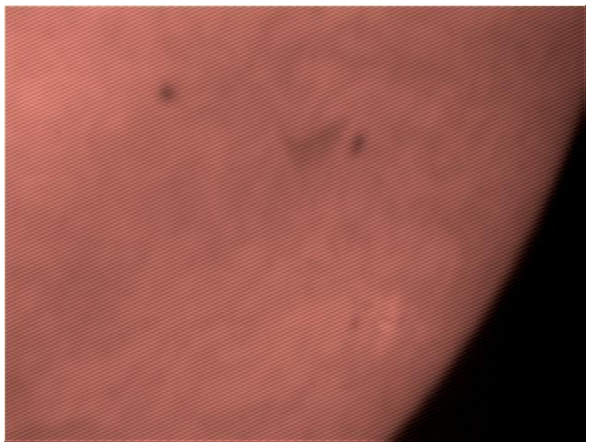




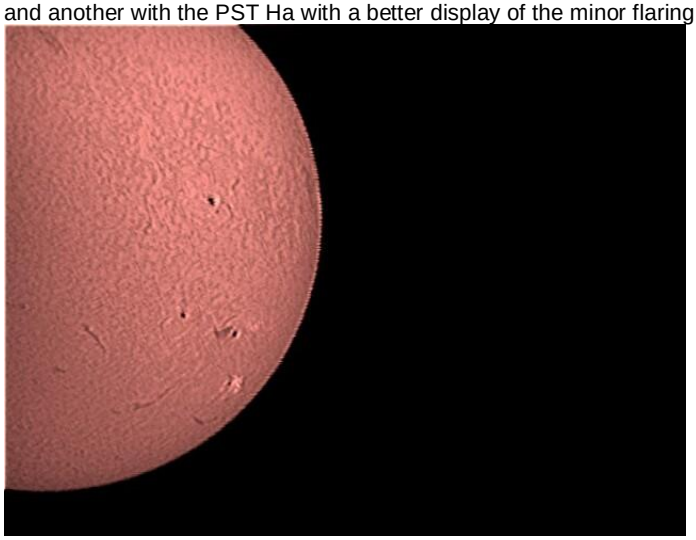
And Here's a few observations using the 8" SCT & Daystar Ha filter showing subflares crackling around several sunspots.







and another with the PST Ha with a better display of the minor flaring around sunspot AR3225



(all images were ~20 second monochrome AVI clips of several hundred subframes, aligned/stacked/processed using Registax, and then colorized).

Was not very happy with today's video captures. After I was done with the observing session, and I later went to process the AVI's, I discovered they were quite noisy and was difficult to process out. I had to soften the images to reduce the static. There must be a loose cable somewhere, letting noise into the video system. Next warm day we get, I'll have to pull the monitors off the shelf and check all the connections. Interestingly, the solar images displayed on the monitors didn't really show the noise. I should have just taken better individual snapshots of each monitor with my cellphone, lol

Anyway, it was still a good day in the solar neighborhood!
Larry

-------- Original Message --------

A evening with the Bodes (02/22/2023)

Hi all,
Sunday, 2/19, was another unseasonably warm, sunny day in Pittsburgh.
The forecast for the night showed clear skies starting out for the evening, but clouds moving in after midnight.
So, at dusk, I headed outside for a little EAA observing in the backyard observatory. Within a few minutes, I had uncovered the outside AllSky camera and telescope and had the laptop setup inside the shed. (8" Celestron SCT optical tube at f6.3 on an Atlas Gem mount with the ASI294MC camera & ZWO filter wheel & focuser along with my EVO50mm refractor & ASI290MC camera, and my 60mm refractor & ASI120MC that I use as a guidescope). After waking up the telescope and doing a quick camera focus check on the bright star Rigel in Orion, I was ready to go.

