ORAS Observatory, PA – September (part-II), 2021

Having returned from a quick trip to the ORAS Observatory prior to Labor Day, I had the camper and car loaded and prepped for a quick get-a-way on Monday afternoon.
But first, we had a little family holiday socializing during the day. After several hours of 'ice-cream' with the grandkids, my wife knowingly looked at her watch and suggested we head home. ☺

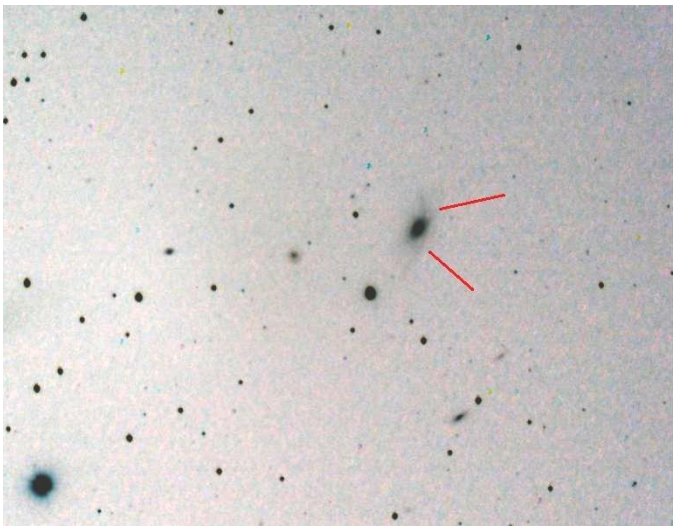
Monday 09/06/2021:
Headed up to the ORAS Observatory late that afternoon. Fortunately, it's only a little over 2.4 hour drive from my house. On the drive up, the daytime clouds began to break-up and by the time I arrived around 7pm at the facility, the sky was clear and a nice shade of blue. The forecast for both clouds and wildfire smoke was minimal overnight. It was going to be a good evening of observing! Dean and his brother Gary were already there and setup over by the power pedestal in the western field. (Dean had come up early and mowed the entire observing field!)

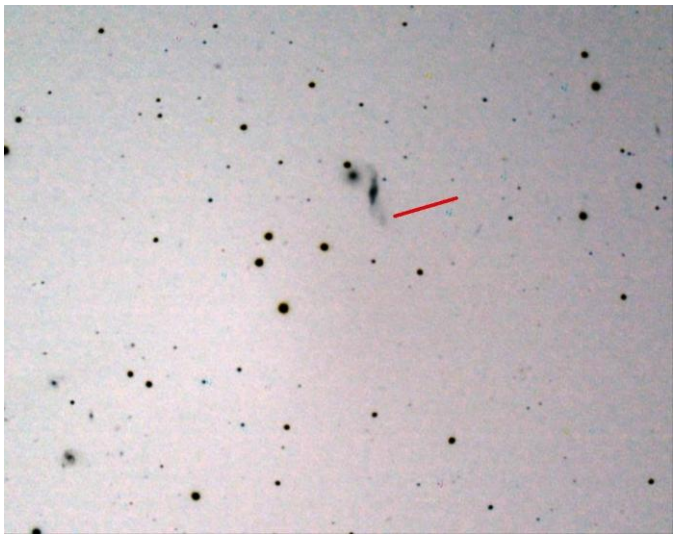
After spending a few minutes saying 'hello' to the guys, I headed over to my usual spot on the eastern side of the observatory building and quickly unhooked the car and organized the camper. I then headed over to the observatory with my imaging equipment and attached everything to the Meade 14" LX200GPS telescope and setup my workstation with laptop and observing notes inside the warm-room.

