

Galaxies Observed for the AL Local & Galactic Neighborhood Observing Program

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Total	96

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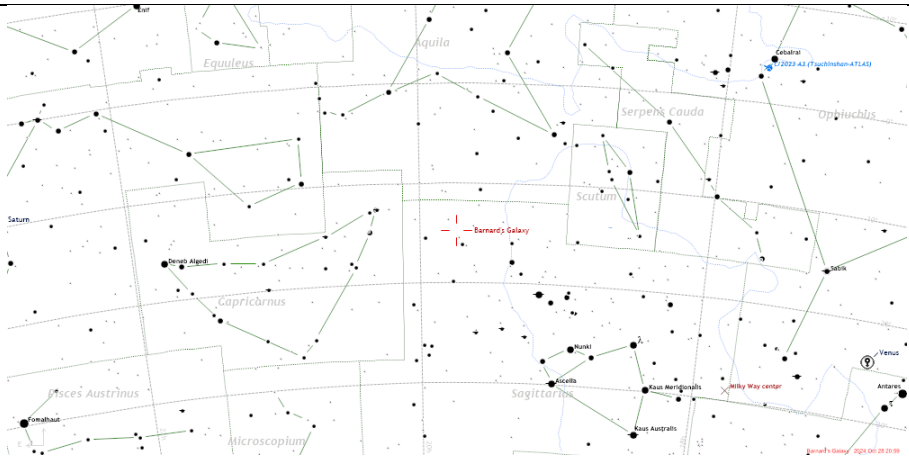
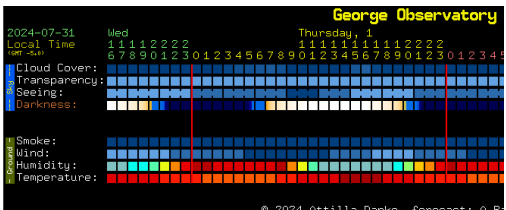
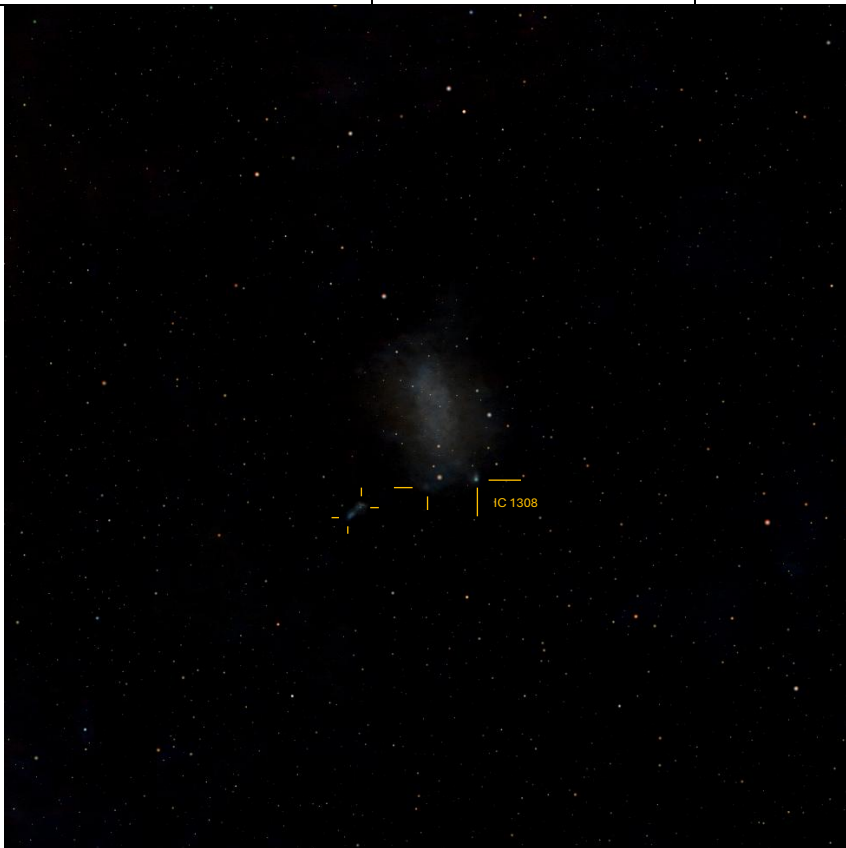
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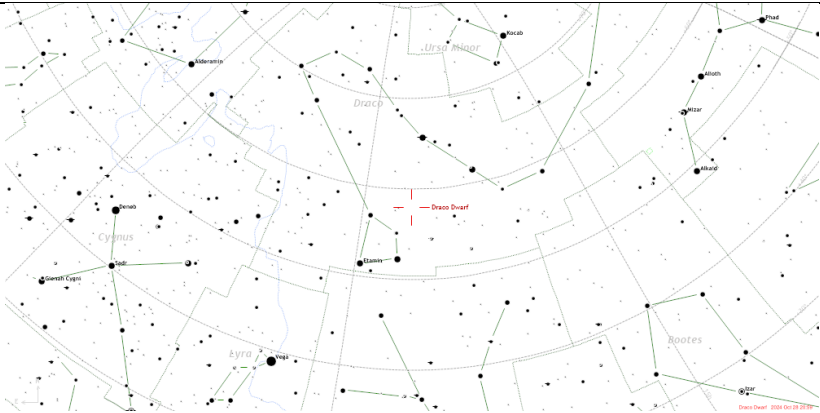
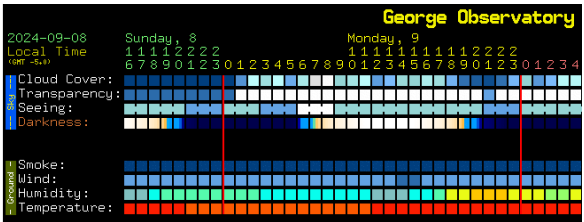
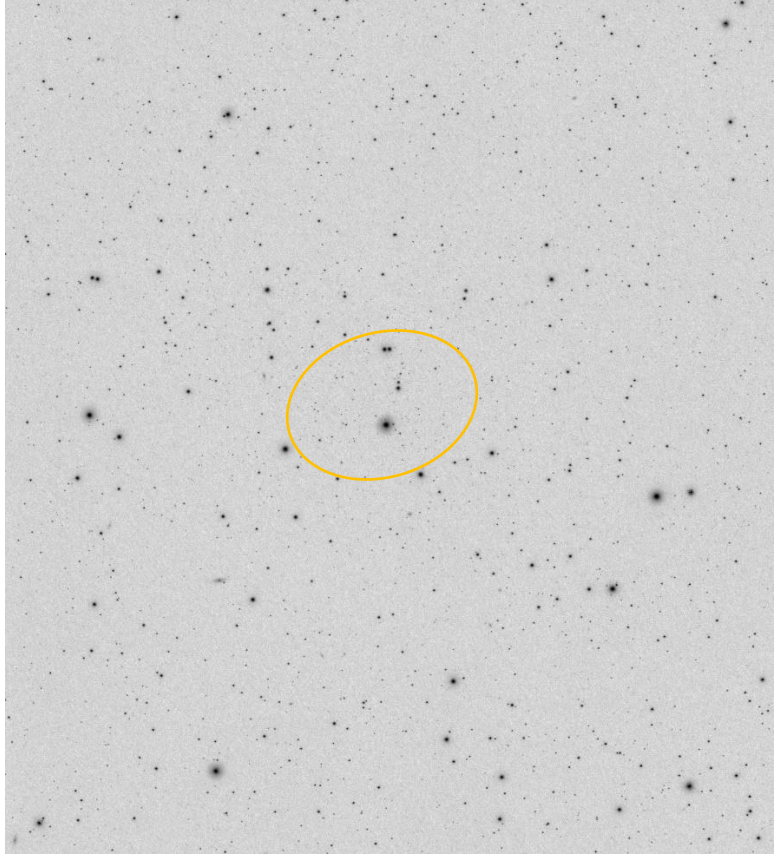
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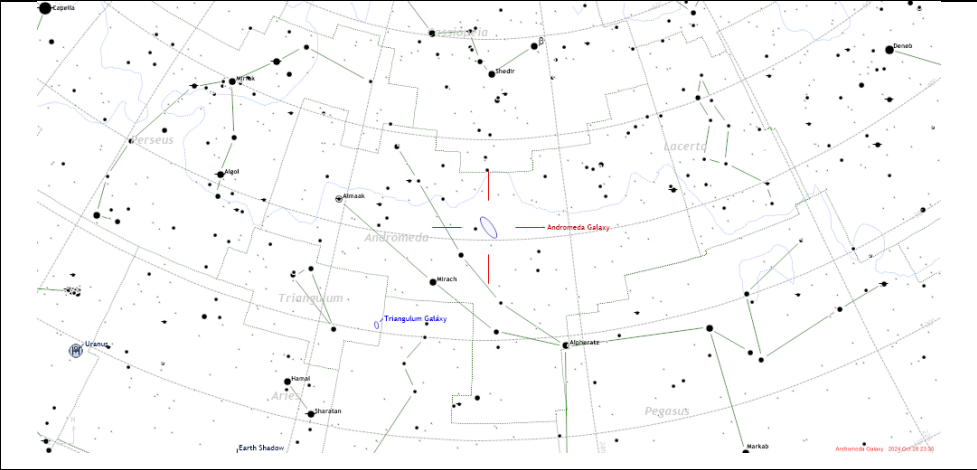
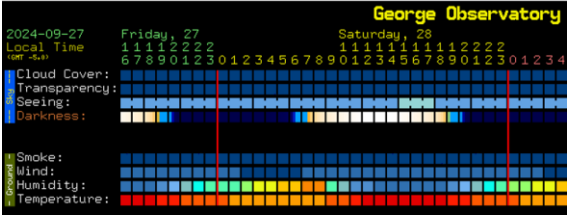
Chapter 1 – The Local Group

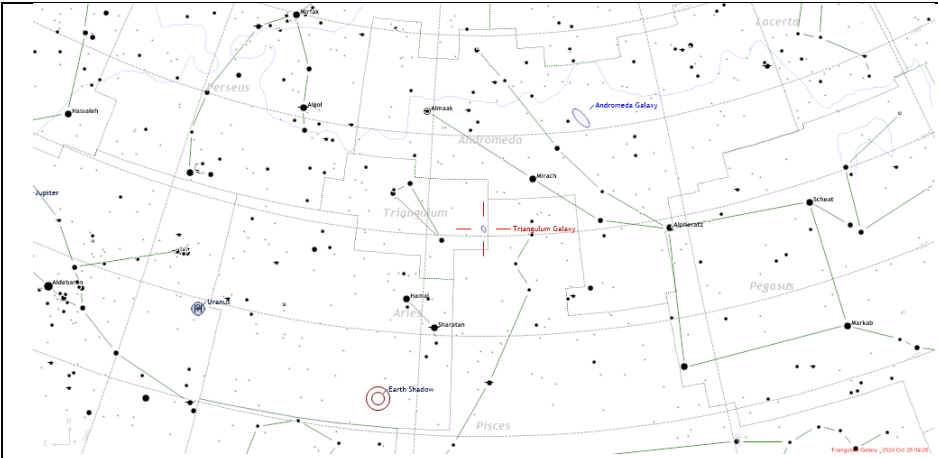
Local Galaxies – 15/36 (13)			
Name	Date Imaged	Distance - MLY	Comments
WLM	11/21/24	3.04	
IC 10	10/22/24	3.2	
NGC 147	10/23/24	2.4	
NGC 185	10/24/24	2.4	
NGC 205 (M110)	9/27/24	2.7	
NGC 221 (M32)	9/27/24	2.5	
NGC 224 (M31) - Andromeda	9/27/24	2.6	
IC 1613	10/22/24	2.4	
And II	10/23/24	2.2	
NGC 598 (M33)	9/23/24	2.8	
Fornax Dwarf		0.46	
Leo A (Leo III)		2.6	
Leo I		0.82	
Sextans		0.29	
Leo II		0.69	
Ursa Minor Dwarf		0.2	
GR8			
Draco Dwarf Spheroid	09/09/24	0.3	
NGC 6822 (Barnard's Galaxy)	07/31/24	1.7	
IC 5152		5.9	
Pegasus Dwarf	10/22/24	2.7	
Sag DIG		3.4	

The local Group comprises galaxies that are all gravitationally bound to the largest galaxies of the group, namely the Andromeda, Triangulum and Milky Way Galaxies. These trio of galaxies are within about 2.5 million lightyears of each other. The galaxies whose distances are less than 500 kLy are all dwarf companions of our own Milky Way.

		NGC 6822 – Barnard's Galaxy Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro ZWO Dual Band Filter Celestron AVX Mount 
Session Details: Date(s): 8/1/24 Begin: 00:50 End: 01:56 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 19h 46m 22s Dec - -14D 44m 26s Transit Time: Moon: 27days	
		NGC 6822 Barnard's Galaxy, IB(m) m9.7, is a member of the Local Group of Galaxies. It appears as a cloud of stars without any central concentration indicating the core region. IC1308, an ionized HII area is visible on the bottom right of the galaxy. There appears to be 3 more areas trailing off to the left of IC1308. Images by space-based telescopes show a much more extended structure and what we are seeing here is the brighter, denser core region of this galaxy.
Processing Notes: Stacked in Siril, Gradient removed and noise reduction in Graxpert. Color Calibrated and stretched in Siril with final post process in PS.		Gain: 101 Offset: 8 Exposure: 56 x 60sec Binning: 1x1

		Draco Dwarf Galaxy Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro SvBoney UV/IR Celestron AVX Mount 
Session Details: Date(s): 09-09-24 Begin: 21:14 End: 22:38 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 17h 20m 37s Dec - +57d 54m 41s Transit Time: Moon: 7 days	
		Draco Dwarf Spheroidal Galaxy is a member of the Local Group of Galaxies. It is extremely faint and only appears as a faint grouping of stars which are very difficult to separate from the field stars.
Processing Notes: Image was changed to black and white and inverted to boost the contrast to try and make the galaxy more visible.		Gain: 101 Offset: 8 Exposure: 60 x 60sec Binning: 1x1

	Messier 31 – Andromeda Galaxy Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro ZWO UV/IR filter Celestron AVX Mount 	
Session Details: Date(s): 9-27-24 Begin: 21:30 End: 22:49 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 00h 44m 6s Dec – 41d 16m 09s Transit Time: Moon: 25 days	
	M 31, Andromeda Galaxy, NGC 224 - SA(b) m4.4 spiral galaxy. M 32, NGC 221 – E2, m9.0 compact elliptical M 101, NGC 205 – E5 m8.9 peculiar galaxy The largest galaxy within the local group. M31 and M101 are companions to M31.	
Processing Notes:	Gain: 101 Offset: 8 Exposure: 120 x 60sec Binning: 1x1	



Messier 33 – Triangulum Galaxy

Equipment Used:
 Astro Tech 80ED – 560mm f/7
 ZWO ASI533MC Pro
 UV/IR filter
 Celestron AVX Mount



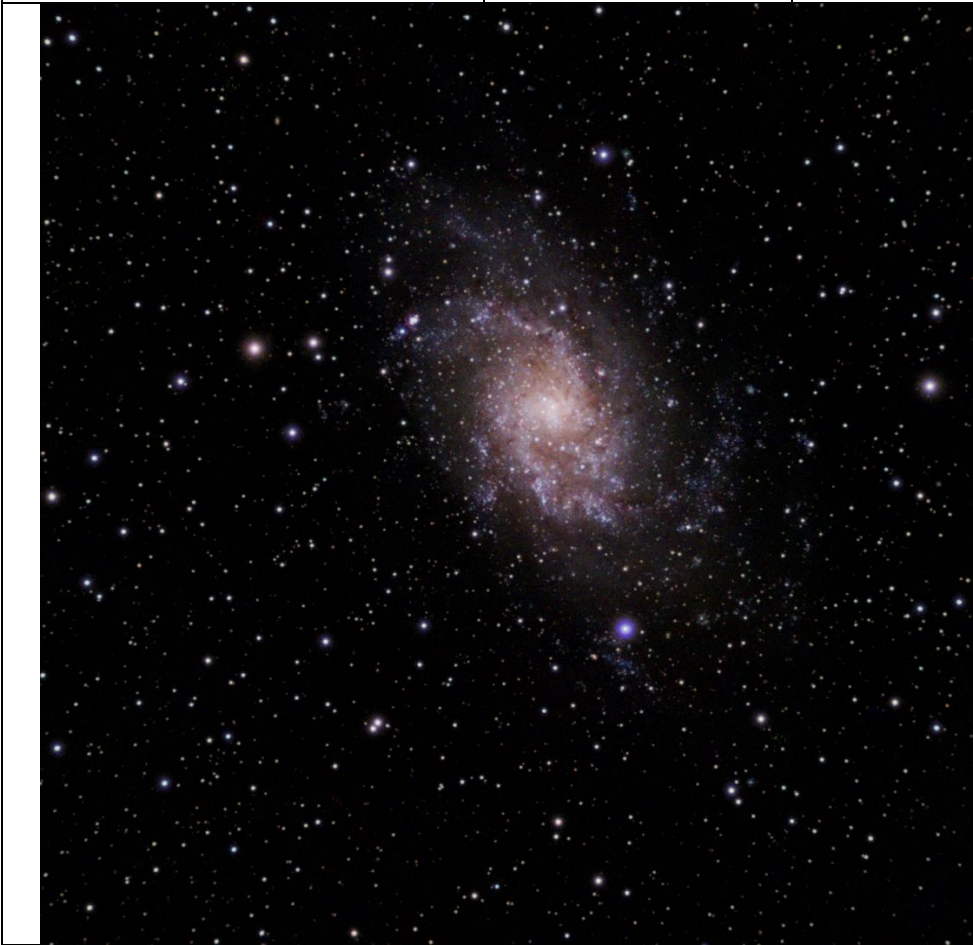
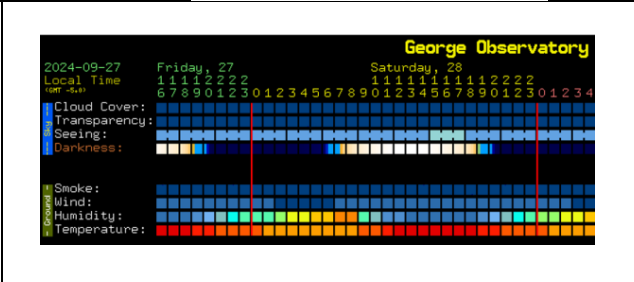
Session Details:
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 Begin: 21:08
 End: 00:43

 Location: Astro_Shed Obervatory
 Latitude: +29deg 10m 8s
 Longitude: - 95deg 38min 7sec

Center of F.O.V
 RA – 01h 33m 51s
 Dec - +30d 39m 37s

 Transit Time:

 Moon: 25 days

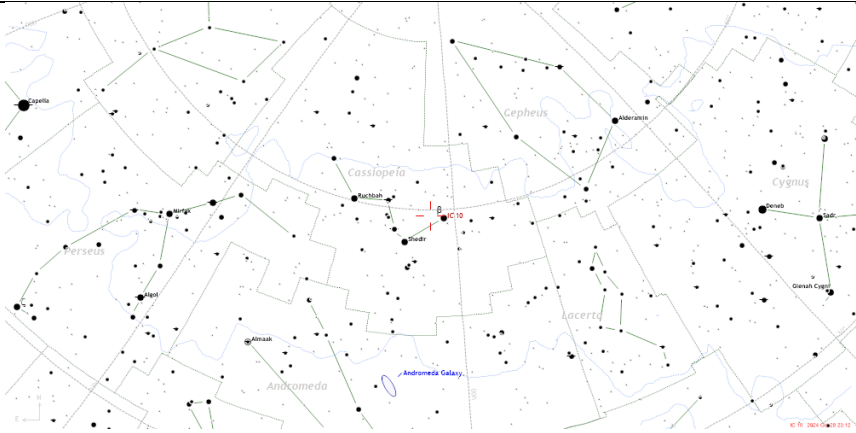
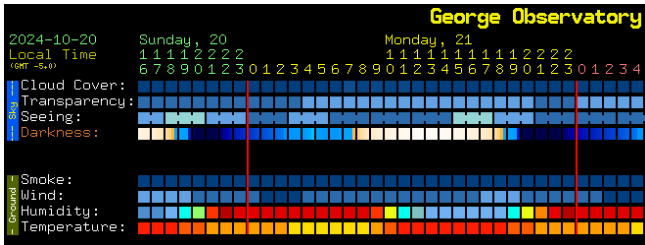
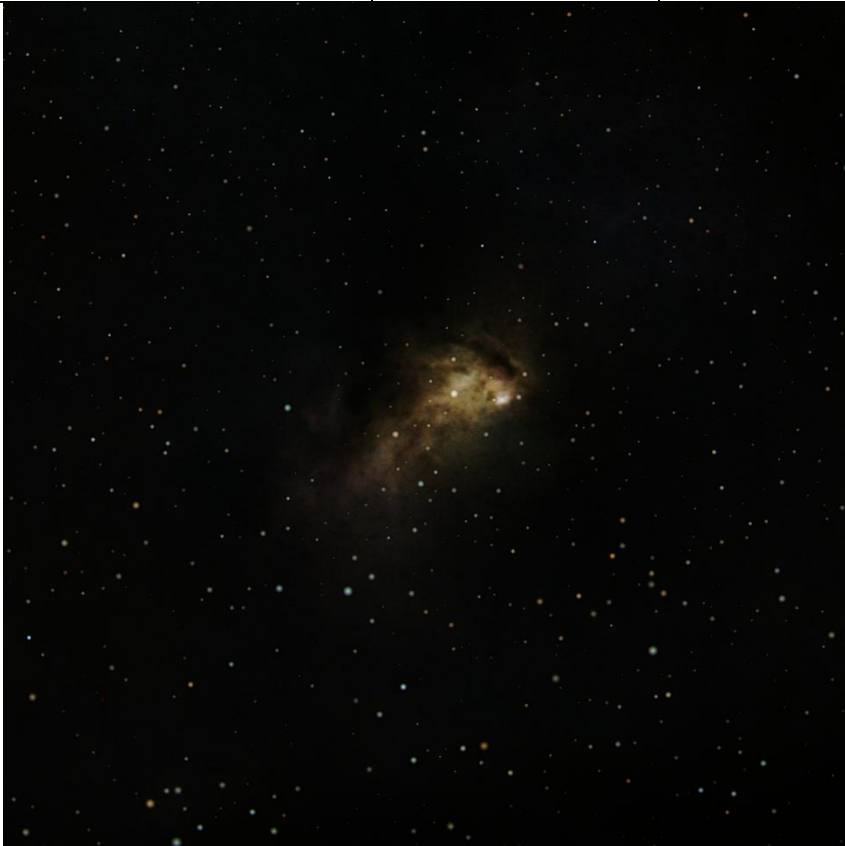


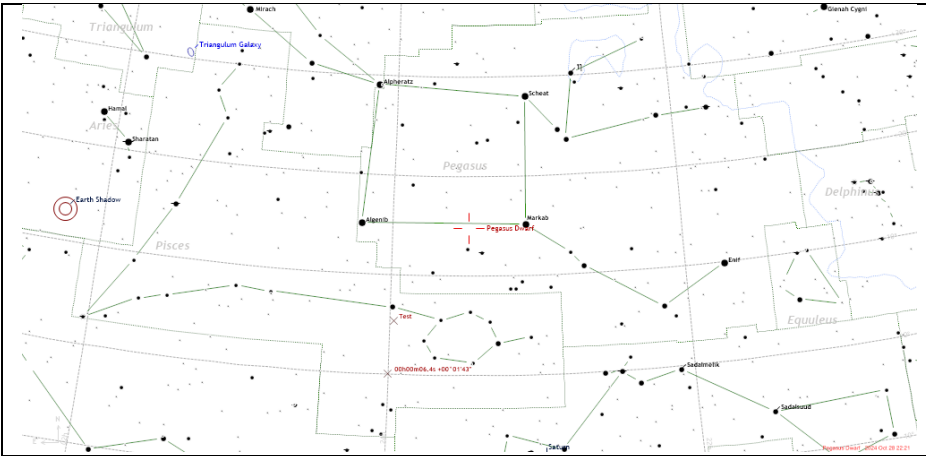
M 33, NGC 598, – SA(cd) m6.3

The red areas in this image highlight the areas of star formation from HII rich gas pockets. There is also an abundance of blue stars which are relatively young stars.

