

Tuesday, April 11, 2023

Mike Roos arrived at my home about 2 PM. I put my items in his car and we took off for 3RF for a weekend of observing. I was also going to support their Saturday night public star party event.

We had dinner in Lamar and stayed at the Cobblestone Inn in Springfield, CO.

Wednesday, April 12, 2023

We arrived at 3RF about 3 PM local time. I did a quick checkout of the 20" with my Sky Commander and it all looked good for that night.

I used the Star Clock from Astronomy Before the Telescope to tell the local time at night. By aligning the pattern on the face of the clock with the stars in the sky, I saw the time was almost 7:45 PM on the Star Clock. The actual time was 7:50 PM CST. I was amazed at just how close this little device nailed the actual time.

Clear at sunset and the veracious wind we experienced all day quickly disappearing to no wind. Will use #749, the 20" f/5 telescope.

I immediately noticed some slippage in the azimuth (az) direction of the Sky Commander's display. Will keep track of this and realign when necessary.

Seeing and transparency good.

IC 4278 10:48 PM 13 mm – An extremely faint, small glow. w/AV, see it pop into view once in a while. In the 30" f/4.5 with 31mm eyepiece, see if forms a triangle with M51 and companion on bridge side.

That was it for the Sky Commander and the 20" this night. When we slewed the telescope to the next target, the az display froze for several degrees. This made it impossible to continue using the 20".

Gary Carter and Ed Flashpoler were using the 30". We thought they had DSCs enabled but they were just star hopping with just the Telrad Finder scopes (they had 2 on the 30", one on the mirror box and one on the secondary cage).

They were looking at M51 with a 31 mm eyepiece. It looked nice.

NGC 5198 10:59 PM 31mm – A small, very dim, round glow with hare brighter core.

NGC 5173 A faint round glow. Very small. Uniformly lit.

NGC 5169 A very faint, linear glow. Very small. Uniformly lit.

M101 HII 12:14 AM 31mm – Saw 3 of M101's HII Regions on the one side (N5451, N5449, N5447-50) and two on the other (N5462, N5461) nicely.

NGC 5473 12:29 AM 31mm – A small, bright oval with brighter, tiny core.

NGC 5485 Brighter oval. Above and to left of N5473. Linear shaped. Uniformly lit.

NGC 5484 To right of N5473. Extremely faint. Mag 15.7.

PGC 50395 12:37 AM Tiny in size.
31mm - Extremely faint. Tiny, uniformly lit glow. Below and to left and away from above 3.

Went back top 20" and used Telrad to see Omega Cen. Nice. Fills FOV of 13mm. Got first look of the season of M13 and M57. Tried to find Barnard's Star to sketch it. Mike Roos said earlier in the evening to put my finder scope on the 20". Should have listened to him because that would have helped me find that star.

It was a beautiful night not to have the DSCs working and not being able to star hop to targets. Need to be able to star hop to targets in the field.

Thursday, April 13, 2023

Right after breakfast, I went down to the roll-off to diagnose the problem with the 20" scope. I wanted to find the root cause of the azimuth slippage.

I first suspected the cable to be bad, so I used my new cable with the Sky Commander connected, turned in on and moved the telescope in az and altitude (alt) while watching the Sky Commander's display. The slippage still occurred in the azimuth axis.

With the telescope off the rocket box, I then looked at the set screw and how the az encoder was attached. There is a rubber ring inside the hole in the top of the bolt that the encoder shaft fits snugly into. The set screw just makes this rubber ring more snug. I felt that this was sufficient to hold the encoder shaft still. This was not the issue.

I was spinning the rocket box left and right and noticed the azimuth bolt that is thru the rocket box and into the ground board moved with the turning. That is not supposed to happen. That bolt is to be stationary with the ground board and the rocket box spins with the encoder attached to it to make the DSC work in the azimuth directions.

Further inspection revealed that the ground had unspun itself from the bolt over time and only one thread of the bolt was engaged in the ground board nut. Why the base didn't fall off I am not sure. I did fix this issue a few years ago by using blue locktite to secure that bolt. But that was all gone. I could easily spin the bolt with my fingers.

When I screwed the ground board onto the bolt, I noticed the end of the bolt was still an eighth of an inch from the end of the securing nut on the bottom of the ground board. I remember it was flush with the bottom of the bolt when I secured this bolt years before.

Then Gary Carter mentioned someone redid the ground board. That explains the symptoms we saw nicely. His new ground board was an eighth of an inch thicker. I suspect the original ground board was half an inch thick and this new one was five-eighths of an inch thick. Hence why the bolt was an eighth of an inch from the end of the nut as I remembered it from before. And the blue locktite was gone.

I added new blue locktite to the bolt and screwed the ground board onto the bolt. There are now enough threads caught by the nut for the locktite to hold and be effective. There is not a lot of force on this bolt, it just needs to remain fixed and not move at all when the telescope moves in azimuth.

