ORAS Observatory July, 2025

With the 'wet & cloudy season' continuing on thru the month of July, our little band of traveling amateur astronomers kept a watchful eye on the weather, trying to figure which of our three dark-sky observing sites would have the best forecast for the July New Moon. Finally, over the weekend of the 18th, the weather pattern broke in favor of our club's ORAS Observatory. (sorry Cherry Springs and Calhoun, maybe next time,,,, ☺)
An added bonus of going to the observatory was the maintenance work that needed done.

Sunday 07/20/2025:
Had everything ready to go the night before, so it was just a matter of pulling the camper power cable to the garage and loading a few last minute items.

Headed out at 10:30am. Cloudy day, spitting raindrops. Uneventful drive to the observatory, pleasantly surprised to find that one of the rough sections of Camp Coffman Rd had been freshly paved! Arrived shortly after 1:30pm to find that Dean S had just finished running the mower on the eastern observing field and was setting up camp. After greetings, I picked a spot to his north and we both worked on getting our camps arranged.

The clouds had begun darkening, and rain drops were falling. So I covered up the partly assembled telescope and made lunch. Here's my usual EAA setup:
8" Celestron SCT optical tube @ f6.3 with a ZWO ASI294MC Pro camera, ZWO filter wheel & focuser, on an Atlas EQ GEM mount, along with a piggybacked Sky-Watcher EVO 50mm refractor with a ASI294MC camera (uncooled model), and a 60mm Antaries refractor guidescope with an ASI120MC camera. I also setup my AllSky cam, a ZWO ASI224MC camera & fisheye lens in a DIY dome attached to a tripod. Finally, my latest addition, a SeeStar S30 smart telescope.

About then Geoff C from the club arrived and after visiting with us, setup his camp over in the northeast section. (Geoff had just driven thru torrential rain which fortunately went to the south of the Observatory. Gary S arrived an hour or so later and setup between Dean and I.

A little after 5pm, all four of us met under Dean's canopy for refreshments. I then organized my observing plan for the night and assembled the blackout canopy.
Dean S, Gary, and I then went for a walk around the field, stopping in to check-out the western field's new pedestals and concrete pad for the new outdoor classroom, and then down to the Jones Building to see the expanded classroom. Our plans for the week included installing the electrical outlet boxes on the pedestals and straightening up the classroom, moving the big-screen TV and reconfiguring the presentation area to the space where the garage use to be.

Sorry to report that the old picnic table behind the observatory has finally seen its last days. Dean S plans on using the tractor to haul it away.
Around 8pm, Alexi arrived and after greetings setup by the Observatory.

At sunset the clouds began to break, and by dust the sky was mostly clear. The sky was a beautiful transparent dark blue. I assembled the black-out canopy behind the camper.

Encountered the first problem of the night, the AllSky camera kept freezing up.
After trying various tricks, including rebooting the new/used laptop, I shut down the camera for the night. Will continue to troubleshoot tomorrow.

One the Little Dipper and Polaris appeared, I polar aligned and focused the main 8” SCT scope. I then polar aligned the SeeStar.

The Milky Way looked really great!
Except for an occasional scattered cloud and a low band of haze in the south, it was a near perfect evening at ORAS. It did become very dewy late evening, with temps down into the mid 50's. Transparency went soft a few times during the night.

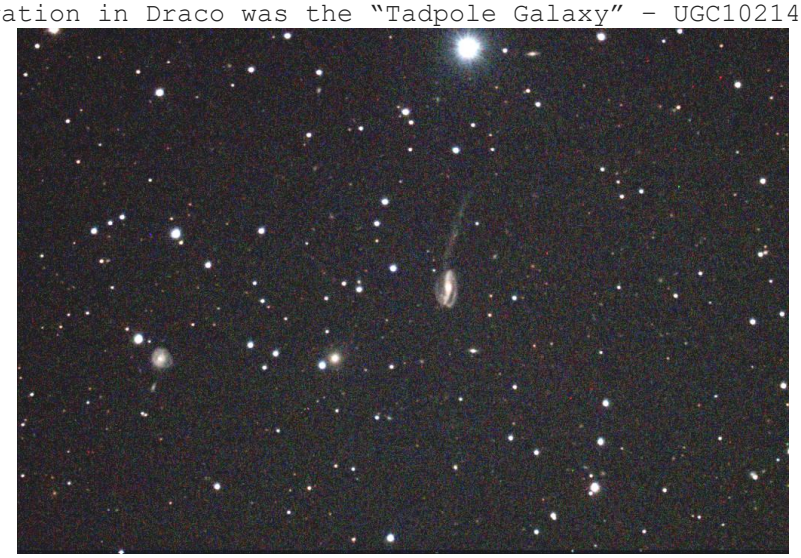
It was a ‘Galaxies and Globulars’ night! I was finally able to shake the wet weather from the spring and check-off a few objects from my observing list.

