Robert Wood's Astronomical League Observation Record – Open Clusters

Introduction

Welcome to my log of 125 Open Clusters. This project was initiated in the summer of 2023. The final 5 objects were added in November of 2024. All images were taken through an Astro Tech 80ED and captured with either a ZSO ASI183MC or a ZSO ASI533 MC Pro. The images were live stacked and stretched in SharpCap. Typically, a 5-minute total integration time was used for most objects. For objects that exhibited exceptional interest like nebulae, the integration time was increased.

The stacked image was transformed into black and white and inverted to show the negative. This approach, in my opinion, reveals much more contrast for the fainter objects and gives the feel of an old-time atlas.

The objects are arranged in order of Right Ascension. The Trumpler Cluster Classification is my estimate as determined by my observation notes and the image followed by the Sky Atlas 2000.0 Companion designation in parenthesis, if available. The most frequent deviations from my estimated and the reference was in the degree of concentration of the cluster. Judging between "little central concentration" and "no noticeable concentration" seems to be a challenge for me. The other frequent deviation was in judging the numbers of associated stars in the cluster. I believe I got better with both these estimates over time.

Robert Wood

Observation Log Sheet

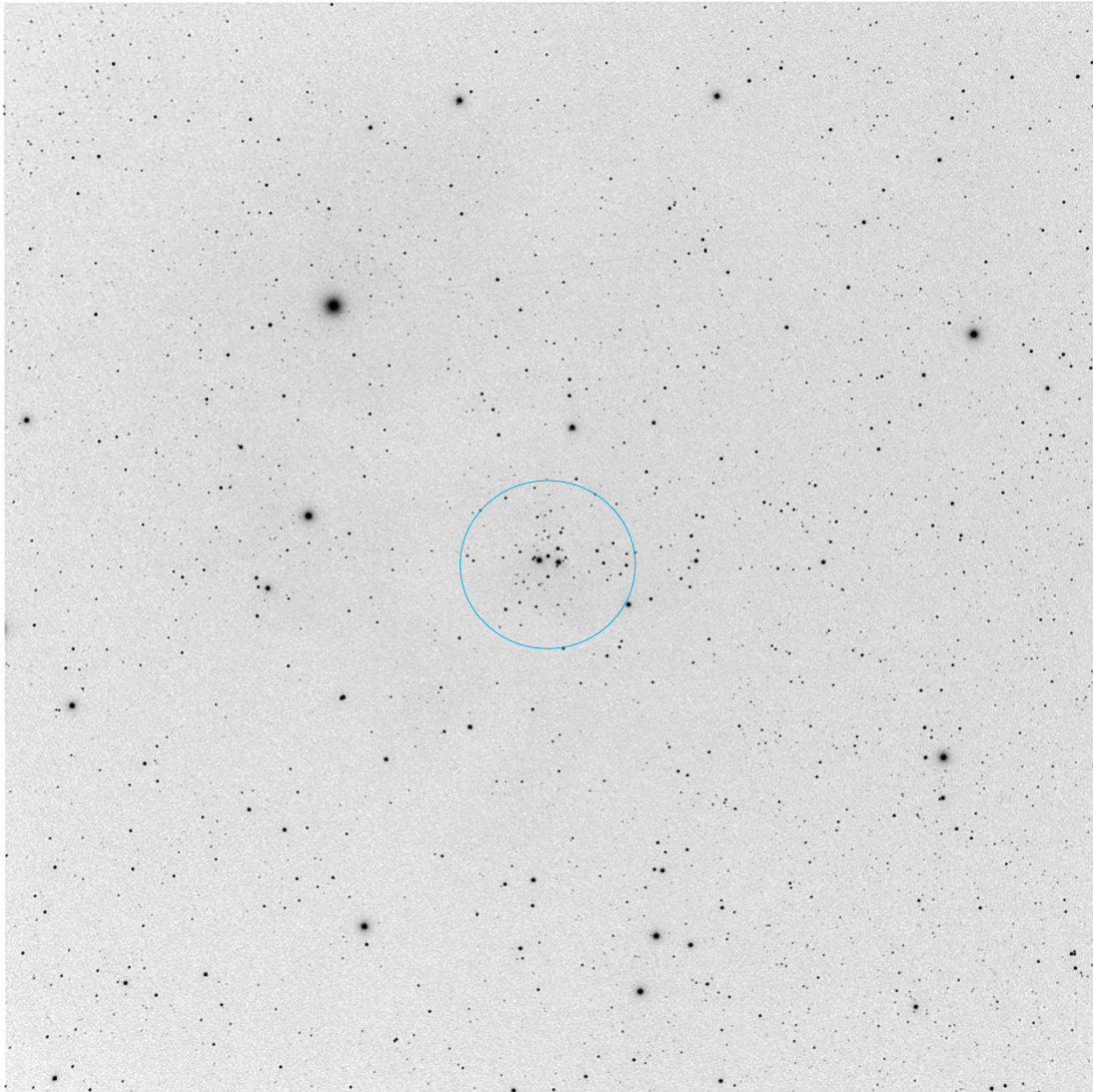|			
Object	**Berkeley 58**	Date	12/16/23
Right Ascension (2000)	00h00m13s	Time	19:59
Declination (2000)	+60°56'45"	Sky: Transparency	Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	10.10	Location	West Columbia TX
Angular Diameter (')	5	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p	Camera	ZWO ASI533 MC Pro
Distance (ly)	12000	Sub Exposure (sec)	15
Diameter (ly)	18	Total Exposure (min)	6.5
		Image Software	SharpCap 4.0