Processing Notes:

Gain: 101
Offset: 8
Exposure: 220 x 60sec
Binning: 1x1

		IC 10 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 10-21-24 Begin: End: Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 44m 28s Dec - +02d 07m 04s Transit Time: Moon: 19 days	
		IC 10 – Ibm, m11.8 Irregular galaxy. Obvious dark lanes in what appears to be an extremely disturbed galaxy. Bright core is off-center. Very interesting visually.
Processing Notes: Usual process.		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1



Pegasus Dwarf Galaxy

Equipment Used:
Celestron C8 – 2030mm f/10, x.63 reducer
ZWO ASI533MC Pro
UV/IR Filter
Celestron AVX Mount



Session Details:

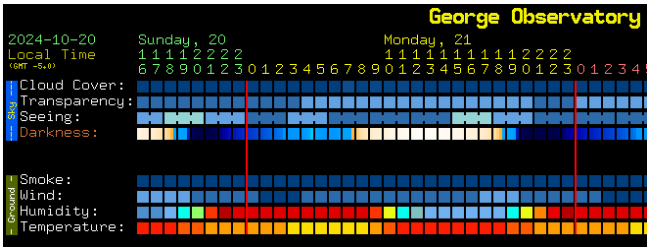
Date(s): 10-21-24
Begin: 19:58
End: 22:15

Location: Astro_Shed Obervatory
Latitude: +29deg 10m 8s
Longitude: - 95deg 38min 7sec

Center of F.O.V
RA – 23h 29m 52s
Dec - +14d 52m 55s

Transit Time:

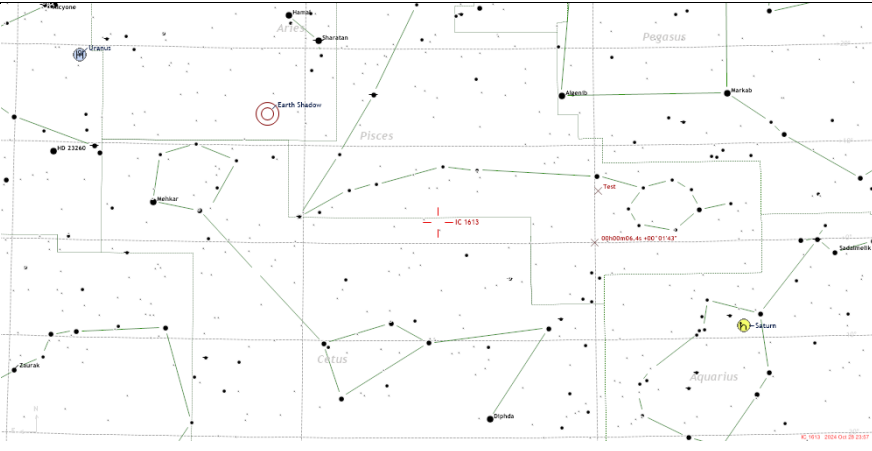
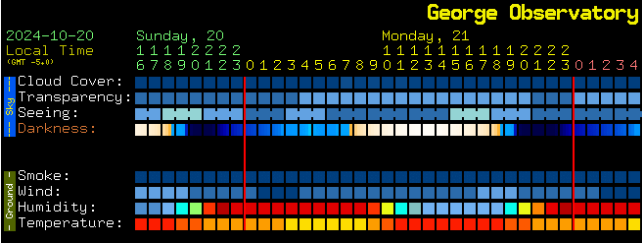
Moon: 1 days

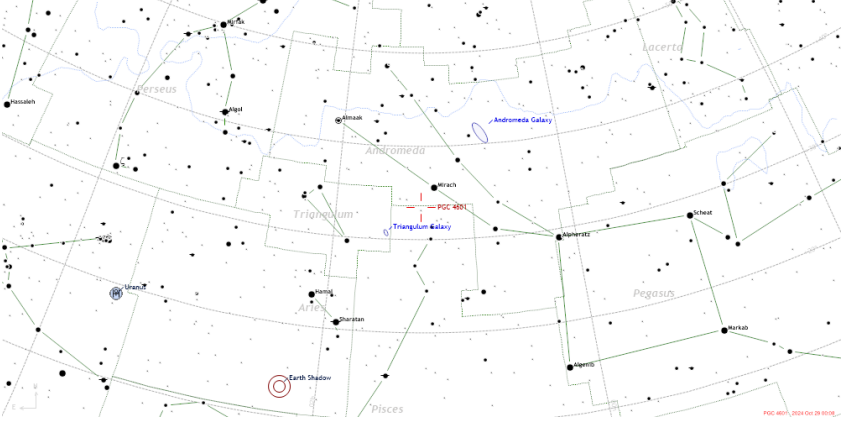
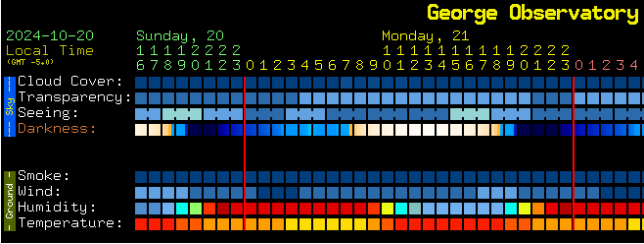
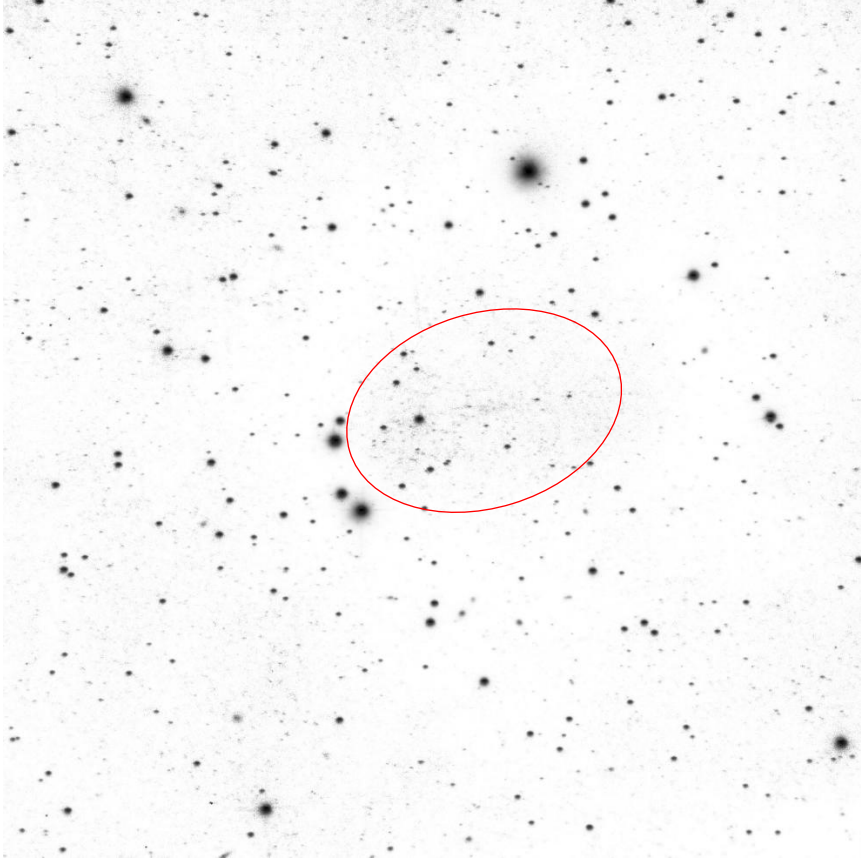


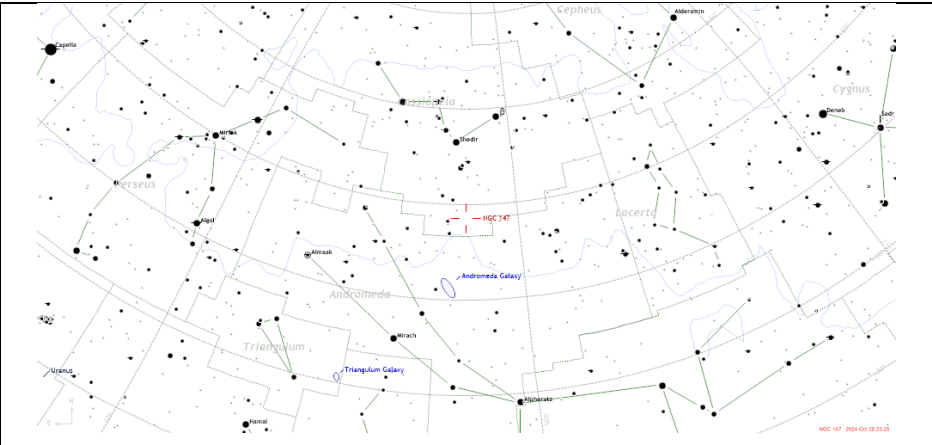
Pegasus Dwarf Galaxy – Irr(d), m13.2 Irregular dwarf galaxy. There is a very small spiral galaxy below which looks like Saturn.

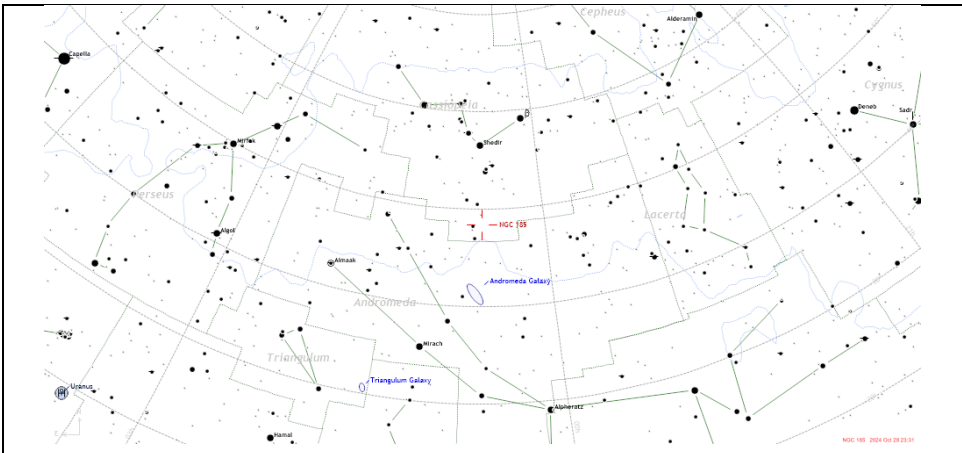
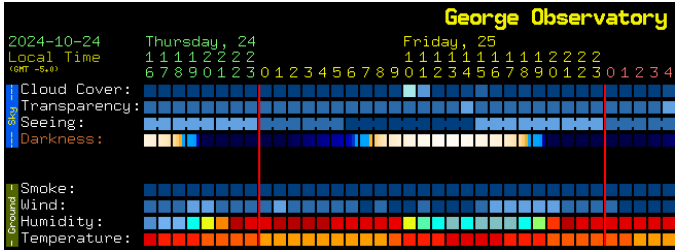
Processing Notes: Usual processing except for heavy crop prior to background extraction and stars not resynthesized.

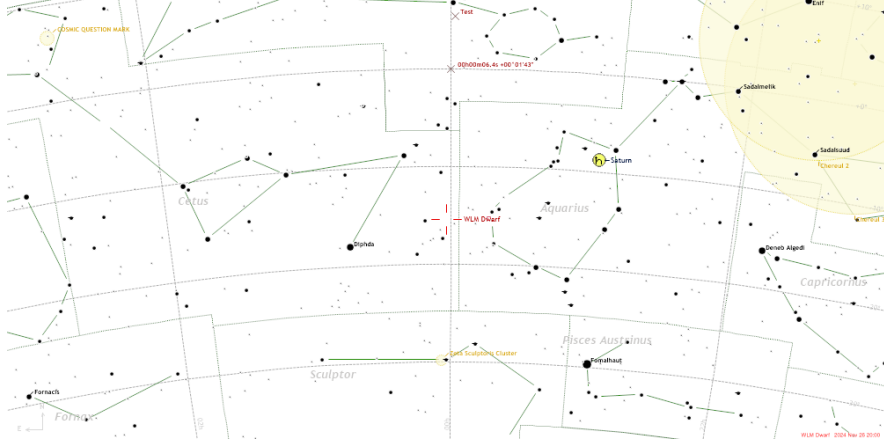
Gain: 101
Offset: 8
Exposure: 85x60sec
Binning: 1x1

		IC 1613 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 10-21-24 Begin: 22:22 End: 23:24 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 44m 28s Dec - +02d 07m 04s Transit Time: Moon: 19 days	
		IC 1613 – IB(s) m9.9 Irregular galaxy. Appears more like a large, dispersed star cluster. There is no obvious core area.
Processing Notes: Usual processing except for heavy crop prior to background extraction and stars not resynthesized.		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1

		AND II Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 10-23-24 Begin: 19:56 End: 21:27 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 1h 16m 28s Dec - +33d 25m 50s Transit Time: Moon: 21 days	
		AND II – Dwarf spheroid galaxy, m13.5. Unclear whether this is a satellite of M32 or M33 galaxies. Extremely faint and diffused object.
Processing Notes: Usual processing except for heavy crop prior to background extraction and stars not resynthesized. Final image converted to black and white and inverted to show the faint galaxy in higher contrast.		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1

		NGC 147 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 10-23-24 Begin: 21:33 End: 20:52 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 0h 34m 34s Dec - +48d 38m 37s Transit Time: Moon: 21 days	
		NGC 147 – E5 pec, m10.5 dwarf spheroid galaxy, about 1 degree away from NGC 185. Both are companion galaxies to M31.
Processing Notes: Usual processing except for heavy crop prior to background extraction.		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1

		NGC 185 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 10-23-24, 10-24-24 Begin: 20:58 End: 23:36 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 0h 34m 34s Dec - +48d 38m 37s Transit Time: Moon: 21 days	
		NGC 185 – E3 pec, m10.1 galaxy with a noticeable dark lane near the galaxies core.
Processing Notes:		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1

		WLM Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 11-21-24 Begin: 21:46 End: 22:56 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 00h 01m 58s Dec --15d 27m 39s Transit Time: Moon: 21 days	2024-11-21 Thursday, 21 Local Time 01234567890123012345678901234

Chapter 2 – Extragalactic Objects

<i>Extragalactic Globular Clusters - 6/8</i>		
Name	Date	Comments
NGC 1851		
M79	2-23-25	
NGC 2419	2-28-25	
M54		
Terzan 7		
Palomar 12		

Object:	M 79			Constellation:	Lupus		
Sky	George Observatory 2025-02-23 Sunday, 23 Monday, 24 Local Time 111112222 1111111112222 for sun 5678901230123456789012345678901230123 Cloud Cover: [grid] EQMf Cloud: [grid] Transparency: [grid] Seeing: [grid] Darkness: [grid] Smoke: [grid] Wind: [grid] Humidity: [grid] Temperature: [grid]			Location:	Astro_Shed		
				Longitude:	Obervatory		
				Latitude:	+29deg 10m 8s - 95deg 38min 7sec		
Equipment							
Scope:	Celestron 8" SCT						
Camera:	ZWO ASI 533MC Pro						
Date:	2/23/25	Start Time:	21:03	Moon (Days)	25		
	2/24/25		19:14		26		
Filter:	UV/IR	Exposure (s)	180	Number	25		

Object M79 is a relatively old globular cluster exhibiting a larger proportion of red-yellow stars. Notable is the trail of stars coming off the top of the cluster most likely caused by tidal effects. Also in the frame at the top center are three faint galaxies.

Description:



Processing Notes Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, flats and bias frames used in calibration.

Object:	NGC 2419 – Intergalactic Wanderer			Constellation:	Lynx
Sky	George Observatory 2025-02-28 Fri Local Time 11:22:22 UTC 8:901230123456789012345678901230123456789012				

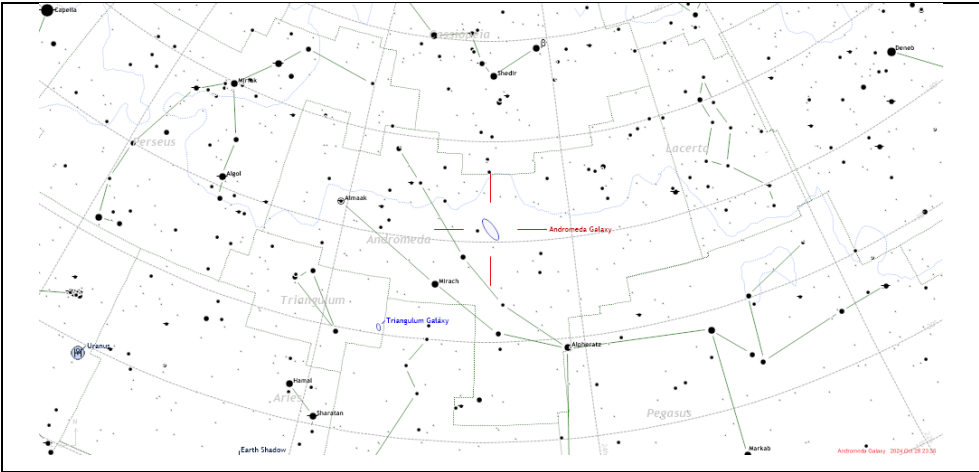
Object Description: NGC 2419 is approximately 300kLy’s away from us resulting in its nick name, “The Intergalactic Wanderer.” However, most agree that it does orbit our galaxy.



Processing Notes Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity.

<i>M31 Extragalactic Objects (6)</i>		
Name	Date	Comments
NGC 206	9/27/24	
M31 – G1		
M31-G76		
M31-G78	9/27/24	
M31-G156	9/27/24	
M31-G226	9/27/24	
M31-G233	9/27/24	
M31-G280	9/27/24	

With the exception on NGC 206, all the objects identified here are globular clusters. NGC 206 is a large cluster of blue giants mixed in with interstellar hydrogen gas.



Messier 31 – Extragalactic Objects

Equipment Used:
Astro Tech 80ED – 560mm f/7
ZWO ASI533MC Pro
ZWO UV/IR filter
Celestron AVX Mount



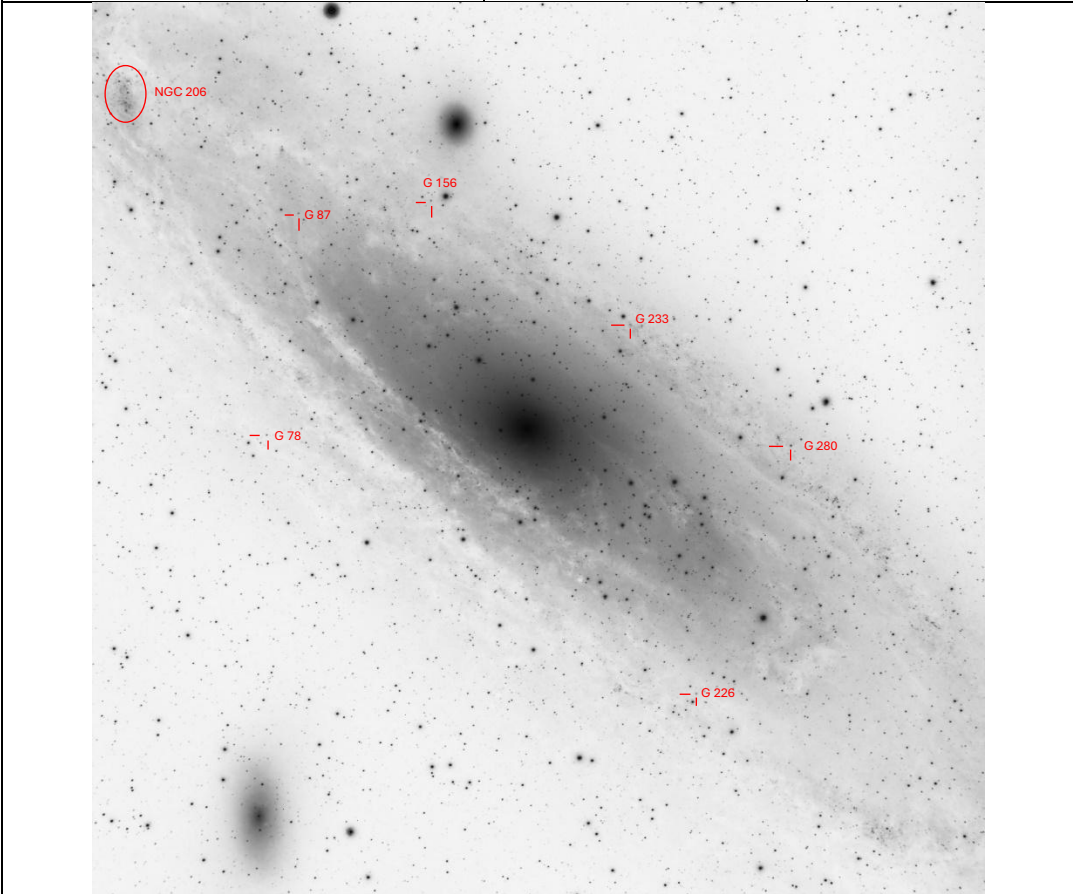
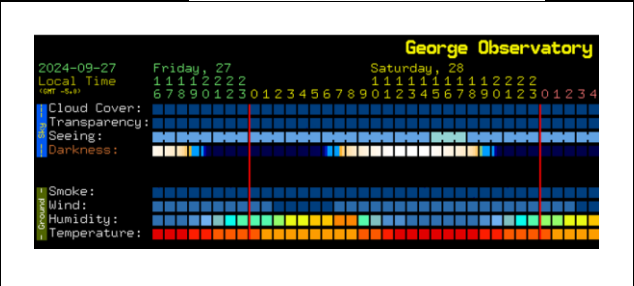
Session Details:
Date(s): 9-27-24
Begin: 21:30
End: 22:49

Location: Astro_Shed Obervatory
Latitude: +29deg 10m 8s
Longitude: - 95deg 38min 7sec

Center of F.O.V
RA – 00h 44m 6s
Dec – 41d 16m 09s

Transit Time:

Moon: 25 days



NGC 206 – O-B Stellar association

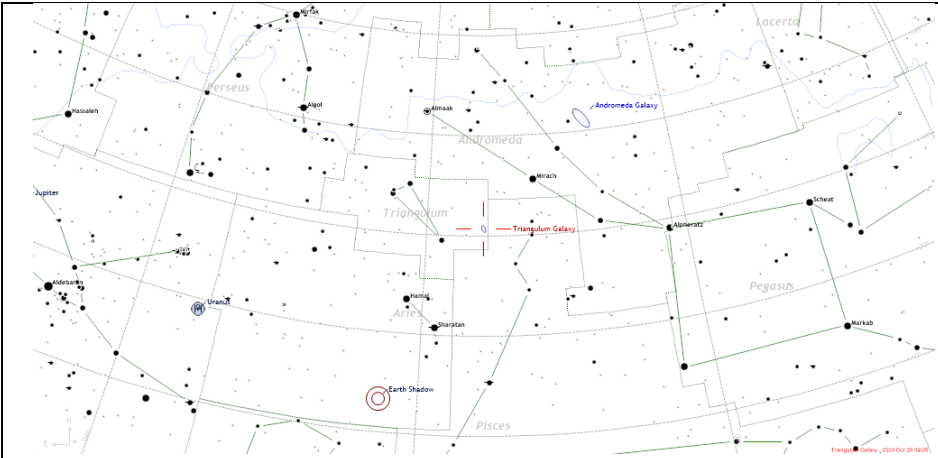
G 78, 87, 156, 226, 233, and 280 – Globular Clusters

Processing Notes: Color image of M31 taken 9-23-24 and 9-27-24 was transformed into black and white and inverted to boost the contrast to make the fainter objects stand out more.

Gain: 101
Offset: 8
Exposure: 120 x 60sec
Binning: 1x1

<i>Brightest Objects in M33 - 10/15 (12)</i>		
Name	Date	Comments
M33	9-23-24, 9-27-24	
NGC 588	9-23-24, 9-27-24	HII region
NGC 592	9-23-24, 9-27-24	HII region and star cloud
NGC 595	9-23-24, 9-27-24	HII region
NGC 603	9-23-24, 9-27-24	Triple star
NGC 604	9-23-24, 9-27-24	HII region
C 39		
IC 131	9-23-24, 9-27-24	Emission/reflection nebula
IC 132	9-23-24, 9-27-24	Emission/reflection nebula
IC 133	9-23-24, 9-27-24	Emission/reflection nebula
IC 137	9-23-24, 9-27-24	Globular Cluster
IC 139	9-23-24, 9-27-24	Globular Cluster
IC 142	9-23-24, 9-27-24	HII region and star cloud
IC 143	9-23-24, 9-27-24	HII region and star cloud

All of these objects are associated with M33, The Triangulum Galaxy.



Messier 33 – Extragalactic Objects

Equipment Used:
 Astro Tech 80ED – 560mm f/7
 ZWO ASI533MC Pro
 UV/IR filter
 Celestron AVX Mount



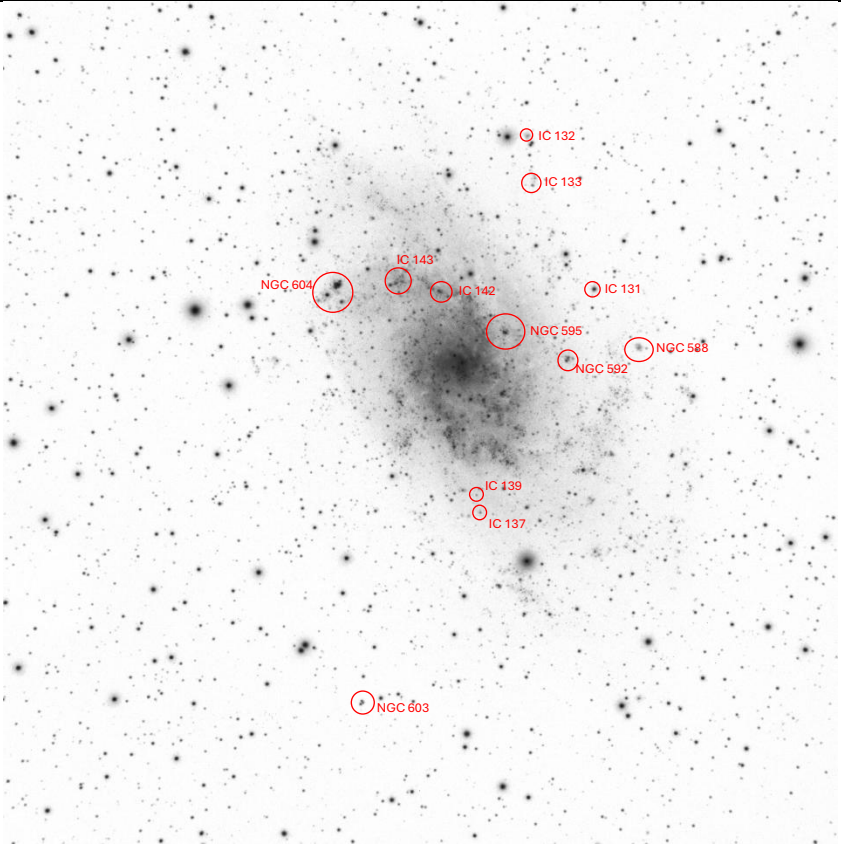
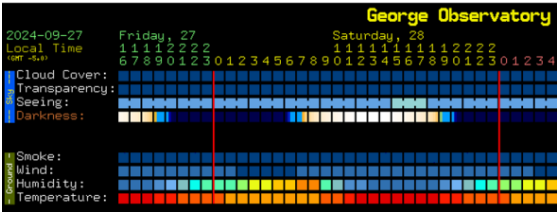
Session Details:

Date(s): 9-22-24, 9-27-24
 Begin: 21:08
 End: 00:43

Location: Astro_Shed Obervatory
 Latitude: +29deg 10m 8s
 Longitude: - 95deg 38min 7sec

Center of F.O.V
 RA – 01h 33m 51s
 Dec - +30d 39m 37s

Transit Time:
 Moon: 25 days

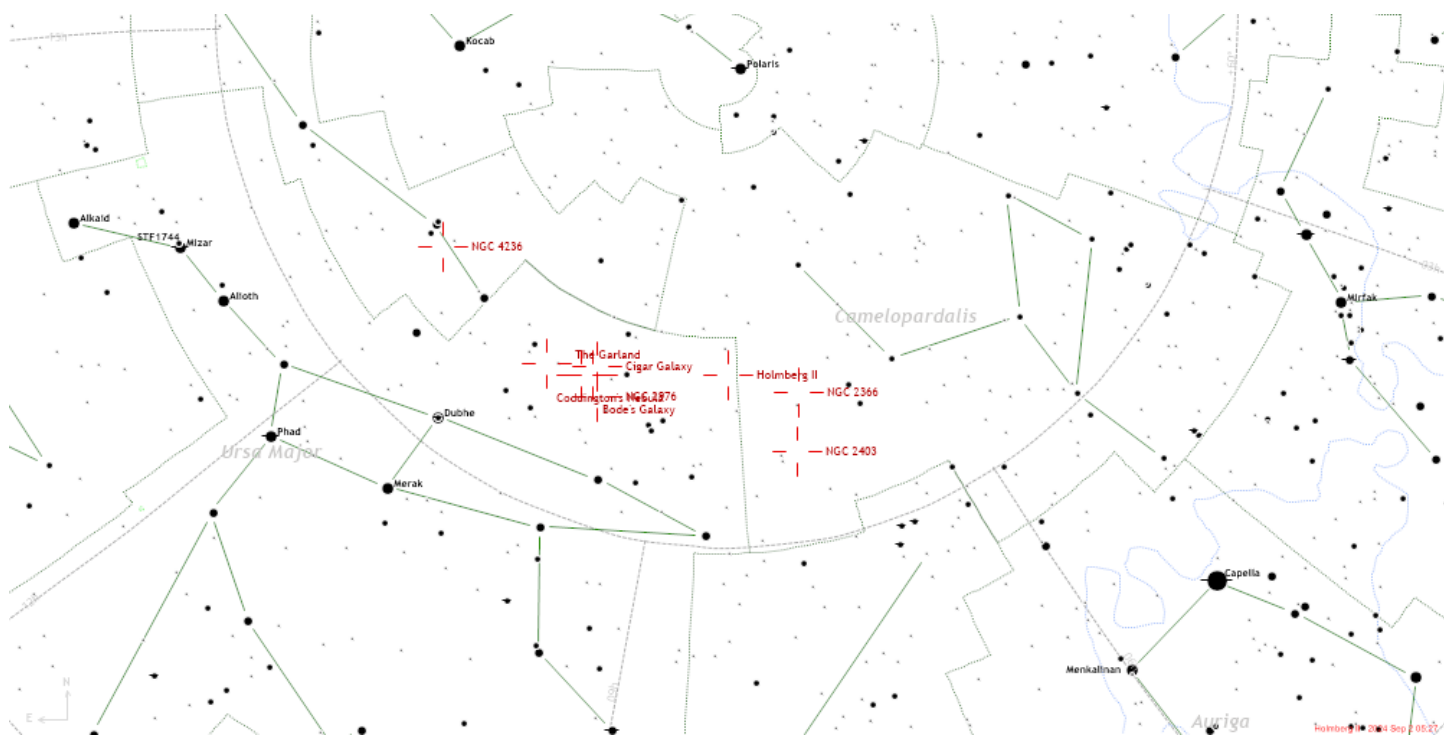


NGC 588, 595, 604 – HII regions
 NGC 592 – HII region and Star cloud
 NGC 603 – Triple star
 IC 131, 132, 133 – Bright emission or reflection nebulae
 IC 137, 139 – Globular clusters
 IC 142, 143 – HII region and star clouds

Processing Notes: Color image of M33 taken 9-23-24 and 9-27-24 was transformed into black and white and inverted to boost the contrast to make the fainter objects stand out more.

