

Wednesday, January 25, 2017

Bruce Heath and I arrived at 3RF in Texas about noon on Wednesday January 25, 2007 for 4 nights of observing.

We got the 20" scopes setup and I used scope #749. Put my finder scope bracket onto the scope.

We tried to clean the mirror and we left a soap film on it. We got it off with clean water and cotton balls just repeatedly scrubbing the mirror. Bruce got a piece of sand between his cotton ball and the mirror and scratched 3 oval marks in the coating. But this didn't affect the performance at all. It was very shiny.

6:09 PM. Sunset. 45 degrees. Very little breeze from NW. Collimated scope.

Venus was awesome. Large, 1st quarter phase. Aligned my finder scope and Telrad on it.

6:51 PM. 41 degrees. Getting darker. Mars small round red featureless disc. Polaris nice. Not as crisp as I would like it.

7:05 PM. Polaris very nice now. 41 degrees.

30" f/5 21mm eyepiece yields 181x

20" f/5 17mm eyepiece yields 149x

20" f/5 13mm eyepiece yields 195x

Using the 20" f/5 #749 scope.

Seeing and Transparency Good. Stars are very steady.

NGC 1337	7:22 PM	13mm – A medium sized, long, thin edge on. Dim. Pretty uniformly lit.
NGC 1179	7:28 PM	13mm – A small, extremely faint, roundish glow with larger, hare brighter core.
NGC 1359 NGC 1352	7:31 PM	13mm – A small, extremely faint round glow. Seems to be textured. Then to right and near a dim field star is N1352, a smaller oval dim glow that has a larger bright core.
IC 1953	7:37 PM	13mm – A dim, large, fat oval glow. Seems to be brighter over large area of lower left part and textured. Goes from 1 – 7 o'clock. Below a very bright field star. Need to put this star out of the FOV to get a good look at this.

NGC 1482 7:41 PM 13mm – A small dim oval. Has large bright core and uniformly lit halo around it.

NGC 1521 7:44 PM 13mm – A small bright circular shape. Core is large and bright and very faint halo around it.

Seeing and Transparency very good.

NGC 1518 7:45 PM 13mm – 1 FOV to left of N1521 is this large, fat cigar shaped, dim glow. 5:1. Has something in core that is extremely faint and not uniformly lit.

NGC 1640 7:49 PM 13mm – A small dim tilted oval with small, brighter core.

IC 347 7:51 PM 13mm – A small, thin oval. Longer. Vertical in FOV. Has bright stellar core and extremely faint halo a bit above and below that is seen with AV.

NGC 1606 7:55 PM 13mm – A small, thin, dim oval with larger, brighter core. Above and bit to right and near is N1603, a very small, round very faint glow with stellar core popping in once in a while.

NGC 1603

NGC 1622 7:58 PM 13mm – A very small, very faint roundish glow with tiny hare brighter core. Above and near is N1625, a very small, very faint oval with tiny hare brighter core. Field star is in between these two.

NGC 1625

NGC 1699 8:02 PM 13mm – To right and above and near a brighter field star is this very small, very faint oval that is uniformly lit. Above star and to left is NGC 1700, a brighter oval glow that has tiny bit of halo around it.

NGC 1700

NGC 1667 8:05 PM 13mm – A small oval. Has small brighter core and very faint halo around it. Dim overall.

NGC 1726 8:07 PM
NGC 1720

13mm – A small, thin dim glow. Along core see an extremely faint tiny linear glow. To right and below a field star is N1720, a very small dim oval to circular glow. Bright core and tiny very faint halo around it. Bright field star below the two and in between.

NGC 1723 8:12 PM
NGC 1721
NGC 1725
NGC 1728

13mm – N1721, N1725 and N1728 are together in an arc, are round, small dim glows with stellar, brighter cores. The to right and below is N1723, a very small, very faint oval glow with tiny hare brighter core.

1726 1728
1721

NGC 1375 8:26 PM
NGC 1374
NGC 1373

13mm – A very small, dim oval with tiny hare brighter core. Below and very near is N1374, a small, dim oval with small, brighter core. Below and to left and a bit away is N1373, a tiny very faint oval with stellar core.

1375
1374

1373

NGC 1404 8:29 PM

13mm – A small round glow. Dim. Has larger, brighter core that dims slowly to edge. Below and near and to left of a brighter field star.

NGC 1427 8:34 PM
NGC 1427A
NGC 1399

13mm – This is way cool!!! N1427 is a small, dim, round uniformly lit glow. Below it, on bottom halo glow at 5:30 is this tiny round glow of N1427A, uniformly lit. Looks like a double star. N1399 is above these two and near and is a small, round, uniformly lit dim glow.

1399
1427 1427A

NGC 2319 8:40 PM

13mm – A long chain of 12 blue white stars approx. the same magnitude. 1 FOV long.

NGC 2252 8:42 PM

13mm – 25 blue white stars form a thin comma on its side. All stars approx. same magnitude. 1 FOV long.

NGC 2254 8:46 PM 13mm – 23 dim blue white stars outline a chevron. Fills center of FOV.

Seeing and Transparency very good. 33 degrees.

NGC 2259 8:47 PM 13mm – A dim small knot of stars of 3 magnitudes. Glow underneath. Forms a helmet shape.

NGC 2261 8:50 PM 13mm – A star to the left and this nebula glow fans out to right. Dim. Uniformly lit.



NGC 2316 8:52 PM 13mm – A small, dim oval glow. Has 2 stars on glow.

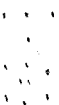
NGC 2346 8:54 PM 13mm – A PN. Small. Pale white circular glow with larger central star in center.