Visual Description   A very difficult cluster, faint, not well detached. Less than 50 fainter stars. NGC 7790 with faint nebulosity is just to the upper left in the frame.
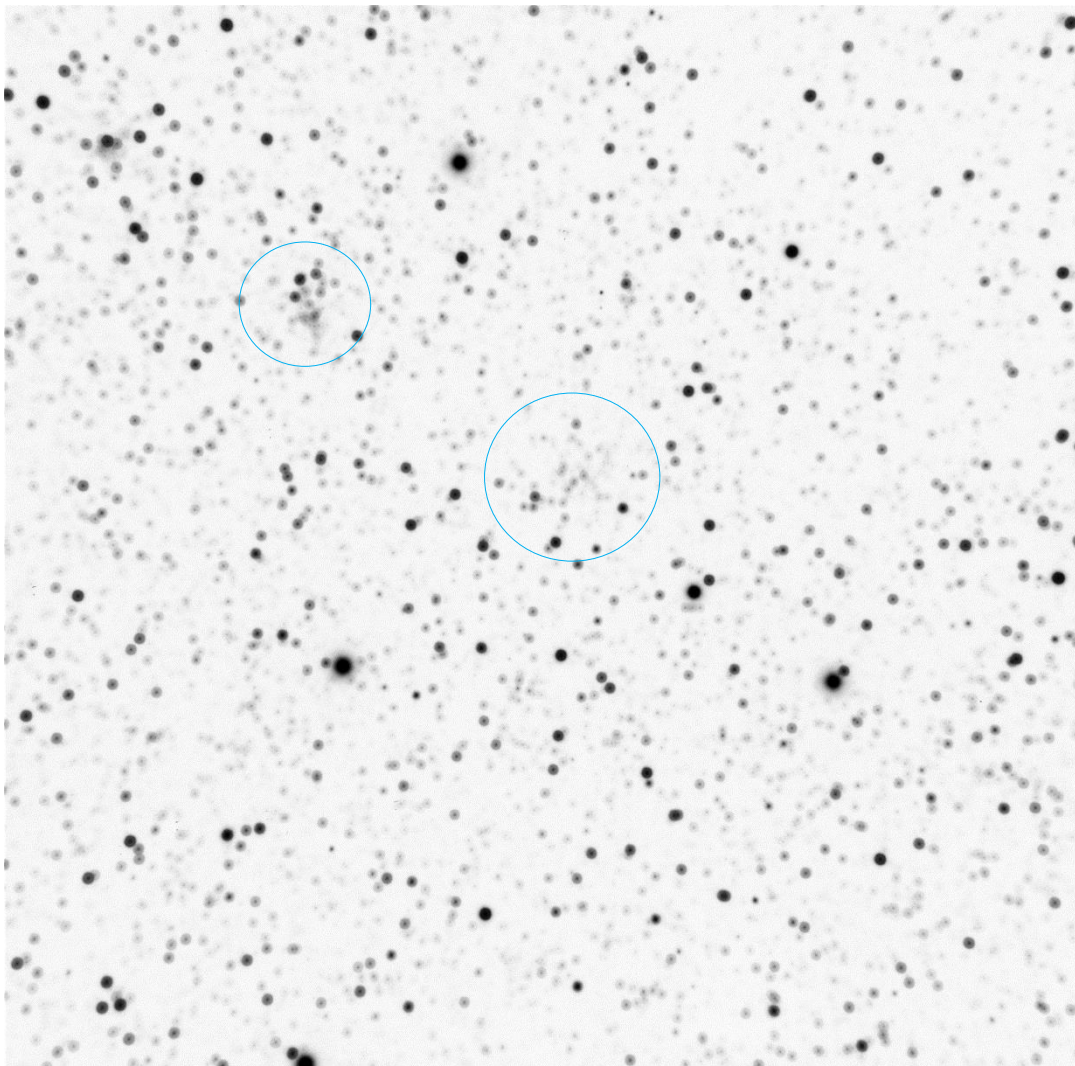
Observation Log Sheet