First up for EAA observing were two galaxies in Draco the Dragon.
The galaxy pair of NGC5963 & NGC5965:

Also included in the FOV were several small PGC galaxies – PGC214388 and PGC2544663.
There’s a nice little article regarding in the June 2025 Reflector magazine on page six.

(8" SCT @ f6.3 on an Atlas Gem, ZWO ASI294MC Pro camera with L-Pro filter, 180 second subs, dark & flat calibration frames, PHD guided, livestacked using Sharpcap for 30 minutes).

The next observation in Draco was the “Tadpole Galaxy” – UGC10214, also known as ARP188.



In addition to the peculiar galaxy with its long distorted ‘tail’, there’s also several bright PGC’s in the FOV – PGC57108, PGC57109, PGC2502068 and PGC2503300.

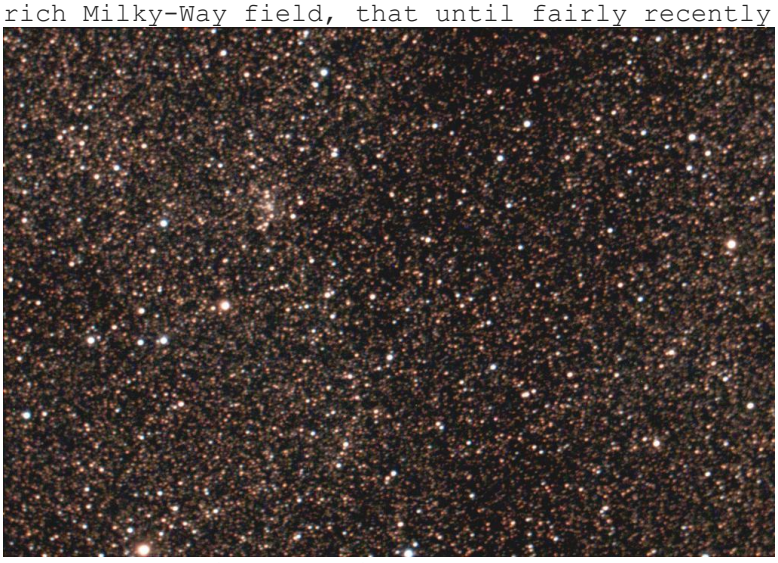
(same scope info as above using the L-Pro filter, 180 sec subs, stacked for 30 minutes).

While the 8” SCT was chasing galaxies, I set the S30 SeeStar to do a mosaic of M8 & M20. Unfortunately, I started the imaging run a little too late in the evening as the nebula sat behind my car before it could finish. LOL!

Look for the blank space in the upper right corner where the mosaic didn’t quite finish. (SeeStar S30, 60 second exposures in EQ mode with the NB filter, livestacked for 98 min).

Took a short break to deliver KitKats to the group. Later, Dean, Gary, and I visited Geoff, and Geoff then stopped over at my place for a quick EAA demo using Sharpcap. Dean was imaging the ‘Flying Bat Nebula’, SH2-129, in Cepheus and trying for the elusive Squid Nebula located between the bats wings. Gary was working on M51 in Canes Venatici, and Geoff was imaging M16 in Serpens. Alexi was inside his van snoozing, so I was able to ask what he was working on, but it might have been the ’Veil Nebula’ in Cygnus.

Back at camp, I switched over to working globular star clusters, starting with a couple of small objects in Sagittarius. First up was the tiny globular NGC6540, located in a rich Milky-Way field, that until fairly recently was thought to be an open cluster.



The globular is the bright starry knot located above left of center FOV.
(same 8” scope info as above using the L-Pro filter, 15 sec subs, stacked for 10 min).

I then slewed the telescope to the nearby globular NGC6544.

While small, this cluster stood-out much better in its rich starfield.
(same 8” scope info as above using the L-Pro filter, 15 sec subs, stacked for 10 min).

I thought it would make for a fun comparison to observe M22 and M13 at the same FOV, filter, and exposure settings as the two NGC clusters: (M22 to left, M13 to the right).

It was getting late, I decided to make one more galaxy observation, NGC6155 in Hercules:

(8” scope info as above using the L-Pro filter, 180 sec subs, stacked for 30 min).

Called it quits at 3:30am, with a thin waning crescent moonrise illuminating a foggy observing field.

Monday 07/21/2025:

Slept in till 9:30am, woken by a warm camper. Headed outside to uncover the telescopes to let them dry off from the dew. While outside I spied several butterflies, an Eastern Tiger Swallowtail that landed on my telescope tripod leg and a large yellow and black winged fella that fluttered past my camper.

The power company was here installing a new transformer on the utility pole, so power was out for making breakfast. (About an hour later, the electric was back on).

