# ORAS Observatory  October, 2023

With the Fall season well underway, leaves turning, Mums blooming, pumpkins on the porch, it was time to prepare for going to the ORAS Observatory for the October New Moon. The trip would include a special celestial event – the Saturday, October 14th Annular Solar Eclipse! (~44% partial from ORAS).

The weather was looking less than promising, may need an umbrella for most of the week, especially that Saturday of the eclipse. While the forecast was a little off-putting, still one needs to *'go and see'*, so I made plans to head up to the club observatory on Tuesday the 10th, and hope for the best.

## ORAS Tuesday 10th

Left for ORAS at 10:30am under overcast sky. Pretty fall leaf colors along the drive around New Bethlehem. Under clearing skies, I arrived at the Observatory around 1pm. Dean S was already there setting up at the southern end of the observing field. After exchanging "greetings", I pulled up next to Dean, and setup camp, with the nose of the camper pointing south, something I usually don't do, but couldn't remember at the time why.

After a couple of hours, I had the scope assembled. My usual EAA kit: an 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 & ASI294MC camera (uncooled model), a 60mm Antaries refractor guidescope with a ASI120MC camera, and a small Canon 5.5-55mm CCTV lens & ASI290MC camera (set to 25mm) as a super-widefield finder, also piggybacked on top. And I setup the Allsky cam, a ZWO ASI224MC & fisheye lens in a DIY dome.



(the last photo by Dean S)

Dean and I then walked around the northern and western sides of the observing field, inspecting the recent plowing. The field was pretty rough, but eventually when done next year we'll have a much larger area to setup in


We took down the shade sail that's installed behind the Observatory. One of the C clamps had pulled loose from the rail and that end was flapping in the breeze.
The afternoon was a bit breezy earlier, but at least sunny and somewhat warm. By early evening, the wind has calmed, but the sky had gone cloudy, spitting rain and chilly.

Didn’t look like there would be a chance of getting polar alignment tonight.

Tim S stopped by to visit with us, but didn't stay long. When asked about the field work, Tim told us that Butch B, (local club member who was doing the work), referred to this first step as chisel plowing. Next Butch will come back with a backhoe and get out all the big boulders that he pulled up. Then he'll disk it, and then he'll drag it to smooth it out. Last step will be to seed it, probably in the spring.

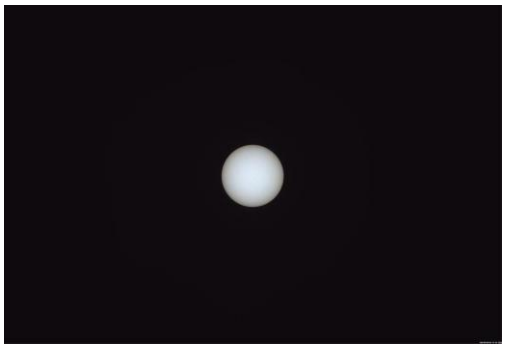
With the temps falling into the lower 50's, Tim decided to head home.
Dean and I visited for awhile, and then we both headed indoors at 7pm. I pulled out a few magazines to read and listened to jazz music (91.1 FM) on the radio. (Dean watched a movie on his new streaming TV). Checked the weather conditions several times during the evening, but no change. Early to bed.

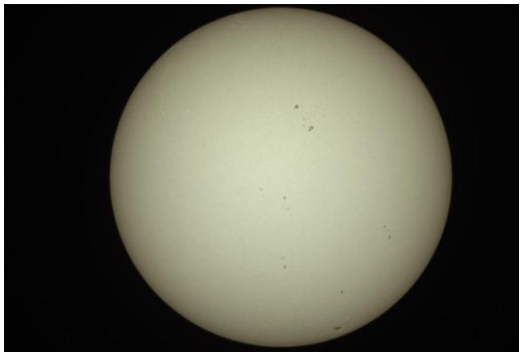
**ORAS Wednesday 10/11**

Woke to morning sunshine. The sky had cleared before dawn, but it was a chilly morning, temps in the mid 50s. Dew was non-existent.

By 10am with the bright sun warming the field, it was now comfortable to sit outside. Spent the day visiting with Dean, walking around the field or down to the activities building, and reading.