The reason we found the first object last night was that when we slewed from the first alignment star, Polaris, to Procyon, the system counted all the pulses. This was in a CCW direction in azimuth. Then when we slewed to IC 4278, we turned the scope CW in azimuth. This was trying to tighten the bolt onto the ground board and that friction worked to hold the bolt and all the pulses were counted. The next target we went to, the az moved CCW and the bolt loosened from the nut and spun, thus the Sky Commander display froze on the az reading for several degrees.

Friday, April 14, 2023

Clear and calm at sunset. Venus and Mercury are nice in the telescope. Venus is just beyond first quarter phase and Mercury is round.

Using the 20" with fixed azimuth bolt. I leveled the telescope hoping to improve pointing accuracy. Post observing note: The SC worked beautifully. The slippage in azimuth was not seen. With the scope being level, the objects were in the eyepiece with a zero Sky Commander Altitude/Azimuth display reading or one axis off by .1 degrees while the other was spot on with a 0.0 degrees.

Mike Roos and I are alternating our objects from our lists.

Seeing and Transparency good.

NGC 2588	9:20 PM	13mm – 15+ stars in a tiny group. Very dim. Maybe has a few dimmer stars also.
NGC 2566 IC 2311 PGC 23291	9:29 PM	13mm – A <u>very faint</u> , uniformly lit oval. A small, very faint circular glow with a hare brighter core. An <u>extremely faint</u> , very tiny hint of a glow.
CR 196	9:40 PM	13mm – 4 brighter stars in an arc. 3 spaced equidistant and fourth a bit away from those 3 to right.
CR 198		A larger, loose OC with 3 brighter stars and a few much fainter stars. Very dim.
NGC 2717	9:52 PM	13mm – A small, thin sliver glow. Has tiny star below center and a hint of a core just above this star.
NGC 2904	10:02 PM	13mm – A small, round dim halo with brighter core.
NGC 4963	10:20 PM	13mm – A very small, very dim, round halo glow with bit brighter stellar core.

Seeing and Transparency good.

NGC 5004	10:32 PM	13mm – A small, thin tilted oval. Very faint with tiny stellar core.
UGC 8259 PGC 45742		To left is a tiny glow with a brighter star on it. Near N5004. To right and a bit away from N5004. An <u>extremely faint</u> hint of a small, long oval, uniformly lit glow.

NGC 5352	10:48 PM	13mm – A small, tilted, dim oval with larger, brighter core area.
NGC 5354		Near, to left and above N5353 is a <u>very faint</u> oval with a core.
NGC 5350		Near, to left and above N5354 is a small, very faint, uniformly lit oval.
NGC 5355		Above and to right of N5350 is a tiny circular glow.
NGC 5358		Above N5355 and to left and away is a tiny, circular, extremely faint, uniformly lit glow.

Clouds took over the sky for a short while. It cleared up again nicely. Seeing and Transparency good again.

NGC 5127	11:34 PM	13mm – A small, tilted lens shape with large, bright linear core area. Center of the core is the brightest part and dims into the halo.
NGC 5290	11:41 PM	13mm – A small, very faint, thin edge-on with large, hare brighter core area.
NGC 5289		A thin tilted oval. Small. Very faint with bright stellar core.
NGC 5371	11:47 PM	13mm – A medium sized, round faint halo glow with brighter, small core. Maybe a hint a CCW arm on bottom side.
NGC 5223	11:57 PM	13mm – A small, <u>very faint</u> roundish glow with hare brighter core. Just above a brighter field star.
NGC 5228		Above and has a field start between it and N5223 is an extremely faint, fat, uniformly lit oval glow.
NGC 5633	12:00 AM	13mm – A small, dim, fat oval with hint of a hare brighter complex core.
NGC 5240	12:03 AM	13mm – A small fat oval. <u>Very faint</u> , uniformly lit glow.
NGC 5243	12:06 AM	13mm – A very small, <u>very faint</u> , thin, 3:1 uniformly lit oval.
IC 1029 NGC 5673	12:11 AM	13mm – A nice, small edge-on. 3:1 long with bright core. Above is a very small edge-on that is very faint. Has a star on lower part of halo and a tiny, very faint core just above this star.
NGC 6173	12:17 AM	13mm – A small, <u>very faint</u> , 2:1 fat oval. Uniformly lit with maybe a hint of a hare brighter core.

Waves of thin clouds passing from west to east. Cooler breeze from SW.

Seeing Trans Good.

NGC 5094	12:33 AM	13mm – A very small, very faint round glow with brighter core area.
PGC 46565		To left of N5094 and very near is an <u>extremely faint</u> , tiny glow.
NGC 3528	12:41 AM	13mm – A very small, <u>very faint</u> tilted oval glow with hare brighter core.
NGC 3529		Above and to right of N3528 is a tiny, roundish, uniformly lit, <u>extremely faint</u> glow.
NGC 3865	12:49 AM	13mm – A medium sized, very faint lens shape with brighter core.
NGC 3858		Above N3865 and near is this very small, extremely faint roundish, uniformly lit glow.
NGC 5136	12:53 AM	13mm – A very small, extremely faint, 2:1 oval with hare brighter core area.
NGC 5129	12:56 AM	13mm – A small oval, dim with brighter core area.