With the Winter Constellations now on the meridian, (see AllSky snapshot), I had plenty of deep-sky objects that I could choose to observe, but I was still in the mood for clusters, so I slewed the telescope down towards the southern horizon to the diminutive Winter season globular star cluster M79, in Lepus. With a short exposure, the 8" SCT resolved the cluster nicely. Here's the observation:

(L-Pro broadband filter, 60 second subs, live-stacked for 15 minutes using Sharpcap, darks & flats pre-applied, gain=350, temp=-10, histogram tweaked)

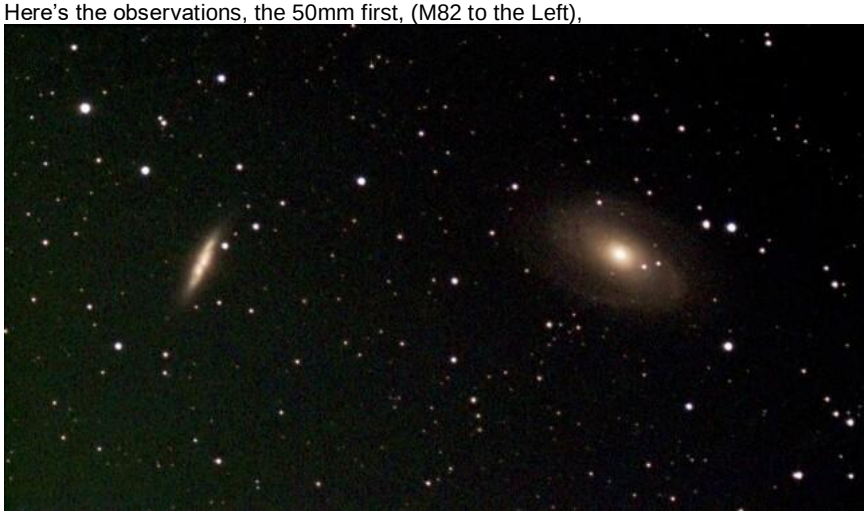
I was now ready to move-on from clusters, as the spring-like weather had now begun to put me in the mood for galaxy observing. So my second observation of the night was NGC404 - "Mirach's Ghost" in Andromeda. (one of the monthly EAA challenge objects for February from the CloudyNights forum). The glare from +2nd Mag Beta Andromeda (Mirach) was a bit of a pain. I could have eliminated most of it in Sharpcap, but wanted to bring out as much detail as I could in the +11th Mag lenticular galaxy. Gives a more 'spooky' feel to that little ghost, NGC404,,,,
Here's the observation:

(L-Pro broadband filter, 60 second subs, live-stacked for 15 minutes using Sharpcap, darks & flats pre-applied, gain=350, temp=-10, histogram tweaked), and guided using PHD.

I was next thinking of working a few Arp Peculiar galaxies beginning to rise in the eastern sky, but a quick glance at the AllSky camera display, and a check of the weather satellite showed a heavy band of clouds beginning to push its way up from the south, and was now knocking at

PA's southern border.

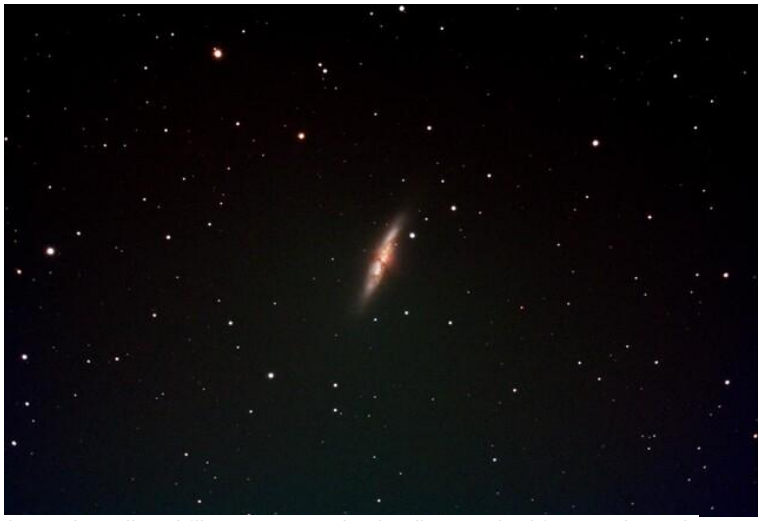
Knowing that my observing session had a limited time left for the night, I decided to visit a pair of old friends that were now riding high in the northern sky – the galaxies M81 & M82.
I was able to utilize both the EVO50mm scope for a wide-field view of the pair, and the 8" SCT for a more high-res observation. And using the Sharpcap tools, I was able to 'zoom' the 8" views for a deeper look at each galaxy.
Here's the observations, the 50mm first, (M82 to the Left),