Mid-afternoon, I decided to uncover the telescope and get the solar filters out to test a few capture settings of the Sun in case Saturday cleared for the eclipse. Even though I wasn’t truly polar aligned, I knew the mount was ‘close enough for horseshoes’, especially for doing sub-second exposures. I was able to quickly find the Sun and the mount tracked well enough to make a few observations.





(Canon25mm exp=0.1400ms), (EVO50mm IR filter, exp=1.6500ms),(8" SCT & IR, exp= 3.5000ms).

At 5pm, Dean heated up dinner, a green pepper soup that his wife Alice has made for us. Around sunset, I setup the camper hatch blackout tent, phoned home, and prepped the telescope and my observing notes. The outdoor temps quickly fell into the low 40's, eventually late evening dropping to a very brisk 38!

As soon as Polaris began to faintly flicker in the northern sky, Dean and I were quickly working thru our polar align routines. After I had finished that setup step, I slewed to Deneb and focused the cameras and GOTO aligned the mount.

I then decided to spend some time with the "Heart & Soul" in Cassiopeia.
'Heart Nebula' – IC1805 using both the EVO50mm & 8"SCT with the L-eNhance filter.


'Soul Nebula' – IC1848 using both the EVO50mm & 8"SCT with the L-eNhance filter.


(EVO50mm @ f4.2 ASI294MC camera, 3 min subs, livestacked for 30 minutes),
(8" SCT @ f6.3 ASI294MC Pro camera, 3 min subs, livestacked for 30 minutes)

While I was occupied, Dean was multi-tasking, working on imaging M33 – the "Triangulum Galaxy", while also watching a movie on his TV, lol.
After getting my fill of 'Heart' under a beautifully clear sky, I made an observation of Comet Pons-Brooks in Hercules. This faint comet was currently experiencing an outburst making it brighter than it should have been. Still, it was a small faint blue object. (interestingly, this comet is predicted to be 1$^{st}$ magnitude near the total eclipsed sun next April 8$^{th}$)


(8" SCT @ f6.3 ASI294MC Pro camera, L-Pro filter, 30 sec subs, stacked for 30 minutes)

During the evening, heavy dew formed on everything, and the telescope became dripping wet. The AllSky camera dew heater couldn't keep up, so I constantly had to step out from under the blackout tent and wipe off the camera dome. Fortunately, the telescope heaters and dew shield were up to the job and kept the scope optics dry.

At midnight, I went galaxy hunting for the barred-lenticular NGC936 in Cetus.
Here's the observation, which also includes galaxies NGC941 & PGC9394 (edge-on spiral):

Around 2am, cloud bands began rolling in from the west. I quickly slewed the telescope eastwards in search of one last target to observe, but the clouds were fast moving and within 15 minutes the entire sky was overcast.

After consulting the weather satellite, there was nothing to do but shutdown the scope and cover-up.
In bed a little before 3am.

**ORAS Thursday 10/12**

Slept in till 9:30am, woke to a cloudy, chilly day.
After breakfast, both Dean and I uncovered the telescopes to let the heavy dew from the night before dry off. Within the hour we were putting the covers back on as rain was showing just to our west on the radar. Fortunately, we only got a few sprinkles and the field stayed mostly dry. Around noon, Dean and I drove down to the Cranberry shopping area, about 10 miles to the west of the observatory to get a few items. Once back at camp, I had lunch and then took a nap.

Late afternoon, around 6pm, the skies started clearing and the Sun warmed the field.

For dinner, Dean grilled cheeseburgers and we sat out under the sunny skies enjoying the meal. After cleaning up, I assembled the blackout tent and prepped my notes, uncovered the telescope at dusk, slewed the scope over to the faintly shinning Big Dipper to await full darkness.

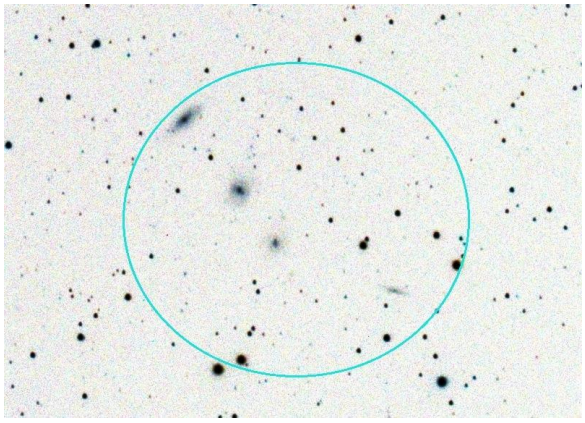
By 7:30pm, the sky was completely clear.