Gain: 101
Offset: 8
Exposure: 220 x 60sec
Binning: 1x1

Chapter 3 – M81 Group



Neighboring Galaxies – M81 Group – 8/13			
Name	Date	Distance (MLy)	Comments
NGC 2366			
NGC 2403	2/25/25	11.1	
Holmberg II			
M 81	2/16/25	11.8	Bode's Galaxy
Holmberg I			
NGC 2976			
M 82	2/16/25	12.5	Cigar Galaxy
NGC 3077	2/23/25	11.8	The Garland Galaxy
IC 2574	2/23/24	10.7	Coddington's Nebula
NGC 4236			

This group of galaxies is in North-Western Ursa Major and centered on the two major members, M81 and M82.

Object:		NGC 2403		Constellation:		Camelopardis	
Sky		George Observatory 2025-02-25 Tuesday, 25 Wednesday, 26 Local Time 1 1 1 1 2 2 2 2 1 1 1 1 1 1 1 1 2 2 2 2 UT-4h 5 6 7 8 9 0 1 2 3 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 0 1 2 3 4 Cloud Cover: [grid] ECMWF Cloud: [grid] Transparency: [grid] Seeing: [grid] Darkness: [grid] Smoke: [grid] Wind: [grid] Humidity: [grid] Temperature: [grid]		Location:		Astro_Shed	
		Longitude:		Obervatory			
		Latitude:		+29deg 10m 8s - 95deg 38min 7sec			
Equipment							
Scope:		Celestron 8" SCT					
Camera:		ZWO ASI 533MC Pro					
Date:		2/23/25	Start Time:	19:15	Moon (Days)	26	
Filter:		UV/IR	Exposure (s)	180	Number	25	
Object Description:		SAB(cd) m8.11 barred spiral galaxy. Many discrete clusters are visible along its arms.					
							
Processing Notes		Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, and flat frames used in calibration.					

Object:	IC 2574 – Coddington’s Nebula			Constellation:	Canis Major
Sky	George Observatory 2025-02-24 Mon Tuesday, 25 Local Time 11:22:22 11:11:11 11:14:22:22 UT-400 890123012345678901234567890123012345 Cloud Cover: [grid] ECMWF Cloud: [grid] Transparency: [grid] Seeing: [grid] Darkness: [grid] Smoke: [grid] Wind: [grid] Humidity: [grid] Temperature: [grid]			Location:	Astro_Shed
				Longitude:	Obervatory
				Latitude:	+29deg 10m 8s
					- 95deg 38min 7sec
Equipment	Scope: Celestron 8” SCT				
	Camera: ZWO ASI 533MC Pro				
Date:	2/24/25	Start Time:	22:06	Moon (Days)	27
	2/25/25		20:44		
Filter:	Dual	Exposure (s)	180	Number	40
	Band				
Object Description:	SAB(s) m10.8 Appears as an irregular galaxy with bright clusters on southern side. Central nucleus is not very bright as compared to spirals suggesting a lot of obscuring dust around the nucleus.				
					
Processing Notes	Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, and flat frames used in calibration.				

Object:	M 81 – Bode’s Galaxy			Constellation:	Ursa Major	
Sky	George Observatory 2025-02-16 Sunday, 16 Monday, 17 Local Time 11112222 111111112222 Cloud Cover: 78901230123456789012345678901234 ECMWF Cloud: Transparency: Seeing: Darkness: Smoke: Wind: Humidity: Temperature:			Location:	Astro_Shed	
				Longitude:	Observatory	
				Latitude:	+29deg 10m 8s - 95deg 38min 7sec	
Equipment						
Scope:	Celestron 8” SCT					
Camera:	ZWO ASI 533MC Pro					
Date:	2/16/25	Start Time:	22:43	Moon (Days)		
	2/23/25		20:32			
Filter:	UV/IR	Exposure (s)	180	Number	23	
Object Description:	A beautiful example of a “Grand Design,” spiral galaxy. Spiral arms show areas of clustering with red and blue emphasis.					
						
Processing Notes	Gradient removal, color corrected. GHS stretch, stars reduced and final sharpening and de-noising in Cosmic Clarity. Darks, flats and bias frames used in calibration.					

Object:	M 82 – The Cigar Galaxy			Constellation:	Ursa Major
Sky	George Observatory 2025-02-16 Sunday, 16 Monday, 17 Local Time 1 1 1 2 2 2 2 1 1 1 1 1 1 1 1 1 2 2 2 2 7 8 9 0 1 2 3 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 Cloud Cover: ECMWF Cloud: Transparency: Seeing: Darkness: Smoke: Wind: Humidity: Temperature:			Location:	Astro_Shed
				Longitude:	Observatory
				Latitude:	+29deg 10m 8s
					- 95deg 38min 7sec
Equipment	Scope: Celestron 8" SCT Camera: ZWO ASI 533MC Pro				
Date:	2/16/25	Start Time:	21:26	Moon (Days)	
Filter:	UV/IR	Exposure (s)	180	Number	25

Object

Description:

A bright, edge-on starburst galaxy showing signs of hydrogen gas spewing from its core along its major axis. Disk is showing slight signs of warpage most likely due to interaction with its neighbor, M81. Also known as ARP 337.



Processing

Notes

Gradient removal, color corrected. GHS stretch, stars reduced and final sharpening and de-noising in Cosmic Clarity.

Object:	NGC 3077					Constellation:	Ursa Major			
Sky	2025-02-23 Sunday, 23 Local Time 111112222 5678901230123456789012345678901230123 Cloud Cover: EDMUF Cloud: Transparency: Seeing: Darkness: Smoke: Wind: Humidity: Temperature:					Location:		Astro_Shed Obervatory Longitude: Latitude: +29deg 10m 8s - 95deg 38min 7sec		
Equipment	Scope: Celestron 8" SCT Camera: ZWO ASI 533MC Pro									
Date:	2/23/25	Start Time:			20:42	Moon (Days)				
Filter:	UV/IR	Exposure (s)			180	Number		25		

Object

Description:

10 pec m10.6 Elliptical peculiar galaxy. Peculiarity arises because of its active nucleus and scatter dust lanes which are both visible in the image.

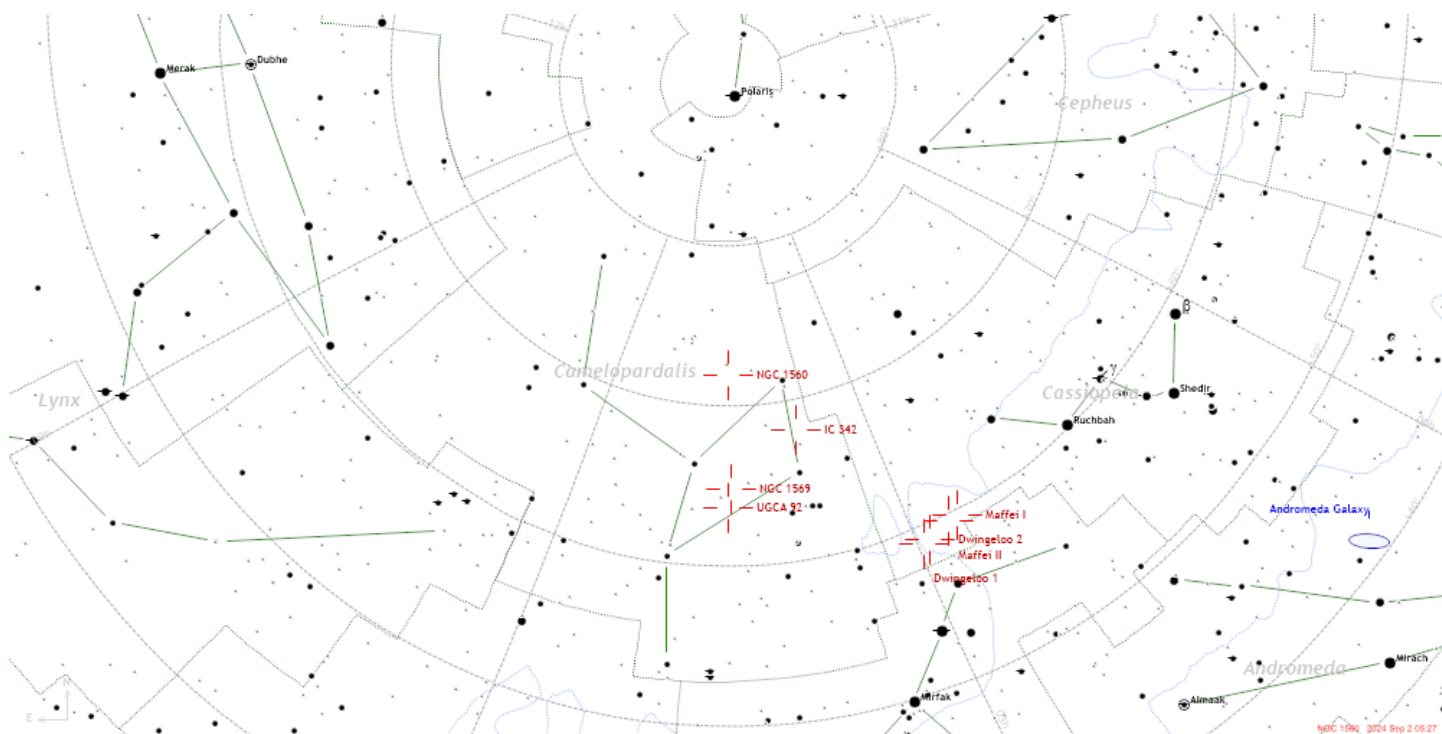


Processing

Notes

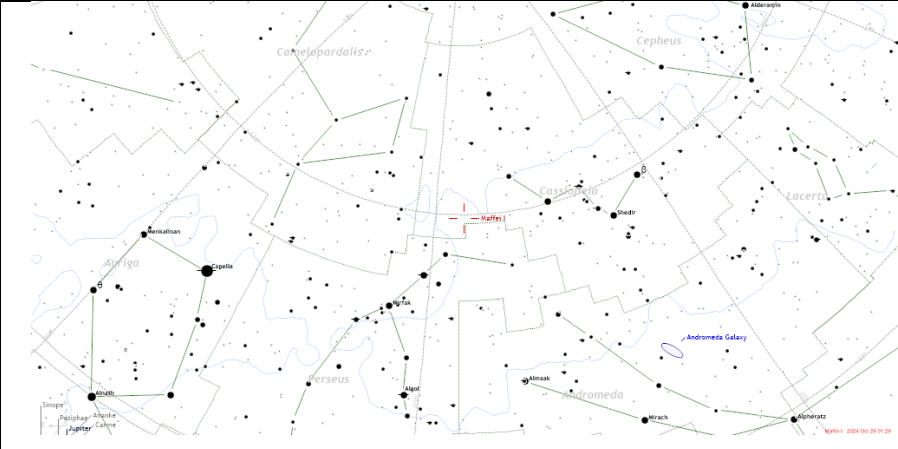
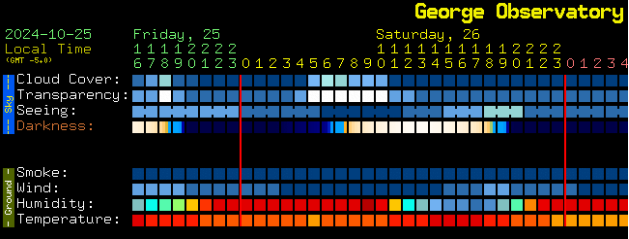
Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, flats and bias frames used in calibration.

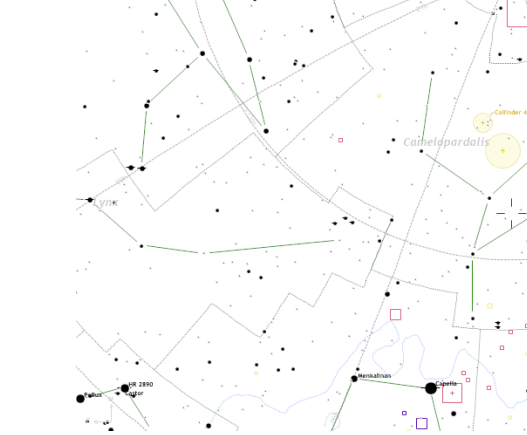
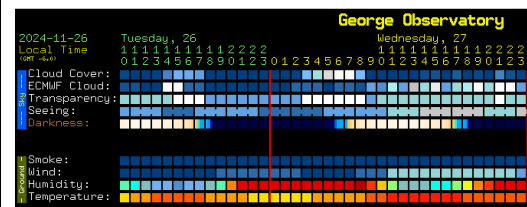
Chapter 4 – The Maffei Groups

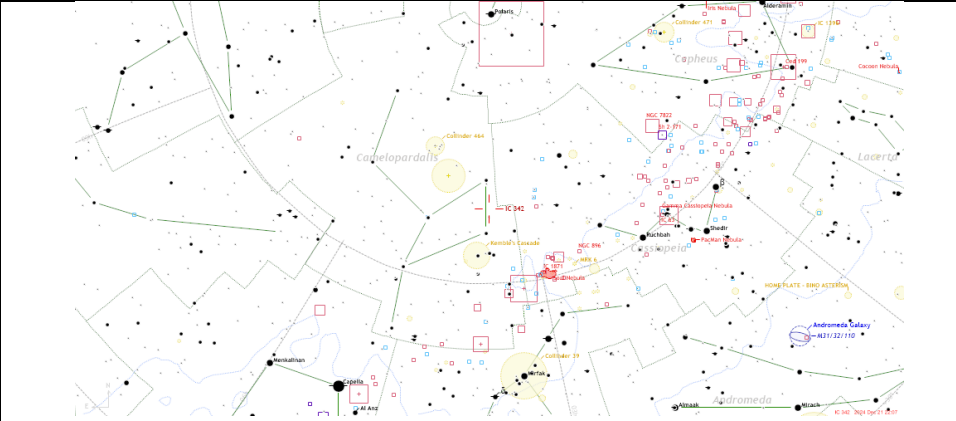
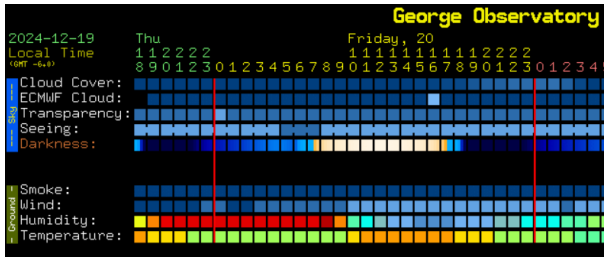


Neighboring Galaxies – Maffei 1 and 2 Group – 2/5 (3)			
Name	Date	Distance (MLy's)	Comments
IC 342	12-19-24	11.4	
Maffei 1	10-25-24	9.3	
Maffie 2		9.8	
Dwingeloo 1		9.8	
Dwingeloo 2		9.8	
NGC 1560		10.6	Never above local horizon
NGC 1569	11-26-24	9.4	
UGCA 92		7.9	

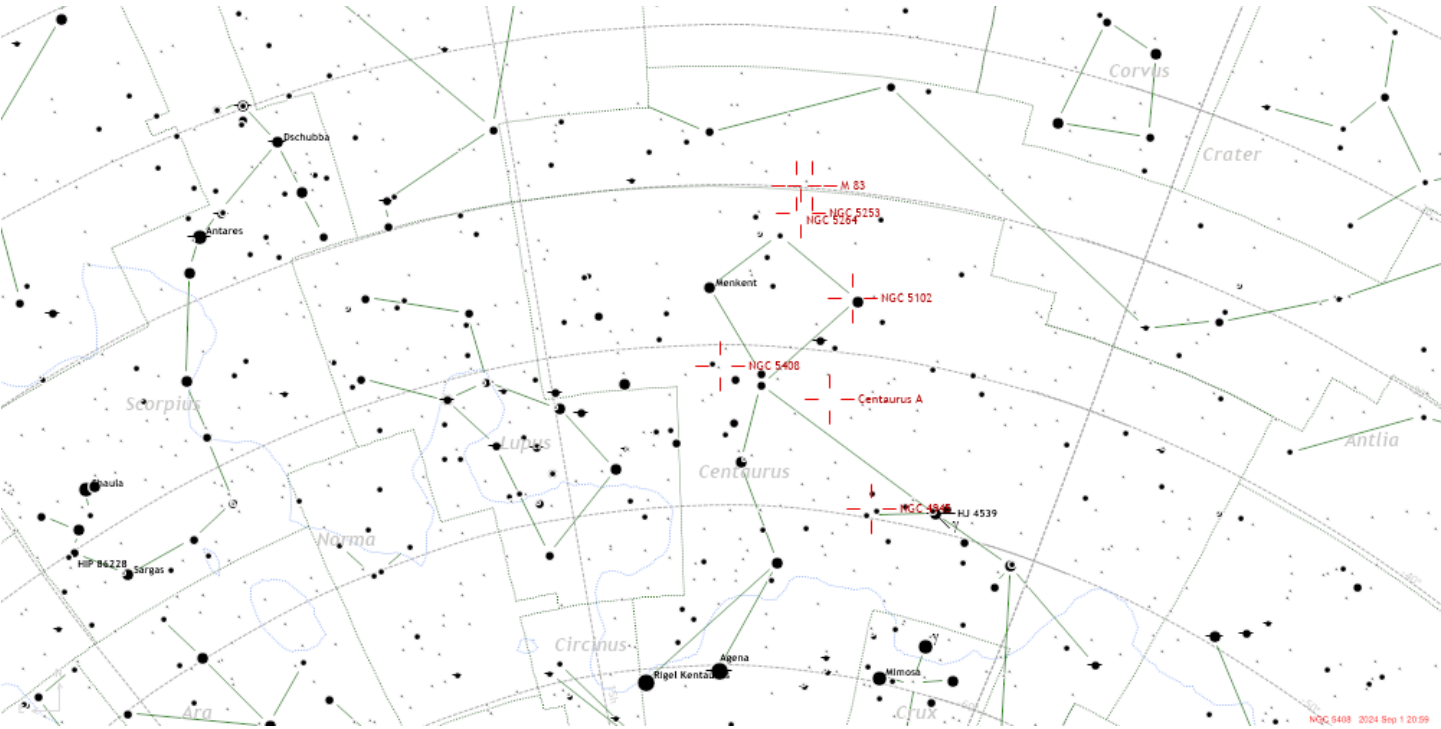
This is an interesting group of galaxies that sits on the edge of our own galaxy's plane making the objects difficult to image as the dust in our galaxy's plane obscures the light from these objects. The galaxies are spread across three constellations, Perseus, Cassiopeia and Camelopardalis and split into two subgroups, one centered on IC 342 and the other on Maffei I and II. One would wonder why the two groups are considered connected as there is nothing significant in the space between them.

		Maffei 1 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 10-25-24 Begin: 22:23 End: 23:05 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – h m s Dec - +d m s Transit Time: Moon: 23 days	
		Maffei 1- E3, m11.4, elliptical galaxy that is hidden behind the dust of the Milky Way's disk. All but the longest wave lengths of light are blocked resulting in this reddish color.
Processing Notes: No flats used, deconvoluted stars were not resynthesized.		Gain: 101 Offset: 8 Exposure: 40x60sec Binning: 1x1

		NGC 1569 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 11-26-24 Begin: 21:59 End: 22:36 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 04h 30m 49s Dec - +64d 50m 53s Transit Time: Moon: 26 days	
		NGC 1569 – IBm m11.9 barred irregular galaxy. Arp 210 - Irregularities, absorption, and resolution.
Processing Notes: Stacked in Siril, gradient removal and denoised in Graxpert. Stars resynthesized in Siril. Stretched and denoised in SetiAstro.		Gain: 101 Offset: 8 Exposure: 19x120sec Binning: 1x1

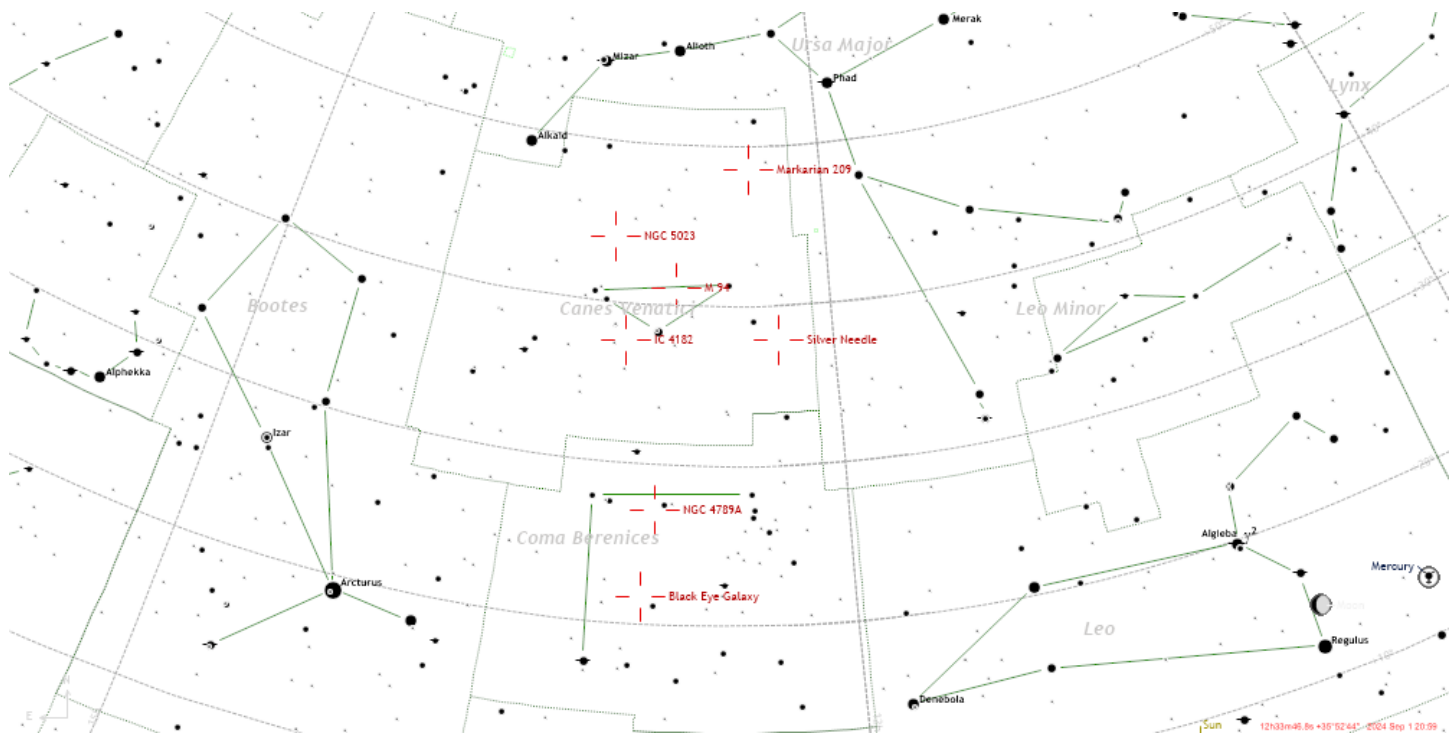
		IC 342 Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro SvBoney UV/IR ZWO AM5n Mount 
Session Details: Date(s): 12-19-24 Begin: 18:34 End: 19:47 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 3h 46m 49s Dec - +68d 6m 5s Transit Time: Moon: 18.8 days	
		IC 342 – SAB(cd), m9.1 face on barred spiral galaxy. Noticeable are the soft condensation of stars throughout its arms.
Processing Notes:		Gain: 101 Offset: 8 Exposure: 35 x 120sec Binning: 1x1

Chapter 5 – The M83 Group



Neighboring Galaxies – M83 Group – 4/7		
Name	Date	Comments
M83		
NGC 4945		
NGC 5102		
NGC 5128 (Cen A)		
NGC 5264		
NGC 5253		
NGC 5408		

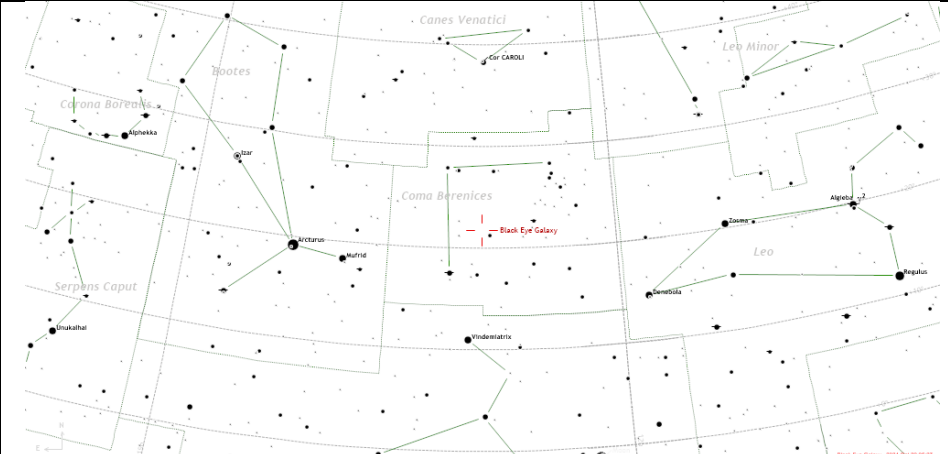
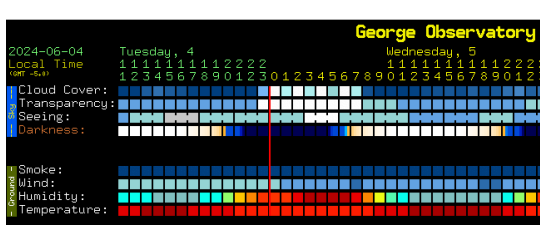
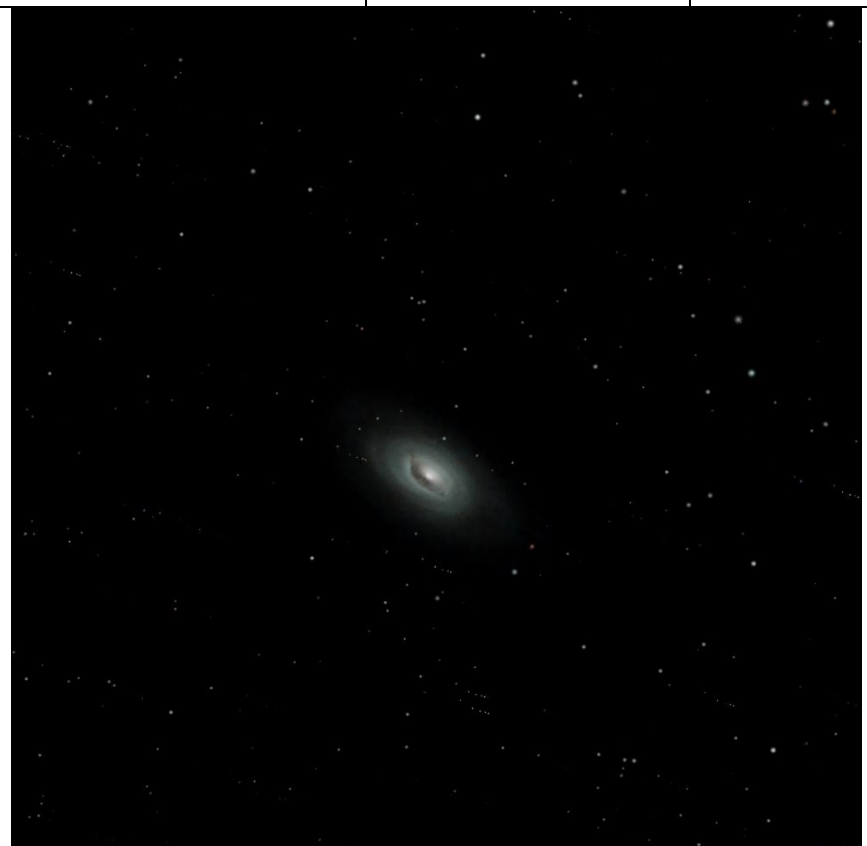
Chapter 6 – The M64 and M94 -Canes Venatici I Galaxy Cloud