(no filter, 30 second subs, live-stacked for 20 minutes)

followed by each individual galaxy, M81, with the 8":

then M82, with the 8":



(L-Pro broadband filter, 60 second subs, live-stacked for 20 minutes).
I would have liked to let the stack run longer for each, but I was worried that the clouds would soon shut me down. As it was, I had to pause the live-stack a couple of times for M82 as clouds drifted across the field of view. (having the AllSky camera comes in handy as you can see the clouds coming).

One of the fun things about doing EAA observing is that while you are letting the live-stack slowly build up the object's image on the screen, there's time to pull out your favorite observing guides or books (such as 'The Night Sky Observers Guide', or 'Messiers Nebula and Star Clusters, or 'The Complete Guide to the Herschel Objects'), and read the detailed descriptions about what to look for within the object.
This is why I carry a small astronomical library with me in my teardrop trailer on camping-trips, and stock the observatory in the winter.

For example – Oval shaped M81 has a bright nucleus and multiple diffuse spiral arms visible containing dark lanes and clumps of Ha regions. Spindle shaped M82 with an unusual dark lane bisecting the inclined spiral nearly in half, with other irregular dark filaments and bright mottled knots visible.

Both M81 & M82 were discovered by Johan Bode in 1774, five years before Messier's observing companion Pierre Mechain found them in 1779 and Messier added to his list in 1781. M81 (known as "Bodes Galaxy"), was the first galaxy to have its spiral arm rotation measured by a spectrograph, in 1914. It's the central galaxy of the second nearest galaxy cluster to our Local Group, about 10 million light-years away.
M82 (known as the "Cigar Galaxy"), appears to be going thru some gigantic starburst explosion, with tendrils visible in deep exposures coming out from the core perpendicular to the galaxy's main axis. It was the first galaxy in which a large magnetic field was detected, and also contains the brightest pulsar so far discovered. Gravitational tidal interaction with its larger nearby neighbor M81 is thought to be driving the activity within M82.

Interesting stuff!
By 11:45pm, the clouds had overtaken the sky, so I called it a night, shutdown, covered-up, and headed indoors to bed.
Another good evening of EAA observing!
Larry

-------- Original Message --------

Re: Nice conjunction (02/24/2023)

Here's my conjunction contribution from last evening, 02/23:
(Google Pixel-3 phone, hand balanced on my observatory fence.) Larry

-------- Original Message --------

Re: A night of Clusters (02/24/2023)

hi all,

Just a quick follow-up, In my initial post I had mentioned about wanting to try out using an IR filter with the 50mm.

Rooting around my astro-junk box, I found an old Orion IR 'Luminance' 1.25" filter that would fit. So yesterday afternoon (another unseasonably warm day here in PGH, though windy with scattered clouds), I got out, uncovered the scope and added in the IR filter to the EVO50mm & ASI290MC optical train. Then after full dusk, I tried re-observing a couple of open clusters with it.

M41 from 02/13 (non-IR filter) vs M41 from 2/23 (with the IR filter)

(15 second exposure, darks & flats pre-applied, gain=300, temp=uncooled, histogram tweaked, livestacked using Sharpcap for 15 minutes total).

What a difference it made! The filter greatly improved the view, no more 'star-bloat', and improved star colors.

I had forgotten that in general,refractors needed these types of filters as they can't focus all the visual RGB wavelengths together with the IR.