NGC 2349 9:00 PM 17mm – 10 bright blue white stars of 2 magnitudes form an open, boxy cluster. Small.

NGC 2413 9:03 PM 17mm – 25-30 dim stars of 4 magnitudes form a loose, ½ FOV long, kidney bean shape with brighter field star to left of it.



NGC 2425 9:09 PM 13mm – 12 dim stars of approx. same magnitude make up a T with a ball below. 4 stars above small ball, rest in ball.



NGC 2428 9:12 PM 13mm – 25 or so stars of approx. same magnitude make up this loose, large, ¾ FOV long oval.

NGC 2430 9:12 PM 13mm – Below 2428 and on other side of a field star are these 4 stars that form an arc, 3 dimmer and 1 brighter.

NGC 2358 9:19 PM 13mm – A long thin small diamond shape of 8 stars of approx. same magnitude.

NGC 2352 9:21 PM 13mm – 10-15 dim stars outline a U shape. Small.

NGC 2678 9:26 PM 13mm – Small. A brighter pale red star and 5 dimmer blue white stars in this open cluster in a star poor part of the sky.



Seeing and Transparency OK. 28 degrees.

NGC 2618 9:30 PM 13mm – A very small, very faint roundish glow with tiny hare brighter core.

Sky Commander's battery just died. Display was getting fainter and fainter and I thought the LCD was getting cold. Bruce's new 9V battery works.

NGC 2650 10:14 PM 13mm – A very small, dim thin oval. Has larger, brighter core. Easy to see.

NGC 2810 10:16 PM 13mm – A very small fat oval to circular glow. Very faint. Has tiny brighter core.

NGC 2963 10:19 PM 13mm – A very faint, small thin oval. Has tiny hare brighter core. To right is N2957B, a very small, very faint oval smudge of light with tiny, barely there core.

NGC 3027 10:22 PM 13mm – A small fat oval. Dim. Has small, brighter core. To right is NGC 2985, a very small oval. Dim. With larger, brighter core. Top is N3065, a very small, very faint thin, uniformly lit sliver of light.

NGC 3063 10:26 PM 13mm – 4 stars, 3 same dim and 1 bit brighter form an arc.

NGC 2977 10:30 PM 13mm – A small fat over, dim, uniformly lit.

NGC 3061 10:31 PM 13mm – A very faint fat oval. Uniformly lit.

NGC 2938 10:34 PM 13mm – A very small, extremely faint oval, uniformly lit glow.

NGC 2908 10:37 PM 13mm – A very small, very faint oval, uniformly lit glow.

NGC 3057 10:39 PM 13mm – An extremely faint, larger, fat oval, uniformly lit.

NGC 3210 10:41 PM 13mm – A very faint, small oval with linear, hare brighter core. To right is an extremely faint round uniformly lit glow of N3212. To right and above a field star of approx. same magnitude is this stellar core of N3215.

NGC 3197 10:43 PM 13mm – An extremely faint fat oval with tiny, very faint stellar core popping in once in a while.

NGC 3329 10:47 PM 13mm – A small, dim tilted oval with larger brighter core.

Seeing and Transparency Good.

NGC 3523 10:51 PM 13mm – A small, very faint, uniformly lit glow. To right and near is
NGC 3500 3500 N3500, a smaller, very faint, uniformly lit roundish glow. To right and
NGC 3465 • below is N3465, a very small, roundish, very faint, uniformly lit glow.

• 3465

NGC 3144 10:54 PM 13mm – To lower right of a field star and almost touching is this very small, thin, linear, uniformly lit glow. Bit fatter on lower left end. Goes 7-1 o'clock.

NGC 3183 10:56 PM 13mm – A medium sized, very faint tilted oval. Seems to have a hare brighter larger core that dims slowly to edge. Could tell it was not uniformly lit.

NGC 3252 10:58 PM 13mm – To lower left of 2 bright double stars is this small, thin, 3:1 linear glow. Uniformly lit. Very faint yet easy to see.

NGC 3343 11:05 PM 13mm – A very small, very faint oval, uniformly lit glow. Has extremely faint star on upper end of glow and not in center.

NGC 3403 11:08 PM 13mm – A small, very faint, thin tilted oval, 4:1. Has tiny stellar core popping in once in a while.




NGC 3348 11:10 PM 13mm – A small fat oval, uniformly lit, very faint.

NGC 3364 11:11 PM 13mm – A very small, very faint roundish, uniformly lit glow.

NGC 3266 11:15 PM 13mm – A small, very faint round glow with small, brighter core.

Seeing and Transparency Good. 34 degrees. Light breeze from NW.

NGC 3394 11:17 PM 13mm – A small, fat, very faint uniformly lit oval. Above and near is
NGC 3392 3392 N3392, a very small, round, very faint, uniformly lit glow.

NGC 3654	11:19 PM	13mm – A small oval, uniformly lit, very faint glow.
NGC 3613	11:23 PM	13mm – A small, fat, uniformly lit oval. To upper left is N3619, a <u>very faint</u> , round, uniformly lit glow. To right is N3610, a small, bright, tilted oval.
NGC 3619	 3619	
NGC 3610	 3610	
NGC 3562	11:24 PM	13mm – A small oval, dim, with brighter, larger core.
NGC 3652	11:25 PM	13mm – A small tilted oval, dim, with brighter, larger core. To upper left is N3658, an <u>extremely faint</u> , <u>very small</u> round smudge of light.
NGC 3658		
NGC 3752	11:29 PM	13mm – A small, <u>very faint</u> , uniformly lit tilted oval.
NGC 3747	11:33 PM	13mm – A very small, <u>extremely faint</u> oval, uniformly lit smudge of light.
NGC 3890	11:35 PM	13mm – A very small, <u>very faint</u> oval, uniformly lit glow.
NGC 3939		
NGC 3735	11:40 PM	13mm – A nice thin, dim edge on. 7:1. See brighter central core and bulge. Long thin tapered arms. 3-9 o'clock.
NGC 3879	11:46 PM	13mm – An <u>extremely faint</u> , long, thin, 4:1 uniformly lit glow. Almost not there.
NGC 3961	11:48 PM	13mm – A very small, <u>extremely faint</u> oval to round, uniformly lit glow.
NGC 5836	12:35 AM	13mm – A very small, very faint oval. Uniformly lit glow. Brighter field star just to left.