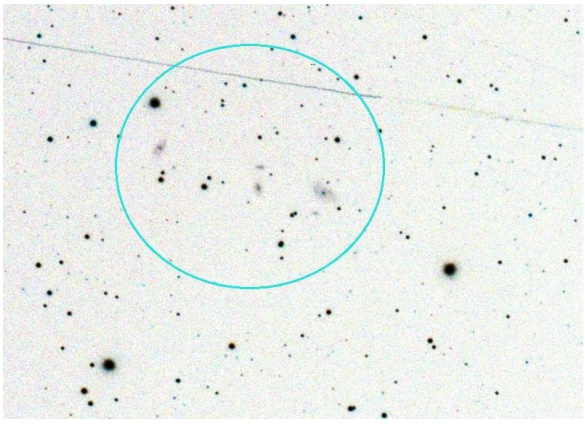
My observing plan for the night was to work on my Hickson Compact Galaxy Cluster project, but first I wanted to have a go at Comet Lemmon, in Canes Venatici, close to the border with Ursa Major. By 7:40pm, I had the comet, a faint little green fuzzball, in the 8” SCT. The comet was a bit inside the Cranberry sky glow along the NW horizon. I called Dean over for a quick look. Here’s the observation:

(8" SCT @ f6.3 ASI294MC Pro camera, L-Pro filter, 15 sec subs, stacked for 15 minutes)

I then moved on to the galaxy clusters. My first targets of the night were HCG90 & HCG91 in Pisces Austrinus. From my previous planning, I knew that both objects would be pretty low on the southern horizon. But now I quickly remembered why I don't setup the camper with its front pointed south. With having the telescope lined-up directly north of the back hatch, the southern meridian region of the sky along the horizon was blocked! Arghh! The telescope couldn't 'see' over the tent canopy!!! My only hope for catching these two galaxy clusters this season was to take down the tent canopy tomorrow and try for the objects right at dusk before they went behind the camper. Assuming the sky was clear.

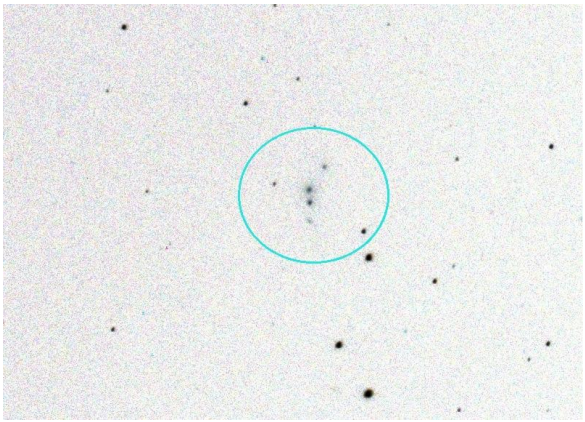
So with that bit of hard-learned knowledge, I slewed the telescope higher in elevation to Aquarius to begin the Hickson hunt for HCG88 & HCG89.

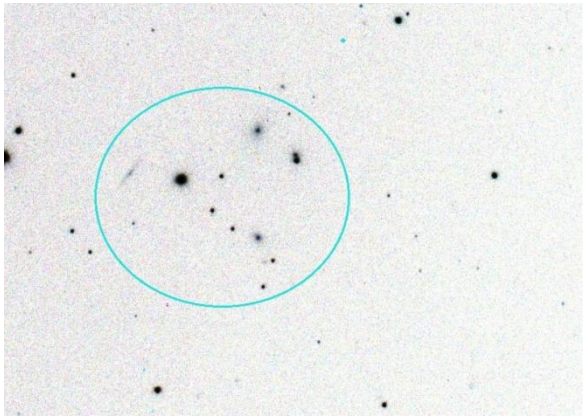




(8" SCT @ f6.3 ASI294MC Pro camera & L-Pro filter, 180 sec subs stacked for 15 min)