Just prior to sunset, Alexi arrived and setup over near the southern pedestal. The early evening was spent by all getting their telescopes and cameras aligned and focused.
With the rest of the gang having their telescopes out on the field, I had the observatory to myself. I started the evening off using the 14" @ f6.3 and narrowband L-eNhance filter to capture/observe a few favorites: M8 - the "Lagoon Nebula", and M20 - the "Triffid Nebula". Here's an image of each, 60 second subs for both, 30 minutes for M8, 15 for M20:

Pointing the telescope a little higher in altitude I then began hunting SH2 emission nebula objects over in Scutum. But the gremlins were messing with the new planetarium program that I was trying to use for the first time, and after spending a good chunk of time mastering the software issues, didn't get a single observation in before that section of the sky began to slide behind the western observatory wall. Arghhhh!
I then switched observing plans and filters, replacing the narrowband with the broadband L-Pro filter and got out my Arp atlas of peculiar galaxies. I slewed the telescope across the meridian to the Cetus/Pisces region now climbing upwards and used the observing article in the Oct Sky&Tel on Arp galaxies as my plan. Along the way, I first stopped in on globular cluster M2 in Aquarius. Here's a 5 minutes capture using 15 second subs.

Using that great magazine article as a guide, I then spent the rest of the evening successfully capturing observations of the half-dozen peculiar galaxies using 60 second subs for 15 minutes on each object. Here's the best two:
NGC455 (Arp164) & MCG1351-1352 (Arp121). Negative image with red peculiarity indicator.





During the evening, I walked out into the field to visit with Dean and Gary, bringing them KitKats, the astronomer's favorite snack. (LOL) Dean was imaging the Veil Nebula with his 51mm 'SpaceCat' telescope & DSLR, while Gary was mastering polar alignment on his Meade 10" SCT on a GEM mount. (inside joke, ☺) Alexi was over in his van running his imaging kit from inside. Later, all three of the guys popped into the warm-room to visit and see what I was observing with the 14". The night had become chilly so they also wanted to warm-up!

During the evening, occasional fog would roll down from the woods at the northern edge of the observing field and everything outdoors became very dewy.
I wasn't paying attention to that like I should and only had the 14" dew heater set to low. It soon got behind and the 14" corrector plate became a little misty. Oops!
Had to go fetch my hair-drier out of the camper and blow-dry clear the scope lens. I then cranked the heater controller up to its high setting.

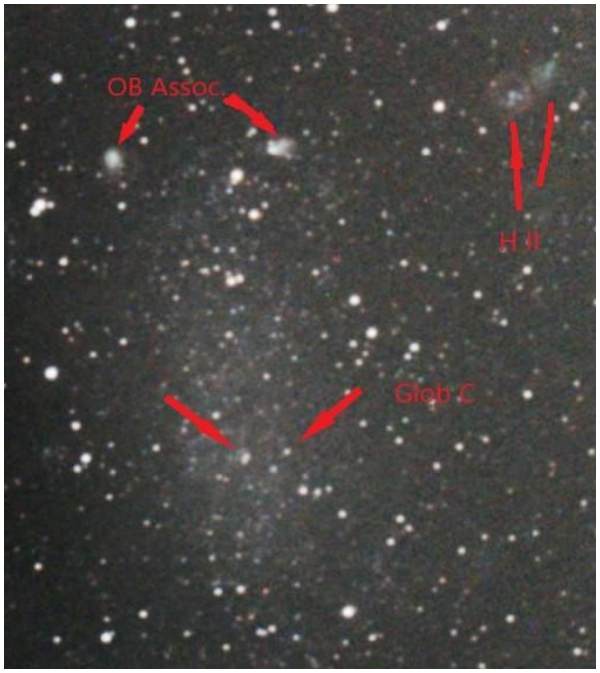
Other than the bit of ground fog, the skies stayed beautifully clear, with excellent Milky-Way contrast. The Great Rift in Cygnus was prominent and you could fallow the smaller MW spur all the way over into Ophiuchus. The naked-eye starclouds of Sagittarius and Scutum looked great!

By 3am, everyone had called it a night and gone to bed, but I was determined to power thru and get the last Arp galaxy from the article observed. Finally, by 5am I was finished, with both the magazine article and my stamina, and shutdown the telescope and closed-up the observatory. Walking back to my camper, I was treated to the soft glow of the Zodiacal Light rising in the east below Gemini. A very good night of observing!