Seeing and Transparency Good. 28 degrees.

NGC 3102	12:47 AM	13mm – A very small, round, very faint glow. Has a lot of tiny mottling in core area. Very subtle.
NGC 3435	12:50 AM	13mm – A very small, very faint tilted oval. Has tiny stellar core.
NGC 3470	12:53 AM	13mm – A small, <u>very faint</u> tilted oval. Uniformly lit.

NGC 3408	12:56 AM	13mm – A very small, very faint oval, uniformly lit glow.
NGC 3286	12:59 AM	13mm – A very small, very faint oval with hare brighter core area.
NGC 3238	1:00 AM	13mm – A very small, very faint found glow. Has larger, bit brighter core.
NGC 3220	1:02 AM	13mm – A small, thin cigar, 3:1, very faint, uniformly lit glow.
NGC 3129	1:18 AM	13mm – 8-10 stars form a top hat asterism. Other knots of 4 and 5 stars nearby.

The sky is gone. Cannot find 13.2 magnitude galaxies. 25 degrees. 1:33 AM. I had a great night.

Thursday, January 26, 2017

My scope is #749, a 20" f/5 that is working flawlessly. Bruce's scope is #737. It had slippage on both axis. John F and I didn't locktite the AZ axis a couple of years ago when we installed the AZ encoder bolt but it is locktite now. ALT was slipping also and I tightened the nut. Got new SC from office in Crowell and was last used on Apr 8, 2008. Tested it and AZ worked but ALT slipped once. So we switched the ALT encoder from the 18" to this 20" and it now works great. The ALT encoder on 18" #839 is suspect. (That night, Bruce determined that the SC didn't work and could not find anything with it. Just wouldn't slew to the right part of the sky.)

6:15 PM. Sun has set. 44 degrees. Partly cloudy overhead and to north. Waiting for it to get dark.

Clouds dissipated in place. Now as sky darkens, seems hazy. Rigel twinkling a bit. Light breeze from east.

7:17 PM. 39 degrees. 6 stars in Trapezium. Polaris looks good.

NGC 528	7:32 PM	13mm – A very small, dim tilted oval. Has small, much brighter core and maybe 2 nd star below core on glow and near core.
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Seeing and Transparency very good. 36 degrees. Rigel almost steady now.

NGC 753	7:36 PM	13mm – A small, fat oval to almost round, dim glow. Has a hint of a larger, hare brighter core area.
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NGC 759	7:39 PM	13mm – A very small, fat oval with bit brighter, longer linear glow down center.
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NGC 898	7:42 PM	13mm – A bit above a bright field star is this small, very dim edge on with nice, bit brighter core in center and <u>very faint</u> tapered arms off each side at 8 and 2 o'clock.
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NGC 956	7:46 PM	13mm – 25 blue white stars of 3 magnitudes form an open cluser loose. Shaped like a backyard chimney. ½ FOV long
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Sky Commander's AZ died. Not counting. ALT OK. Will star hop. (It turned out that I had a chemical hand warmer on the top of the SC to help keep the LCD warm. Once the SC cooled, it started working again).

NGC 183	8:01 PM	13mm – A very small, round, <u>very faint</u> halo with small, bit brighter core.
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NGC 169	8:07 PM	13mm – There might be 2 galaxies here. One over the other. Both are
NGC 160		very small. N169 is a tilted oval, very faint, with hare brighter core.
		Above is N160, a <u>very small</u> , round glow with hare brighter core.
NGC 91	8:17 PM	13mm – N91 is a very small, thin oval, very dim with small, brighter
NGC 83		core. N83 is to left and near and is a <u>very faint</u> , small, round, uniformly
NGC 80		lit glow. Almost 1 FOV to left of these two is N80, a small fat oval,
		uniformly lit glow.
		
		
		

M81 is awesome. The Sky Commander is working again. Cooled off from when the hand warmer was touching it. Guess it didn't like that.

NGC 3343	8:37 PM	13mm – A very small oval, <u>very faint</u> . Has larger, hare brighter core.
NGC 4363	8:40 PM	13mm – A small, fat oval. 3:1. <u>Very faint</u> . Has hint of a tiny core area.
NGC 4319		Below is N4319, a small, round, very faint glow with small, hare brighter
		core.

		
NGC 4386	8:44 PM	13mm – A small tilted oval. Very dim. Has larger, bit brighter core area.
NGC 4159	8:47 PM	13mm – A <u>very small</u> , <u>extremely faint</u> , thin oval smudge of light. Almost not there.

NGC 4972	8:57 PM	13mm – A very small, extremely faint oval with tiny, hare brighter core.
NGC 4331	8:59 PM	13mm – A small, <u>extremely faint</u> , roundish smudge of light. Almost not there.

NGC 4589	9:02 PM	13mm – A very small, very dim tilted oval with linear bar brighter core
NGC 4572		seen with AV. To right and near is N4572, an <u>extremely faint</u> , tiny oval,
		uniformly lit smudge of light. Seen when tapping scope.
		