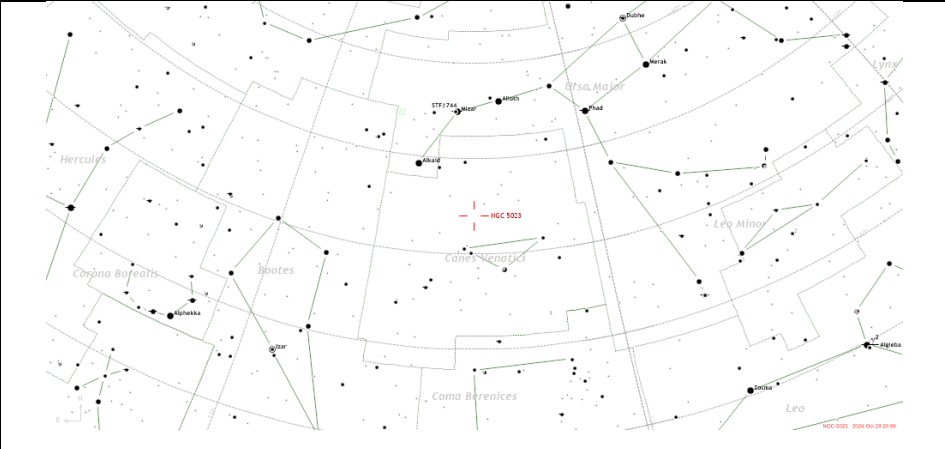
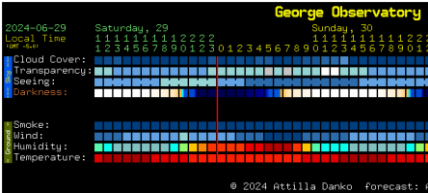


Neighboring Galaxies – M64 and M94 Group - 6/9 (2)

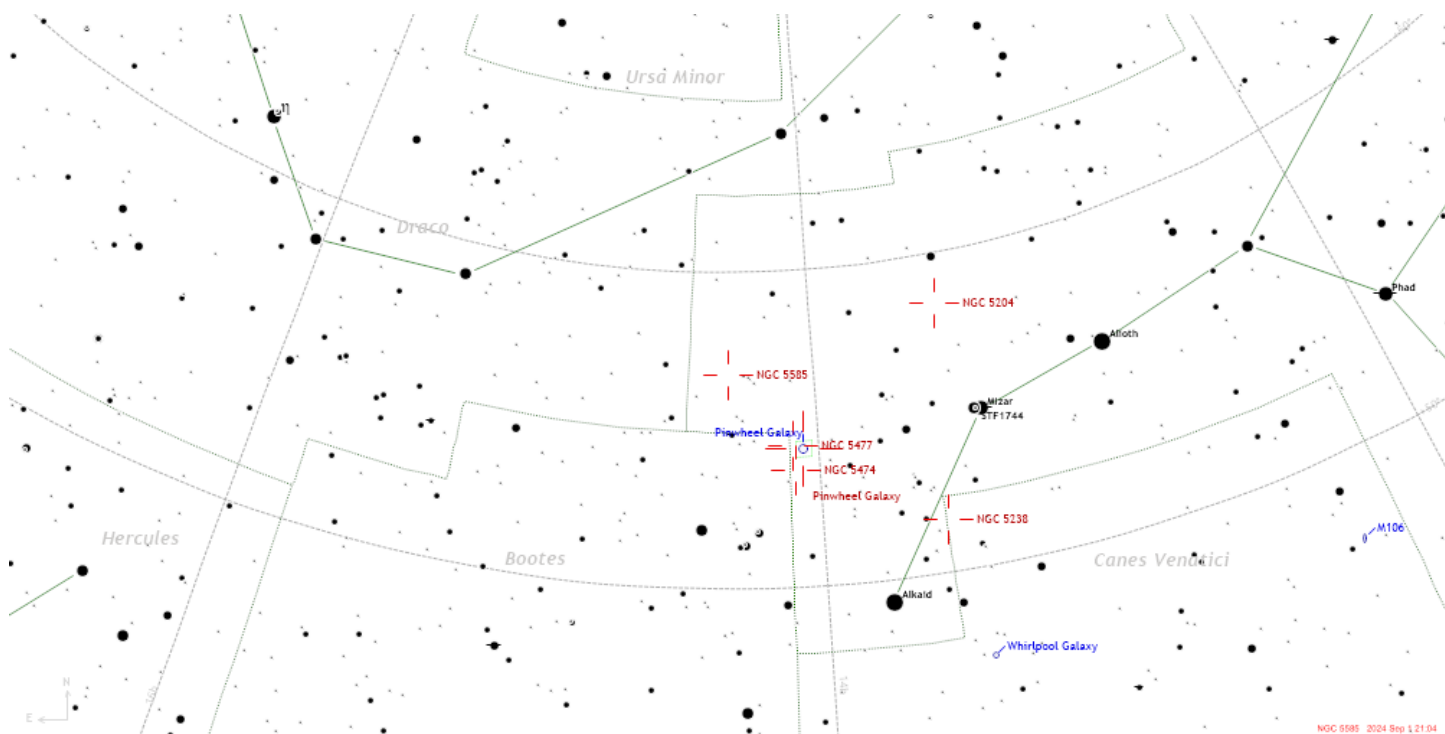
Name	Date Imaged	Distance (MLy)	Comments
UGCA 281		18	
UGC 7639		23.2	
IC 3689 (CT 689)		?	
NGC 4736 (M94)		16.7	
UGC 8024 (NGC 4789A)		14	
NGC 4826 (M64) (The Black Eye Galaxy)	6-4-24	17.7	
IC 4182		14	
NGC 5023	6-29-24	31.0	
NGC 4244 (Silver Needle Galaxy)		13.4	

This group of galaxies is spread across the constellations of Canes Venatici and Coma Bernices. It has a mean distance of about 17 MLY's which corresponds to its brightest two members, M64 and M94. The galaxy cluster is spread out over 27 degrees of the sky which equates to about 7 MLY at their median distance.

		M 64 – Blackeye Galaxy Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 06-04-24 Begin: End: Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – Dec - Transit Time: Moon: 28 days	
		M 64, NGC 4826 – SA(ab) type, m9.36. Intermediate spiral. A spiral with rather tight arms and a very noticeable dark lane wrapping around the inner core area. The spiral arms are remarkably smooth and featureless.
Processing Notes: 16 bits stack from SharpCap processed in Siril (background extraction, color correction and GHS). Final process in PS. Processing out the noise is difficult on these shorter integration times. BP is a little more aggressive than I like.		Gain: 250 Offset: 8 Exposure: 41x15s Binning: 1x1

		NGC 5023 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6/29/24 Begin: 21:43 End: 22:24 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 13h 13m 18s Dec - +43d 54m 44s Transit Time: Moon: 24 days	
		NGC 5023 S(cd), m12.85, 31Mly – An edge on galaxy in CVn and member of the Canes Venatici I Group. Only a slight brightening in the core region.
Processing Notes: Calibrated and stacked in Siril, Background and noise reduced in Graxpert, Color correction, deconvolution, and stretched in Siril. Post processed in PS.		Gain: 150 Offset: 8 Exposure: 74x30sec Binning: 2x2

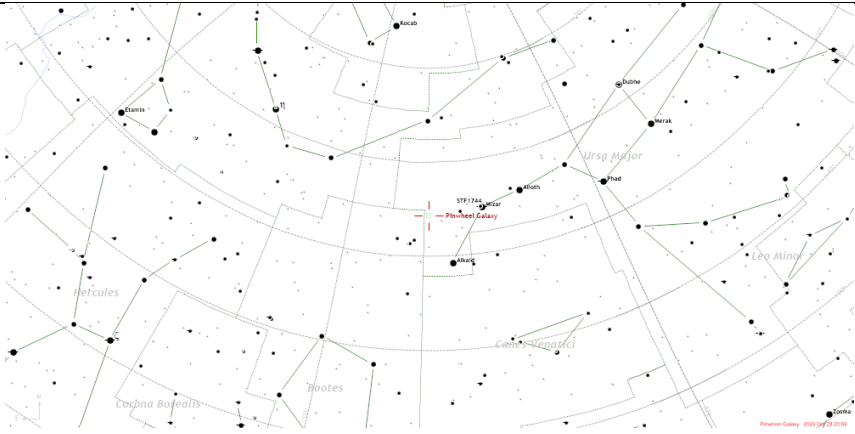
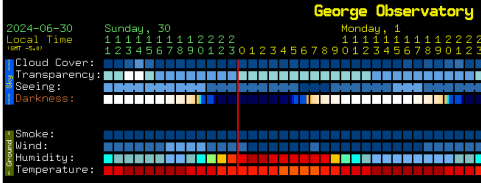
Chapter 7 – The M101 Group

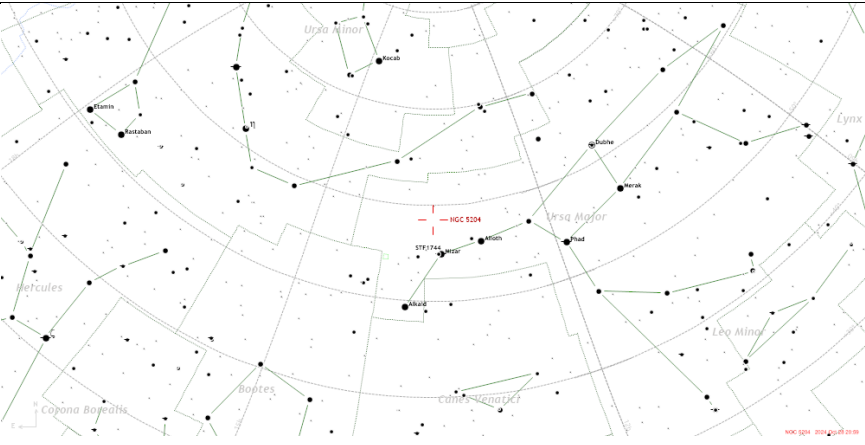
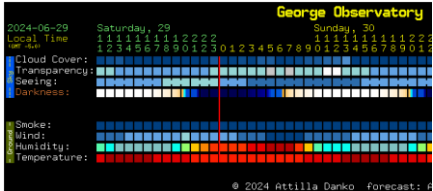


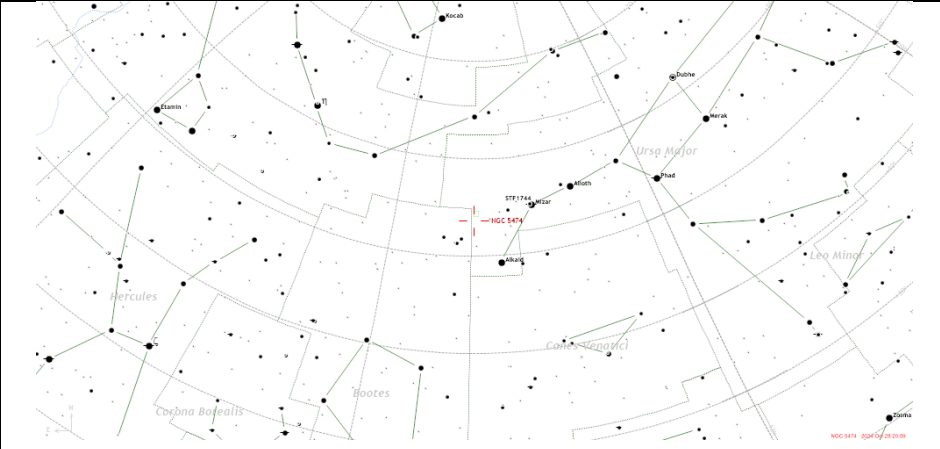
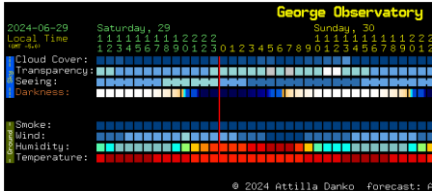
<i>Neighboring Galaxies – M101 Group – 4/6 (3)</i>			
Name	Date Imaged	Distance (MLy)	Comments
M101 (Pinwheel Galaxy)	6-30-24	21.5	Also known as ARP 26
NGC 5204	6-29-24	17.1	
NGC 5238		15.1	
NGC 5474	6-29-24	14.6	
NGC 5477		20.7	
NGC 5585		24.0	

This galaxy group is centered on Messier 101, the brightest member of the group. All members are within the Eastern boundary of Ursa Major, and all but one are above the handle of the “Bigger Dipper.”

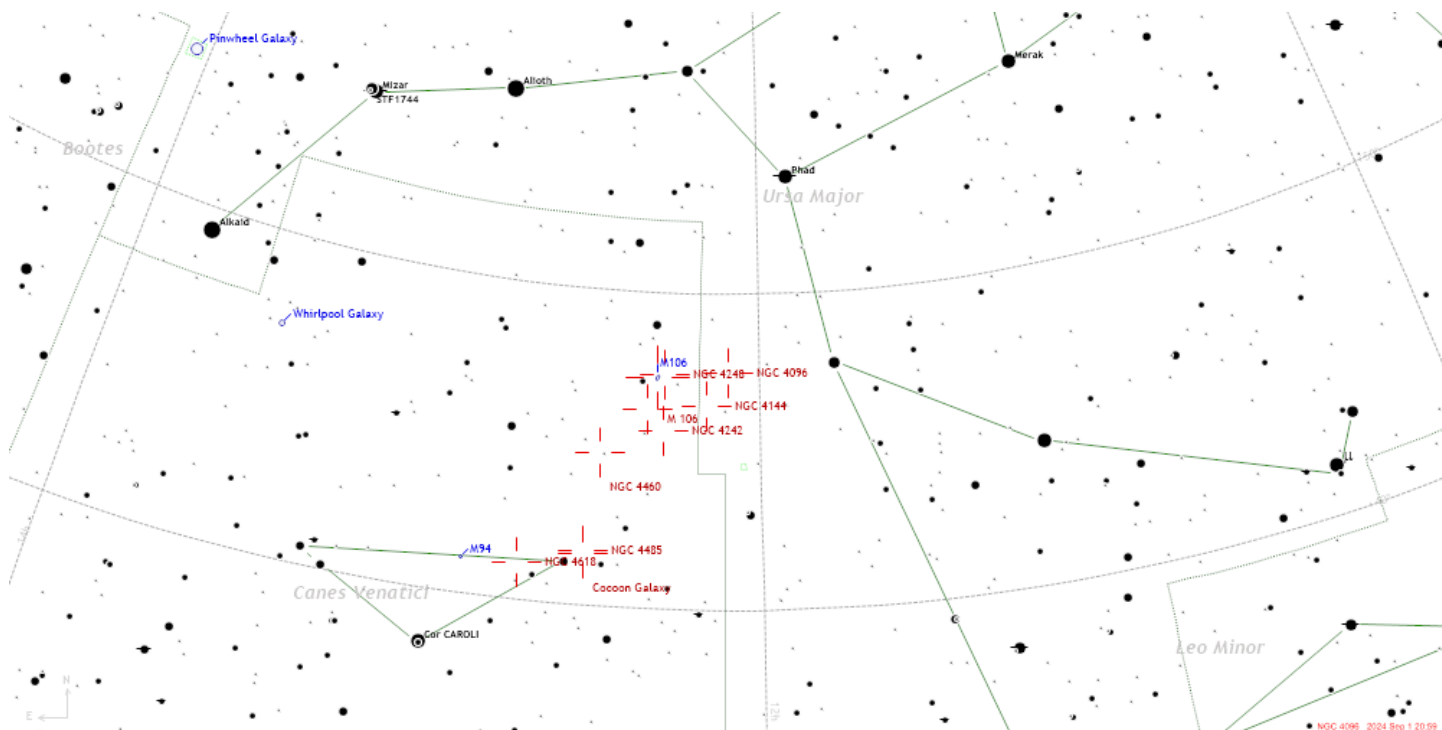
The median distance of the group is about 18 MLY’s and the diameter of the group is 7 degrees which equates to about 2 MLY’s or similar to the distance between the Milky Way and the Andromeda galaxies. Interesting observation is that all but one of the galaxies seem to be closer to us than M101, resulting in a rather lop-sided cluster with M101 on one side and most of the other, smaller galaxies on the other.

		Messier 101 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6/30/24 Begin: 21:29 End: 23:53 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 14h 04m 05s Dec - +54 14m 08s Transit Time: Moon: 25 days	
		M 101 SAB(cd) m8.3 – This is a large, bright, beautiful spiral. There is a lot of stellar structure within the arms. Arp 026 – One Heavy Arm. It is not clear which nearby galaxy is perturbing this galaxy. The most likely candidate is NGC 5477 as it lies at a similar distance as M101.
Processing Notes: First attempt came out with a violet hue which was not natural looking, reprocessed. Could use a Ha or dual band exposure time to bring out the star forming areas.		Gain: 101 Offset: 8 Exposure: 128 x 60sec Binning: 2x2

		NGC 5204 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6/29/24 Begin: 22:28 End: 22:48 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 13h 30m 33s Dec - +58d 17m 51s Transit Time: Moon: 24 days	
		NGC 5204 SA(s)m, m11.7, 17.Mly - a member of the M101 group, 6 degrees to the NW of M101. It appears to be somewhat irregular in shape. Brighter core region surrounded by an oval fainter shell. Some tiny condensation blobs within the disk. Classified as an SA(m), it is an intermediate between a dwarf and a true spiral. There is some evidence of a spiral arm below the core in the image.
Processing Notes: Calibrated and stacked in Siril, Background and noise reduced in Graxpert, Color correction, deconvolution, and stretched in Siril. Post processed in PS.		Gain: 150 Offset: 8 Exposure: 69x30sec Binning: 2x2

		NGC 5474 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6/29/24 Begin: 23:10 End: 23:51 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 14h 05m 55s Dec - +53d 32n 58s Transit Time: Moon: 24 days	
		NGC 5474 SA(cd) pec, m11.28, 14.6Mly – Bright core region with a fan shaped fainter region spanning about 100 degrees. This is a companion galaxy of M101 (44 arc minutes to NW) which is causing the disk to be offset. It is a peculiar dwarf spiral galaxy. The spiral structure is visible with tiny condensations within the arms which correspond to HII star forming regions.
Processing Notes: Calibrated and stacked in Siril, Background and noise reduced in Graxpert, Color correction, deconvolution, and stretched in Siril. Post processed in PS.		Gain: 150 Offset: 8 Exposure: 75x30sec Binning: 2x2

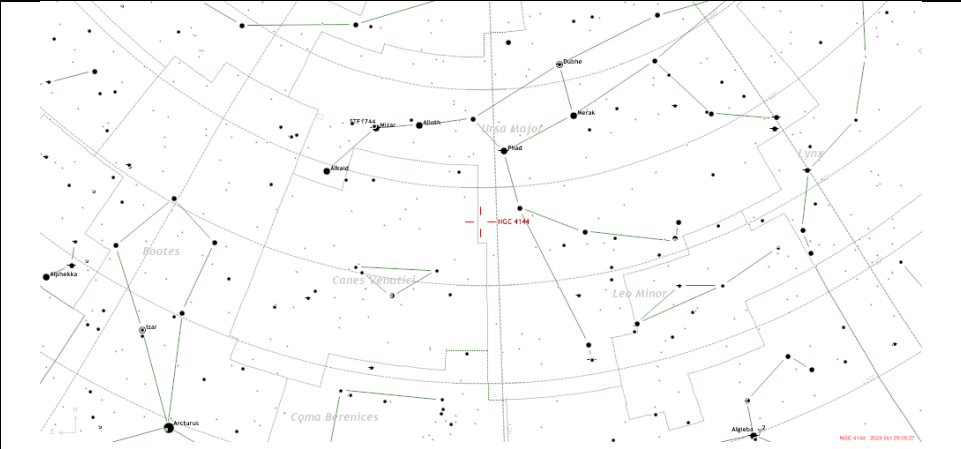
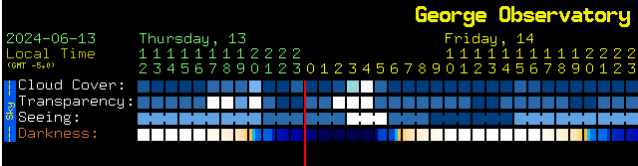
Chapter 8 – The M106 Group

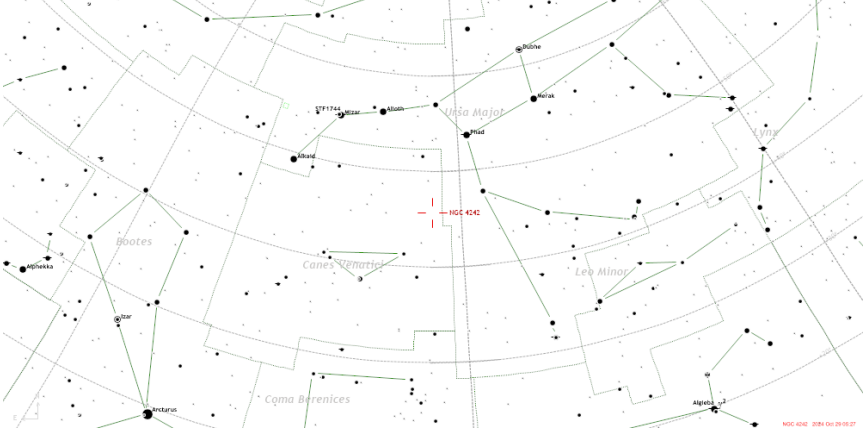
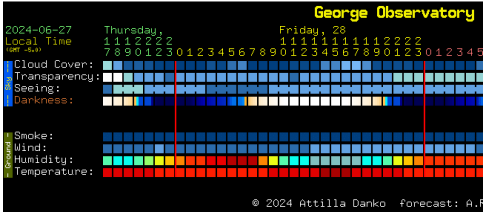


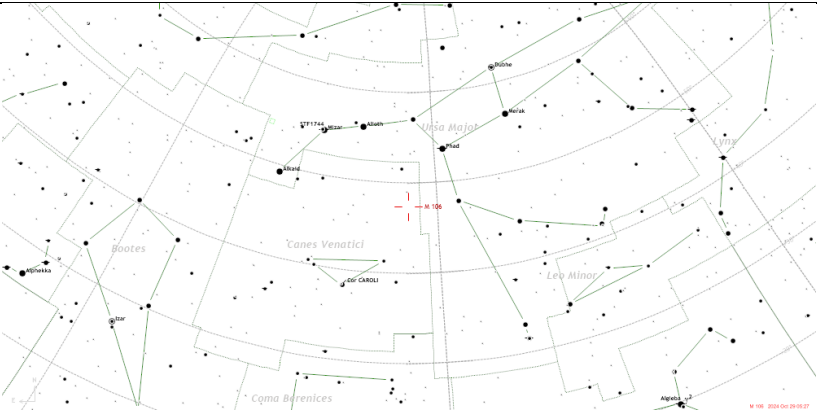
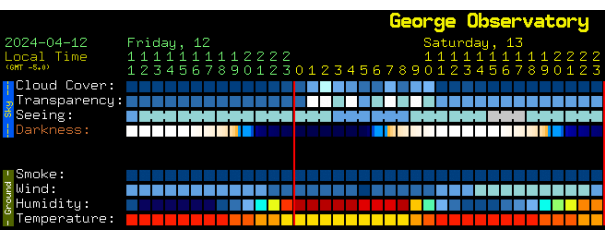
Neighboring Galaxies – M106 Group – 5/21 (8)			
Name	Date Imaged	Distance (MLy)	Comments
NGC 4096		37.5	
NGC 4144	6-13-24	20.2	
NGC 4242	6-27-24	20.6	
NGC 4248	5-14-24	17.1	
NGC 4258 - M106	5-14-24	23.7	
NGC 4288	6-27-24	48.4	
NGC 4460	6-27-24	25.1	
NGC 4485		29.3	
NGC 4490 (Cocoon Galaxy)	6-13-24	19.5	ARP 269
NGC 4618		23.6	

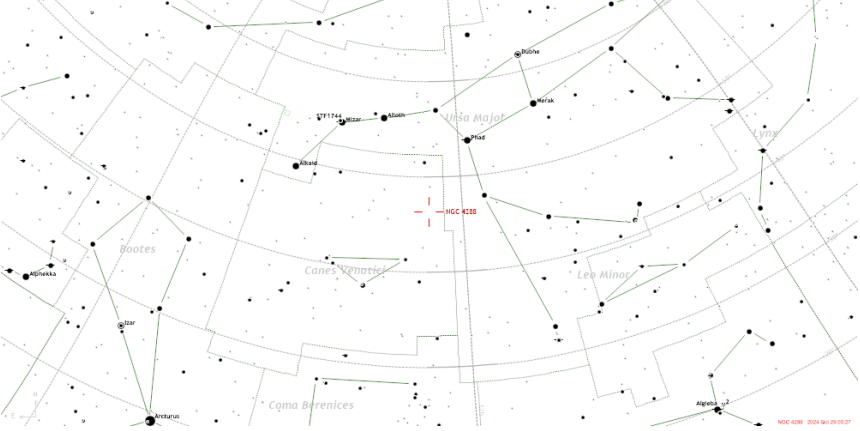
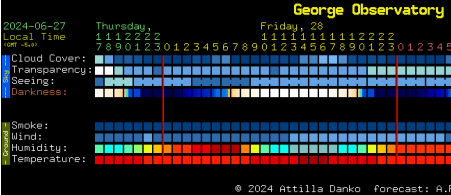
The M106 group occupies an area in Western Canes Venatici and spans about 7 degrees. The median distance for this group is 23.7 MLY's which is the same distance as M106, making M106 the center of the cluster, although it is offset to the Northwest of the center from our perspective. The diameter of the cluster works out to be about 2.9 MLY's, just a bit larger than the Milky Way to Andromeda distance.

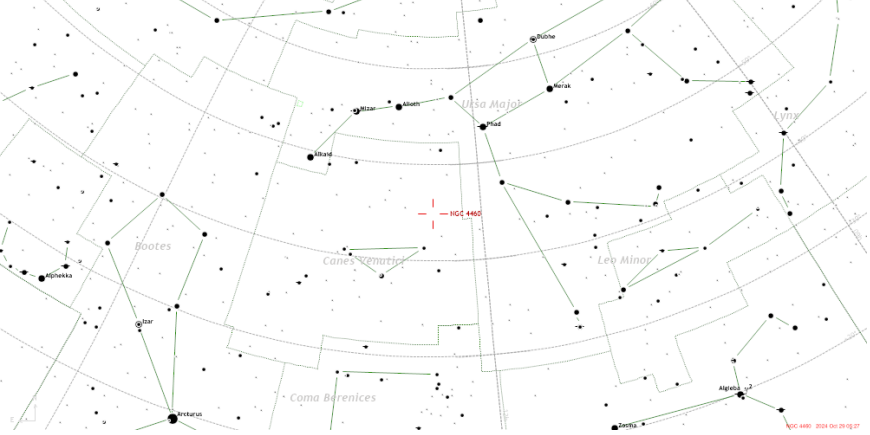
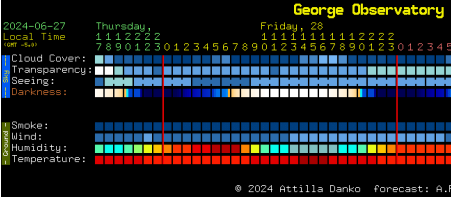
M106 dwarfs the other members, being 3 times the angular size of the next largest.