After finishing a late breakfast, I sat outside and read for about an hour.
Around 11:30am, Dean M arrived and setup camp over on the western field. There are now six of us camping on the field.

After lunch, Dean S, Gary, and I spent the afternoon cleaning and organizing the expanded indoor space in the Jones Building, moving the big screen TV to the new presenter's space, and moving file cabinets and the large shelves into the new storage closets.

Once the last few finishing items are done, this will be a very nice classroom space.

After cleaning up, I headed back to my camper for a nap. Back up a little after 5pm to join the Dean's, Gary, and Geoff over at Dean S's camp for happy hour.

Headed back to camp at 7pm to make dinner. Once I had cleaned up from dinner, I readied the back end of the camper for the nights observing, uncovering the scopes, assembling the blackout canopy, and starting the AllSky Cam, which once again gave me issues such that I eventually shutdown the laptop I was using for it and plugged the AllSky into my main imaging laptop to continue.

It was another clear, beautiful night. The soft glow of the Milky-Way even better than the night before. Dew remained light during the early evening, but became heavier later in the night after midnight. The outdoor temps dropped down to 53 degrees. A little chilly without a jacket while standing in the night air.

Here are a couple of AllSky Cam images from the early evening:

Spent the evening catching up on a few more spring galaxies in Bootes, and then later in the evening, I went Abell galaxy cluster hunting in Hercules.

My first EAA observation of the night was NGC5248 in Bootes. A nice sized spiral, nearly face-on, with good details in its two main arms, including HII star forming regions. Fainter arms could also be seen, if you squint,,, lol.

Then, still in Bootes, I moved to the nearby galaxy NGC5579, also known as ARP69, with its spiral arms perturbed by a small PGC galaxy that the main galaxy is interacting with.

Left = NGC5428

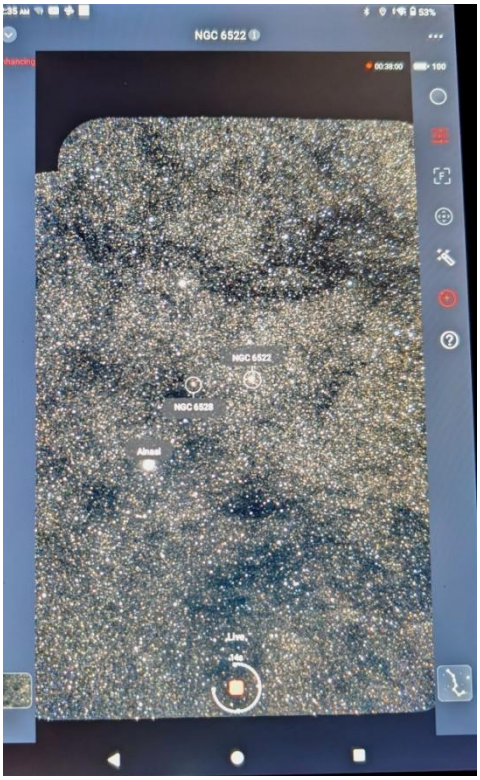
Right = NGC5579

(8" SCT @ f6.3 on an Atlas Gem, ZWO ASI294MC Pro camera with L-Pro filter, 180 sec subs, dark & flat calibration frames, PHD guided, livestacked using Sharpcap for 30 minutes).

While I was busy with the galaxies, the S30 SeeStar was on B72 the ‘Snake Nebula’ in Ophiuchus and then working a mosaic of ‘Baade’s Window’ in Sagittarius.

For some reason, the SeeStar app couldn't directly find B72, so using my beat-up copy of "Photographic Atlas of Selected Regions of the Milky Way", I opened the book to chart 19, and star hopped the S30 over to Ophiuchus, took a short exposure to identify the Snake and then manually centered. Using the book's finder chart & photo plate, I was able to identify the other B's in the FOV. (particularly the Snake's "eggs" - B68, B69, B70).
I was pleasantly surprised at how well the S30 pulled-in the dark nebula. Think I'm going to have to utilize the S30 more often for dark nebula.

Here's the widefield S30 observation of one of my favorite Barnard Dark Nebula - B72 the "Snake Nebula". Also included are a slew of other B's: B68, B69, B70, B71, B73, B74, B76, and B261. (SeeStar S30 in EQ mode, 60 second exposures with the IR filter, livestacked for 30 minutes, then AI noise reduction applied in-app)



I also used the S30 SeeStar to try a mosaic of “Baade’s Window”, centered on the little globular cluster NGC6522 in Sagittarius, just off the teapot spigot of Sagittarius.
“Baade’s Window” is a thin section of the Milky-Way’s arms that allows us to see further into the heart of our home galaxy. Once again, I didn’t start the observation early enough to complete the mosaic as that region of the sky ‘set’ behind my camper.
Here’s a screen shot – finderchart of the FOV and the almost complete mosaic (see above).
Lots of star clouds and dust, including Barnard dark Nebula B295 & B298!
(SeeStar S30 in EQ mode, 60 second exposures with the IR filter, livestacked for 91 min)

While I was busy having EAA fun, Dean was imaging M8 & M20 in Sagittarius, while Gary worked on the Veil Nebula in Cygnus. And Geoff was imaging M16 in Serpens using different filters. Dean M was working on NGC7000, the North American Nebula.