NGC 4750	9:04 PM	13mm – A dim, medium sized fat oval, uniformly lit.
NGC 4749	9:06 PM	13mm – A very small, <u>very faint</u> edge on, uniformly lit.
NGC 4693	9:10 PM	13mm – An <u>extremely faint</u> , small oval, uniformly lit.
NGC 4857	9:11 PM	13mm – A small, thin oval, 4:1, uniformly lit, very faint.

Seeing and Transparency Good. 33 degrees.

NGC 2618	9:30 PM	13mm – A small, very dim tilted oval with small, brighter core.
NGC 2708	9:32 PM	13mm – A small, very dim tilted oval with short bar, bit brighter core.
NGC 2678	9:34 PM	13mm – 4 dim and 1 brighter reddish star make up this tiny OC.
NGC 2691	9:39 PM	13mm – A very small, faint oval with larger, brighter core.
NGC 3725	9:46 PM	13mm – A very small oval. Dim. Has larger, bit brighter core area that has a small, even brighter central core.
NGC 3795	9:50 PM	13mm – A small, <u>very faint</u> , uniformly lit thin edge on. Maybe 4:1.
NGC 3334	10:00 PM	13mm – A very small, very faint oval with bit brighter, tiny core.
NGC 3304	10:01 PM	13mm – A small tilted oval. Very faint with small, bit brighter core.
NGC 3381	10:03 PM	13mm – A small, <u>very faint</u> uniformly lit fat oval.
NGC 3237	10:06 PM	13mm – A very small, <u>very faint</u> , roundish glow with small, hare brighter core.
NGC 3468	10:10 PM	13mm – A very small, <u>very faint</u> oval with tiny, bit brighter core.
NGC 3374	10:41 PM	13mm – A small fat oval, <u>extremely faint</u> , uniformly lit.

Seeing and Transparency OK. 28 degrees. Haze in N to NW to W.

NGC 3415	10:44 PM	13mm – A small, very faint tilted oval with larger, brighter core.
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Clouds/haze moving over sky in patches from NW to SE.

11:06 PM. Too hazy to continue. 28 degrees. I never felt cold all night.

Friday, January 27, 2017

Sunset at 6:09 PM. 56 degrees. Clear. Clouds around all morning and ½ the afternoon, now they hug the southern horizon.

Calm. Predicted to be 55% RH at 3 am and 10 mph wind but it is calm now.

6:11 PM. 50 degrees. Temp dropping fast now that Sun is gone. CSC predicts excellent transparency and OK seeing.

6:29 PM. 43 degrees. Clear. Wind Calm. Polaris looks outstanding. Very crisp. Stars are steady. Need to put shroud on scope and baffle secondary cage better.

7:26 PM. Saw ISS pass overhead preceded by supply craft about 30 degrees ahead of ISS and on same orbit. **COOL!!!**

7:32 PM. 34 degrees. SC Aligned. 6 stars in Trapezium. Seeing and Transparency Good.

NGC 5323	7:35 PM	13mm – A very small oval, uniformly lit, very faint glow.
NGC 5547	7:55 PM	13mm – A very small, <u>very faint</u> oval glow. Has tiny, hare brighter core.
NGC 5712	7:57 PM	13mm – A very small, <u>extremely faint</u> oval smudge of light.
NGC 5640	8:00 PM	13mm – A very small, <u>extremely faint</u> ghostly uniformly lit oval. Fades in and out of view.

Seeing and Transparency very good. 34 degrees. Clear and calm.

NGC 5295	8:03 PM	13mm – A <u>very small</u> , <u>very faint</u> oval. Barely there. Has tiny hare brighter core.
NGC 4120	8:05 PM	13mm – A small, thin oval, 3:1. Uniformly lit, <u>very faint</u> . Has field star on left hand side of halo glow. Goes 10:30-4:30 o'clock.
NGC 4034	8:09 PM	13mm – A small, <u>extremely faint</u> , longer, uniformly lit oval, ghostly glow. It is low in the NE but there.

NGC 4128	8:12 PM	13mm – A very small tilted oval with larger, linear, brighter core. Center of bar has much brighter small, round core.
NGC 4210	8:18 PM	13mm – Nice. A nice, dim edge on. Larger, brighter linear core and <u>long</u> , thin tapered, extremely faint arms. 6:1 or 7:1 long. 8:30-2:30 o'clock.
NGC 4332	8:21 PM	13mm – A small, <u>very faint</u> tilted oval. 3:1. Has tiny stellar core.
NGC 3398	8:28 PM	13mm – A small, thin oval, <u>very faint</u> , uniformly lit. Goes 1-7 o'clock. 2:1. Faint field star off lower end and very near halo glow.
NGC 3440	8:30 PM	13mm – A very small, round, very faint glow with a large, much brighter core. Looks like a PN.
NGC 3488	8:33 PM	13mm – A medium sized fat oval, very faint, uniformly lit. Has brighter field star on upper left of halo glow at edge of glow. Goes 10-4 o'clock.
NGC 3499	8:37 PM	13mm – A very small, very faint fat oval to circular. Has bit brighter stellar core in center.
NGC 3517	8:46 PM	13mm – A small, fat oval, extremely faint. Has detail in glow. NOT uniformly lit. Goes 1-7 o'clock. Magnitude 13.8.
NGC 3530	8:49 PM	13mm – A very small, dim oval glow. Lots of brighter linear detail in core. Mottled, not uniformly lit core.
NGC 3625	8:52 PM	13mm – A small, thin oval, 3:1, very faint. Has hint of a bare brighter core. Below and in same FOV is N3619, a small, brighter circular glow with big bright core that dims slowly to edge. Below and to right is N3613, a medium sized tilted oval with a larger, brighter core.
NGC 3619		
NGC 3613		
3619		
3613		
NGC 3850	9:00 PM	13mm – A small, dim tilted oval. Has lots of detail on core. Core NOT uniformly lit.
NGC 2985	9:02 PM	13mm – A medium sized, round, dim, with larger, brighter core.
NGC 3027	9:05 PM	13mm – A medium sized, long, dim cigar. Uniformly lit.