I then turned the telescope to the constellation of Pisces for HCG2, 5, 97 & 98. The two most interesting were HCG5, and HCG97:





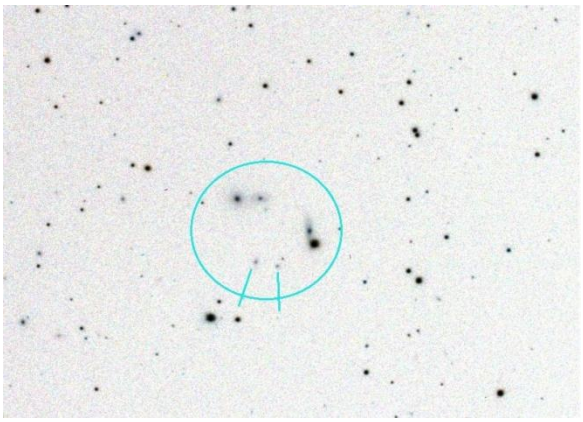
(8" SCT @ f6.3 ASI294MC Pro camera & L-Pro filter, 180 sec subs stacked for 15 min)

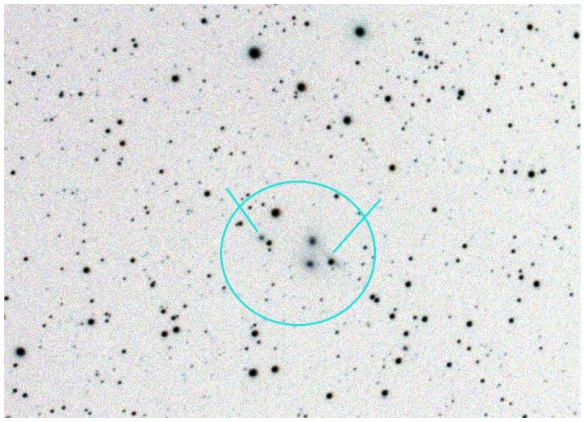
While I was chasing Hickson's Dean was working on SH2-119 the "Clamshell Nebula" in Cygnus, and then later taking a series of deep images of the "Helix Nebula" NGC7293 in Aquarius. I dropped over a couple of times to visit and see Dean's images and he returned the visit several times during the evening.

Shortly past midnight, I noticed that the screen image was looking soft. Walking out to the telescope I immediately noticed that the dew heaters on the telescope had gone off. (had the control box power turned-up too high). Sure enough, all the optics had dewed up. So I got out my AC hair drier, plugged it into the power supply at the mount and proceeded to blow dry each scope. Having cleaned-off the three smaller optics, I had started in on the 8" SCT corrector plate, and becoming impatient, kicked the drier up to high. That was a BIG Mistake! The surge protector on the main power cable reel popped, killing the AC power to both the camper and the telescope! Everything was dead except the laptop running on its battery.

After turning all the equipment off, manually moving the telescope mount to its RA/Dec home positions, then resetting the surge protector, and then powering up all the equipment, I had to quickly re-initialize the GOTO alignment while I slowly brought the main camera's running temp down to a -10C. Had to be careful not to frost the camera. My attempt to save a little time clearing dew actually wasted even more time. I then realized that it was Friday the 13th! Time for a little bad luck!

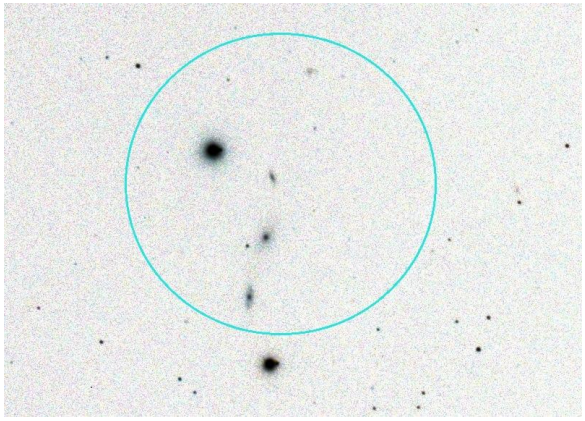
Once I had everything back up and had properly kicked myself, I was back observing. Next up on the Hickson's was HCG99 in Pegasus, and HCG33 in Taurus, both of which contained a pair of faint +17 mag galaxies.