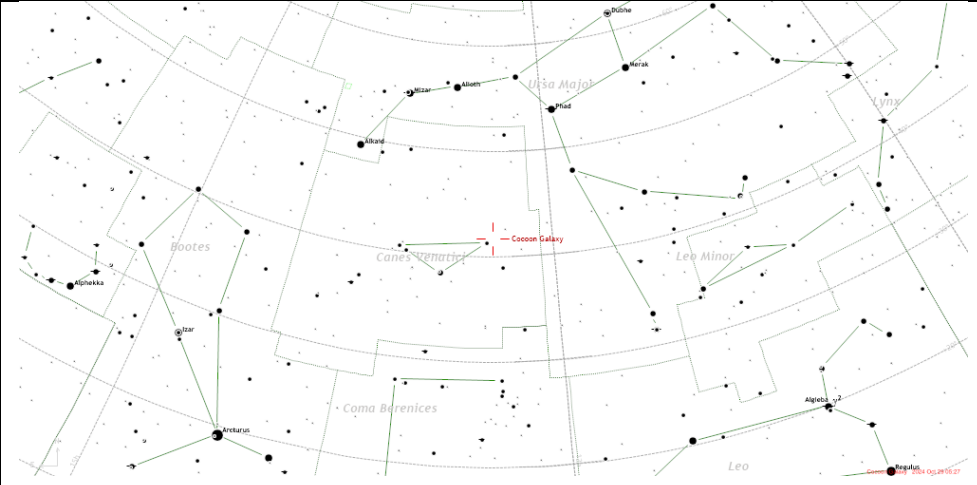
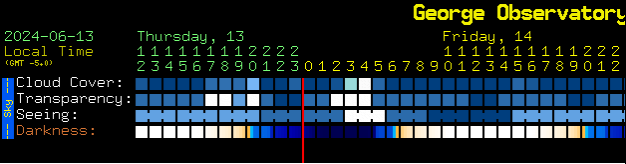
		NGC 4144 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6-13-24 Begin: 22:27 End: 23:04 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 12h 11m 13s Dec - +46d 19m 32s Transit Time: Moon: 8 days	
		NGC 4144 SAB(cd), m12.1 - nice little edge on galaxy. There appears to be a small bright spot just outside the bright core, possibly another galaxy (LEDA 4314148) or perhaps large HII or cluster?
Processing Notes: Stacked with lights in Siril. Background removal and noise reduction in Graxpert. Color calibration, deconvolution and GHS in Siril. Final adjustments in PS.		Gain: 150 Offset: 8 Exposure: 58x30sec Binning: 1x1

		NGC 4242 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 06-27-24 Begin: 21:44 End: 22:22 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – Dec - Transit Time: Moon: 22 days	
		NGC 4242 SAB(dm), m11.6 – looks to be a semi-face on barred spiral, very faint. Two bright areas within the core area.
Processing Notes: Calibrated and stacked in Siril, Background and noise reduced in Graxpert, Color correction, deconvoluted and stretched in Siril. Post processing in PS.		Gain: 150 Offset: 8 Exposure: 69x30sec Binning: 2x2

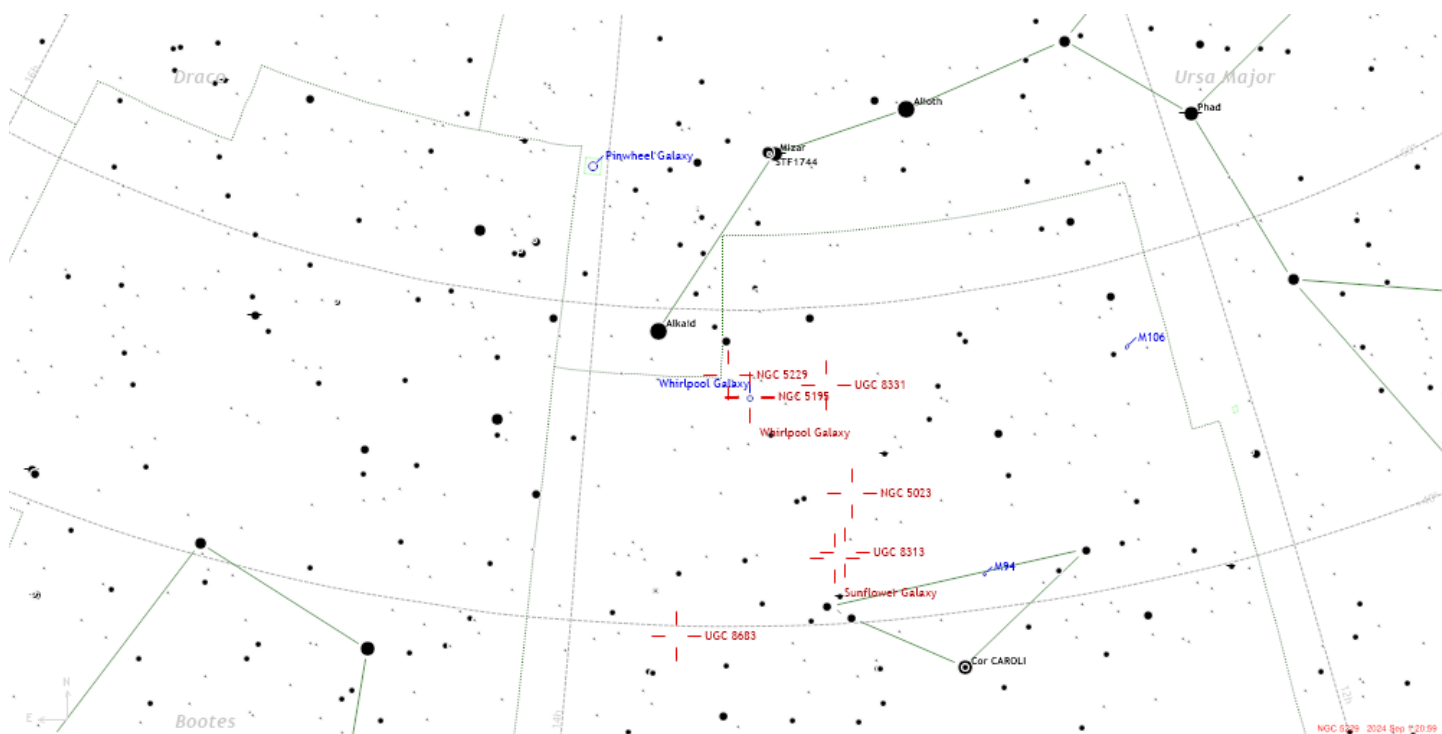
		M106
Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount		
Session Details: Date(s): 4-12-24 Begin: 21:15 End: 23:15 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA - 12h 18m 58s Dec - +47deg 18m 13s Transit Time: Moon: Days	
		M 106 – SABbc intermediate spiral galaxy, m8.41, Seyfert II type galaxy. Extremely bright bulge area as compared to spirals. Definite blue and red color around edge of bulge. NGC 4248 – SBd barred galaxy, m13.2. Edge on
Processing Notes: Clouds came in limiting my time. Plan on adding addition integration time to get the spiral arms to show better. So far very pleased with this target. Trick is to not move black point so much that the spiral arms are clipped.		Gain: 150 Offset: 8 Exposure: 120*30s Binning: 1x1

		NGC 4288/A
Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount		
Session Details: Date(s): 6/27/24 Begin: 22:26 End: 23:25 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 12h 21m 50s Dec - +46d 09m 36s Transit Time: Moon: 22 days	
		NGC 4288/A - SB(d)m, m13.6, 48mly - A pair of galaxies with N4288 the larger of the two. N4288A is not visible in this image. Its effect on N4288 is visible in that it has distorted its upper spiral arm. N4288 appears somewhat edge-on, a barred spiral with the disc looking like an integral sign.
Processing Notes: Calibrated and stacked in Siril, Background and noise reduced in Graxpert, Color correction, deconvoluted and stretched in Siril. Post processing in PS.		Gain: 150 Offset: 8 Exposure: 67x30sec Binning: 2x2

		NGC 4460
Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount		
Session Details: Date(s): 6/27/24 Begin: 23:51 End: 00:01 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 12h 29m 57s Dec - +44d 53m 59s Transit Time: Moon: 22 days	
		NGC 4460 SB0, m12.3, 25Mly. An edge on galaxy. Looks to be about 3 non-stellar objects adjacent to the disc, above and below. There is also a bright spot within the disc adjacent to the core region. This is identified as a background galaxy from the NED image archive.
Processing Notes: Calibrated and stacked in Siril, Background and noise reduced in Graxpert, Color correction, and stretched in Siril.		Gain: 150 Offset: 8 Exposure: 59x30sec Binning: 2x2

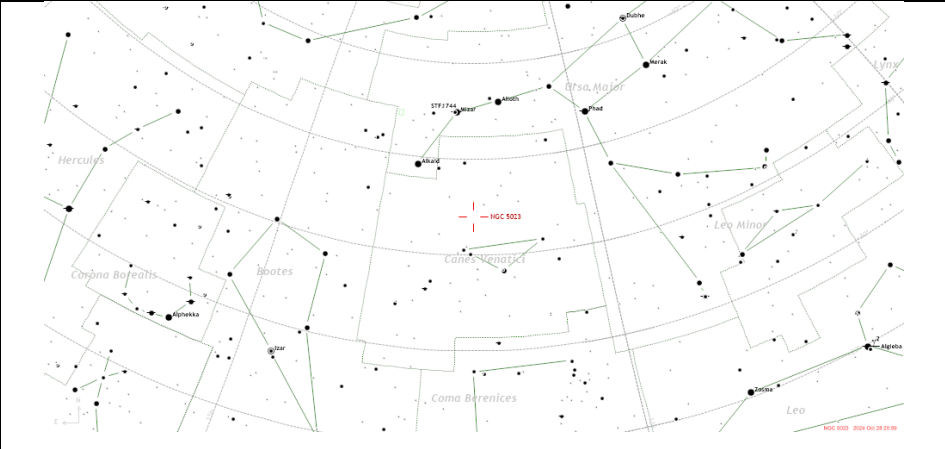
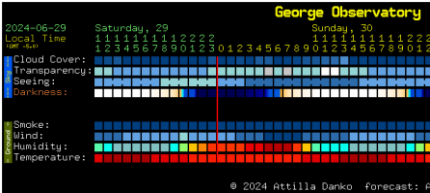
		NGC 4490 – Cocoon Galaxy Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6-13-24 Begin: 23:05 End: 23:46 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 12h 31m 48s Dec - +41d 30m 45s Transit Time: Moon: 8 days	
		NGC 4490, Arp 269 “Connected Arms” SB(d) pec, m10.2. - This is the larger, brighter member of the pair. Appears to be a spiral, somewhat face-on, with a perturbed arm most likely caused by NGC 4485. Lots of knots visible along the deformed arms. These galaxies are separated by about 4 million light years. NGC 4485 IB(m) pec, m12.3 appears as a small lenticular galaxy, even brightness across the disc.
Processing Notes:		Gain: 150 Offset: 8 Exposure: x30sec Binning: 1x1

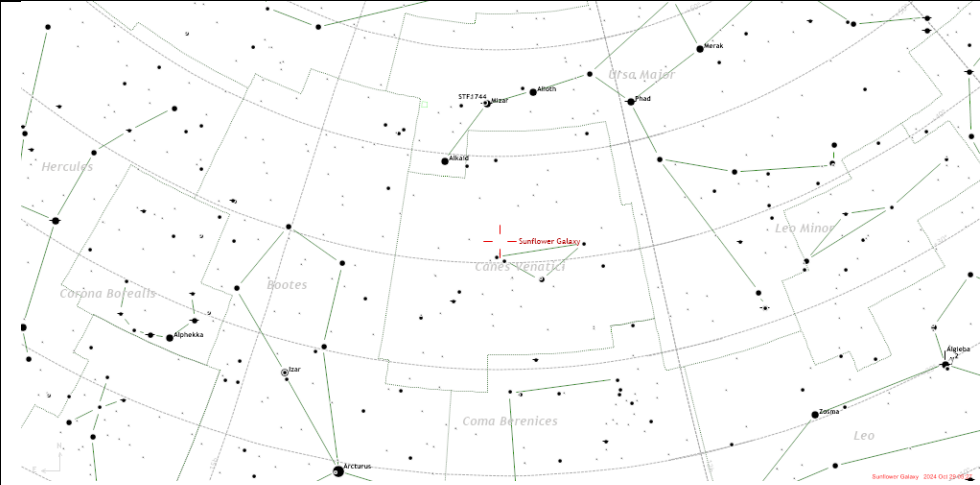
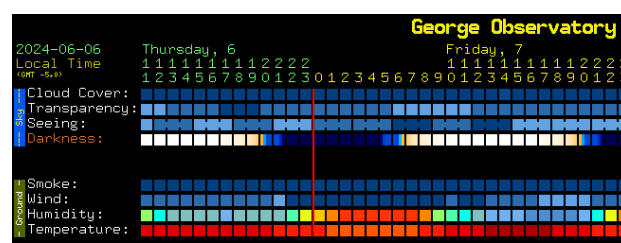
Chapter 9 – The M51 Group

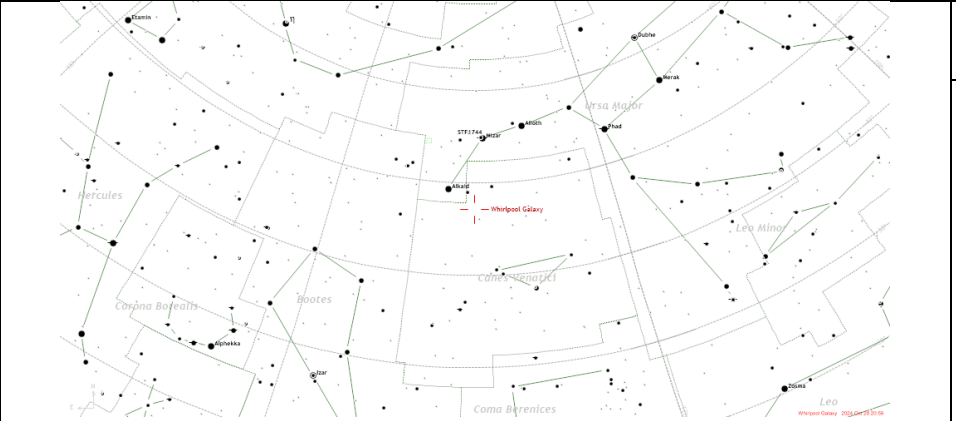
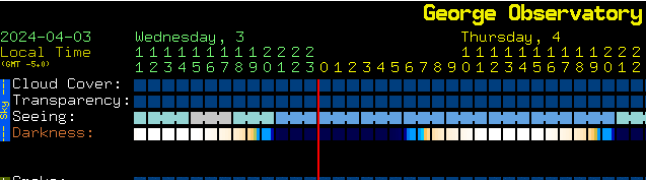


Neighboring Galaxies – M51 Group – 4/8 (4)			
Name	Date Imaged	Distance (MLy)	Comments
NGC 5023	6-29-24	31.0	
UGC 8313		30.4	
UGC 8331		26.8	
M63	6-7-24	25.2	
M51	4-3-24	23.8	ARP 85
NGC 5195	4-3-24	23.6	
NGC 5229		30.8	
UGC 8683		30.5	

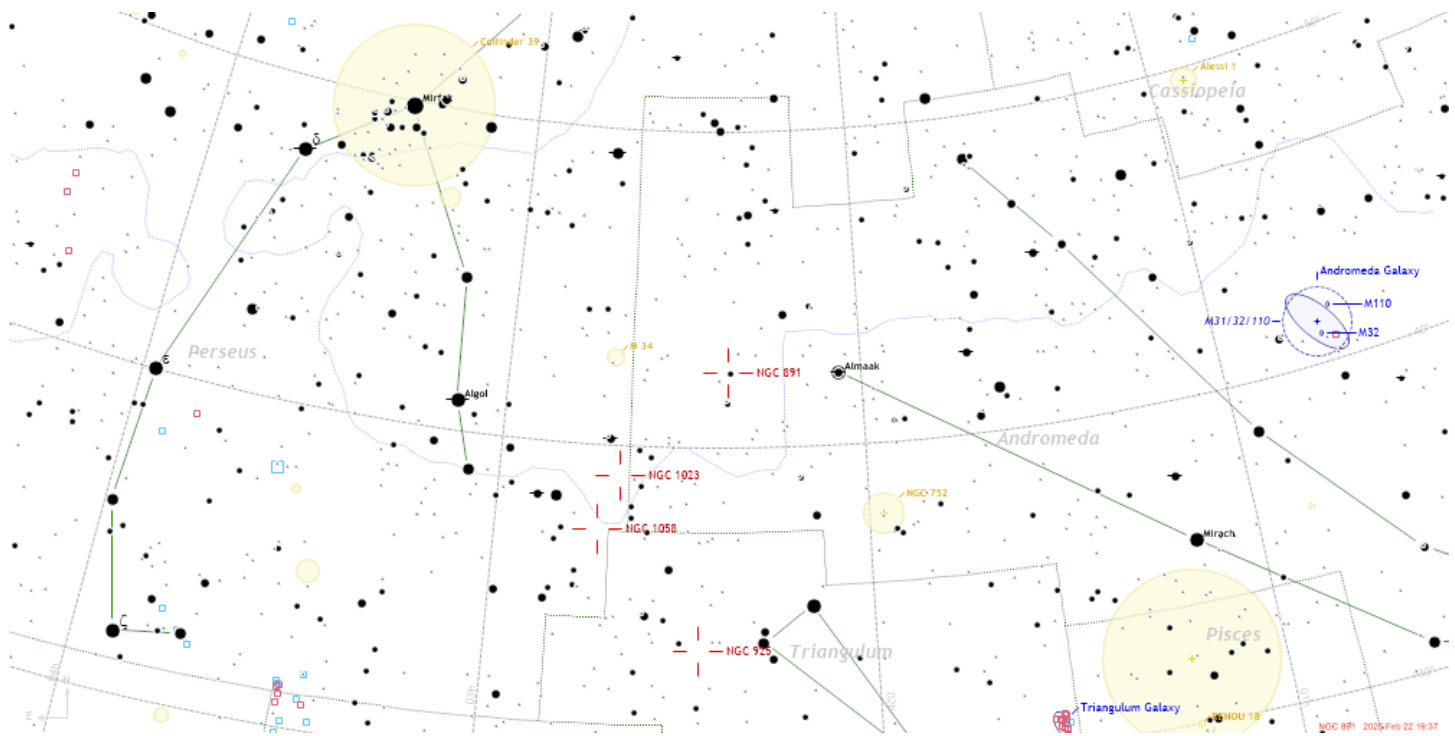
The M51 group occupies the Northeast corner of Canes Venatici. The median distance is about 29 MLY's. Its angular diameter of 8 degrees makes the cluster diameter about 4 MLY's. M51 and M63 are the show pieces of this group, significantly larger and brighter than the others.

		NGC 5023 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6/29/24 Begin: 21:43 End: 22:24 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 13h 13m 18s Dec - +43d 54m 44s Transit Time: Moon: 24 days	
		NGC 5023 S(cd), m12.85, 31Mly – An edge on galaxy in CVn and member of the M51 group. Only a slight brightening in the core region.
Processing Notes: Calibrated and stacked in Siril, Background and noise reduced in Graxpert, Color correction, deconvolution, and stretched in Siril. Post processed in PS.		Gain: 150 Offset: 8 Exposure: 74x30sec Binning: 2x2

			Messier 63 - Sunflower Galaxy Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 	
Session Details: Date(s): 6/7/24 Begin: 21:42 End: 00:55 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec		Center of F.O.V RA – 13h 16m 56s Dec - +41d 54m 11s Transit Time: Moon: 2 days		
			M 63 – the knots of stars and gas along the arms of this galaxy are amazing.	
Processing Notes: Stacked in Siril, gradient and noise reduction in Graxpert. Color correction, GHS in Siril with post processing in PS.			Gain: 150 Offset: 8 Exposure: 250x30sec Binning: 1x1	

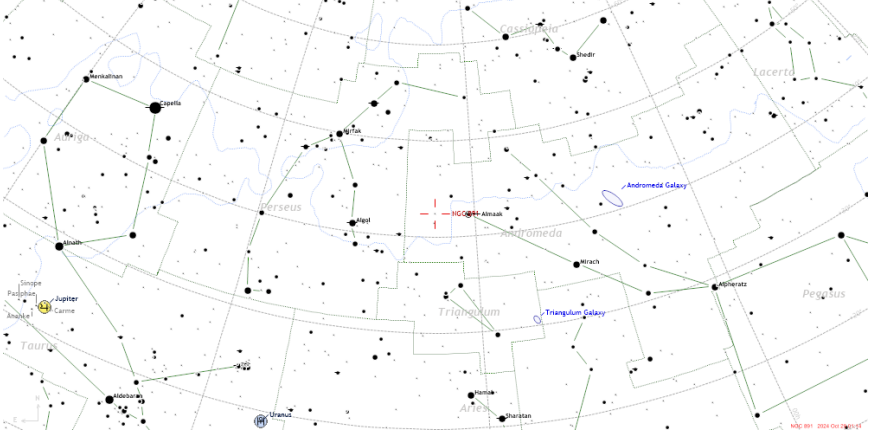
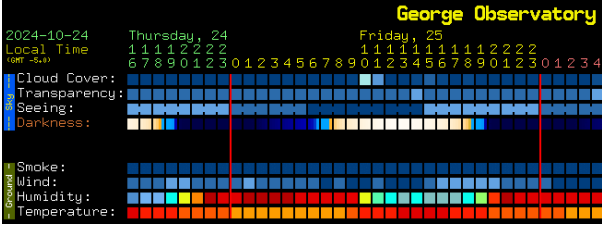
		Messier 51 Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 4-3-24 Begin: 21:03 End: 00:42 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA - 13h 31m 31s Dec - +47deg 10m 7s Transit Time: 02h01m04s Moon: 25 days	
		M 51 – SAbc spiral, m8.6, Arp 85 – Large High Surface Brightness Companions. One arm appears to extend through companion. Very bright core region. Dark lanes visible in both arms NGC 5195 – I0 – pec, m10.45, Arp 85. Bright core with what appears to be a bar, however, spiral arms are highly distorted and merged with M51’s arm.
Processing Notes: OSC images de-bayered in PIPP. Calibration and stacking in SIRIL. Background extinction, and color correction in Siril. Stars removed and starless image stretched. Recombined and final processing in PS. Image has been cropped.		Gain: 150 Offset: 8 Exposure: 360x30sec

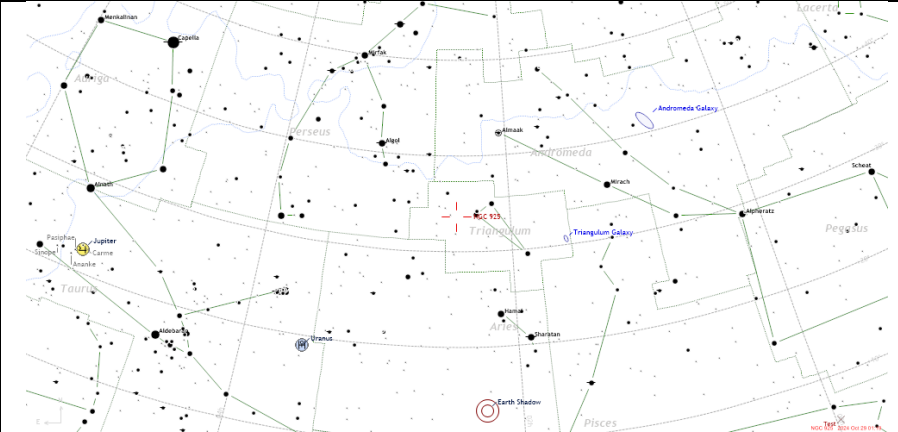
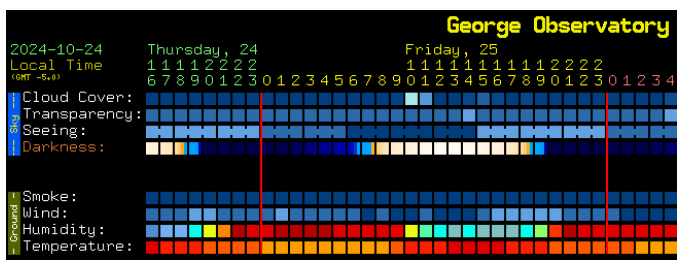
Chapter 10 – The Canes II Group

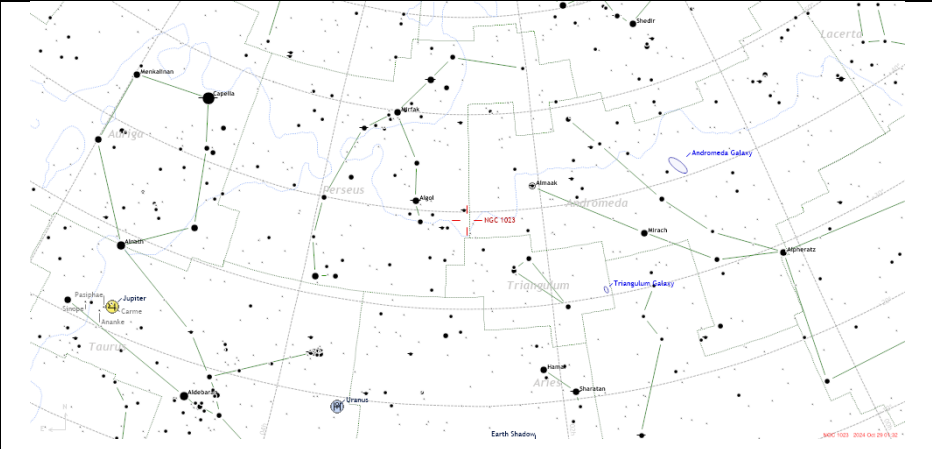
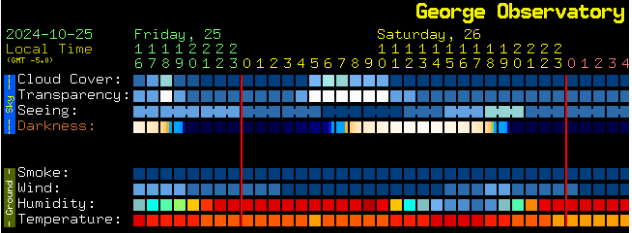


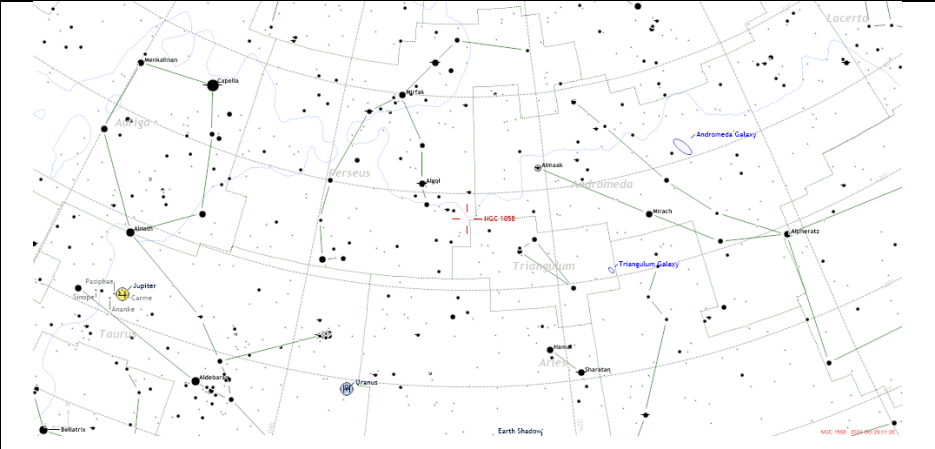
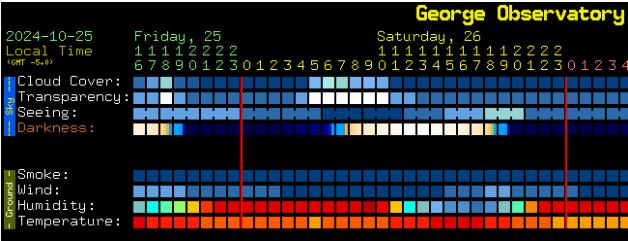
Neighboring Galaxies – Canes II Group (4)			
Name	Date	Distance (MLy)	Comments
NGC 891	10-24-24	31.1	
NGC 925	10-24-24	25.5	
NGC 1023	10-25-24	35.2	
NGC 1058	10-25-24	17.0	

This group of galaxies lies in the space between Perseus and Andromeda at a mean distance of about 27 Mly's. It is a loose grouping both in radial and angular distance.