Seeing and Transparency Good. 32 degrees.

Scouts are arriving in the field to the NW and their headlights are a nuisance shining this way.

NGC 2965	9:14 PM	13mm – A tiny, round, very faint glow. Has hare brighter core.
NGC 3106	9:19 PM	13mm – A very small, round, dim glow with small, brighter core.
NGC 3265	9:21 PM	13mm – A tiny oval, very dim glow. Has larger, brighter involved core. 2-3 brightening areas. Has <u>very faint</u> field star just above it and near.
NGC 3380	9:26 PM	13mm – A very small, very faint, 2:1 tilted oval. Has tiny, bit brighter core in center.
NGC 3400	9:30 PM	13mm – A very small, very faint tilted oval with small, bit brighter core. Vertical in FOV.
NGC 3418	9:32 PM	13mm – A small, very dim fat oval. Brighter, larger core area that dims quickly to edge.

Seeing and transparency very good. 29 degrees. Taking a break to warm up.

NGC 5620	10:11 PM	13mm – A <u>very small</u> , <u>extremely faint</u> glow. Seen with AV. Circular. Uniformly lit glow.
NGC 4391	10:14 PM	13mm – A very small, dim oval with larger, brighter core.
NGC 4441	10:19 PM	13mm – A very small, very faint round glow with tiny, hare brighter core.
NGC 4521	10:21 PM	13mm – A small, thin tilted oval. 3:1. Has small, bit brighter core and <u>very faint</u> tapered arms off each side.
NGC 4545	10:23 PM	13mm – A medium sized fat oval. Very faint. Uniformly lit.
NGC 4238	10:26 PM	13mm – A medium sized, long, thin oval. Uniformly lit. <u>Very faint</u> .
NGC 4141	10:29 PM	13mm – A small, thin, <u>very faint</u> , long, uniformly lit glow. Goes 1-7 o'clock.
NGC 4149	10:31 PM	13mm – A small, vertical edge on. Very faint. Has hint of a hare brighter core. 4:1.

NGC 4335 10:35 PM 13mm – A small, round, dim glow with larger, brighter core. To upper
 NGC 4385 10:35 PM 13mm – A small, round, dim glow with larger, brighter core. To upper
 NGC 4364 10:35 PM 13mm – A small, round, dim glow with larger, brighter core. To upper
 UGC 7534 10:35 PM 13mm – A small, round, dim glow with larger, brighter core. To upper

NGC 4814 10:38 PM 13mm – A medium sized fat oval. Has hare brighter bar down center of
 glow and is more than just a little bit of a glow.

NGC 4511 10:42 PM 13mm – A medium sized, extremely faint fat oval, uniformly lit. To right
 UGC 7691 10:42 PM 13mm – A medium sized, extremely faint fat oval, uniformly lit. To right
 is U7691, a small tilted oval, very faint. Has a hint of a hare brighter
 core.

NGC 4172 10:45 PM 13mm – A very small, very faint, 2:1 oval. Has a small, bit brighter
 core.

NGC 4198 10:47 PM 13mm – A small tilted oval, very faint. Has hare brighter linear core that
 runs down center a bit. Goes 10-4 o'clock.

NGC 4644 10:51 PM 13mm – A small, thin oval, 3:1. Has a bit brighter core.

NGC 4646 10:53 PM 13mm – A small, very faint, uniformly lit oval.

NGC 4566 10:55 PM 13mm – A very small, very faint oval with hare brighter core.

NGC 4617 10:57 PM 13mm – A very small, very faint oval. Uniformly lit. Has a very faint field
 star just above it.

Seeing and Transparency very good. 30 degrees. Light breeze from NW.

NGC 4187 11:00 PM 13mm – A very small, very faint oval. Has a bit brighter core area. Seems
 more than stellar. Goes 9:30-3:30 o'clock. 2:1.

NGC 4181 11:12 PM 13mm – A very small, extremely faint, round glow. To upper right of a
 very faint field star.

NGC 4142 11:13 PM 13mm – A small, very faint tilted oval. 4:1. Uniformly lit.

The 30" is free, so moved over to this one for a bit.

NGC 4181 11:17 PM 21mm – A small, round bright glow with larger core that dims slowly to edge.

NGC 4068 11:23 PM 21mm – A small, very faint oval glow, 3:1, that is under a brighter field star. It is more lopsided above the star than below. Then there is a 2nd very faint field star on glow below the brighter field star.



NGC 3631 11:30 PM 21mm – A large, round dim galaxy. Has large, bright core and hint of CCW arms.

Back to 20" when a group of scouts showed up to use the 30".

Seeing and Transparency Good. 31 degrees. Light breeze from NW persists.

NGC 3491 11:42 PM 13mm – A small, very faint oval with brighter core or maybe a field star there on uniformly lit glow.

NGC 3498 11:55 PM 13mm – 3 stars in a line. 1 brighter and 2 much dimmer.

NGC 3632 11:58 PM 13mm – A small, brighter tilted oval. Has short, bright bar in core. Short tapered arms.

NGC 3691 12:01 AM 13mm – A small fat oval. Very dim. Uniformly lit.

Sky Commander's battery died. Took a break to warm up and replace it. Realigned and SC is pointing very good tonight.