(8" SCT @ f6.3 ASI294MC Pro camera & L-Pro filter, 180 sec subs stacked for 15 min)

Around 1:20am, light clouds began moving into the area. I had time for one more galaxy cluster, HCG14 in Cetus:



(8" SCT @ f6.3 ASI294MC Pro camera & L-Pro filter, 180 sec subs stacked for 15 min)

By 1:45am, the sky was overcast. Both Dean and I shutdown for the night and headed indoors. It was good while it lasted, allowing me to capture nine new Hickson groups. Stayed up till 2am updating my observing notes before turning in.

**ORAS Friday 10/13**

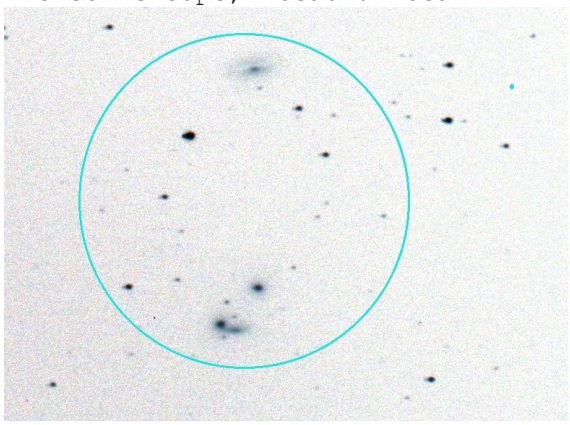
Slept in till close to 10am.
The morning sky was partly cloudy, temps still in the mid 40s, and very dewy.
The forecast showed that while it would clear off in the afternoon, and we would get a few hours of evening observing, it would be cloudy by midnight and rain all day Saturday.

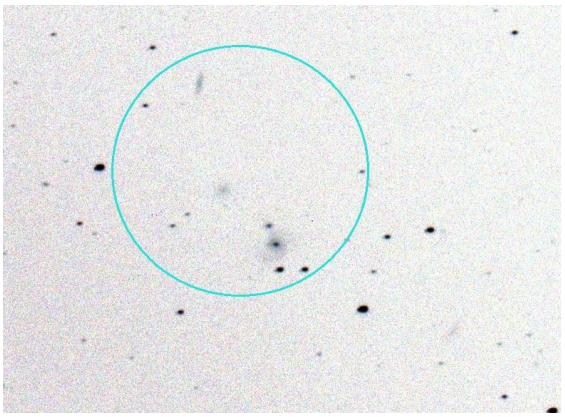
After a leisurely late breakfast, I packed away the nonessential camping gear, including taking down the tent canopy, and a few astronomy equipment items that wasn't needed.
I also organized the storage cases for the rest of the equipment. If no other amateur astronomers showed up that evening, our plan was to pack everything away once the clouds rolled in late that evening.

Mid-afternoon, Dean and I walked down to the activities building to setup for the next morning's solar eclipse presentation. We straightened out the rows of chairs, and I got out a small solar telescope and eclipse track map for display, and handouts with solar glasses for the attendees.

Towards sunset, we sat out and had a few snacks before dinner.
At dusk, the sky was mostly clear, with occasional scattered clouds.

Having taken down the red tent canopy and moving the car, I could now point the telescope low on the southern meridian and was able to successfully get in an observation of the two Hickson Groups, HCG90 & HCG91 in Pisces Austrinus. (though guiding was very poor).