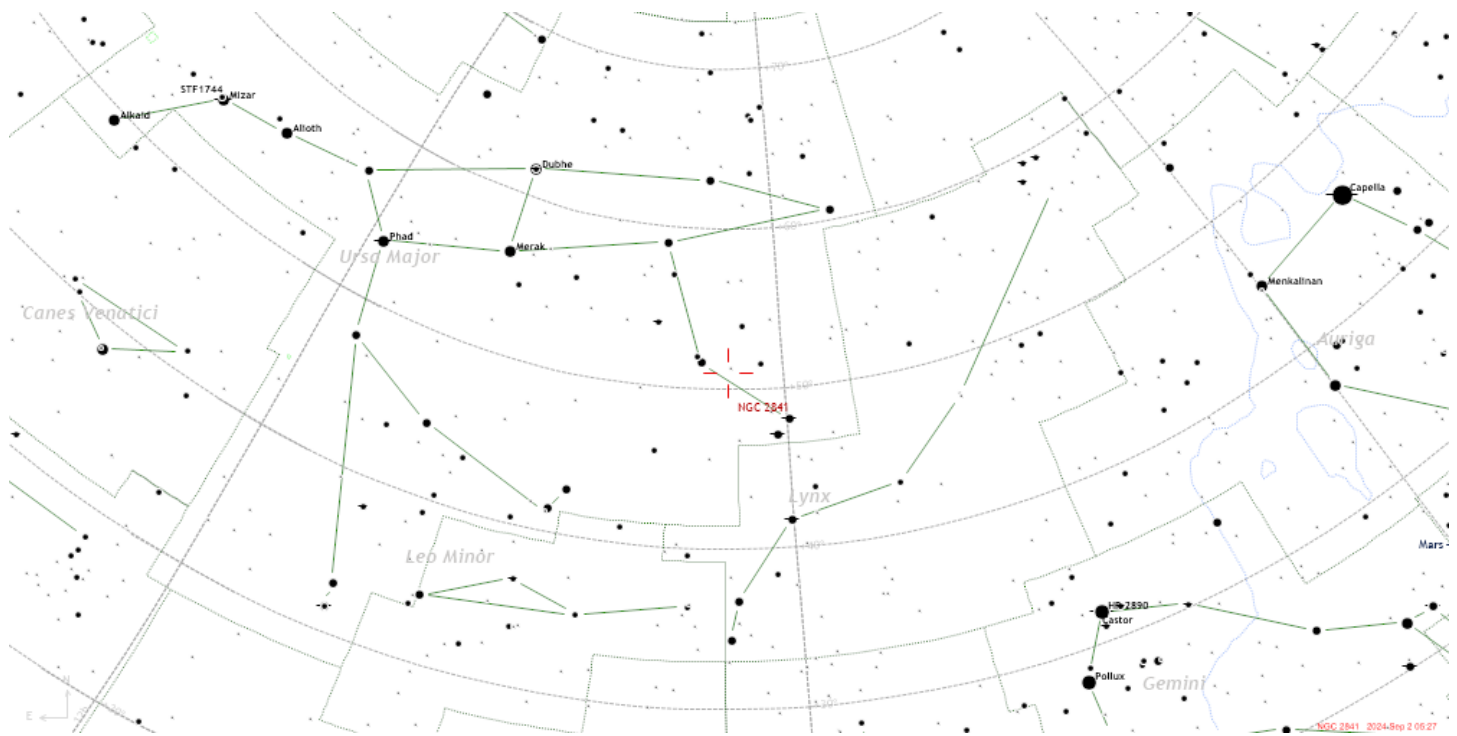
		NGC 891 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 10-24-24 Begin: 22:551 End: 00:12 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – h m s Dec - +d m s Transit Time: Moon: 22 days	
		NGC 891- SA(b) m10.8, edge on spiral with a beautiful dust lane bisecting the galactic disk. The are two noticeable non-stellar objects in this image besides NGC 891. The first is what appears to be an arc just off the disk on the left. The second is a pair of faint galaxies just above the central bulge on the right. I believe that all of these objects are background galaxies.
Processing Notes:		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1

		NGC 925 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 10-24-24 Begin: 21:24 End: 22:45 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – h m s Dec - +d m s Transit Time: Moon: 22 days	
		NGC 925- SAB(d), m10.7 barred spiral galaxy. Arms appear relatively loose with small condensations along them. The overall shape reminds me of a crab.
Processing Notes:		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1

		NGC 1023 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 10-25-24 Begin: 21:04 End: 22:17 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – h m s Dec - +d m s Transit Time: Moon: 23 days	
		NGC 1023 – SB0, m10.4 Lenticular galaxy, also known as Arp 135 – Galaxy with near by fragments, appears as a bright oval without any spiral structure and with a brighter core region. NGC1023A- This is a faint companion galaxy just to the left edge of NGC 1023.
Processing Notes: No flats used, deconvoluted stars were not resynthesized.		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1

		NGC 1058 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 10-25-24 Begin: 23:18 End: 00:35 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – h m s Dec - +d m s Transit Time: Moon: 23 days	
		NGC 1058 – SA(c) m11.2, face on spiral
Processing Notes: No flats used, deconvoluted stars were not resynthesized.		Gain: 101 Offset: 8 Exposure: 70x60sec Binning: 1x1

Chapter 11 – NGC 2841



<i>Neighboring Galaxies – NGC 2841</i>			
Name	Date Imaged	Distance (MLy)	Comments
NGC 2841	3-1-25	53.3	

NGC 2841 appears as a lone galaxy not associated with the other local groups i.e. M81 or M109. There are some fainter galaxies in the image of NGC 2841 which could be associated with it.

Object:	NGC 2841			Constellation:	Ursa Major	
Sky	2025-03-01 Local Time Sat 112222 11111111112222 890123012345678901234567890123012345 Cloud Cover: ECHMF Cloud: Transparency: Seeing: Darkness: Smoke: Wind: Humidity: Temperature:			Location:	Astro_Shed	
				Longitude:	Observatory	
				Latitude:	+29deg 10m 8s	
					- 95deg 38min 7sec	
Equipment						
Scope:	Celestron 8" SCT					
Camera:	ZWO ASI 533MC Pro					
Date:	3/1/25	Start Time:	19:18	Moon (Days)	2	
Filter:	UV/IR	Exposure (s)	180	Number	20	

Object SA(b) m9.53 Intermediate spiral type galaxy. Spiral arms are very tightly wound. The

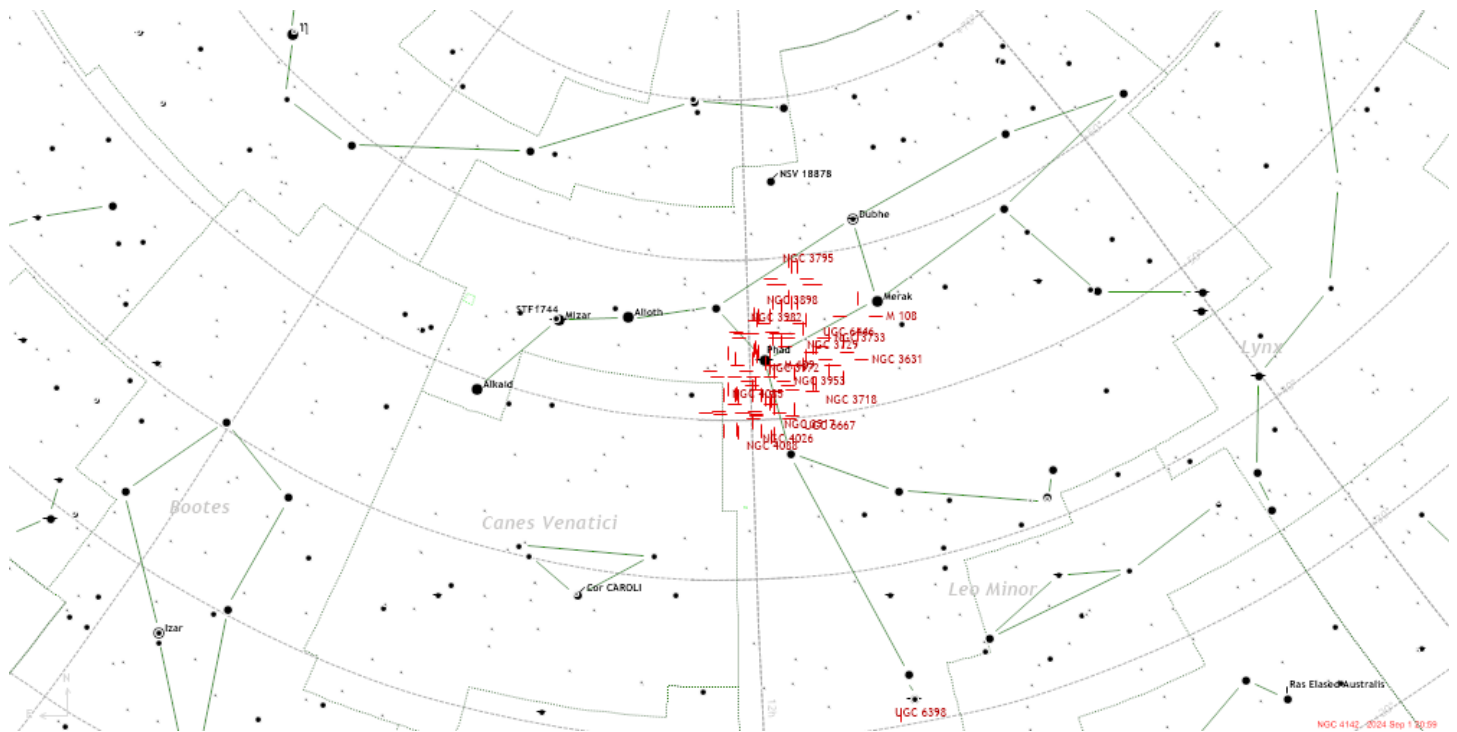
Description: arms are strewn with tiny clumps of clusters. There are 4 or 5 other faint galaxies within this image.



Processing Gradient removal, color corrected. GHS stretch, final sharpening in

Notes Cosmic Clarity. Darks, and flat frames used in calibration.

Chapter 12 – The M109 Northern Group



Neighboring Galaxies – M109 Northern Group – 10/20 (10)			
Name	Date Imaged	Distance (MLy)	Comments
M108	3-5-25	32.5	
NGC 3631	4-11-24	30.7	
UGC 6398			
UGC 6446		53.9	
NGC 3718	4-11-24	47.8	
NGC 3729	4-11-24	65.7	
NGC 3733		73.7	
UGC 6575		114.2	
NGC 3756		63.5	
UGC 6616		76.2	
NGC 3795		91.0	
UGC 6667		64.1	
NGC 3850		59.7	
NGC 3898		72.1	
NGC 3913		27.1	
NGC 3917		53.1	
NGC 3922		55.4	
UGC 6840		55.4	
UGC 6849			
NGC 3953		84.6	

NGC 3972	4-11-24	63.6	
UGC 6917		152.1	
NGC 3982		72.1	
M109	4-11-24	67.2	
NGC 3998	4-11-24	65.7	
UGC 6983	4-11-24		
NGC 4026		58.1	
NGC 4085	4-11-24	65.3	
NGC 4088	4-11-24	45.4	
NGC 4102		63.7	
NGC 4142		83.2	
NGC 4157		55.8	

The M109 Northern Group is a rich cluster residing in Ursa Major. There is quite a spread of distances with the average being about 65 MLy which corresponds closely with that of M109.

Object:	M 108										Constellation:		Ursa Major	
Sky	2025-03-05 Wednesday, 5 Local Time 14:44:22.22 (UTC -5:00) 5678901230123456789012345678901230123 George Observatory Thursday, 6 14:44:14.11 12222 Cloud Cover: ECMWF Cloud: Transparency: Seeing: Darkness: Smoke: Wind: Humidity: Temperature:										Location:		Astro_Shed	
			Longitude:		Observatory									
			Latitude:		+29deg 10m 8s									
					- 95deg 38min 7sec									
Equipment														
Scope:	Celestron 8" SCT													
Camera:	ZWO ASI 533MC Pro													
Date:	3/5/25		Start Time:		19:30		Moon (Days)		6					
Filter:	UV/IR		Exposure (s)		180		Number		17					

Object

Description:

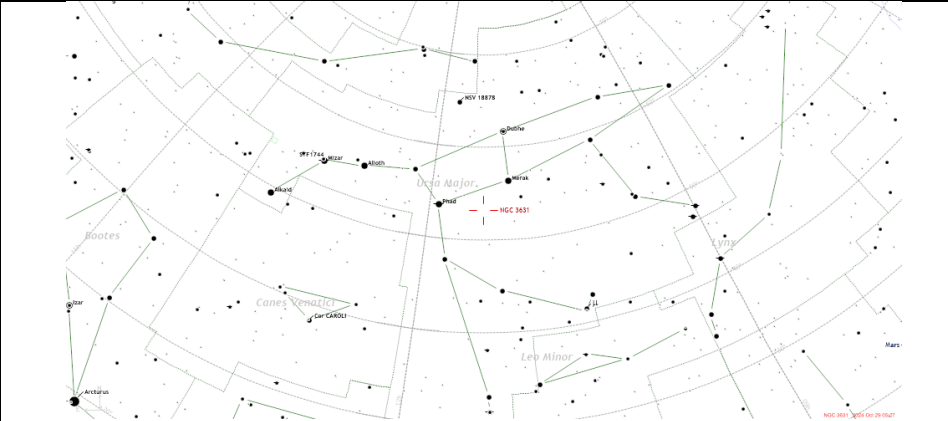
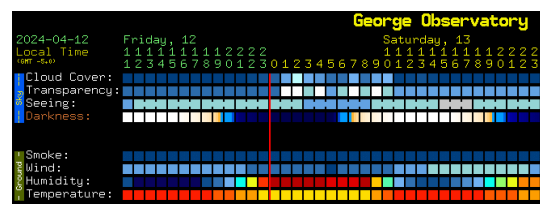
SB(cd) m10.7 Edga on barred spiral galaxy. Dark dust lanes distributed across disk and core of uniform brightness.

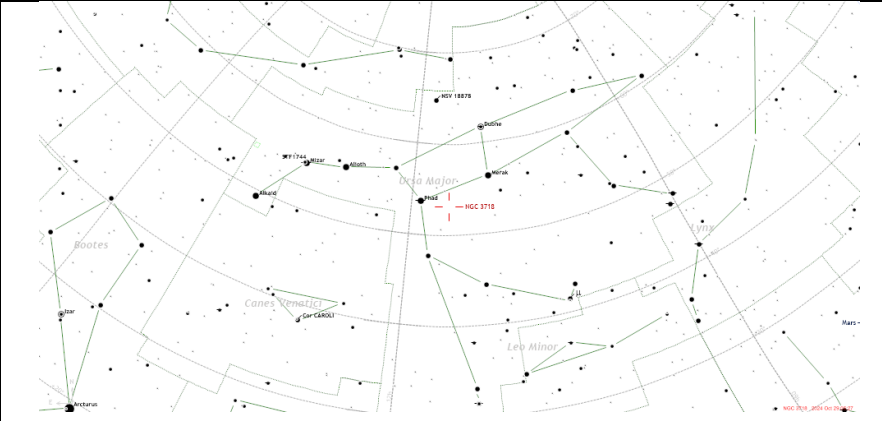
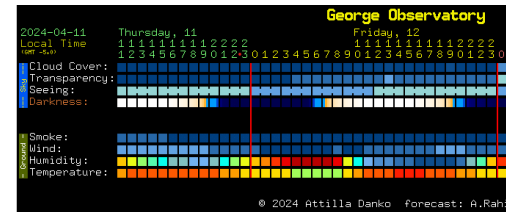
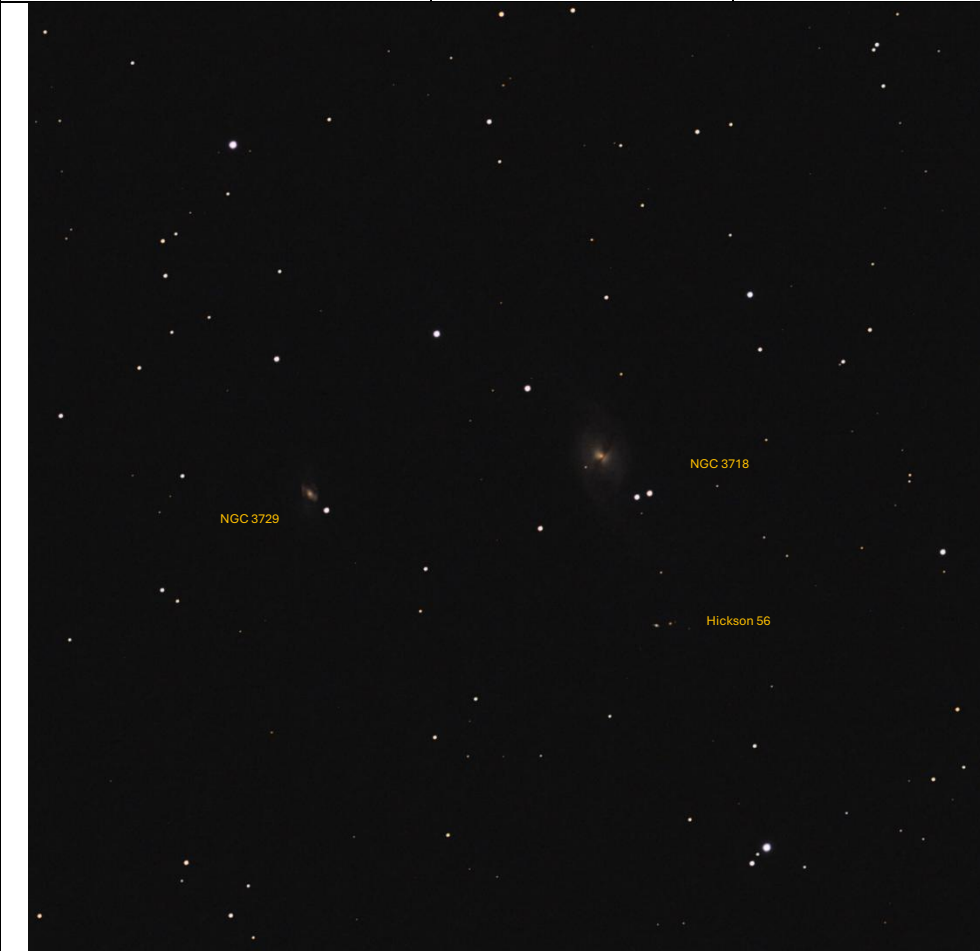


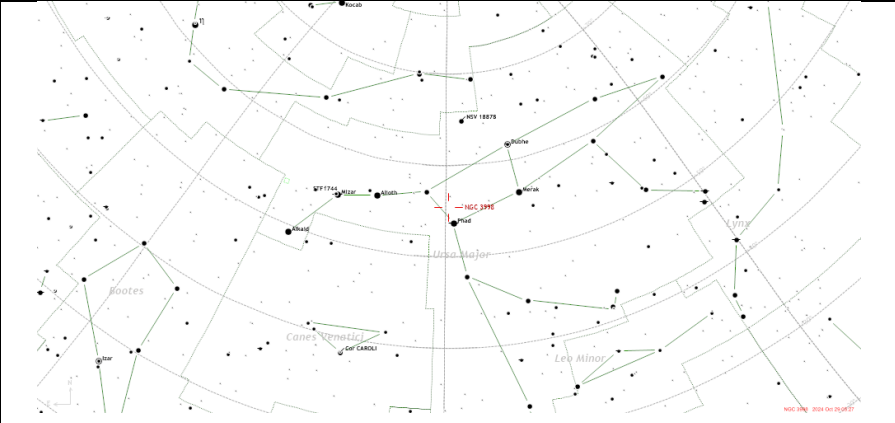
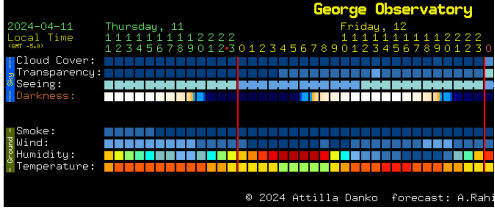
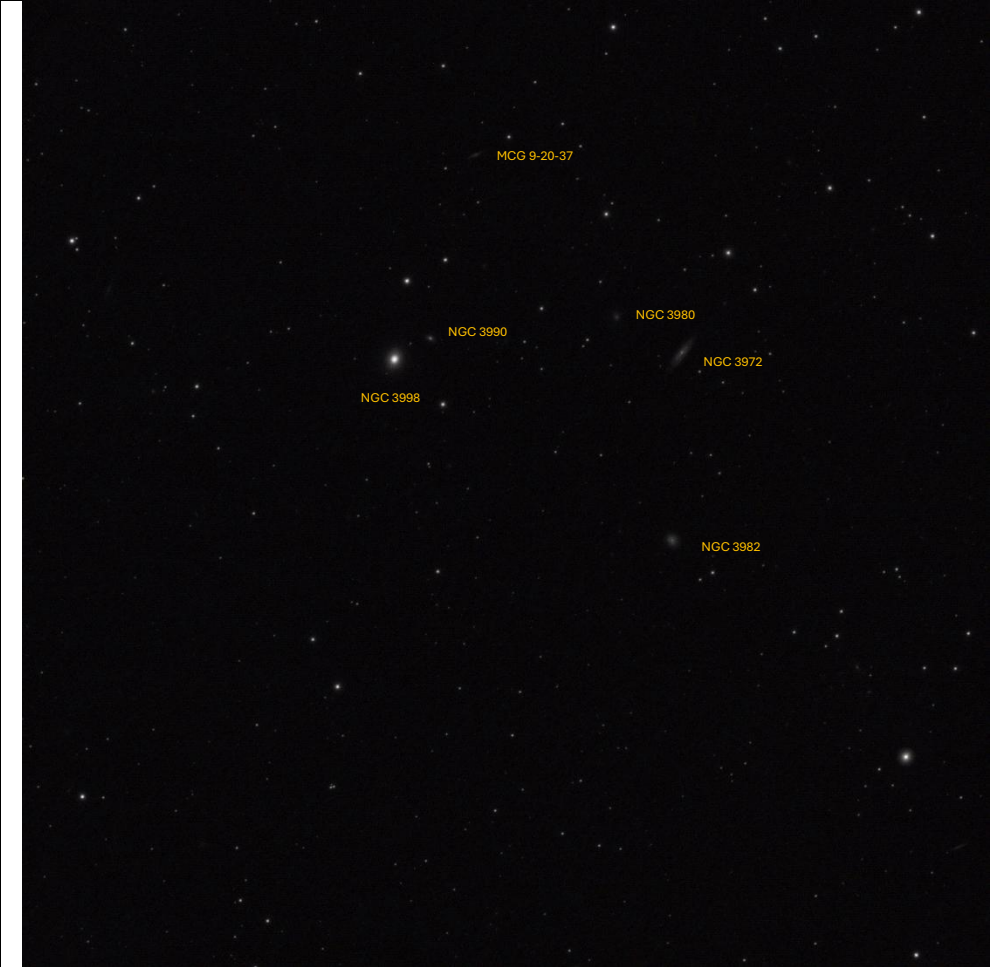
Processing

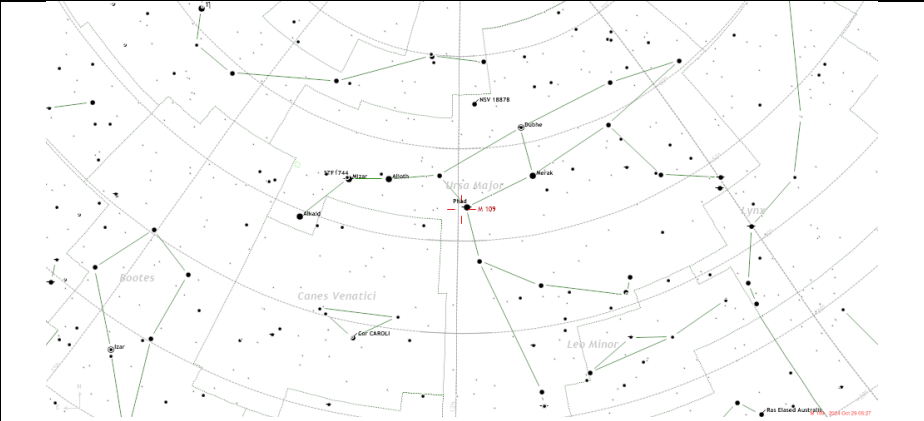
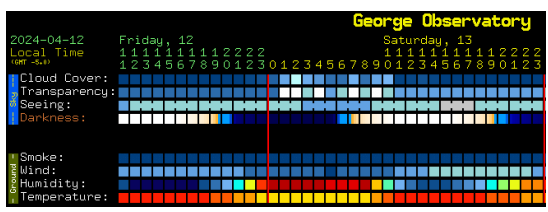
Notes

Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, and flat frames used in calibration.

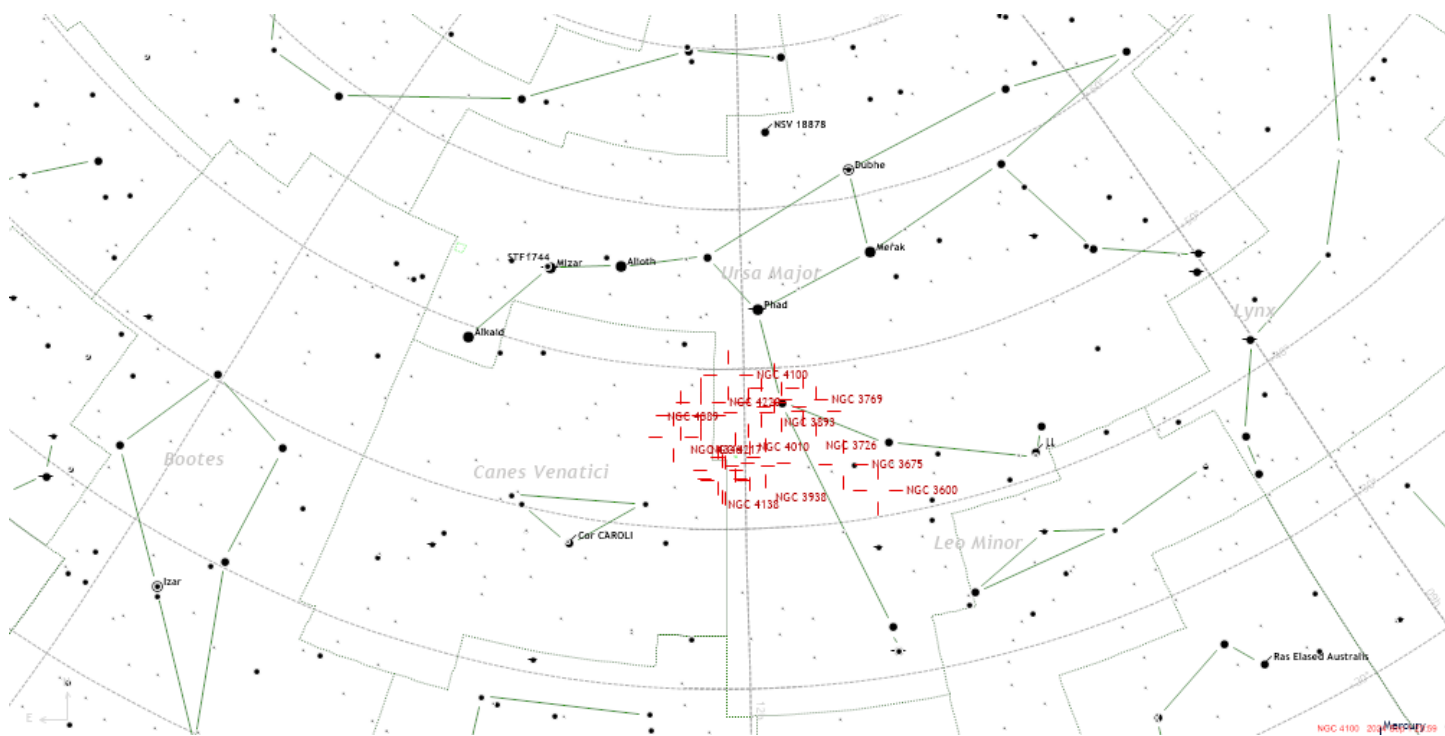
		NGC 3631/Arp27 Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 4-11-24 Begin: 21:29 End: 22:01 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 22m 27s Dec - +53d 02m 23s Transit Time: Moon: 3 days	
		NGC 3631 – SAc, spiral, m11.01, Arp 27 – One heavy arm. Face on. Isolated galaxy. Three distinct arms, one is more distinct than the others leading to Arp’s peculiar designation.
Processing Notes: Not real happy with the denoising and colorization. Processed with Siril.		Gain: 150 Offset: 8 Exposure: 60x30s