NGC 2979 12:42 AM 13mm – A small, dim oval with maybe have brighter linear core. Had a very faint field star to left of galaxy and on halo glow.

NGC 3559 12:43 AM 13mm – A small, very dim, uniformly lit oval.

NGC 3616 12:45 AM 13mm – A tight group of 4 dim, blue white stars of same magnitude.

30" is free again so we moved over there and used it.

NGC 3731 12:54 AM 21mm – A very small, round, very faint glow with bit brighter core.

NGC 3848 12:57 AM 21mm – Small edge on. Dim. Has brighter core in center and short arms. Goes 10-4 o'clock.

NGC 3833 1:02 AM 21mm – A medium sized, long fat oval. Extremely faint. Uniformly lit. Goes 1-7 o'clock.

NGC 3874 1:07 AM 21mm – 7 very faint stars form a lopsided plus shape.

NGC 3914 1:10 AM 21mm – A very small, lens shaped, very faint glow with hare brighter center.

NGC 3615 1:15 AM 21mm – A very small, very faint, uniformly lit round glow. Below is
NGC 3618 N3812, a small, round, very faint glow with brighter, stellar core. To
NGC 3812 right is N3618, a very faint, uniformly lit, small oval glow. To upper left
PGC 34606 of these and a bit way is P34606, a small, extremely faint smudge of
light.

P34606 3615 3618

3812

NGC 3670 1:20 AM 21mm – A very small, roundish, very dim glow with tiny, bit brighter stellar core.

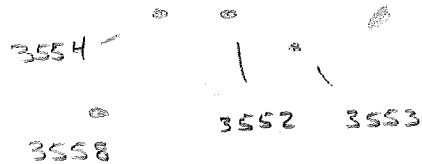
NGC 3651 1:23 AM 21mm – A very small, round, very faint glow with brighter core. To left is
NGC 3653 N3653, the same size but uniformly lit. Below and to right is IC 2759, a
IC 2759 very small, round, uniformly lit, very faint smudge of light. Above all of
PGC 34907 these and to left of a field star is P34907, a very small, round, hint of a
ghostly glow.

3653

IC 2759

NGC 3701 1:27 AM 21mm – A small, very faint oval, 3:1, uniformly lit. Above and a bit away
PGC 35452 is P34542, a tiny, round, very faint, uniformly lit glow.

NGC 3550 1:32 AM 21mm – A small, very faint, uniformly lit oval. Above and to left is
 NGC 3561B N3561B, an extremely faint, round, uniformly lit glow. To left and near is
 NGC 3553 N3553, a very small, extremely faint, uniformly lit glow. To left of this is
 NGC 3552 N3552, a very small, extremely faint, uniformly lit glow. To left of this is
 NGC 3554 3561B N3554, a very small, extremely faint, uniformly lit glow. Below, a bit
 NGC 3558 away and to left of these is N3558, a small, round, very faint, uniformly
 lit glow.



NGC 3678 1:40 AM 21mm – A very small, very faint oval. Maybe hint of a core.

NGC 3713 1:43 AM 21mm – N3714 is a very small, tiny edge on. Large, bright core bulge
 NGC 3714 with tiny, thin short arms. Above is P35514, a tiny, round, uniformly lit.
 PGC 35514 extremely faint glow. To right is N3713, a very small tilted oval with
 small, bit brighter core.

NGC 3714 1:48 AM 21mm – N3713 is a tiny little oval, very faint. Has hare brighter core.
 NGC 3713 Below and to left is N3714, a very small tilted oval. Very faint with small,
 bit brighter core.

3714

NGC 3815 1:54 AM 21mm – A very small, very faint, uniformly lit oval. Below and to right an
 NGC 3812 on other side of a field star is N3812, a very small, very faint oval with a
 NGC 3798 hint of a hare brighter core. N3798 is a very small, very faint oval with a
 hint of a core.

NGC 3728 1:57 AM 21mm – A very small, very faint oval with hare brighter core.

NGC 3710 2:02 AM 21mm – A very small, very faint round glow with small, brighter core.

NGC 3772 2:05 AM 21mm – A small tilted oval. Very dim. Has hare brighter stellar core.

NGC 3832 2:07 AM 21mm – A medium sized fat oval. Almost circular. Very Dim. Uniformly
 lit.

Seeing and Transparency Good. Still using 30" with 21mm eyepiece. It's warmer in roll off shed.

NGC 3951 2:11 AM 21mm – A very small oval, very faint. Has hint of a hare brighter, stellar core.

Back to the 20" when some school kids showed up to use the 30"

NGC 3926 2:15 AM 13mm – A very small, very faint thin oval, 2:1. Has tiny bit brighter stellar core and a field star off lower right edge of halo glow making it look like a double core.

NGC 3791 2:29 AM 13mm – A small oval. Dim. Has larger, brighter core.

NGC 3591 2:32 AM 13mm – A small oval. Dim with larger, brighter core.

Seeing and Transparency good. 27 degrees. Very light breeze from NW.

NGC 3661 2:34 AM 13mm – A small oval. Very dim with bit brighter core. To upper right and near is N3667A, a very small, very faint oval with tiny, hare brighter core.

NGC 3734 2:37 AM 13mm – A very faint roundish glow. Small. Has tiny, bit brighter core.

NGC 3508 2:40 AM 13mm – A small oval, 2:1. Very dim. Uniformly lit. Has dim field star to lower right of glow and very near but not touching halo.

NGC 3497 2:44 AM 13mm – A small oval, 2:1. Dim with bit brighter core. Below and to right is N3529, a small oval, very faint with tiny, hare brighter stellar core.

NGC 4087 2:49 AM 13mm – A very small, round, very faint glow with larger, brighter core.