Tuesday 09/07/2021:
Slept in till 10am, but woken-up by the camper growing warm from the sun. Spent the day relaxing, sitting around talking with Dean and Gary. Alexi had packed-up and left for home before I had roused out of bed. Around noon, Dan H and Sharon H arrived and setup camp to the south of me. After visiting a bit, I took a long afternoon nap and afterwards enjoyed a 'happy-hour' adult beverage with the gang. For most of the day, the sky was partly cloudy, with a few thunderclouds coasting to our south. It was a scorcher! Temps in the mid 80's. At sunset, the sky cleared, though there was still a slight hazy look to the sky. The smoke map showed a slight amount overhead, but the satellite showed a front pushing in from the west that hopefully wouldn't arrive until well after midnight.

During the afternoon, Dan ran power and USB cables through the conduit under the observatory concrete floor to the 30” reflector for future use. He also installed inside the warm-room a medium sized TV/monitor donated by Sharon.

Once dark, I opened the observatory roof and powered on the 14” Meade and my cameras. Tonight my plan was to observe Local Group galaxy members so I started off with NGC6822 “Barnards Galaxy” in eastern Sagittarius. The galaxy is partly obscured by the Milky-Way, but still shows good detail including a number of extra-galactic OB Associations, HII regions, and globular clusters visible within the galaxy. Here’s the capture along with a finder chart showing the objects. 60 second subs for 5 minutes using the L-Pro filter.



Out in the field, Dean and Gary were imaging with their scopes and Dan had joined me inside the warm-room to work on an AllSky camera that he was building for the observatory. I had barely finished my first observation and was getting ready to slew the telescope to the next object when Dean and Gary walked in to inform us that the front had arrived early, clouds moving in from the northwest and had already covered half the sky.

Within another 15 minutes the clouds had wiped us out and brought an early end to the nights observing. So Dan and I decided to give Dean and Gary a training lesion on the 30" GOTO Dob using the new instructions that Eric, Denny, and I had put together.

After a few false starts, they got the hang of it and were soon using the Argo-Navis GOTO system to point the 30" to various deep-sky objects thru gaps in the clouds. Been awhile since they had used a telescope visually, which made the training session a good time. ☺ At midnight, the clouds thickened, so we shutdown the 30", closed up the observatory and I headed to bed.

Wednesday 09/08/2021:

Woke to rain drops hitting the camper roof. It was a cool and dearly damp morning. The temps stayed in the mid 60's with occasional showers throughout the day. But, the weather forecast looked promising for later in the evening for observing.
I spent the day reading, then over in the warm-room processing the observations from Monday night. Mid-afternoon the Sun came out and dried off the observing field. Later in the afternoon, I walked down to the activities building where Dan and Dean were doing maintenance on the tractor-mower. While there, we inspected several of the old telescopes being stored there, and discussed plans to bring them back to life. (two 10" Dobs and an old 10" SCT). I pulled out the club's Lunt solar telescope and set it up for solar observing, but a band of dark clouds rolling in cut that short and we headed back up to our campsites. At 4:30pm, the dark clouds opened up with a downpour and the rain lasted for a good 45 minutes. But soon after the clouds cleared off and the Sun was back out.

At 5:30pm, I headed over to Dean's campsite where once again adult-beverages were called for, and we spent the next hour socializing. I then headed back to my camper for dinner and a phone call home. Once the Sun went down, the temp quickly cooled off and fog began to form on the observing field. It soon became thick, reaching past the tree-tops and squelching our hopes for observing.

We all gathered inside the observatory where Dan logged into the internet using the desktop computer and we watched the old 1950's Sci-Fi move "Forbidden Planet" on the big screen. It was a blast, especially with the commentary from the peanut gallery in the back of the room. LOL! On the security cam monitors, we could also watch the fog.

During the movie, it began to rain, so Dean and Gary hurried outside to cover up their telescopes. I went to close the observatory garage door that had been open all day. Then disaster struck!! As the garage door was closing one of the tension cables on the torsion-rod spindle popped-off its track causing the door to go rise back open.