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Object	**Berkeley 59**	Date	11/8/24
Right Ascension (2000)	00h03m32s	Time	19:24
Declination (2000)	+67°33'33"	Sky: Transparency	Average
Constellation	Cephus	Seeing	Average
Magnitude	10.4	Location	West Columbia TX
Angular Diameter (')	10	Instrument	Astro Tech AT80ED
Concentration Class	I-2-m	Camera	ZWO ASI533 MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	10.25
		Image Software	SharpCap 4.0

Visual Description   About 50 or more stars well concentrated and surrounded by nebulosity.

Observation Log Sheet

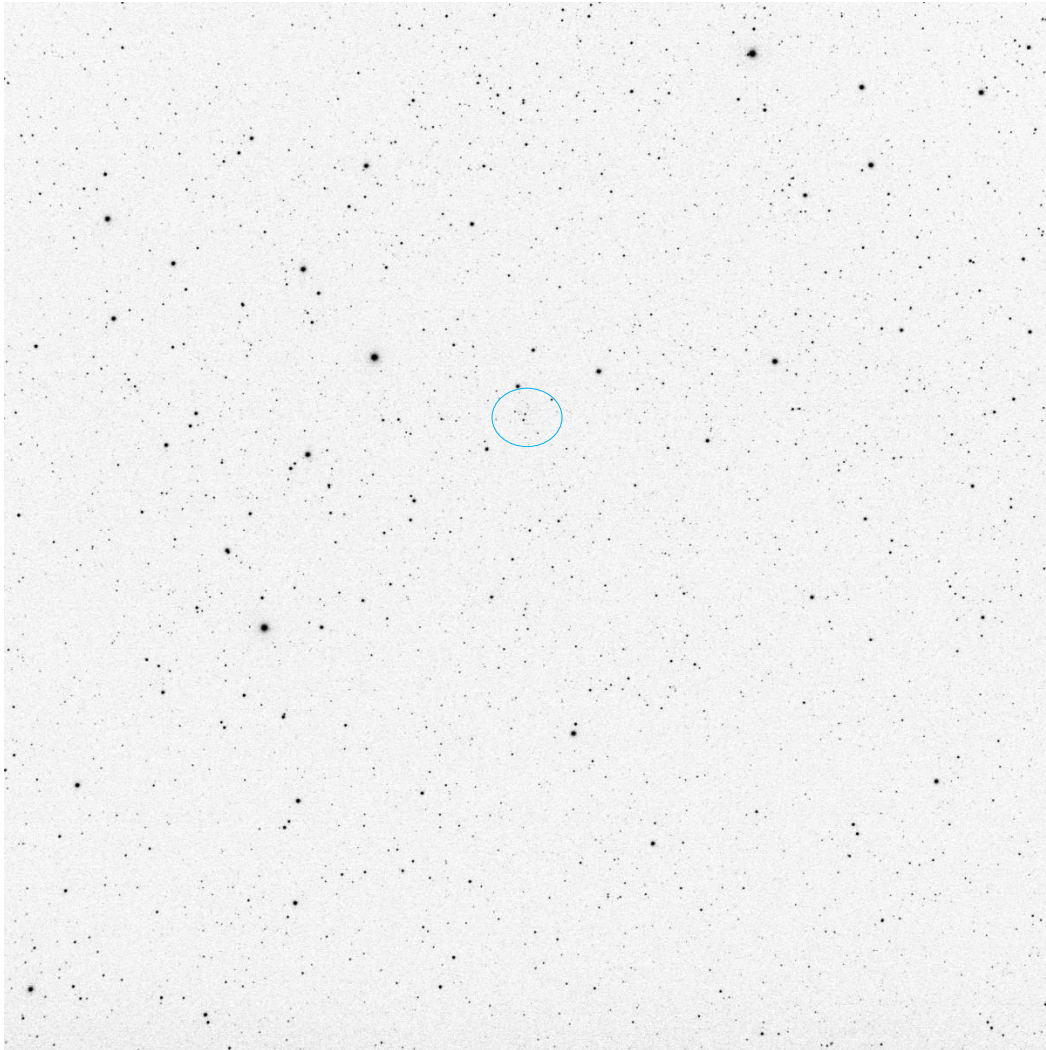|			
Object	**King 13**	Date	1/29/24
Right Ascension (2000)	00h11m20s	Time	19:50
Declination (2000)	+61˚18'13"	Sky: Transparency	Below Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	9.90	Location	West Columbia TX
Angular Diameter (')	5	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Small cluster, not well detached, somewhat concentrated. Cluster consists of 6 brighter members and < 30 fainter ones.
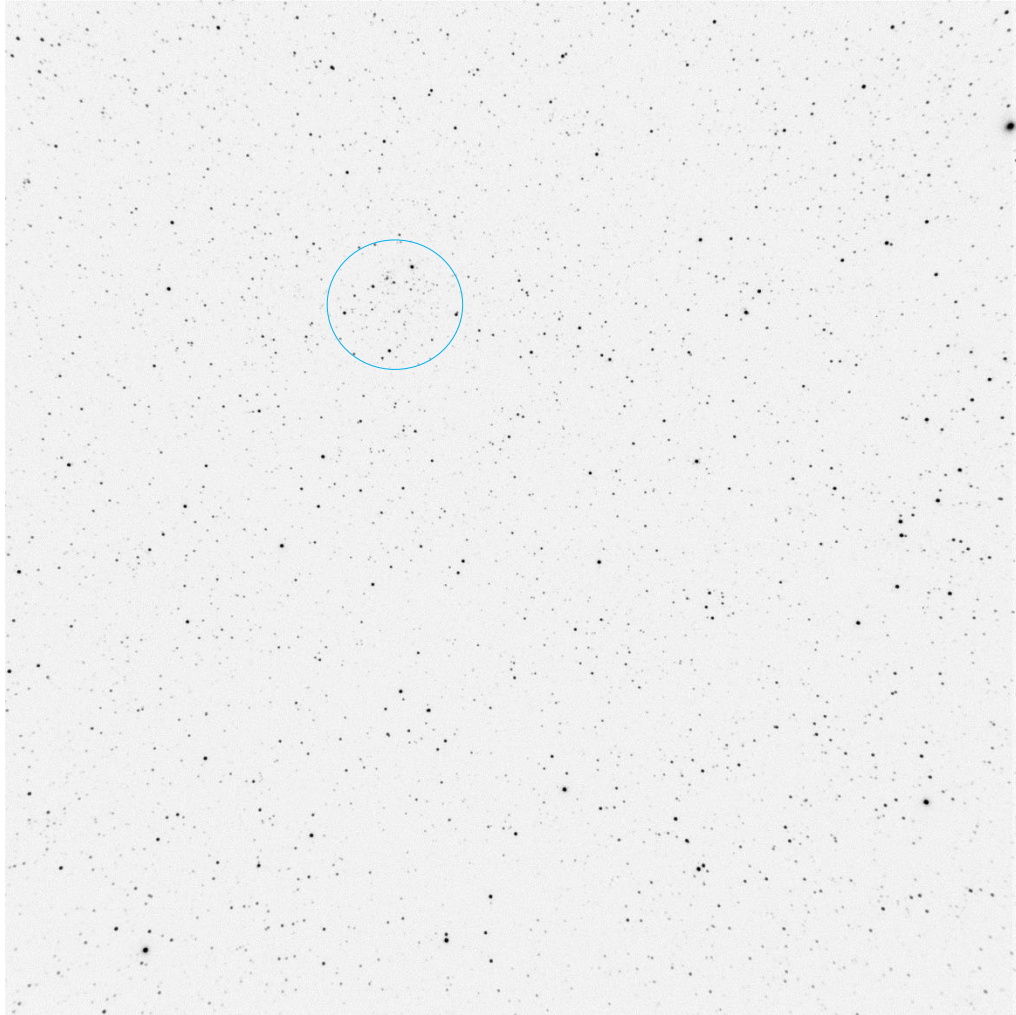
Observation Log Sheet