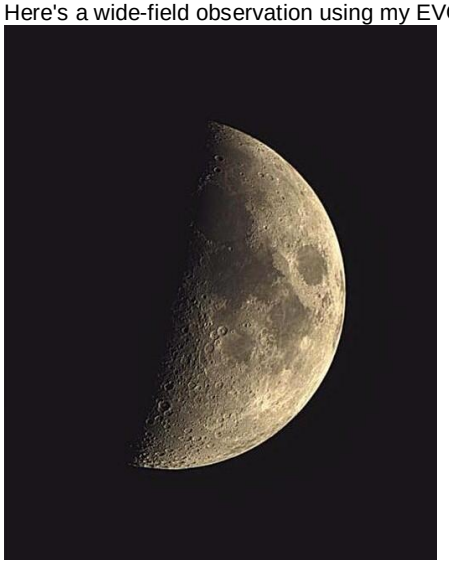
It was too windy to try anything else, but going forward that IR filter will be permanently attached to the EVO50MM & ASI290MC!

Larry

-------- Original Message --------

A little late-February Moonlit observing (posted on 03/01/2023)

hi all,
Got out Sunday evening, Feb 26th for a bit of EAA observing.
My plan was to work a few narrowband deep-sky objects while waiting for the Moon to drop lower down in the western sky, then work a few Arp Peculiar galaxies. While waiting for the ASI294MC camera to cool down, I decided to be a lunatic and observe the 47% waxing Moon. Mare Crisium was prominent, along with the bright ray system around craters Hiten and Furnerius.
Here's a wide-field observation using my EVO50mm f4:



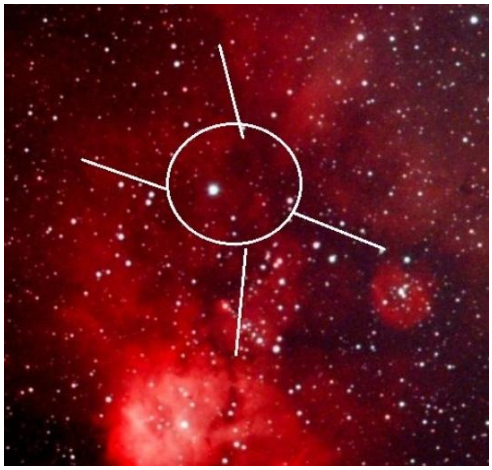
(ASI290MC camera & IR filter, forty individual 6 millisecond snapshot exposures aligned/stacked/processed using Registax)

I then moved on to the primary narrowband target of the night, NGC2359 - "Thor's Helmet", located in Canis Major. (also know as SH2-298, and sometimes called the "Duck Nebula" by visual observers who see the profile of a duck). Using just a little imagination, it's easy to see the upward pointing two-horned Viking helmet shape, along with the fainter lower helmet-strap extensions.
Here's the observation:

using my 8" SCT optical tube at f6.3 on an Atlas Gem mount with the ASI294MC camera & L-eNhance narrowband filter: (180 second subs, livestacked for 30 minutes using Sharpcap, darks & flats pre-applied, gain=375, temp=-10, histogram tweaked, image cropped), and guided using PHD.

The intricate shape of the emission nebula is caused by strong stellar winds coming off of its central star, 11th magnitude HD56925, a massive Wolf-Rayet star (WR 7). WR stars are a rare type of O supergiant star, with only 667 having been identified in our Milky-Way home galaxy. These stars generally only last for around 5 million years before tearing themselves apart in a supernova/gamma-ray burst explosion. The star/nebula is about 12,000 light years distant, so hopefully that's far enough away when it blows. Wouldn't that be something to observe when it happens!

I also observed emission nebula NGC2467 (SH2-311), nicknamed the "Skull and Crossbones Nebula".
I'm not sure if I've figured out the "Skull and Crossbones" shape, Denny tells me that its more of a reflection nebula, in which case I was using the wrong filter, should have used a broadband and not a narrowband.
but here's the observation and maybe it's just my Pirate imagination but here's a cropped 'paint' markup that might be it,,,,, Argh!!!



using my 8" SCT optical tube at f6.3 on an Atlas Gem mount with the ASI294MC camera & L-eNhance narrowband filter: (180 second subs, livestacked for 30 minutes using Sharpcap, darks & flats pre-applied, gain=375, temp=-10, histogram tweaked, image cropped), and guided using PHD.