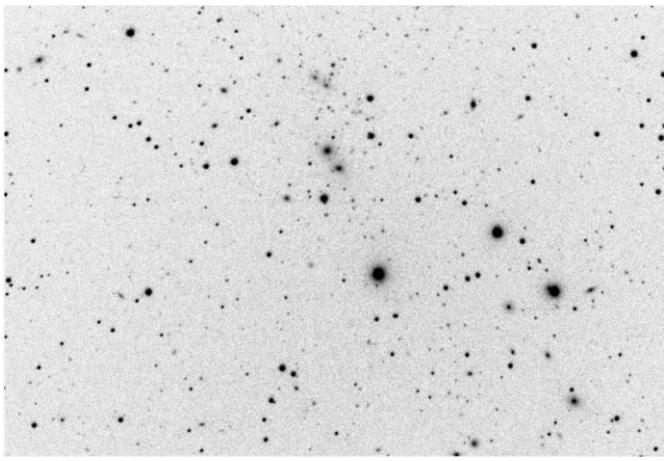
In the wee hours of the morning, the outside temp dropped down to 47 degrees. Dewy!

After getting burned with the S30 chasing objects that were too low, I pointed the little scope up to the zenith to Cygnus and the east side of the Veil Nebula for my favorite section of the SN remnant - the “Witches’ Broom” – NGC6960.
Here’s the EAA observation (next page):

(SeeStar S30 in EQ mode, 60 second exposures with the NB filter, livestacked for 40 minutes, then AI noise reduction applied in-app)

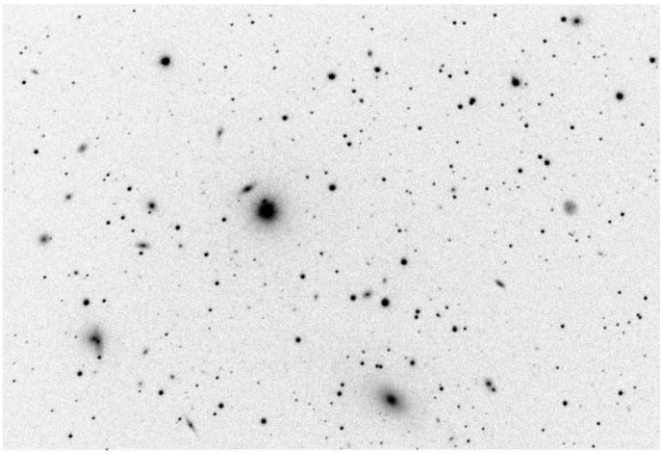
Using the AllSky cam, I watched the Milky-Way slowly wheel across the sky, catching the occasional meteor zipping thru.

While the SeeStar was doing its thing, I used the 8” SCT to observe Abell Galaxy Clusters in Hercules and Ursa Minor. First was Abell2152. With EAA observing galaxy clusters, it helps to invert the view to negative to better see all the tiny little MCG galaxies.



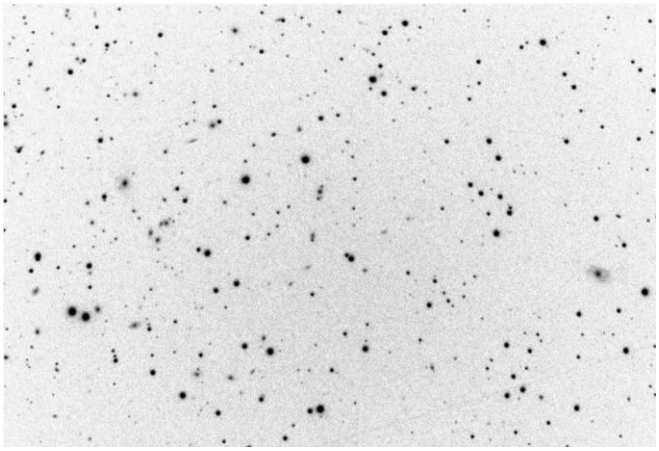
(8" SCT @ f6.3 on an Atlas Gem, ZWO ASI294MC Pro camera with L-Pro filter, 180 sec subs, dark & flat calibration frames, PHD guided, livestacked using Sharpcap for 30 minutes).

The second cluster in Hercules was Abell2197, containing several bright NGC galaxies, (NGC6173 and NGC6175, along with several others outside the FOV). It’s always interesting to see how many faint little galaxy cores my 8” optical tube can reel in.