Object	**Berkely 2**	Date	10/21/23
Right Ascension (2000)	00h25m18s	Time	20:53
Declination (2000)	+60˚24'00"	Sky: Transparency	Above Average
Constellation	Cassiopeia	Seeing	Above Average
Magnitude	11.8	Location	West Columbia TX
Angular Diameter (')	2.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p	Camera	ZWO ASI183MC
Distance (ly)	17000	Sub Exposure (sec)	15
Diameter (ly)	10	Total Exposure (min)	4.0
		Image Software	SharpCap 4.0

Visual Description   A very tiny cluster. Not detached but strong field concentration.

Observation Log Sheet

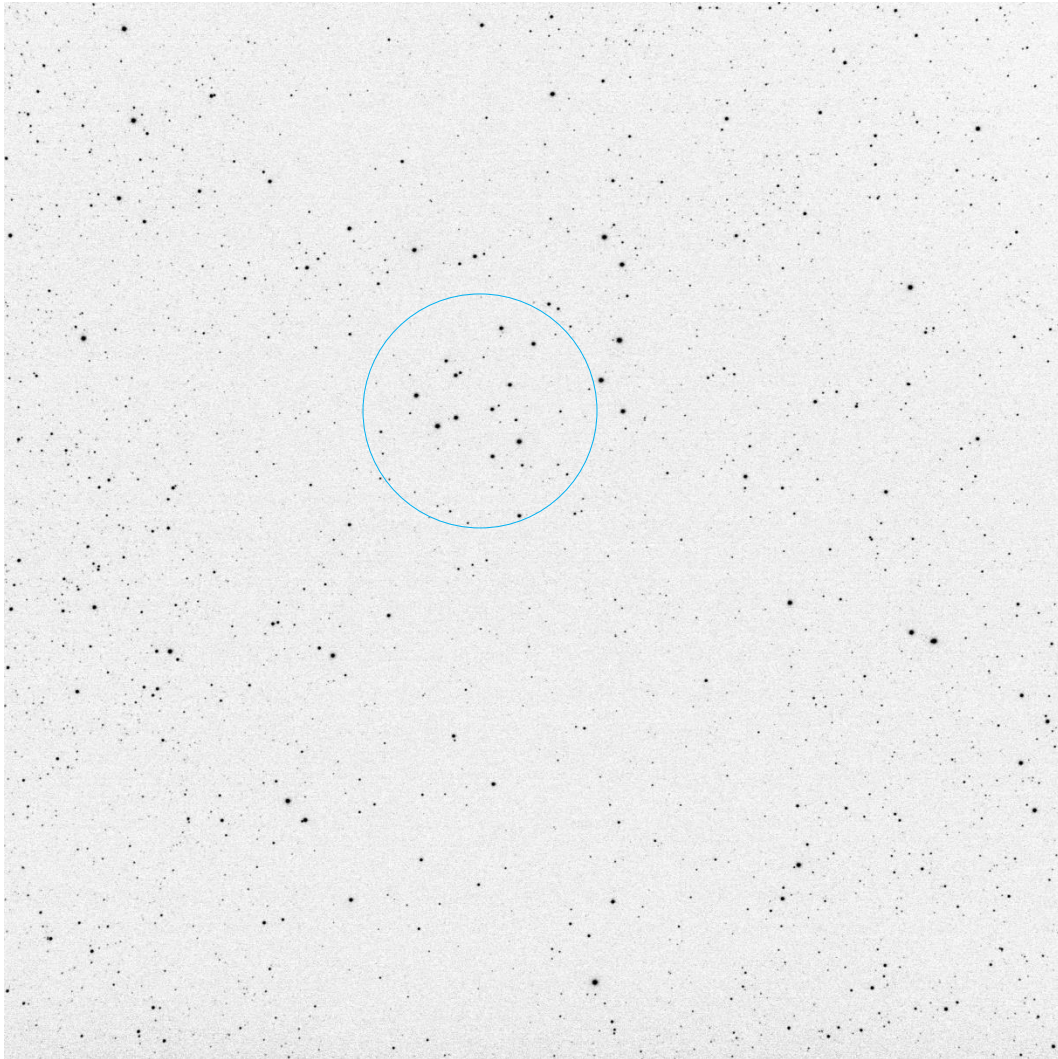|			
Object	**King 14**	Date	12/16/23
Right Ascension (2000)	00h31m54s	Time	20:20
Declination (2000)	+63°10'45"	Sky: Transparency	Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	8.9	Location	West Columbia TX
Angular Diameter (')	6.1	Instrument	Astro Tech AT80ED
Concentration Class	IV-2-p (III-2-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	8500	Sub Exposure (sec)	15
Diameter (ly)	15	Total Exposure (min)	3.25
		Image Software	SharpCap 4.0