IC 2995 2:52 AM 13mm – A medium sized, round, very faint, uniformly lit glow.

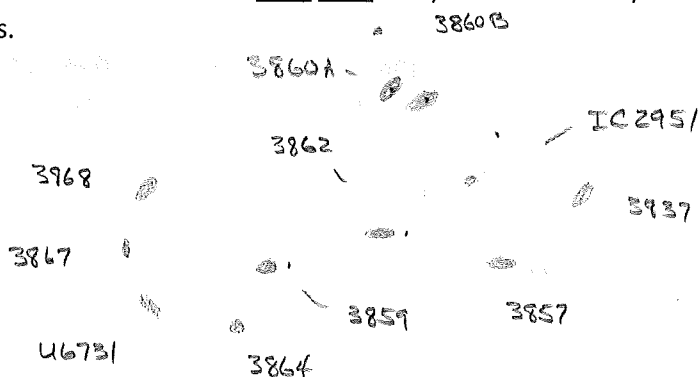
Back to the available 30" telescope now.

NGC 4028 3:04 AM 21mm – A very small, extremely faint, uniformly lit oval.

NGC 3790 3:07 AM 21mm – A small, lens shaped oval. Very dim with tiny, hare brighter core. To right and near is N3801, a small, thin, 3:1, very faint, uniformly lit glow.

NGC 3768 3:10 AM 21mm – A very small, very faint oval with hare brighter core. Below and to right and on other side of a field star is N3764, a tiny, round, very faint glow with a tiny, hare brighter core.

NGC 3860 3:15 AM 21mm – A very faint, very small circular glow with a bit brighter core.
 NGC 3860B Above N3860 and near is this tiny, round, extremely faint, uniformly lit glow.
 NGC 3860A To left and near N3860 is this very faint, very small circular glow with a bit brighter core.
 IC 2951 Below and to right is this tiny, very faint, uniformly lit glow.
 NGC 3837 Below and to right is this very faint, very small, uniformly lit glow.
 NGC 3857 Below all of these and near is this extremely faint, uniformly lit oval glow.
 NGC 3862 To left and near N3857 and to left of a very faint field star is this very small, very faint, uniformly lit oval glow.
 NGC 3859 To the left of all of these about 1 FOV away are 5 more galaxies. All of these are about the same. Very faint. Very small. Uniformly lit oval glows.
 NGC 3864
 UGC 6731
 NGC 3867
 NGC 3868



NGC 3902 3:20 AM 21mm – A small, thin oval, 3:1. Pretty uniformly lit with maybe a hint of a hare brighter core area.

NGC 3944 3:23 AM 21mm – A tiny, very faint oval with larger, brighter core area.

NGC 4004 3:26 AM 21mm – A small lens shaped, uniformly lit, very dim glow. To right and near is N4004B, a very dim, uniformly lit, very small oval.

4004B

NGC 4080 3:29 AM 21mm – A small, thin oval, 3:1, uniformly lit, very dim.

NGC 4104 3:34 AM 21mm – A small, very dim tilted oval with small, hare brighter core.

PGC 38387 Below is P38387, a very faint, very small oval with a core. To right and

PGC 38349 top one is P38350, a very faint, very small oval glow with a core. Below

PGC 38350 this is P38349, a very faint, very small, uniformly lit oval glow.



P38350

P38349

P38387

People showed up to use 30", so I moved back to my 20"

PGC 43480 3:50 AM 13mm – A small, tilted oval. Dim with larger, brighter core.

PGC 39201 3:53 AM 13mm – A very small, thin oval. Very faint with larger, brighter core.

PGC 43589 3:57 AM 13mm – A very small, thin tilted oval. Very faint with larger, bit brighter core.

MGC-04-31-005 4:02 AM 13mm – A very large, fat, extremely faint ghostly glow. ½ FOV long. There are several stars on top of it.

PGC 43770 4:04 AM 13mm – A very faint, thin oval, 3:1. Small. Uniformly lit.

NGC 4965 4:09 AM 13mm – A very small, very faint linear oval. Has tiny core and maybe a field star on lower part of halo. It's vertical in the FOV.

PGC 49473 4:12 AM 13mm – A small, very faint fat oval that is uniformly lit.

NGC 3564 4:16 AM 13mm – A very small, round, uniformly lit glow.

NGC 5237 4:18 AM 13mm – A very small, thin oval, 3:1. Very faint. Has bit brighter core just above center.

I am working on Southern Arps very low in the south. Seeing is somewhat poor here. The stars are fat but a bit higher in the sky, they are much better.

30 degrees. Light wind from NE.

PGC 47171 4:23 AM 13mm – An extremely faint, thin oval. Small. Has tiny, hare brighter stellar core.

PGC 49050	4:28 AM	13mm – An <u>extremely faint</u> oval, small, uniformly lit ghostly glow.
NGC 5188	4:30 AM	13mm – A dim, medium sized fat oval. Uniformly lit glow.
NGC 5488	4:40 AM	13mm – A small, very faint tilted oval with larger, bright core that dims into halo. Goes 10-4 o'clock.
NGC 5398	4:45 AM	13mm – A large, roundish, very faint, uniformly lit glow.
PGC 49187	4:52 AM	13mm – A <u>very small</u> , thin oval. <u>Very faint</u> . Has tiny, hare brighter core on glow.
PGC 48896	4:58 AM	13mm – An <u>extremely faint</u> ghostly glow. Almost not there. Uniformly lit glow. Small, thin oval.
PGC 50325	5:02 AM	13mm – A <u>very faint</u> , very small oval to circular glow. Has tiny, hare brighter stellar core.
PGC 51169	5:05 AM	13mm – An <u>extremely faint</u> , round, small glow with hint of a tiny, hare brighter core.
NGC 5592	5:07 AM	13mm – A very small, round to fat oval shape. Very faint. Uniformly lit.
PGC 51822	5:09 AM	13mm – A small, round, <u>extremely faint</u> ghostly, uniformly lit glow.