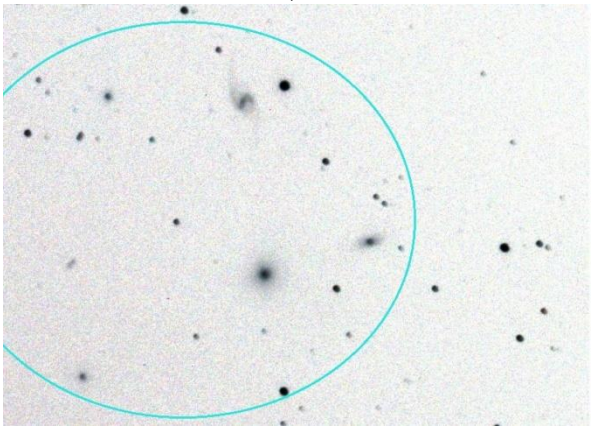


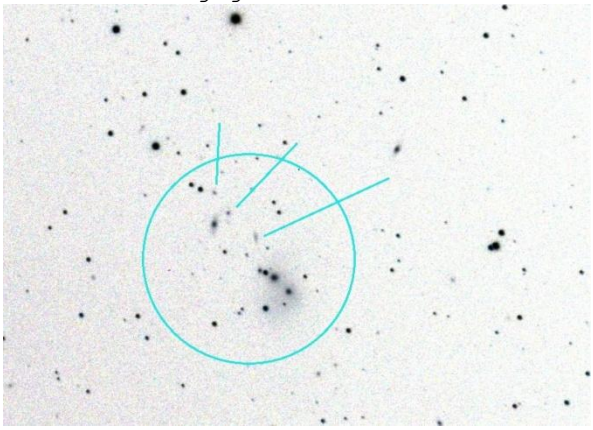


(8" SCT @ f6.3 ASI294MC Pro camera & L-Pro filter, 180 sec subs stacked for 15 min)

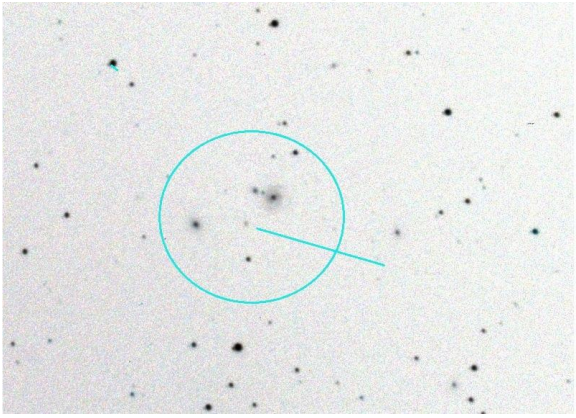
I then moved up in elevation to Pegasus where I spent the rest of the useable evening hunting galaxy clusters. While I was busy doing that, Dean was up in Cassiopeia imaging SH2-157, the "Lobster Claw Nebula".

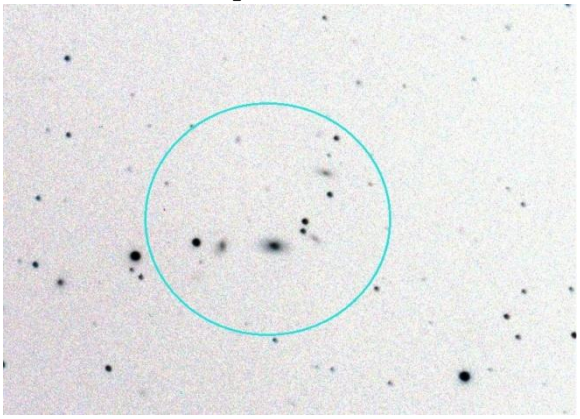
My observations included Hickson 93, 94, 95, 96, and HCG100.
Here's the best: HCG93, and HCG94 with a couple of 18$^{th}$ mag galaxies.





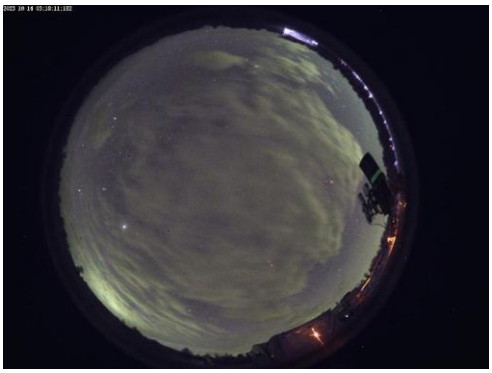
And HCG96 with a +17th mag member, and HCG100, the last entry in the Hickson Catalog.