Visual Description   Faint and not well detached, little concentration. Less than 50 stars of moderate range in brightness.
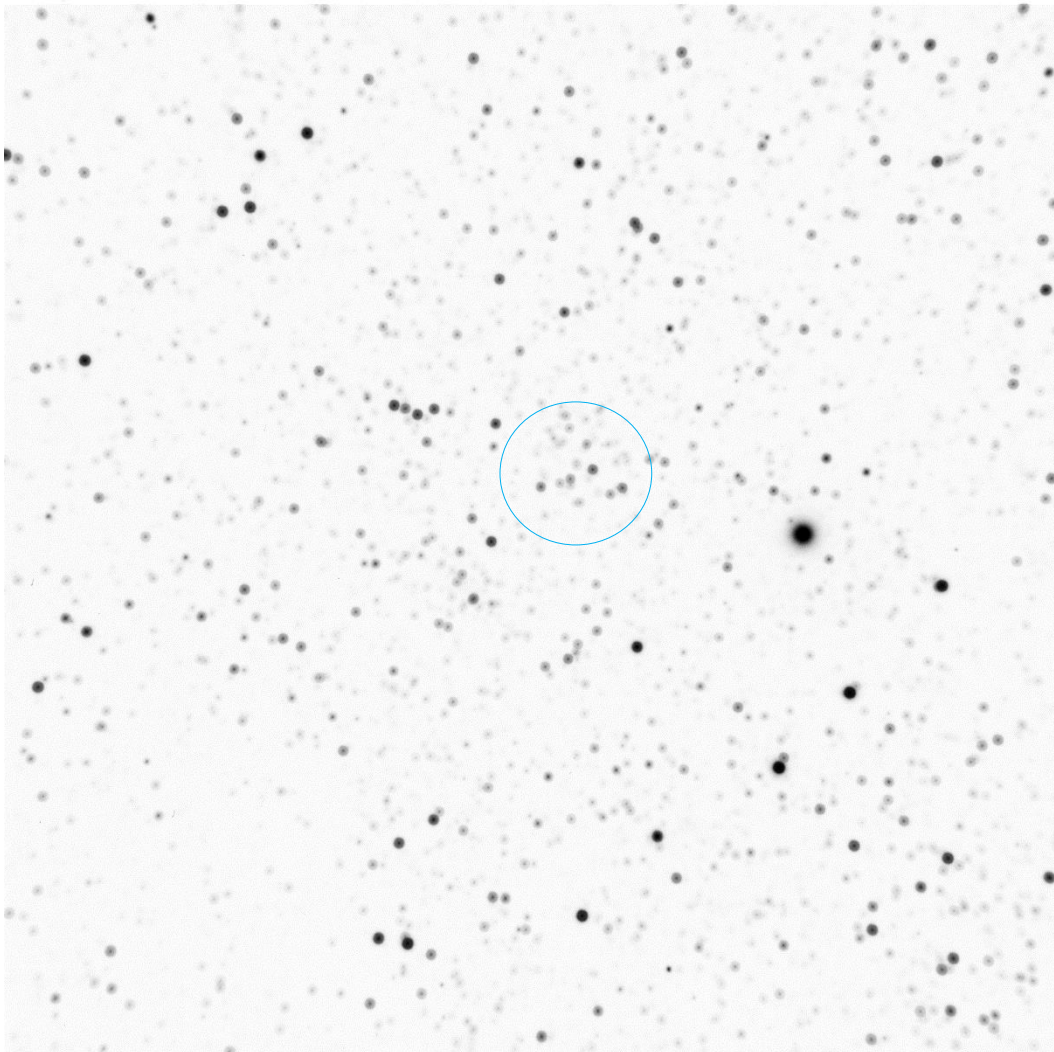
Observation Log Sheet