5:30 AM. 30 degrees. A good wind from NE is making me cold. Took a break to warm up, but the wind is making my fingers hurt. Wanted to try for 3 more Southern Arps and 2 more Herschel object in Lib and Sco but was too uncomfortable in the wind to try some more.

Saw M57, M13 and Saturn for the 1st time this season. Jupiter was washed out a bit.

Saw Omega Centauri earlier about 10 degrees above the horizon. It was cool but the stars were fat this low in the south.

Saturday, January 28, 2017

Clear and calm at sunset. Was gusty winds all afternoon. 10-14 mph on indicator in classroom.

6:27 PM. 49 degrees. Venus $\frac{1}{2}$ phase. Awesome. Collimated. Finder scope aligned. Polaris looks good.

Over 100 people here tonight. 3 scout troops, students, public and volunteers. Had a great dinner provided to the volunteers. Had a mom, son and daughter, who lived nearby, look at several of the galaxies Bruce and I were looking at. They are home schooled and I was amazed at their general astronomy knowledge.

7:08 PM. Betelgeuse and Rigel twinkling a bit more than last night at this time. 38 degrees.

The sheer amount of stars this morning at 6 AM was awesome. Last night was an incredible night. Wind was probably 6-8 mph at 5 AM.

NGC 7760	7:32 PM	13mm – An <u>extremely faint</u> , very small, roundish ghostly glow with tiny, brighter stellar core in center.
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NGC 7454	7:38 PM	13mm – A small, thin, uniformly lit oval. Extremely faint.
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Sky is not revealing here. Seeing and Transparency OK. 40 degrees. Milky Way is not crisp.

NGC 7753	7:43 PM	13mm – A large fat oval. Dim. Has brighter linear core.
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NGC 7332	7:47 PM	13mm – A nice, bright tilted oval with thin, tapered arms and bright,
NGC 7339		large core. To right is N7339, a long, thin, dim, uniformly lit oval.

Since the sky was not revealing many dimmer galaxies, didn't look for galaxy groups like I wanted. We switched and did Bruce's Two in the View observing.

NGC 7332/7339	7:47 PM
NGC 7385/7386	7:48 PM
NGC 7488/7784	7:57 PM
NGC 7611/19/26	8:07 PM

NGC 927 8:13 PM 13mm – A medium sized, fat tilted oval. Dim. Definitely longer than wide so not round. Has faint, larger bit brighter core that pops in once in a while.

NGC 680/691 8:18 PM

NGC 976 8:20 PM 13mm – A small, dim oval, 2:1. Has small, hare brighter core. Rest is dim halo. Easy to see.

NGC 918 8:23 PM 13mm – A medium sized, very faint, diffused fat oval that is uniformly lit. Has faint field star on lower part of glow. It is under and near a brighter field star.

NGC 770 8:26 PM 13mm – A larger, fat oval to circular, dim glow. Has larger, brighter core that dims slowly to edge. To upper left and near is NGC 772, a small, dim tilted oval with small, brighter core.

Seeing and Transparency Good at zenith. 35 degrees. Calm.

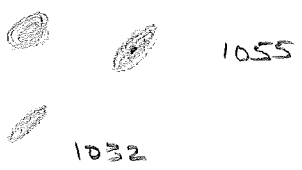
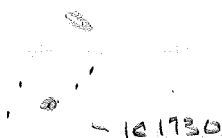
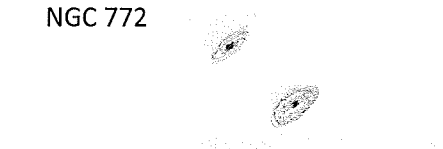
NGC 694 8:40 PM 13mm – A very small oval, dim, 2:1. Has small, bit brighter core. Above and to right is IC 1730, a long, thin, 4:1, very faint, uniformly lit glow.

NGC 1325/1325A 8:40 PM

NGC 1400/1407/1391/1393 8:51 PM

NGC 1042/1055/1032 9:05 PM

NGC 672/IC1727 9:09 PM



IC 1727

NGC 2276/2300 9:15 PM

Seeing and Transparency Good. 35 degrees.



NGC 6939/6946 9:22 PM

 6949

NGC 2655/2715 9:31 PM


•  2715

NGC 2207/2196 9:50 PM


 2196

NGC 185/1479 9:57 PM


 185

NGC 6217 10:07 PM



NGC 1023 10:13 PM


NGC 3631 10:18 PM

NGC 1961 10:19 PM



NGC 2276/2300 10:30 PM

 2276


2300

Seeing and Transparency Good. 33 degrees.

Packed up our equipment and headed to bed so we could get a good night's sleep for our 10 ½ hour drive home in the morning. We left 3RF about 7:50 AM after putting all our stuff in the car. We arrived at my car in Aurora about 5:10 PM.

What a great trip to Texas and 3RF. 4 nights of clear skies and Friday night/Saturday morning was an outstanding night of observing, those that come around only once in a while.

In talking with Randy Cunningham about the white Sky Commander and 10,000 step encoders, he said it should all work, but you have to slew the scope slowly with 10,000 encoders and the white Sky Commander. So during the test, I was moving quickly and say the skip.

I need to take the ALT encoder off the 18", which is a 10,000 step encoder that John Figoski and I put on the 20" 3 yrs ago and put it back onto the 20", #749.

Then change ALL the white Sky Commanders to 10,000 steps in the setup menu.