(8" SCT @ f6.3 ASI294MC Pro camera & L-Pro filter, 180 sec subs stacked for 15 min)

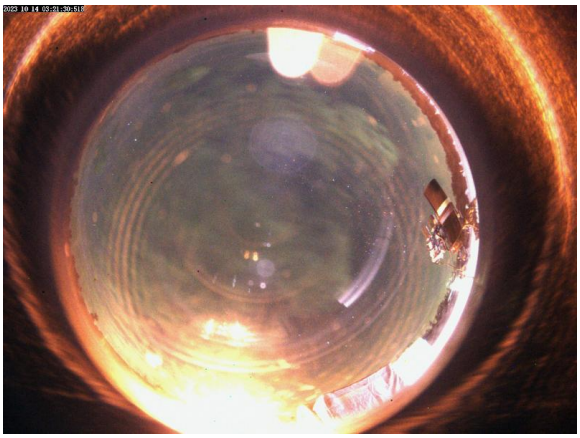
While occasionally dodging thicker bands of clouds, I was able to observe till 11pm, when the sky finally closed.

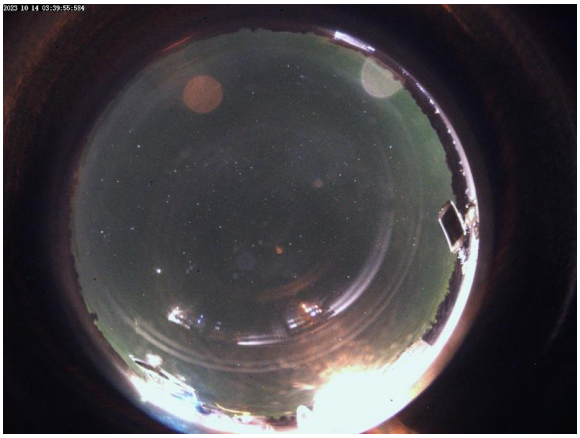


Prior to being completely clouded-out, I got in one last EAA observation of the trip: NCG7000 (and IC5070), the North American and Pelican" nebulas using the EVO50mm.

(EVO50mm @ f4.2 ASI294MC camera, 3 min subs, livestacked for 30 minutes),

Being the only ones onsite at the observatory, both Dean and I decided to turn-on our outdoor camper/car lights and then pack away our telescopes and anything else we could think of. The AllSky recorded the disassembly before I shut it down too.





After finishing, I headed indoors at midnight to read. In bed by 12:30am.

**ORAS Saturday 10/14**

Woke up at 7:00am, but the steady tap of rain on the camper roof put me back to sleep for another hour. After finally rolling out of bed, I began stowing away indoor camper items while having breakfast. At 8:30am, we had a hard downpour. With the cold rain, the outdoor temp never climbed past 46 deg. So glad I put everything away last night!

A little after 9am, I headed down to the activities building to prepare for the 10am solar eclipse presentation. The rain continued non-stop. Had to watch where you stood.

Dean soon joined me down at the activities building and around 9:45am, other club members including Tim, Butch, Dean M, Barb, Miranda, and a few other names that escape me, and the general public began to arrive. We had about 18 folks in attendance that dreary morning for my presentation on solar observing and the upcoming eclipses. The club picked up three new members that morning. Here's a pic from Tim S of the talk.

Afterwards, most everyone headed up to the observatory for a tour, while several of us stayed behind in the activities building where I was able to stream the live NASA annular eclipse coverage on the Big TV. While not the 'live view' we were hoping to have, it was still interesting to watch.


Once the activities were over around 1pm, Dean and I hitched-up our campers and Dean was soon on the road. After about an additional half-hour of verifying that all the buildings was closed & locked, I changed into dry shoes and I was on the road home for the cold & rainy drive back to Pittsburgh. I backed the camper into the driveway at 4:15pm. Unloaded a few things, but left most of the unpacking till the next day under better weather.

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So this will probably be my last trip of the year to the ORAS Observatory.
I was able to get observing in on three out of four nights. (though the rained-out solar eclipse was a bit disappointing). Still it was a much higher success rate than what the weather forecast predicted. Sometimes, you just have to '*go and see*'.

As always, it was a good time being on the ORAS Observatory observing field with a fellow Amateur Astronomer. I hope to have more nights there next year!

Here are my AllSky time-lapse videos from two of the nights at ORAS:
Wednesday – 10/11: https://youtu.be/lmoIwfpBaTs?si=3sZiE1oQknSHazD7
Friday – 10/13: https://youtu.be/tjXtnGRFmeA?si=D91CFb9Anw7PhWJM

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