		NGC 3718 / 3729 Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 4-11-24 Begin: 22:05 End: 22:39 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 35m .7s Dec – 52d 59m 39s Transit Time: Moon: 3 days	
		This group of galaxies is part of the M108-109 group and are about 55MLy distant. NGC 3718 – SB(a) peculiar galaxy, m11.59, also known as Arp 214 – Irregularities, absorption and resolution. Nice visible dark lane bisecting the s-curved spiral arms. NED indicates this is also a Seyfert II galaxy which goes to reason with the brightness of the core region. NGC 3729 SB(a) Barred spiral, m12.03 Hickson 56 – This is a grouping of 5 galaxies of which 4 are visible here, Arp 322 being the brightest dot on the left of the brighter pair.
Processing Notes: Need to revisit this group with more aperture and focal length.		Gain: 150 Offset: 8 Exposure: 60*30s Binning: 1x1

		NGC 3998 Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 4-11-24 Begin: 22:43 End: 23:17 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 57m 13s Dec – 55d 17m 05s Transit Time: Moon: 3 days	
		This galaxy group resides within the bowl of the big dipper and part of the M109 Group. All, except for the last one, are approximately 55 Mly distant. NGC 3972 – SA(bc), spiral galaxy m13.0, edge on. NGC 3980 – SA(ab) spiral galaxy, m14.2, Face on. NGC 3990 – SO Lenticular, m13.43, edge on. NGC 3998 – SAO Lenticular Spiral, m11.6 MCG 9-20-37 – SB(cd) barred spiral, m15.1, edge on.
Processing Notes: There was not a lot of detail in these small galaxies. Normal processing steps used.		Gain: 150 Offset: 8 Exposure: 60*30s Binning: 1x1

		Messier 109 Equipment Used: Astro Tech 80ED – 560mm f/7 ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 4-11-24 Begin: 23:51 End: 23:54 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA - 11h 58m 25s Dec - +52deg 57m 56s Transit Time: Moon: 3 days	
		M 109 – NGC 3921 SBbc barred spiral galaxy– m10.6. Bar clearly visible. Core much brighter than bar. UGC 6983 – SBcd barred spiral galaxy, m13.1
Processing Notes: M109 would benefit from more focal length and more integration time.		Gain: 150 Offset: 8 Exposure: 60x30s

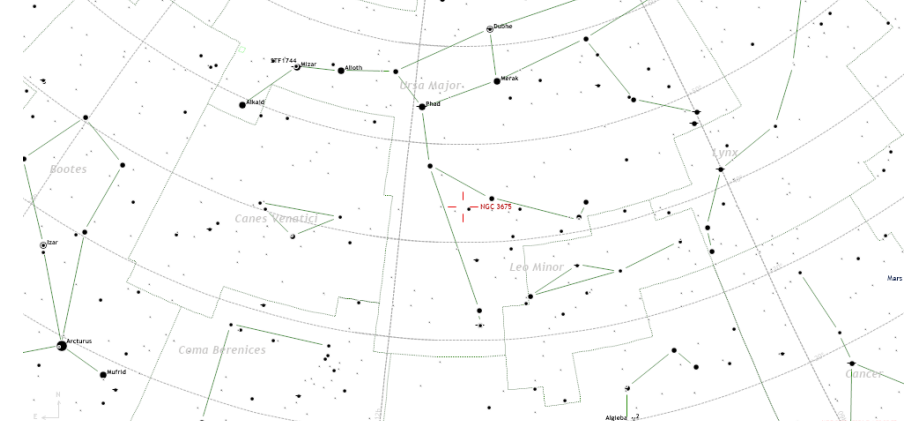
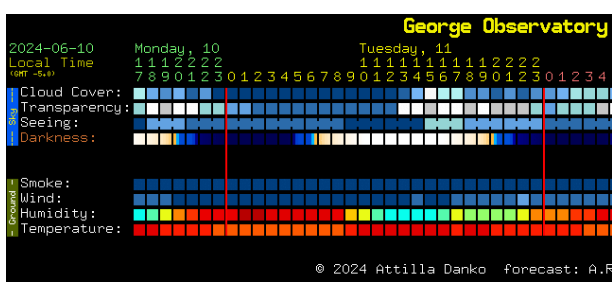
Chapter 12 – The M109 Southern Group

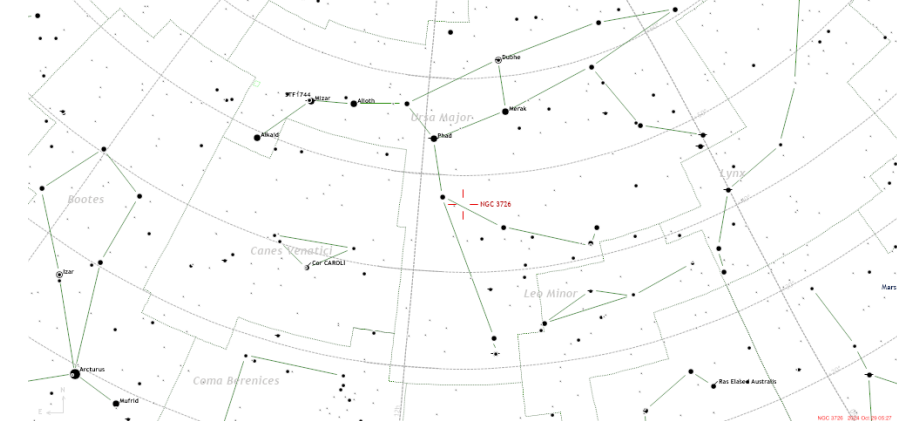
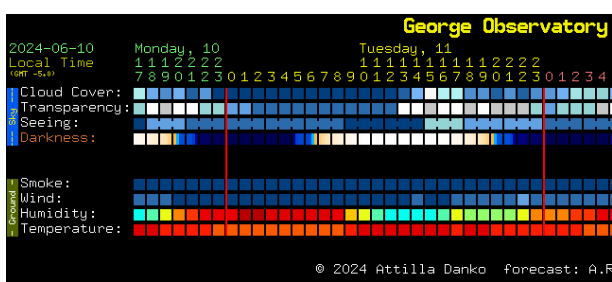


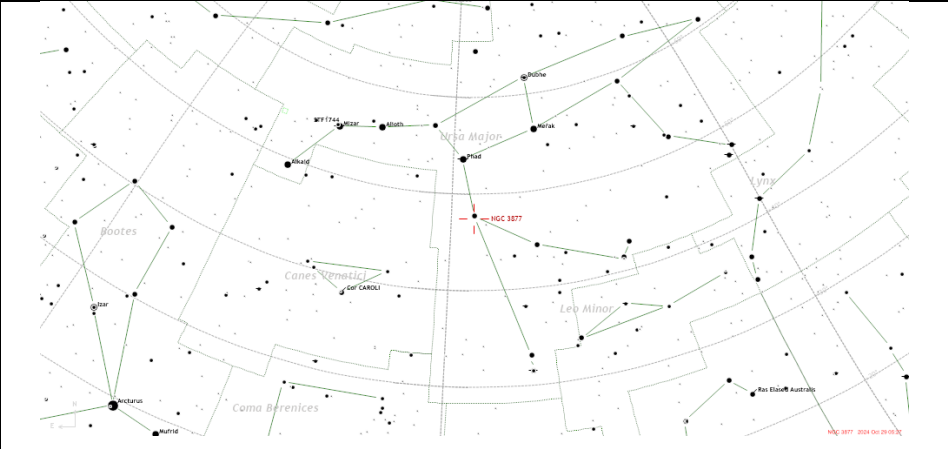
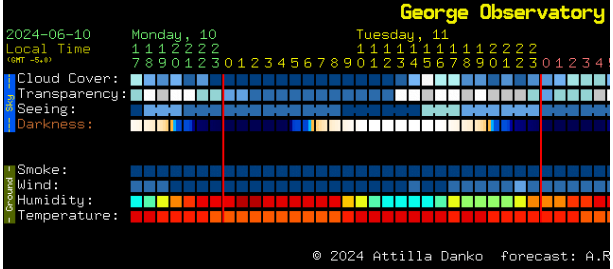
Neighboring Galaxies – M109 Southern Group – 10/20 (12)			
Name	Date Imaged	Distance (MLy)	Comments
NGC 3600		52.0	
NGC 3675	6-10-24	52.5	
NGC 3726	6-10-24	43.0	
NGC 3769		51.8	
UGC 6628		40.2	
NGC 3877	6-10-24	48.1	
NGC 3893	6-12-24	51.4	
UGC 6818		69.5	
NGC 3938	5-19-24	40.1	
NGC 3949	6-12-24	54.8	
UGC 6930		37.0	
NGC 4013		59.1	
IC 749		86.6	
NGC 4010		60.2	
IC 750		76.7	
NGC 4051	5-19-24	44.7	
UGC 7089		41.8	
NGC 4100	6-10-24	63.6	
NGC 4111	5-20-24, 6-12-24	39.4	
NGC 4117	5-20-24	75.3	

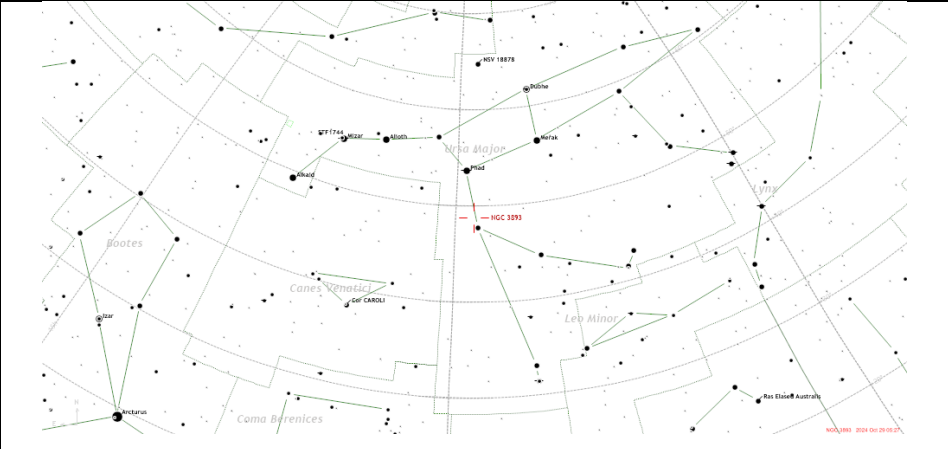
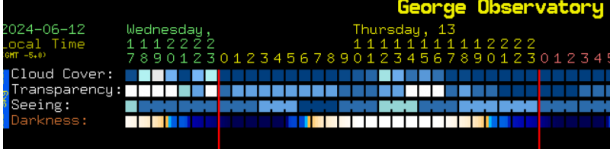
NGC 4138		64.4	
NGC 4217	6-12-24	58.3	
NGC 4220		63.8	
NGC 4346	6-13-24	49.4	
NGC 4389		37.5	

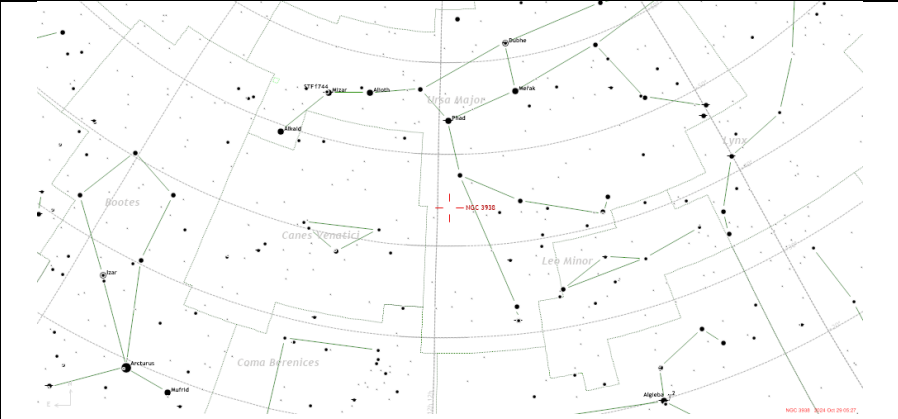
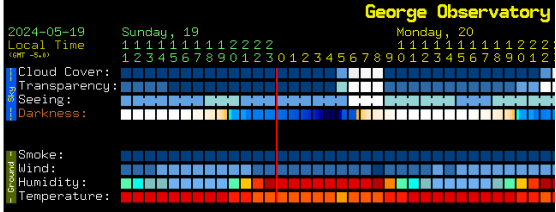
The Southern M109 grouping average distance is 54 Mly's. The spread in distance seems to be tighter than that of the Northern group. Similar to the Northern Group, the Southern Group is relatively tight in angular separation.

		NGC 3675 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6-10-24 Begin: 22:08 End: 23:33 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 27m 28s Dec - +43d 27m 23s Transit Time: Moon: 5 days	
		NGC 3675 – SA(b) m11.0. NGC 3675 is part of the M106/109 group in Ursa Majoris. It is a Spiral galaxy tilted at an angle to nicely show off its spiral arm. Visually it appears to have a prominent dark lane separating the spiral arms which are tightly wound around the galaxy.
Processing Notes: Stacked in Siril, gradient and noise reduction in Graxpert. Deconvolution, color correction, GHS in Siril with post processing in PS.		Gain: 150 Offset: 8 Exposure: 61x30sec Binning: 1x1

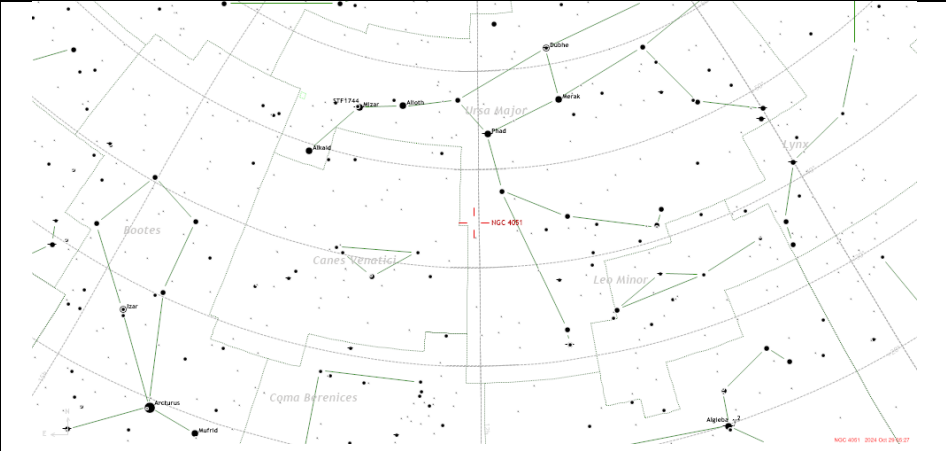
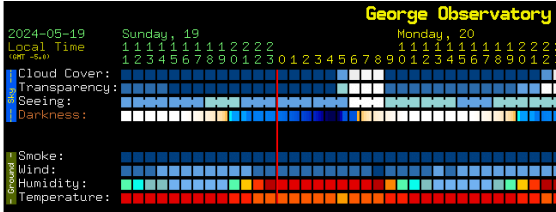
		NGC 3726 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6-10-24 Begin: 23:36 End: 00:17 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 34m 40s Dec - +46 53m 54s Transit Time: Moon: 6 days	
		NGC 3726 SAB(c) m10.9. NGC 3726 is another member of the M106/109 Southern group of galaxies. It appears visually to be a barred spiral galaxy with somewhat loose arms. There is a haziness beyond the spirals suggesting an outflow or extension of the arms. There are also “clumps” of higher density areas along the arms. Pretty little galaxy.
Processing Notes: Stacked in Siril, gradient and noise reduction in Graxpert. Deconvolution, color correction, GHS in Siril with post processing in PS.		Gain: 150 Offset: 8 Exposure: 59x30sec Binning: 1x1

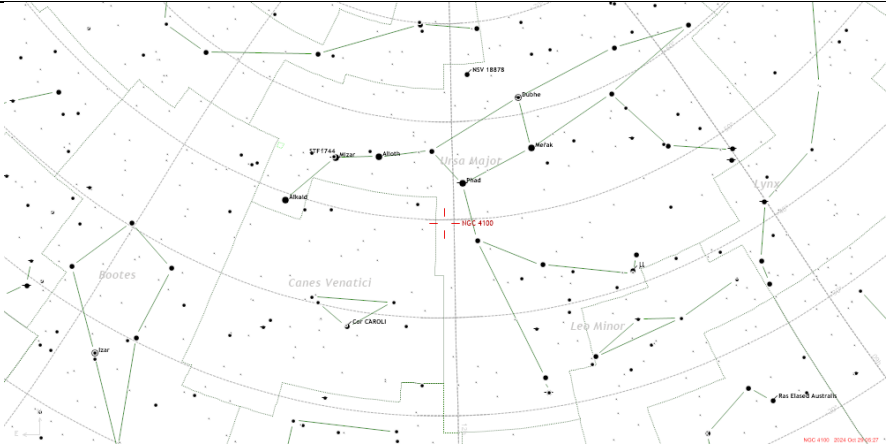
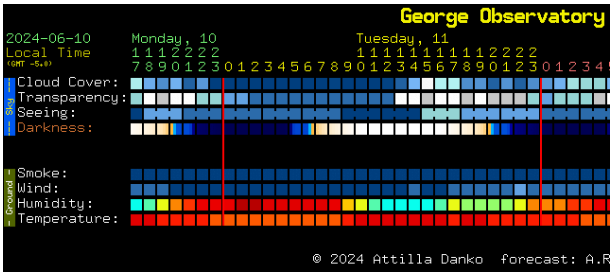
		NGC 3877 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6-11-24 Begin: 00:22 End: 01:00 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 47m 45s Dec - +47d 21m 48s Transit Time: Moon: 6 days	
		NGC 3877 SA(c) m12.1, is an edge on galaxy. The image field is slightly offset to avoid the bright star Chi Ursa Majoris. Some small knots of condensation are visible in the arms.
Processing Notes: Stacked in Siril, gradient and noise reduction in Graxpert. Deconvolution, color correction, GHS in Siril with post processing in PS.		Gain: 150 Offset: 8 Exposure: 60x30sec Binning: 1x1

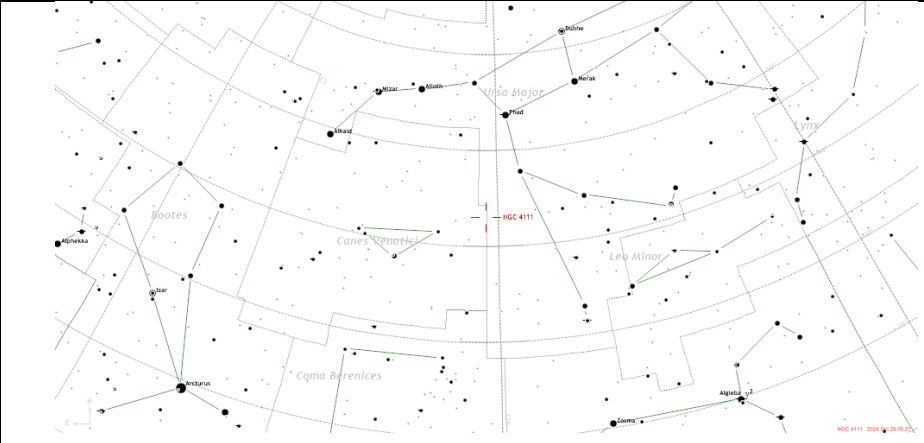
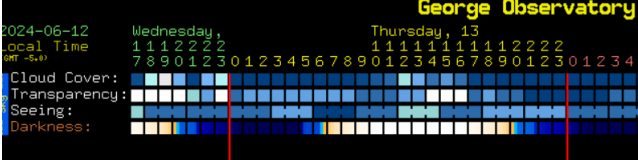
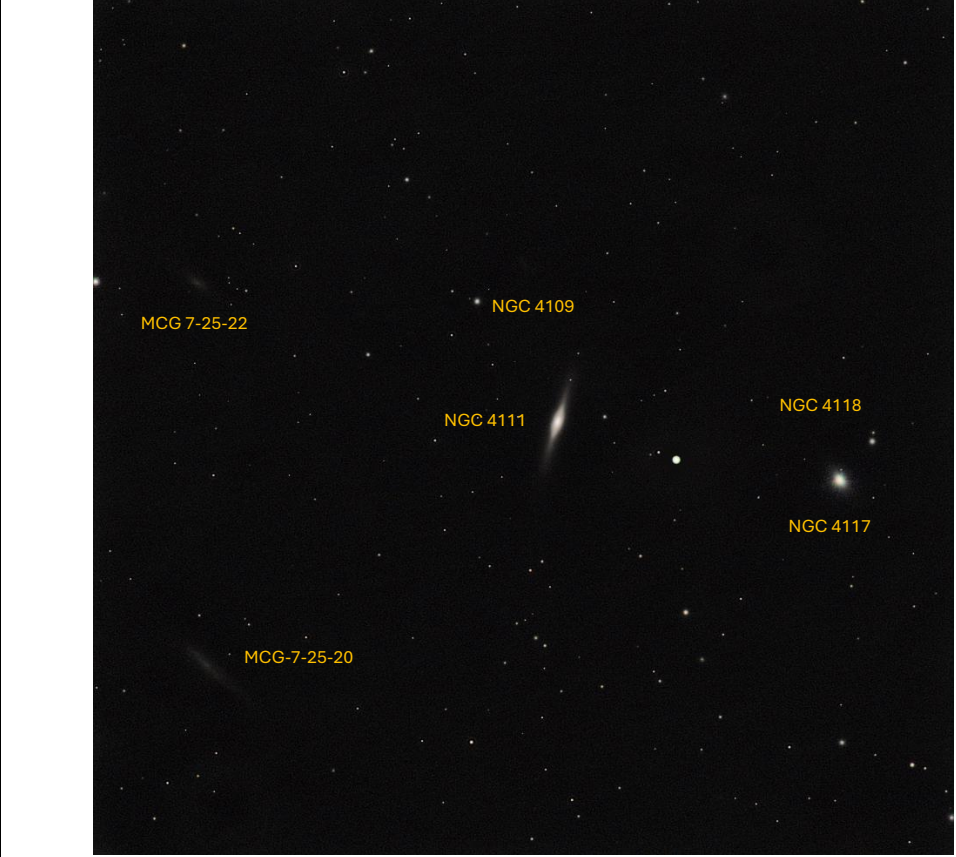
		NGC 3893
Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 		
Session Details: Date(s): 6-12-24 Begin: 21:29 End: 22:15 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 49m 55s Dec - +48d 34m 36s Transit Time: Moon: 7 days	
		NGC 3893 SAB(c), m11.2 Small, nearly face on spiral with loose arms. One arm seems to extend towards the neighboring galaxy, NGC 3896. The other arm has several tight knots along it. Possibly a bar is visible as well. NGC 3896 SBO, m13.9 – no detail visible and even brightness suggests an elliptical or lenticular galaxy.
Processing Notes: Stacking, gradient removal, color correction and stretching in Siril. Post processing in Photoshop.		Gain: 150 Offset: 8 Exposure: 58x30sec Binning: 1x1

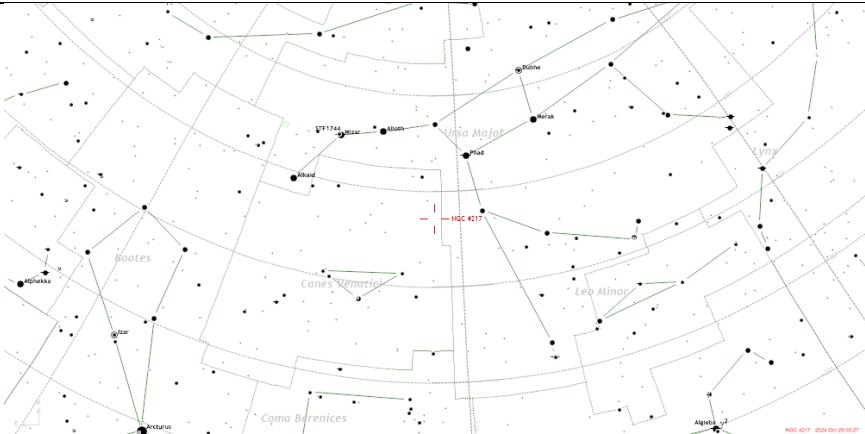
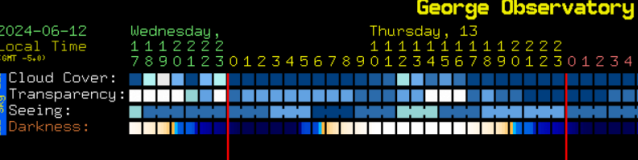
		NGC 3938 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 05-19-24 Begin: 23:06 End: 23:46 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h 54m 6.3s Dec - + 43d 59m 18s Transit Time: Moon: 12 Days	
		NGC 3938 – SA(c), m10.9 Beautiful face on spiral with at least 3 separate spiral arms. Several knots of condensation are visible along the arms.
Processing Notes:		Gain: 150 Offset: 8 Exposure: 60*30s Binning: 1x1

		NGC 3949 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount
Session Details: Date(s): 6-12-24 Begin: 23:01 End: 23:43 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 11h54m 58s Dec - +47d 43m 38s Transit Time: Moon: 7 days	
		NGC 3949 SA(bc) m11.7 - Very small, not well-defined spiral. NGC 3950 – Smal oval galxy to the lower left of N3949. NED classifies this as a Dwarf Galaxy, m16.5.
Processing Notes: Calibrated and stacked in Siril. Gradient and noise reduction in Graxpert. Color correction, deconvolution and stretching in Siril. Post processing in Photoshop.		Gain: 150 Offset: 8 Exposure: 64x30sec Binning: 1x1

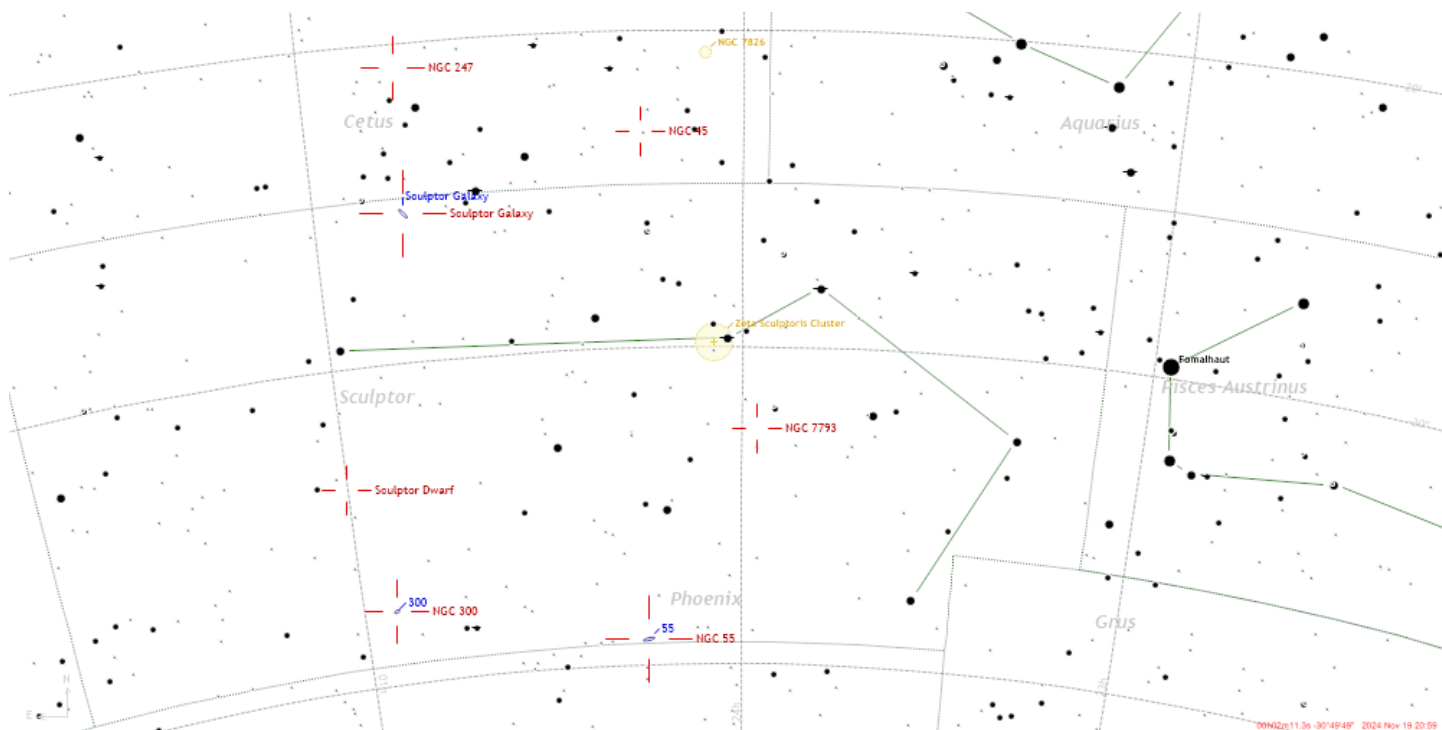
		NGC 4051 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 05-19-24 Begin: 23:51 End: 00:26 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 12h 04m 25s Dec - +44d 23m 55s Transit Time: Moon: 12 Days	
		NGC 4051 SAB(bc) m10.8 Sy I Galaxy is partially face on and forming a lazy ‘S’ shape. Three arms visible with rather large bright clusters along each one. It is designated as a Seyfert I galaxy, but the core does not seem as bright as other active galaxies.
Processing Notes: Stacked in SIRIL without dark frames. Full moon did make some strong gradients. Guiding in the Dec direction was switched from “Auto” to “South.” This smoothed out some of the Dec guiding issues. Graxpert used to remove gradients and noise.		Gain: 150 Offset: 8 Exposure: 60*30s Binning: 1x1