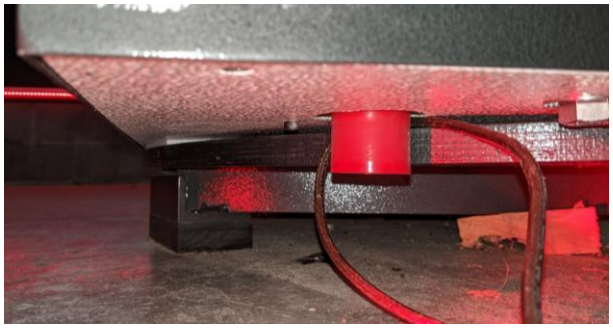
I called Dan over to take a look and after studying it for a minute, hit the button to try and close the door. Half-way down, the other cable came off and with the door bucking and making loud clanging sounds, it hit the bottom of the sill and began to rise again. I raced over and pulled the power cable to the door opener before it got too far up. Once Dean and Gary had returned, wondering what all the noise was about, we pulled the emergency opener release and between the four of us were able to manually close the door. We decided to wait till daylight before attempting any repair job, so we went back to watching the movie to calm our tattered nerves.

Once the movie was done, we closed up the observatory building and as we walked outside discovered that the sky had cleared off.
I grabbed my binoculars and green laser pointer, and we sat around over by Dean and Gary's camp for the next hour where I used the green laser to point out the constellations and the location of suitable deep-sky binocular objects for us to observe. (Andromeda & Triangulum galaxies, Double-Cluster, Alpha-Persei Association, M103, etc)
With the fog and heavy dew starting to soak thru, we called it a night at midnight.

Thursday 09/09/2021:
Woke to a sunny morning, the fog had all burned off! Dan, Gary, and I spent the morning working on fixing the garage door. After several attempts to rewind the cables and adjust the torsion springs, we finally got the door working and the observatory was back in business!

Dean, Dan and Sharon then packed-up and headed home. Gary and I decided to stay a few more nights. Mid-afternoon a blue-sky rain shower soaked the observing field. The weather radar showed nothing. Weird Weather! The forecast for the evening was still looking good, so I visited with Gary for a bit, and then took a late-afternoon nap. At sunset, I headed up to the observatory to prepare the 14" Meade. Gary was there ahead of me processing images on his laptop in the warm-room.

The sky had been sunny for most of the afternoon, but at dusk a scattering of clouds formed over Lake Erie and moved thru the region. We held off on opening the observatory roof, which was a good thing, as one of the clouds gave us a brief shower. While waiting for the clearing line, I gave Gary another training session on the 30". As the roof was still closed due to possible showers, we turned on the white lights to see better and simulated pointing the scope at stars to align the GOTO. At the end of the session, we noticed something was binding the azimuth gear of the telescope. Turned-out that a loop of the USB cable that was coiled underneath the scope had somehow become wedged between the azimuth gear roller and the wooden gear. After several attempts to pull it free, along with a phone call to Dan, we left it to be worked on at a later date and covered the telescope.



With the sky still cloudy, Gary decided to call it an early night as he was planning on leaving for home early the next day. I stuck it out for another hour and eventually the sky began to clear. Around midnight I opened-up the observatory roof and powered on the Meade 14”. My observing plan for the evening was to re-image several of the fainter Local Group galaxy members using the 14” @ f6.3 with the L-Pro broadband filter. I started off with the telescope point due south on the meridian with the Aquarius Dwarf, (which is actually in Capricornus, doing a 60 second exposure for 5 minutes total. Next I moved the telescope further eastward into Cetus and observed the galaxy WLM (Wolf-Lundmark-Melotte) then just beginning to transit the meridian. I then continued over to Andromeda and hunted the elusively faint Andromeda-X dwarf galaxy, which is near M31. Even with a 5 minute total exposure, it was barely there, almost needing a little inverted imagination to see it. Not sure if even the 30” could pull this galaxy in visually.
Here’s WLM and a few of its objects.(A3 – OB association, CG-1 – globular cluster)

Around 3am, as fog started to rise above the observatory walls, knowing that my observing time would soon end, I decided to finish out with a couple of showcase galaxies. I slewed the telescope downwards a little to the glowing spindle of NGC891. Spent 20 minutes there video observing the dark lane that bisects the galaxy, and then pointed the telescope straight up to M33 – the Triangulum Galaxy riding high overhead above the fog, admiring its two spiral arms and HII regions. After observing M33 for 10 minutes, I called it a night and closed-up the observatory. The walk back to my camper was a pea-souper. Could barely see ten feet ahead of me.