(same scope info as above using the L-Pro filter, 180 sec subs, stacked for 30 minutes).

My last galaxy cluster for the night was Abell2256 in Ursa Minor.

After more closely examining the FOV a few days later, I realized that I was off center and actually missed the brighter galaxies in the cluster core. Will have to come back for a re-observation another time for this galaxy cluster.
(same scope info as above using the L-Pro filter, 180 sec subs, stacked for 30 minutes).

It was now 4:30am, with the Milky-Way setting in the southwest and a hint of dawn’s glow to the east. I was hitting a brick wall from being tired, so I shutdown the scopes, stowed away the blackout canopy, and crawled into my campers bed.

Tuesday 07/22/2025:

Slept in till 10am. Once outside, I uncovered the scopes to dry, said hello to my neighbors ,and fixed a late breakfast.

Around 1pm, I headed down to the Jones Building to hookup the old stereo system and get it running. I was just finishing up around 3pm when a snake slithered thru the open door, across the kitchen floor and into the office before I could catch it. The snake went back in the corner behind the water heater. After attempting to get it out of the building, Geoff came down to help and using brooms got the snake back out to the woods.

While I was occupied, Dean S was mowing the outer field perimeter and Dean M and Gary were installing an outlet box in one of the new power pedestals.

At 5:30pm, the six of us gathered over at Dean S's camp for refreshments. Bill E and his wife stopped in to visit with the group. The sky transparency had started to deteriorate, with haze around the sun and long jet contrails were visible.

Dinner at 7pm, then phoned home. As my camper water tank was getting low, I grabbed a few empty water jugs and drove down to the spring off of Camp Coffman Rd to refill.
Prepped my observing notes, uncovered scopes, assembled the blackout canopy.
Headed inside the camper to change into heavier clothes as it was already dropping into the lower 60's. It was also becoming dewy early on. Going to be a damp night.

At dusk, I walked over and visited with the group delivering KitKats. A little later Gary stopped in to visit. Dean was shooting the Veil tonight. Alexi was working on IC4685, "Bow and Arrow Nebula" in Sagittarius, located near M8. Around 10pm Alexi called out a bright, zenith pass of the ISS.

While the transparency wasn't as good as Monday night, it was still a beautiful night with the softer than usual glow of the Milky Way stretching across the sky from the northeast to the southwest with the Summer Triangle overhead. At midnight a few light hazy clouds bands moved off of Lake Erie and over the area, and extenuated the local light-pollution glow along the southeast to southwest horizons. But in-between the bands, the sky were mostly clear.

Tonight's plans for the 8" would be sticking with brighter open clusters, along with summer planetary nebula. I started off high overhead in Vulpecula with an obscure open cluster, Roslund-5, in which two reflection nebula – IC4954 & IC4955 were embedded within.

The cluster was somewhat sparse, barely rising above the field stars, but the two small reflection nebulas makes its worthwhile to find. In particular, the 'Nike Swish' shaped of IC4954, (left of center FOV), reminds me of a smiley face, ☺ lol.

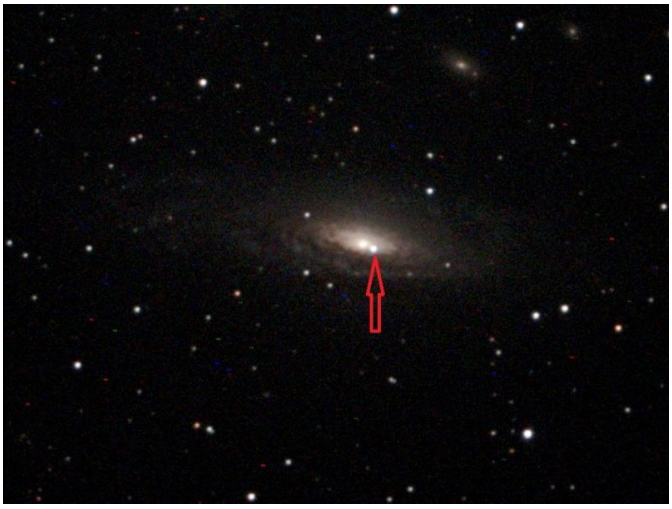
(8" SCT @ f6.3 on an Atlas Gem, ZWO ASI294MC Pro camera with L-Pro filter, 180 sec subs, dark & flat calibration frames, PHD guided, livestacked using Sharpcap for 30 minutes).