Seeing and Transparency Good.

NGC 5185	1:02 AM	13mm – A 3:1 extremely faint, linear, uniformly lit glow.
NGC 5181		Then near N5185 and to left is an <u>extremely faint</u> , very small roundish glow with hare brighter core area.
NGC 3981	1:08 AM	13mm – A small, fat, 3:1 dim oval that is uniformly lit.
PGC 37562		To right of N3981 is a very small, <u>very faint</u> round glow with brighter core.
NGC 5709	1:44 AM	17mm, 30” – A tiny edge-on sliver of light going from 1-7 o’clock. <u>Extremely faint</u> .
NGC 5706		To left and very near (almost touching) N5709 is a very tiny, <u>extremely faint</u> stellar glow. Both hard to see but can see both’s <u>extremely faint</u> cores next to each other, side by side.
NGC 2939	2:07 AM	13mm – A small, fat oval that is very faint and uniformly lit.
NGC 2940		Below N2939 and to left is a <u>very small</u> , roundish, <u>extremely faint</u> glow.

NGC 5718 2:13 AM 13mm – A 3:1 fat oval. Has a larger, bit brighter core area with center having a tiny, bit brighter stellar core.
 IC 1042 To left and near N5718 is this very small, roundish, very faint glow with bright core.

NGC 3455 2:29 AM 13mm – An almost circular, small, very faint glow with bright, stellar core.
 NGC 3454 To right and near N3455 is this very small, roundish, uniformly lit glow with brighter star on left hand side of halo glow.

Seeing and Transparency good. Wind cooler and now from West.

NGC 4731 2:48 AM 13mm – A larger, very faint fat uniformly lit oval.
 NGC 4731A Near N4731, above and to left is an extremely faint, fat oval that is a barely there smudge of light.

NGC 5599 2:58 AM 13mm – A very small, 2:1 linear, extremely faint, uniformly lit glow.

NGC 5865 3:01 AM 13mm – A very small, extremely faint roundish uniformly lit glow.
 NGC 5869 To left of N5865 is a very small, tilted oval with a very faint halo and a brighter, linear core.

NGC 3682 3:20 AM 17mm – A faint, small, tilted oval with brighter core.

Seeing and Transparency OK. That is why we lowered the power with the 17mm eyepiece.

NGC 3735 3:23 AM 17mm – A dim edge-on, 6:1 long. Has a central bulge and a tiny, extremely faint star core.

NGC 5025 3:26 AM 17mm – A very small, very faint, thin, 3:1 long edge-on with central bulge. Has a field star on lower arm halfway to end from center.

NGC 5074 3:29 AM 17mm – A very small, extremely faint roundish glow. Has a speck of a star on lower edge of a uniformly lit halo glow.

NGC 5093 3:34 AM 17mm – A very small, very faint tilted oval with a speckled linear core in center.

Seeing and Transparency Good. 17mm eyepiece is in the 20" scope.

NGC 4985	3:39 AM	17mm – A <u>very small</u> , <u>extremely faint</u> oval glow. Has bit brighter area off center. Possibly a field star.
NGC 5009	3:43 AM	17mm – A very small, <u>extremely faint</u> fat, uniformly lit oval.
NGC 5057	3:45 AM	17mm – A very small, <u>extremely faint</u> , uniformly lit, tilted oval.
NGC 5065	3:48 AM	17mm – A very small, uniformly lit, extremely faint tilted oval.
PGC 46284		Below, to right and near N5065 is a <u>very small</u> oval glow with a hare brighter core.

Brisk wind from West.

NGC 5089	3:52 AM	17mm – A very small, <u>very faint</u> tilted oval with hint of a complex core.
NGC 5154	4:02 AM	17mm – A very small, <u>very faint</u> tilted oval with larger, hare brighter core area.
NGC 5149		Below N5154, to right and near is a bit smaller (than N5154) that is extremely faint, uniformly lit oval glow.

The wind is starting to get stronger, blowing from the North. I was able to find and sketch Barnard's Star. Mike had to hold the end of the scope so the wind would not blow it lower while I sketched the star field.

It's 4:30 AM and the wind is blowing strong from the North. The scope is bouncing so much I cannot study the galaxies in the FOV.

It was a great night. Put the 30" away also and closed the roll-off roof.

Saturday, April 15, 2023

The night of the public star party. We have 3 families visiting that stayed in cabins. We have about 20 guests that night.

I took a look at M51 in the 30" and the view was outstanding. The spiral arms were bright and obvious.

Mike used the 20" until 2:30 AM, looking at the objects on his list. He was very happy. I went to bed so I could drive the next morning while Mike relaxed.

Sunday, April 16, 2023

We left 3RF about 9:14 AM CDT and reached my home about 8:20 PM MDT. We stopped for breakfast at the McDonalds in Childress, TX, lunch at Wendy's in Dalhart, TX and dinner at K-Bobs in Raton, NM. It was a nice drive sharing the driving with Mike.