Friday 09/10/2021:

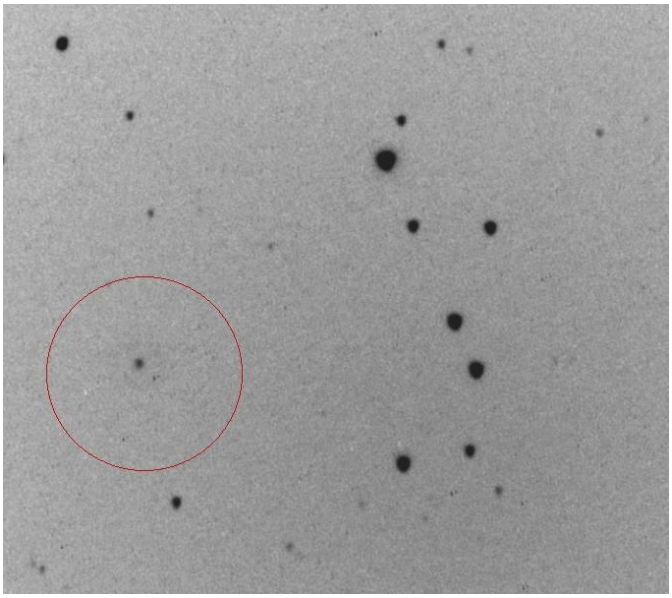
Woke to a cool, sunny morning, temps in the mid 50's. It felt nice. Gary had already packed-up his equipment and camper and headed home by the time I was up.
Drove to the spring to refill my water jug for the camper. Worked on processing images and practiced an upcoming talk on the "Local Group". Around 2pm, dark clouds rolled over the field bringing a hard downpour that lasted a good 20 minutes. But, within an hour, the Sun was back out and drying off the field. The forecast for tonight was looking really good, along with little wildfire smoke. It was going to be good observing!

Ray L arrived in the afternoon and setup his telescope to the north of the observatory. After greeting Ray, I headed inside my camper for a long nap.

At sunset, the sky was a clear deep blue, no hint of smoke! I opened up the observatory roof and prepared my notes and powered up the 14" and cameras. While waiting for darkness, the Crescent Moon and Venus put on a nice display to the SW. Here's a pic.

Once the 1st magnitude stars began to shine, I pointed the 14" to Arcturus and focused the camera.

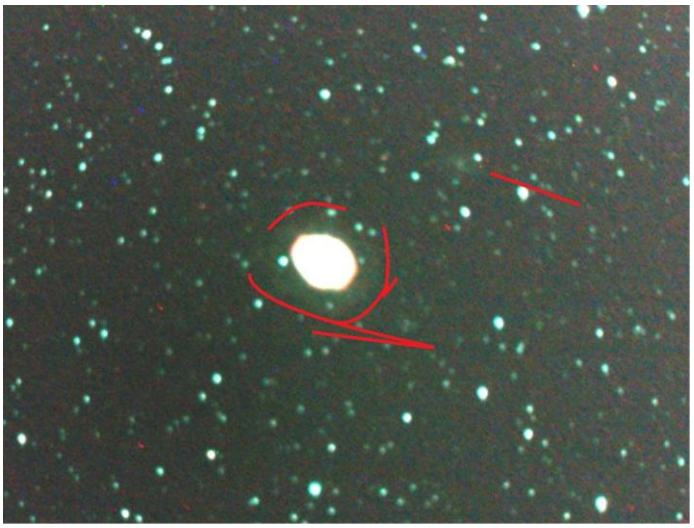
My first object for the night was a peculiar galaxy that I've wanted to observe for some time. "Hoag's Galaxy" as described in the May 2020 Sky&Tel is a ring galaxy located in Serpens Caput roughly on a line from Arcturus to Alpphecca in Corona Borealis. I've tried for the little dim galaxy from my backyard using my 8" SCT, but was looking to using a bigger glass on it. I slewed the 14" SCT over to the galaxy's position and waited for the western sky to further darken. But I soon realized that if I waited too long, the galaxy will have set behind the western observatory wall, so I hurried to grab an observation while I still could. Between the low elevation, still bright sky, and the Moon, the resulting observing was less than satisfying. Guess I'll have to hold on to that article for another year, lol. Here's the best that I could do: (60 seconds for 5 minutes)