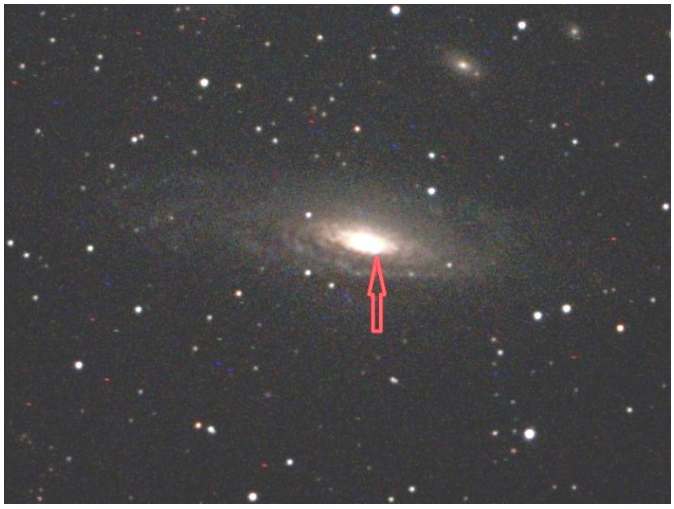
I then slewed the telescope over to Cepheus for open cluster NGC188.

The cluster filled the display view with numerous faint stars.

(8" scope info as above using the L-Pro filter, 15 sec subs, stacked for 10 min).

With the transparency showing much improvement, I decided to hunt a recent bright supernova (SN2025rbs) near the core of NGC7331 in Pegasus. SN2025rbs is a type 1a supernova where a white dwarf in a binary system is pulling gas off its neighbor star. Once sufficient amount of gas builds up on the dwarf, it explodes. The supernova gives the Deer Lick galaxy an appearance of having a double-core. This was a bit of an EAA observing challenge, a balance of not over exposing the galaxy core and SN into one big blob, while still bringing out details in the spiral arms.





(8" SCT optical tube @ f6.3, Atlas Gem, ASI294MC & L-Pro broadband filter, 180 second sub livestacked for 15 minutes)

This SN, currently at around +11.8 mag, should be visible in the eyepiece using medium to large telescopes. (and any imaging kit should also pull it in).

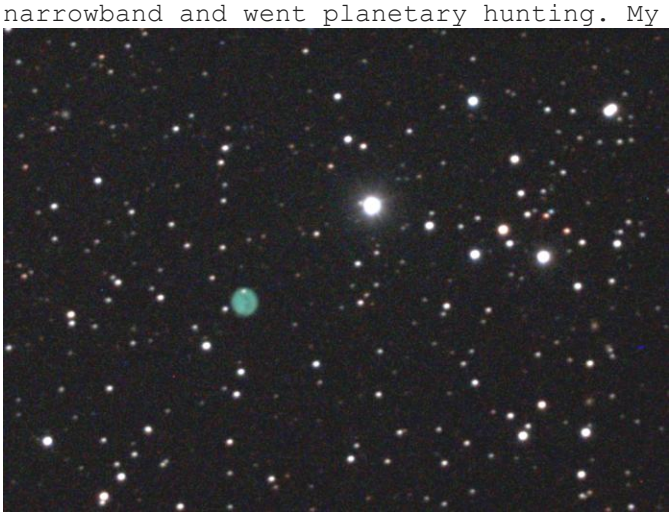
While the 8” SCT was collecting clusters, I had the S30 SeeStar making another mosaic attempt, this time the duo of M16 and M17, the “Eagle” and the “Swan”. I’ll save the results for further down.

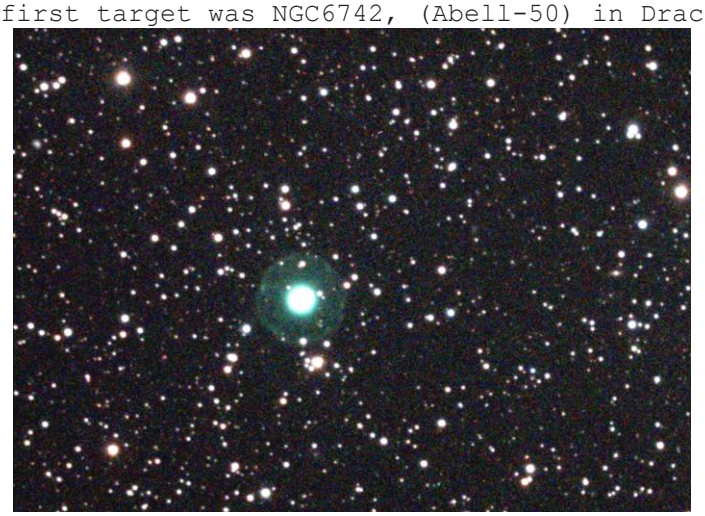
Throughout the evening, an occasional bright meteor was visible on the AllSky Cam.

A particularly bright one (on the left) passed thru the zenith right at 11:01pm. The dark area on the right side of the horizon was heavy dew on the AllSky Cam dome overwhelming the heater. I constantly had to go wipe off the dome.