		NGC 4100 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6-11-24 Begin: 1:02 End: 1:34 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 12h 07m 23s Dec - +49d 27m 04s Transit Time: Moon: 6 days	
		NGC 4100 SA(bc), m11.9 - spiral tilted such that it is nearly edge-on. Separate arms are visible, core region small as compared to galaxy diameter.
Processing Notes: Stacked in Siril, gradient and noise reduction in Graxpert. Deconvolution, color correction, GHS in Siril with post processing in PS.		Gain: 150 Offset: 8 Exposure: 43x30sec Binning: 1x1

		NGC 4111 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6-12-24 Begin: 22:20 End: 22:58 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 12h 08m 17s Dec - +42d 56m 01s Transit Time: Moon: 7 days	
		Several galaxies are visible here with NGC 4111 as the most prominent. It is a beautiful edge on galaxy. MGC 7-25-20 appears similar in angular size but much fainter NGC 4109 – SA?, m14.5, barely visible. NGC 4111 – SAO, m6.3 edge on NGC 4117 – SO, m13.7, Sy II NGC 4118 – SO?, m15.6 MGC 7-25-22 – m14.5 (est) MGC 7-25-20 – m14 (est) edge-on?
Processing Notes: Calibrated and stacked in Siril. Gradient and noise reduction in Graxpert. Color correction, deconvolution and stretching in Siril. Post processing in Photoshop.		Gain: 150 Offset: 8 Exposure: 60x30sec Binning: 1x1

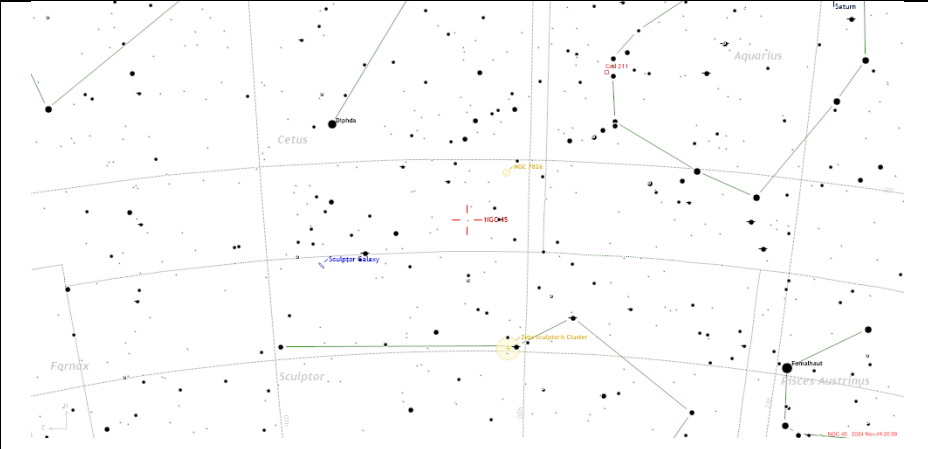
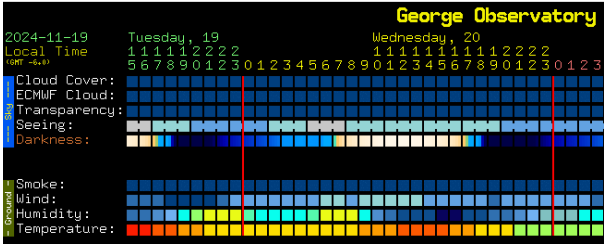
		NGC 4217 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter Celestron AVX Mount 
Session Details: Date(s): 6-12-24 Begin: 23:46 End: 00:24 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 12h 17m 04s Dec - +46d 57m 37s Transit Time: Moon: 7 days	
		NGC 4217 Sb, m12.0 - Edge on with a nice visible dark lane bisecting the disk. NGC 4226 Sa – pec, m14.0 – small spiral with a relatively large bright core.
Processing Notes: Calibrated and stacked in Siril. Gradient and noise reduction in Graxpert. Color correction, deconvolution and stretching in Siril. Post processing in Photoshop.		Gain: 150 Offset: 8 Exposure: 60x30sec Binning: 1x1

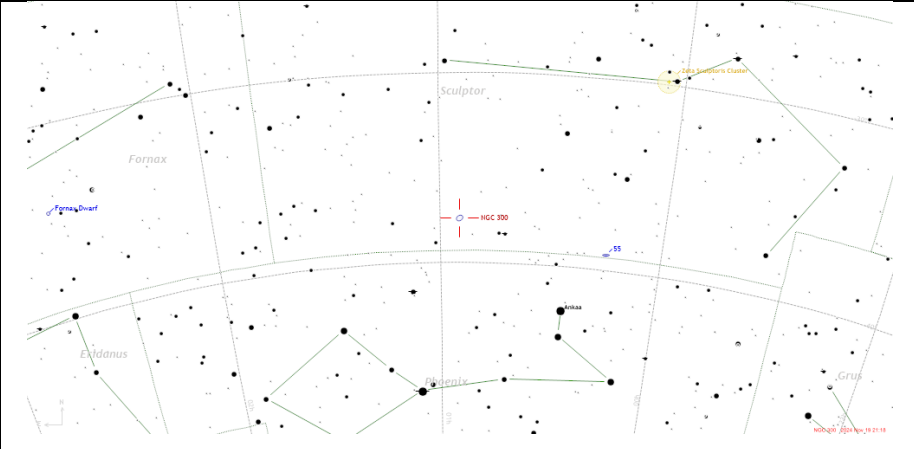
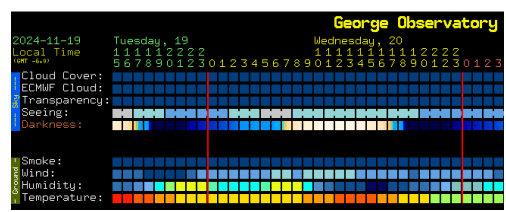
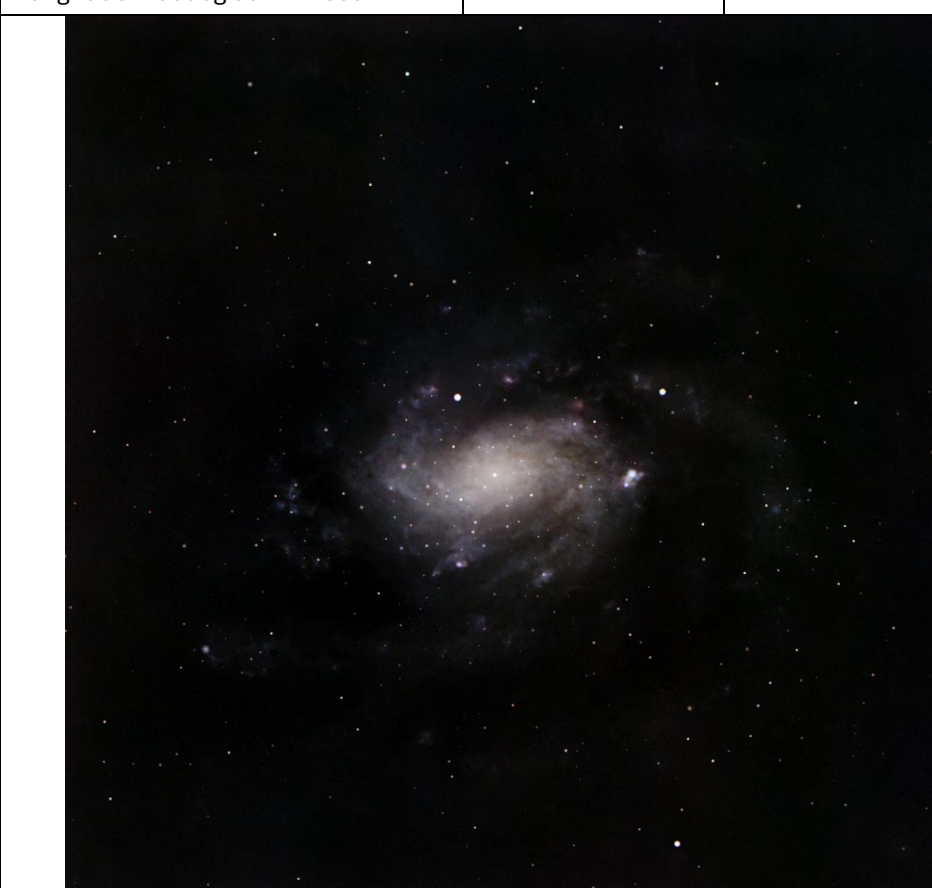
Chapter 13 – The Sculptor Group

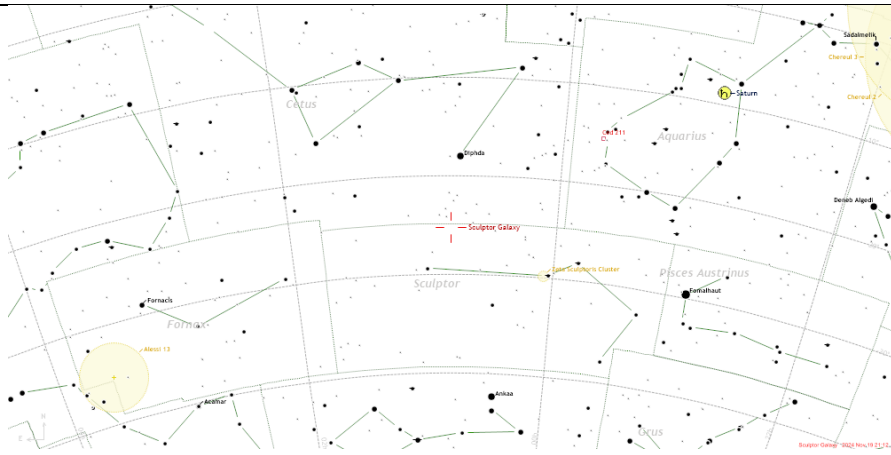
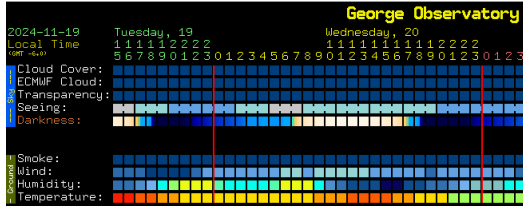


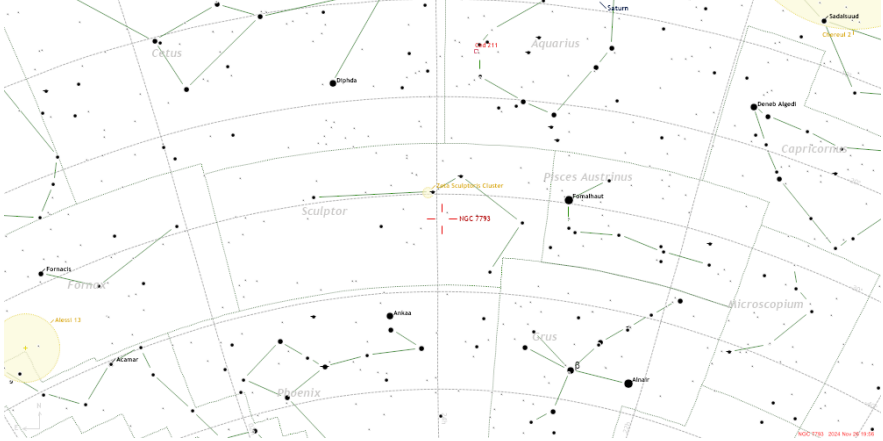
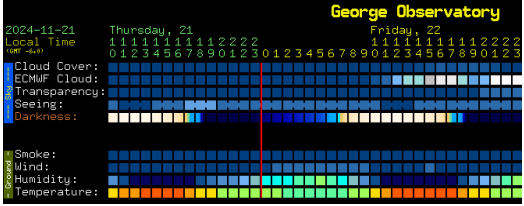
<i>Neighboring Galaxies – The Sculptor Group (6)</i>			
Name	Date Imaged	Distance (MLy)	Comments
NGC 45	11/19/24	22.1	
NGC 55		6.2	Too low for local horizon
NGC 247	11/21/24	10.65	
NGC 253	11/20/21	10.1	Sculptor Galaxy
NGC 300	11/19/24	6.4	
NGC 7793	11/21/24	12.5	
SDIG	11/26/24	10.4	

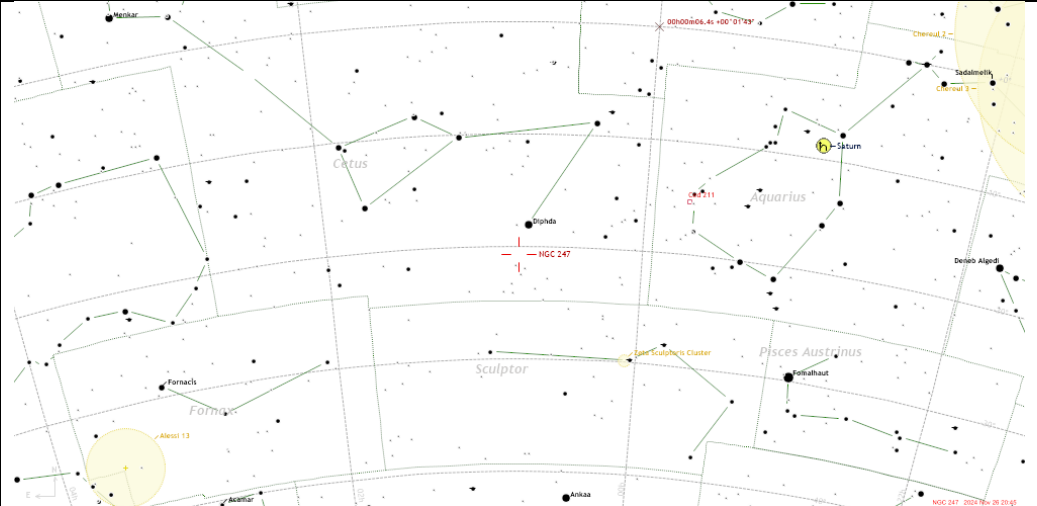
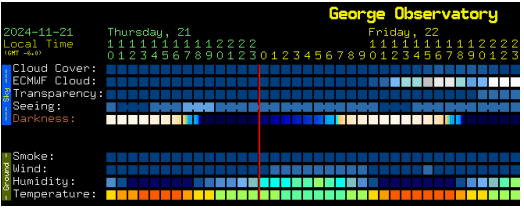
As the name implies, this group of galaxies resides in the Sculptor constellation. It has a mean distance off 11.4 MLy's and because of this relatively close distance, its members appear large to the telescope. A very nice group of galaxies.

		NGC 45 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 11/19/24 Begin: 18:58 End: 20:11 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 00h 14m 04s Dec - -23d 10m 55s Transit Time: Moon: 19 days	
		NGC 45 – SA(s)dm m11.4 spiral galaxy in the Sculptor Galaxy Group. Visible are a pair of very blue clusters in the upper right spiral arm, along with several other smaller blue clusters throughout the arms.
Processing Notes: Stacked in Siril, gradient removal and denoised in Graxpert. Stars resynthesized in Siril. Stretched and sharpened in SetiAstro.		Gain: 101 Offset: 8 Exposure: 35x120sec Binning: 1x1

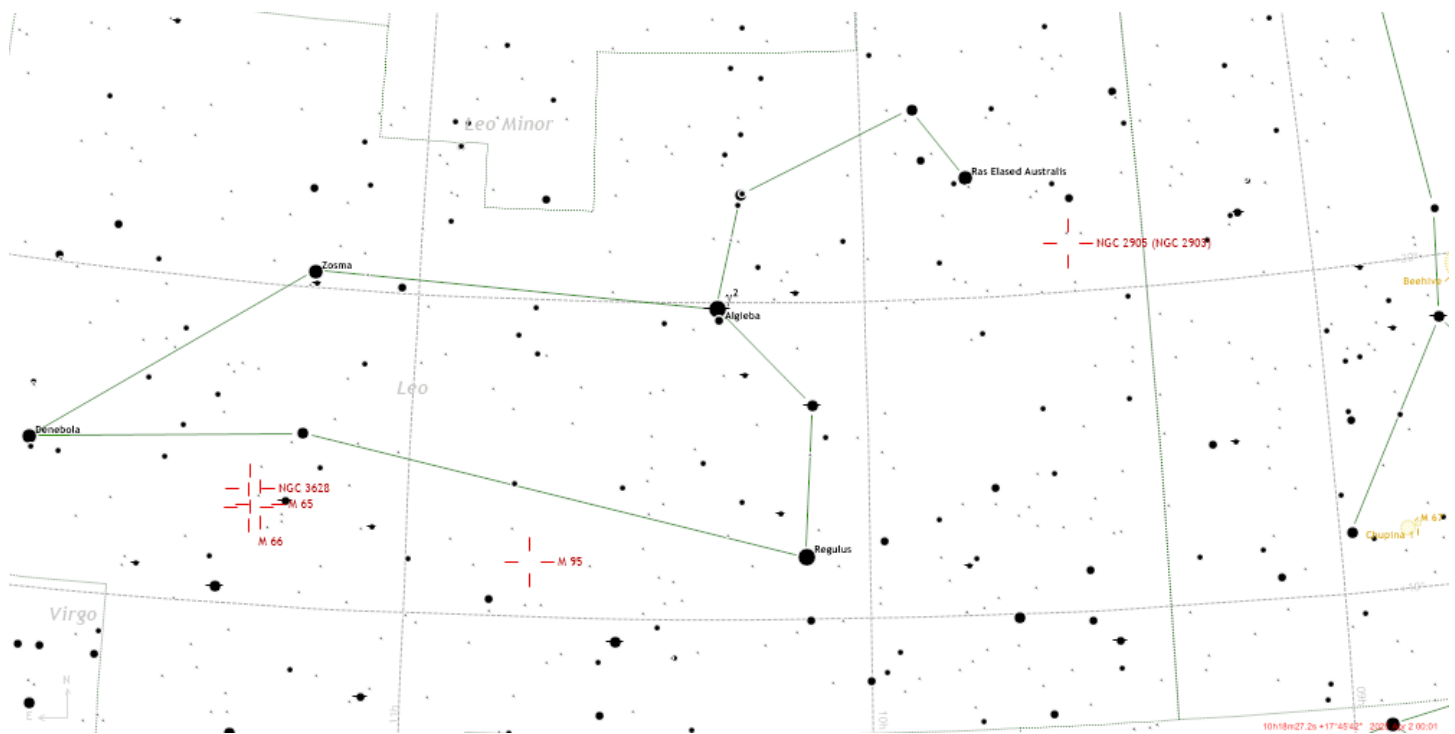
		NGC 300 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 11/19/29 Begin: 20:39 End: 21:50 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – h m s Dec - +d m s Transit Time: Moon: 19 days	
		NGC 300 – SA(s)d m9.0 spiral galaxy in the Sculptor group. Spread throughout the spiral arms are visible red or pinkish HII regions
Processing Notes: Stacked in Siril, gradient removal and denoised in Graxpert. Stars resynthesized in Siril. Stretched and sharpened in SetiAstro.		Gain: 101 Offset: 8 Exposure: 35x120sec Binning: 1x1

		NGC 253 – The Sculptor Galaxy Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 11/20/29 Begin: 18:46 End: 19:26 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 00h 47m 33s Dec - -25d 17m 18s Transit Time: Moon: 20 days	
		NGC 253 – The Sculptor Galaxy – SABc m7.1 Barred spiral galaxy, nearly edge on. NGC 253 displays a considerable network of dust lanes within the disk.
Processing Notes: Stacked in Siril, gradient removal and denoised in Graxpert. Stars resynthesized in Siril. Stretched and sharpened in SetiAstro.		Gain: 101 Offset: 8 Exposure: 60x120sec Binning: 1x1

		NGC 7793 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 11-21-24 Begin: 18:43 End: 20:17 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 23h 57m 49s Dec - -32d 35m 28s Transit Time: Moon: 21 days	
		NGC 7793 – SA(d) m9.98 spiral galaxy in the Sculptor Group. Lots of areas of condensation throughout the relatively tight spiral arms. Two dwarf companions are located below and to the left of the galaxy.
Processing Notes: Stacked in Siril, gradient removal and denoised in Graxpert. Stars resynthesized in Siril. Stretched and sharpened in SetiAstro.		Gain: 101 Offset: 8 Exposure: 35x120sec Binning: 1x1

		NGC 247 Equipment Used: Celestron C8 – 2030mm f/10, x.63 reducer ZWO ASI533MC Pro UV/IR Filter ZWO AM5n 
Session Details: Date(s): 11-21-24 Begin: 20:23 End: 21:39 Location: Astro_Shed Obervatory Latitude: +29deg 10m 8s Longitude: - 95deg 38min 7sec	Center of F.O.V RA – 00h 47m 6.5s Dec - -20d 44m 38s Transit Time: Moon: 21 days	
		NGC 247 - SAB(d) m9.9 Barred spiral galaxy. There are lots of clusters distributed throughout the spiral arms. Also noticeable is void between the spiral arm at the bottom and the inner areas of the galaxy suggesting a possible disturbance of this arm.
Processing Notes: Stacked in Siril, gradient removal and denoised in Graxpert. Stars resynthesized in Siril. Stretched and sharpened in SetiAstro.		Gain: 101 Offset: 8 Exposure: 35x120sec Binning: 1x1

Chapter 14 – The Virgo Super Cluster – Leo Subgroup



<i>Neighboring Galaxies – The Virgo Super Cluster</i>			
Name	Date Imaged	Distance (MLy)	Comments
NGC 2903/2905	2-28-25	26.0	
NGC 3628	3-1-25	32.0	
M 65	3-5-25	39.8	
M 66	3-10-25	31.36	
M 95	3-24-95	32.3	

This is only a small fraction of the galaxies within the Leo Super Cluster. These have a mean distance of about 32 MLy's and are all contained within Leo.

Object:	NGC 2903/2905				Constellation:	Leo		
Sky	2025-02-28 Fri Saturday, 1 Local Time 112222 11111111112222 8901230123456789012345678901230123456 Cloud Cover: ECMUF Cloud: Transparency: Seeing: Darkness: Smoke: Wind: Humidity: Temperature:				Location:	Astro_Shed Obervatory Longitude: Latitude: +29deg 10m 8s - 95deg 38min 7sec		
Equipment	Scope: Celestron 8" SCT Camera: ZWO ASI 533MC Pro							
Date:	2/28/25	Start Time:		21:44	Moon (Days)	1		
Filter:	UV/IR	Exposure (s)		180	Number	60		

Object

Description:

SAB(bc) m9.7 Intermediate barred spiral galaxy. Spiral arms almost appear to make a ring like structure around the galaxy.



Processing

Notes

Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, and flat frames used in calibration.

Object:	NGC 3628			Constellation:	Leo	
Sky	George Observatory 2025-03-01 Sat Sunday, 2 Local Time 11:22:22 11:11:11 11:22:22 UT Sat 09:01 23:01 23:45 56 78 90 12 34 56 78 90 12 34 56 Cloud Cover: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 ECHMF Cloud: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Transparency: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Seeing: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Darkness: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Smoke: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Wind: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Humidity: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 Temperature: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100			Location:	Astro_Shed	
	Longitude:	Observatory				
	Latitude:	+29deg 10m 8s - 95deg 38min 7sec				
Equipment						
Scope:	Celestron 8" SCT					
Camera:	ZWO ASI 533MC Pro					
Date:	3/1/25	Start Time:	21:55	Moon (Days)	2	
Filter:	UV/IR	Exposure (s)	180	Number	25	

Object S(b) pec m10.2 Edge-on spiral galaxy, also known as Arp 317 (Groups). Member of

Description: the Leo Triplet. Nice dark dust lane bisecting the disk.



Processing Notes Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, and flat frames used in calibration.

Object:	M 65			Constellation:	Leo		
Sky	George Observatory 2025-03-05 Wednesday, 5 Thursday, 6 Local Time 111112222 111111112222 Time (GMT -5:00) 5678901230123456789012345678901230123 Cloud Cover: [grid] ECMWF Cloud: [grid] Transparency: [grid] Seeing: [grid] Darkness: [grid] Smoke: [grid] Wind: [grid] Humidity: [grid] Temperature: [grid]			Location:	Astro_Shed		
				Longitude:	Obervatory		
				Latitude:	+29deg 10m 8s		
					- 95deg 38min 7sec		
Equipment							
Scope:	Celestron 8" SCT						
Camera:	ZWO ASI 533MC Pro						
Date:	3/5/25	Start Time:	20:39	Moon (Days)	6		
Filter:	UV/IR	Exposure (s)	180	Number	22		

Object

SAB(a) m10.3 Intermediate barred spiral galaxy with tight spiral structure.

Description:

Noticeable dark dust lane 2/3'rds radial distance from center.



Processing

Gradient removal, color corrected. GHS stretch, final sharpening in

Notes

Cosmic Clarity. Darks, and flat frames used in calibration.

Object:	M 66					Constellation:	Leo				
Sky	George Observatory 2025-03-10 Monday, 10 Tuesday, 11 Local Time 4 1 1 2 2 2 2 4 1 1 1 1 1 1 1 2 2 2 2 UT-4:01 6 7 8 9 0 1 2 3 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 Cloud Cover: [grid] ECMWF Cloud: [grid] Transparency: [grid] Seeing: [grid] Darkness: [grid] Smoke: [grid] Wind: [grid] Humidity: [grid] Temperature: [grid]					Location:	Astro_Shed				
						Longitude:	Obervatory				
						Latitude:	+29deg 10m 8s - 95deg 38min 7sec				
Equipment											
Scope:	Celestron 8" SCT										
Camera:	ZWO ASI 533MC Pro										
Date:	3/10/25				Start Time:	23:55	Moon (Days)		2		
Filter:	UV/IR				Exposure (s)	180	Number		21		

Object
Description:

SAB(b) m9.7 barred spiral at intermediate angle. Dark lanes clearly visible throughout spiral structure. Blueish condensation areas along arms.



Processing
Notes

Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, and flat frames used in calibration.

Object:	M 95					Constellation:	Leo				
Sky	George Observatory 2025-03-24 Mon Tuesday, 25 Local Time 1 2 2 2 2 1 1 1 1 1 1 1 2 2 2 2 UT-5:41 9 0 1 2 3 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 0 1 2 3 4 5 Cloud Cover: ECMWF Cloud: Transparency: Seeing: Darkness: Smoke: Wind: Humidity: Temperature:					Location:	Astro_Shed				
						Longitude:	Obervatory				
						Latitude:	+29deg 10m 8s - 95deg 38min 7sec				
Equipment											
Scope:	Celestron 8" SCT										
Camera:	ZWO ASI 533MC Pro										
Date:	3/24/25	Start Time:			20:32	Moon (Days)		25			
Filter:	UV/IR	Exposure (s)			180	Number		62			

Object

Description:

SB(r)b, m11.4 barred intermediate spiral with arms making a ring like structure around the core. A fine lattice of dust intrudes into the core from one side of the bar.



Processing

Notes

Gradient removal, color corrected. GHS stretch, final sharpening in Cosmic Clarity. Darks, and flat frames used in calibration. Crop rotated.

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