I then switched filters to use the L-eNhance narrowband and began working on my SH2 catalog of HII nebula over in the Sagittarius to Aquila region in the central Milky-Way. Seems like I spent most of the time running up against that western observatory wall, having to hussle from one object to the next. But I did manage to observe a number of SH2's on my list. Here's the best, IC1274/75 (SH2-32 & 33) and NGC6559 (SH2-29) (all 60 second subs for around 10 minutes total).

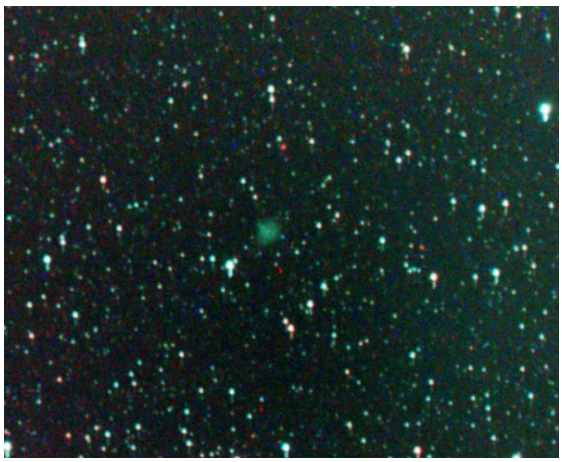
While capturing the SH2's I used the Canon 25-100mm zoom lens and ASI290MC camera to capture a wide-field Milky-Way image, near M8. (starclouds, dark nebula, and HII) (60 second subs for a total of 5 minutes)

Around 1am, I decided to restart an old observing project that's been sitting on the shelf dormant for the last couple of years. I've not observed an Abell planetary nebula since November of 2018 using my old StellaCam3 analog video camera. Tonight I was going to make the switch over to my new ZWO ASI294MC camera and continue with the project. I'm only about a quarter of the way thru the 82 extremely faint Abell catalog objects so tonight I wanted to add a few more to the list of observed. Even using the 14" Meade SCT, these were going to be difficult observations. I decided to 'warm-up' by making an observation of two favorite bright planetaries, M57 – "the Ring", and M27 – "the Dumbbell". Here's a couple of images where I deliberately over-exposed in an effort to bring out their fainter seldom observed outer shells. (60 Seconds for 10 minutes).



There's also the little galaxy close-by to M57, IC1296.

I started off hunting Abell's in Vulpecula the 'Fox', now well past the meridian in the western sky. I added several new objects with the best being Abell-57. (60 sec for 9 min)