Around 11:30pm, Geoff reported that coyotes could be heard off in the distance. Alerted by Geoff, I also caught their yipping.

Once I was done with the supernova observation, I switched filters to the L-eNhance narrowband and went planetary hunting. My first target was NGC6742, (Abell-50) in Draco.





Abell-50 (left side), is a pretty little blue-green disk, with a dark lane bi-secting it down the middle, along with a very faint central star just barely visible.

Then I moved the scope up overhead to Cygnus for planetary NGC6826, “Blinking Planetary”. NGC6826 is a bright blue disk that tends to obscure its central star. Visually, by looking directly at the object, you can see its central star, but using averted vision brings out the bright shell. Imagers can bring out a much fainter outer shell that I observed here in the below image.

(8" SCT optical tube @ f6.3, Atlas Gem, ASI294MC & L-eNhance narrowband filter, 180 second sub livestacked for 15 minutes)

The last EAA observation for the night was planetary nebula NGC6894, also in Cygnus. This object reminds me of a tiny ‘honey-nut cheerio’ or perhaps a ‘fruit-loop’. (you could tell I was getting tired and a little loopy myself,, and maybe hungry,, ☺) Regardless, the planetary displays a nice pink with green hues ring with dark markings along the inner edge, and its central star. (A close field star is visible in the ring).

(8" SCT optical tube @ f6.3, Atlas Gem, ASI294MC & L-eNhance narrowband filter, 180 second sub livestacked for 15 minutes)

Almost forgot about the S30 chugging away with its mosaic of M16 & M17.
Once again, I was done-in by low elevation. With the objects approaching the horizon, they became lost in the muck and the S30 could no longer lock-in alignment and started dropping frames. I had to quit the mosaic before it was finished. ☹

(SeeStar S30 in EQ mode, 60 second exposures with NB filter, livestacked for 2.5 hours)

And with that, at 3am I shutdown the scope and headed for bed.

Here's a time-lapse AllSky from Tuesday night: https://youtu.be/Jl6fGebCtk0

Wednesday 07/23/2025:

After another late night of observing, I slept in till 10am, woken by a warm camper. Headed outside to fetch a few things from the fridge and discovered that I had a water leak, yikes! I had to pull out everything from the back clamshell end of the camper to dry out. (no more using cardboard shoeboxes for storage, after I get home, I'm buying plastic waterproof storage boxes!) After rooting around under the sink, I found the water was leaking from my hot-water tank. I ended up pulling the water drain valves to empty the tank, losing all my sink water that I had filled the day before.

After cleaning up, I drove over towards Punxy for the afternoon to a funeral viewing of a friend's brother. On the way back to the ORAS Observatory, I stopped for dinner.
Back at camp, I joined the group for a late happy hour.

While I was gone, Dean M had finished installing two outlet boxes on the 2nd new power pedestal in the middle of the west field.

ORAS Observatory visitors will now have available for their use six power pedestals, 3 on east field, and 3 on the west field, with a total of 28 individual ac outlets.
The Observatory building currently has 12 individual ac outlets along its outside walls, also currently available for use. The new classroom/restroom/showers once completed will probably have 10 individual ac outlets. This will give the observing field an estimated total of about 50 individual ac outlets. Bring your extension cord!
(There are also future plans for a power pedestal in the North field.)

As I was leaving Thursday morning, I packed away the main telescope and most of the camping gear. I planned on using the SeeStar and working with the observatory C14 and ASIAir imaging kit.

One of the nice things about our little merry band of astro-travelers is our willingness to help out other fellow astronomers. Here's Dean S providing some imaging advice to Geoff C. A perfect example of our groups comradely! Another example was earlier in the week Dean M was in need of a HDMI cable, and every one of us came running with a spare!

At dusk, I prepped the S30 SeeStar and observing notes. My plan was to focus on capturing a number of deep-sky objects over in the Sagittarius region.

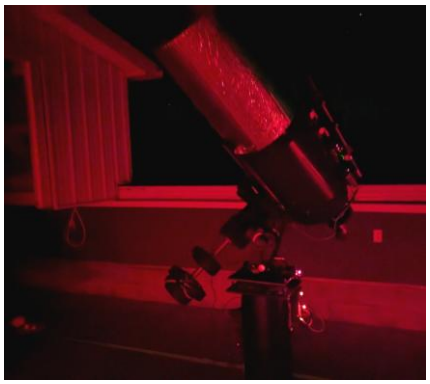
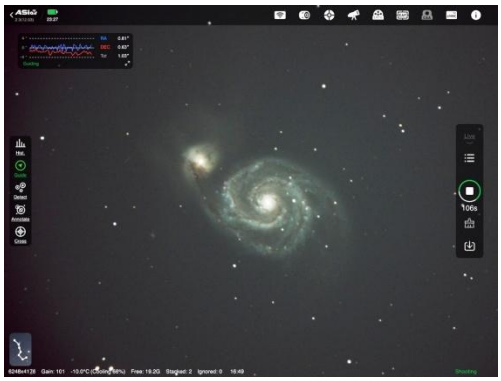
Throughout the day, the sky had grown hazy. Canadian wildfire smoke was drifting down from the northwest, turning the sky milky. It wasn't looking good for going after faint fuzzies tonight. Will have to stick with observing the brighter objects.