I then pointed the telescope up to Gemini and observed the Planetary Nebula NGC2371-72.
I had observed this planetary years ago with my old StellaCam-3 analog vidcam & IR filter, and at the time it just appeared as a tiny little 'bar' shaped nebula. This time I used my ASI294MC camera and L-eNhance narrowband filter, what a difference that made. I was able to EAA

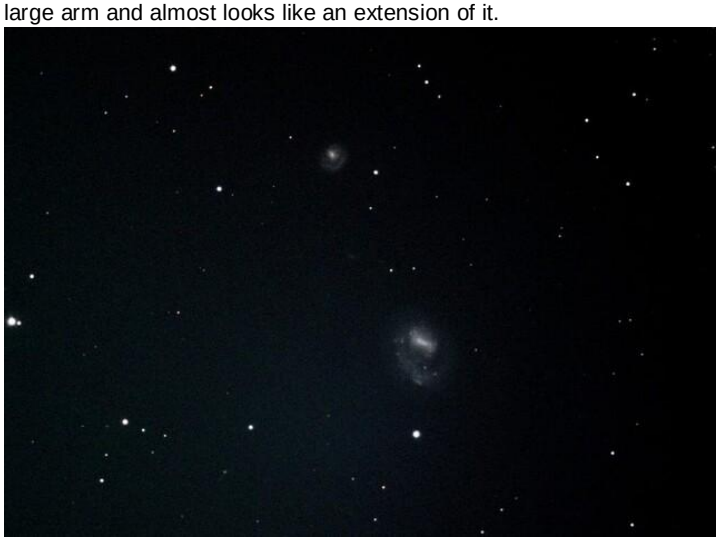
observe both of the two main lobes coming off the central star, along with the partial arcs. Kinda reminds me of a Tie fighter, LOL.
Here's the observation :

using my 8" SCT optical tube at f6.3 on an Atlas Gem mount with the ASI294MC camera & L-eNhance narrowband filter: (180 second subs, livestacked for 30 minutes using Sharpcap, darks & flats pre-applied, gain=375, temp=-10, histogram tweaked, image cropped), and guided using PHD.

So after a few additional SH2 objects narrowband observations, I did eventually switch to the L-Pro filter and slewed the telescope over to Ursa Major / Canes Venatici to work on my Arp Peculiar Galaxy EAA observation project. The Arp catalog is a list of 338 unusual galaxies developed by Halton Arp, working at Mt Palomar Observatory, that other researchers would drop from their studies as being too unusual or peculiar. Arp realized that these odd galaxies represented different stages in galaxy evolution, and devoted his career to studying them and related quasi-stellar objects (QSOs), utilizing the 200-inch Hale telescope.

Arp's atlas has become a useful tool for the amateur astronomer looking for deep-sky observing/imaging projects. Many of the 'Arp' objects are listed on star atlas's and observing guides as NGC, and IC galaxies that we may already be familiar with. While most of the peculiar features of these galaxies are out of reach of most visual observers, they do make for fine EAA observing targets. I've been slowly working thru the Arp catalog for almost 10 years now, using Jeff Kanipe and Dennis Webb's book - "The Arp Atlas of Peculiar Galaxies" as a guide. My Sunday evening observations of Arp23 (NGC4618/25), Arp24 (NGC3445), Arp155 (NGC3656), and Arp111 (NGC5421), brings my total observations up to 213. I got a ways to go still before finishing.

Here's the two best galaxy observations of the night:
On the left: Arp23 (NGC4618/25), in Canes Venatici, both are classified as "One Arm Spirals", each containing a large spiral arm, particularly NGC4618, the lower galaxy in the image.
On the right: Arp24 (NGC3445), in Ursa Major, also a one-arm, with a 15th mag faint companion MCG+10-16-24 to the left of NGC3445's large arm and almost looks like an extension of it.



using my 8" SCT optical tube at f6.3 on an Atlas Gem mount with the ASI294MC camera & L-Pro broadband filter: (120 second subs, livestacked for 20 minutes using Sharpcap, darks & flats pre-applied, gain=350, temp=-10, histogram tweaked, image cropped & rotated to match the book), and guided using PHD.

With the last Arp galaxy bagged, I closed up the observatory at 2am and called it a night.
Larry