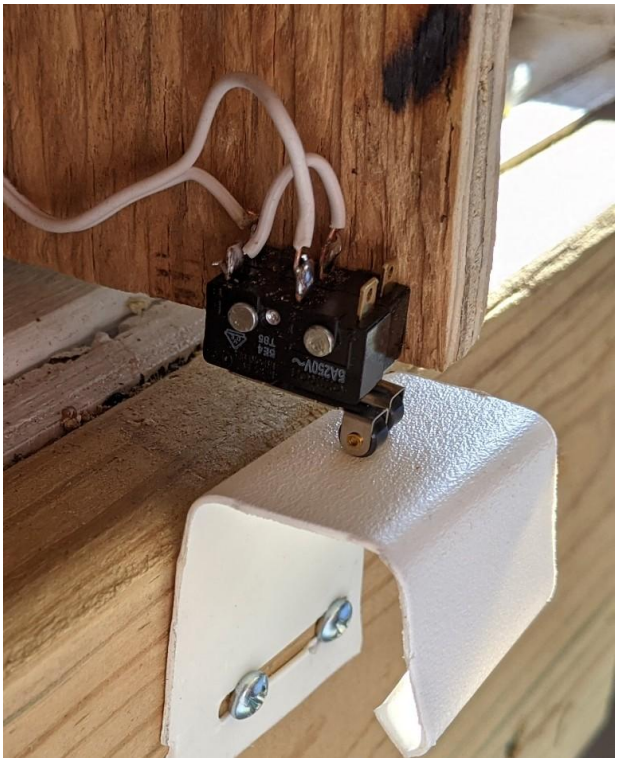


During the evening, the sky stayed clear overhead, but an occasional mist would form around the observing field and began to obscure the lower sky altitudes along the southern horizon. The Milky-Way was quite nice, running in the northeast from Perseus thru Cassiopeia, overhead thru Cygnus where the Great Rift divided the main stream, and you could follow both paths down to the southwest to Sagittarius, with the smaller spur into Ophiuchus. Nearly as excellent as Monday night's skies!!!
Finally with the time well past 3am, I finished-off the evening by making my last observation of M1 – thee "Crab Nebula" in Taurus.

The 14" SCT showed good detail in the various tendrils of the supernova remnant. Here's the pic, 60 second subs for 30 minutes. I then powered down the telescope and closed up the building at 4am.

Saturday 09/11/2021:
Slept in late, till 10am!! Ray had already pulled out and was travelling up to Cherry Springs for the rest of the weekend, leaving the ORAS facility to myself. After breakfast, I walked down to the activities building and setup the club's 70mm Lunt solar telescope for a little solar observing. There were several nice active regions with sunspots and Ha features visible. Also a large limb prominence was visible.

Early afternoon, Dan H and Dr Richard Lloyd from Edinboro U arrived and we gave Rich a tour of the facilities, showing him the telescopes and how the roof opened. Rich expressed interest in using the ORAS Observatory facility for his astronomy field-class. The three of us then worked on the stuck USB cable in the 30” gears and was able to free the cable without having to cut it. Afterwards, Dan installed a micro-switch on the garage door to prevent it from accidently closing while the roof is open.



With Dan finished working on the maintenance items, he and Rich left for home, again leaving the observatory to myself. I was somewhat surprised that no other member came up over the weekend to use the observing field. Took the quiet time for another afternoon nap! Yea Naps! LOL At sunset, the sky was mostly clear of clouds, but there was a washed-out hazy look to it from upper level smoke moving in.

I opened up the observatory and powered on the 14”. It was still early, so I killed some time by observing Luna’s crescent phase over in the southwestern sky. I then moved over to Saturn and Jupiter in the southeast. Visually, all of the solar system objects had an orange ‘smoke’ filter look to them.

Here’s a single snapshot of the Crescent Moon, and stacked images of several hundred AVI subframes for the planets, all in the millisecond exposure range.

Once it was dark, it became apparent that the overhead smoke made it impossible to do any of my deep-sky observing plans, as you could barely see any stars! I did get in a few observations of bright star clusters including open clusters M11 in Scutum and M29 in Cygnus, along with globular cluster M71 in Sagitta.

Chatted with Dan H for a bit on the phone, helping him to test the internet connection from the ORAS observatory to his backyard observatory at his house.
At 10pm with no hope of the smoke letting up, (the smoke map showed us in the middle of a thick swatch), I thru in the towel and shutdown the 14" and packed-away my camera equipment and observing notes to help get an early start on tomorrows trip home.
Closed out the observatory and headed back to my camper to read. Early to bed night!

Sunday 09/12/2021:
Up by 8am to finish packing my camping gear. After breakfast, I hooked up the car to the camper and by 10am I was on the road home. Overall, not a bad observing run. Two very good nights with several usable evenings! And a good time with fellow astronomers.

I hope to be back to the ORAS Observatory in November!

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