Once dark enough, I started up the S30 SeeStar and slewed the scope to observe globular cluster M22. Made for a good scale comparison with the 8" SCT observation from earlier.

(SeeStar S30 in EQ mode, 60 second exposures with IR filter, livestacked for 15 minutes

Around a quarter after 10pm, there was another bright pass of the ISS was visible to the north. While the hazy sky wasn't as bad as I've seen, it still degraded the glow of the Milky-Way and gave the sky a dull look.

At this point, Dean S and I headed up to the observatory to open the roof and power on the C14 and ASIAir imaging equipment. We were soon joined by Gary S and Dean M, and then Geoff and Alexi walked up to assist. Everyone was interested in seeing the clubs C14 SCT and ASI2600MC camera imaging kit put thru its paces. Here's the gang using the club's iPad to run the ASIAir app on the C14. And a screenshot of the iPad showing it in action.

Dean S mostly drove the scope and ASIAir app, with expert advice from both Alexi and Geoff. During the session, we passed the iPad around so everyone got a chance to play a little with the settings.

The app interface is similar to that of the SeeStar, but a little more complex. ☺ There are controls for everything needed, mount, main imaging camera, filter wheel, focuser, and guide camera, along with a built-in planetarium to select objects from. With just a little practice and guidance, anyone will be able to use this telescope.

For our test session, we targeted three objects, galaxy M51, globular cluster M13, and emission nebula M16, successfully putting to use the telescope & mount, ASI2600MC camera, L-Pro broadband and L-eNhance narrow band filters in the electronic-filter-wheel, along with the electronic-focuser, and the guide-scope & ASI220MC guide camera.

In addition to collecting individual subs, (which some of the guys later downloaded for post-processing at home), we also utilized the ASIAir EAA 'livestack' feature for direct viewing on the iPad as the individual subframes stacked in real-time. (I later downloaded the saved the final livestack to a jump drive to take home). While the ASIAir livestack feature isn't as robust as using Sharpcap, it gets the job done. And it saves the individual frames too. This will allow our club members the best of both worlds of imaging – traditional astrophotography and modern EAA.

Here are the C14 test livestack observations:

The Whirlpool Galaxy - M51 (300 second subs livestacked for 30 minutes)
The Great Hercules Starcluster - M13 (30 second subs livestacked for 10 minutes)


The Eagle Nebula / Pillars of Creation - M16 (30 second subs livestacked for 10 minutes)

While we didn't try to finesse the ASIAir settings (such as applying darks & flats) to generate a more pretty image, we were all satisfied that both the telescope and camera imaging equipment are functional. Dean S is currently in the process of putting together a 'quick-start' guide for how to use the scope & ASIAir, but any club member who already knows how to use an ASIAir should be able to soon have at their fingertips a permanently mounted observatory 14" SCT for deep diving into the universe!!

While we were all working with the C14 in the observatory, I also had my S30 SeeStar working on observations. In addition to M22 (above), I also observed the open cluster M23 in Sagittarius, along with nebulas M8, M16, and M17. Here are the S30 observations:

SeeStar S30 in EQ mode:
M23 - 60 second exposures with IR filter, livestacked for 15 minutes, AI denoised.
M8 - 60 second exposures with NB filter, livestacked for 60 minutes, AI denoised.
M16 - 60 second exposures with NB filter, livestacked for 45 minutes, AI denoised.
M17 - 60 second exposures with NB filter, livestacked for 7 minutes, AI denoised.
(M17 was too low, started dropping frames before it could finish).

We called it quits a little before 2am, shutting down the C14 and closing the roof.
In bed by 2:30am

Thursday 07/24/2025:

Up at 9am to finish packing the inside of the camper.
Several of us were leaving today. Alexi was the first to head out at 9:30am.
After finishing up breakfast and packing the AllSky and SeeStar, I said my goodbyes and hit the road home at 11:15am. Geoff headed out about an hour later leaving the Dean's and Gary staying overnight. Arrived back in the Burg at a quarter till 2pm.

So four good nights of EAA observing this trip!
That brings the 2025 tally up to 31 nights camping, but only 13 clear nights, and 18 cloudy/rainy nights. Running under 50%. Hopefully the August dark-sky trip, along with the nearly six week trip to the desert southwest this fall will put my clear-sky ledger back in the black!

Larry McHenry
Astronomical Webportal: http://www.stellar-journeys.org/