Object	**NGC 225**	Date	10/21/23
Right Ascension (2000)	00h43m39s	Time	20:58
Declination (2000)	+61˚48'30"	Sky: Transparency	Above Average
Constellation	Cassiopeia	Seeing	Above Average
Magnitude	8.1	Location	West Columbia TX
Angular Diameter (')	12	Instrument	Astro Tech AT80ED
Concentration Class	III-1-p (III-1-p)	Camera	ZWO ASI183MC
Distance (ly)	2100	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	4.25
		Image Software	SharpCap 4.0

Visual Description   A medium sized cluster of about 20 bright stars. No strong centralization.

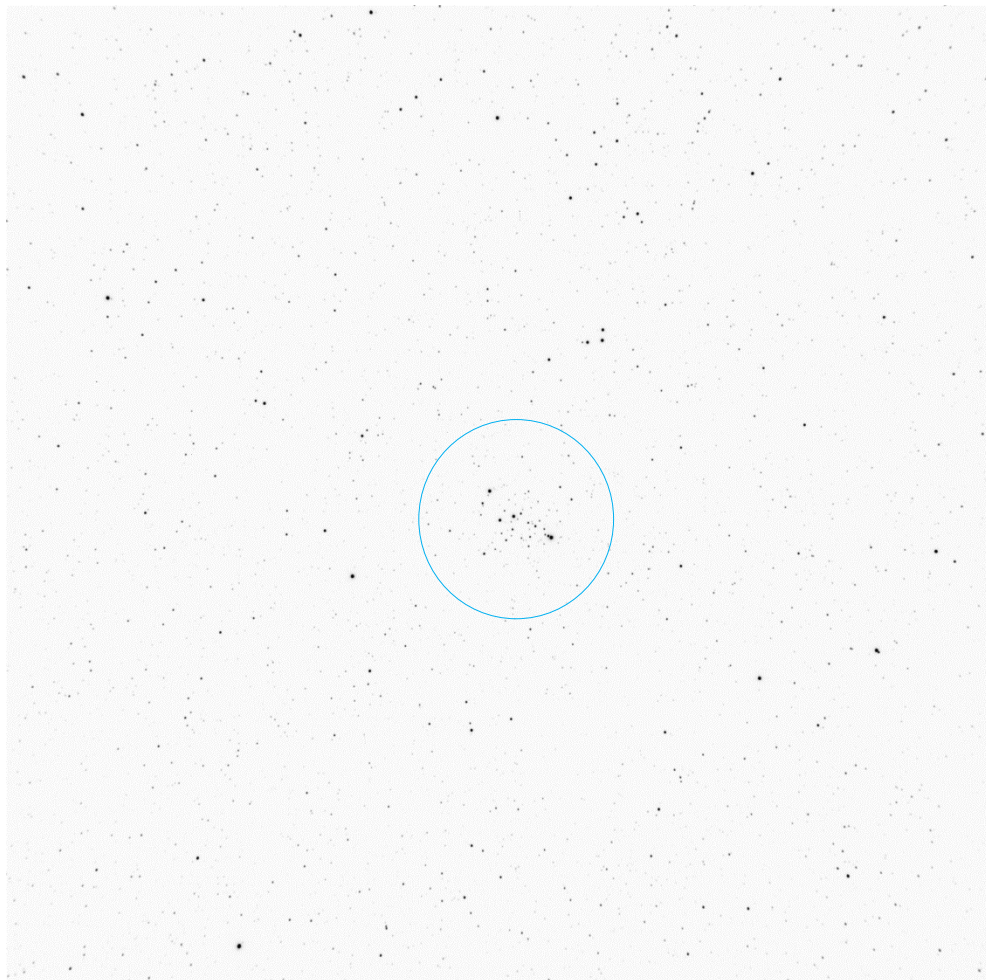|			
Object	**King 16**	Date	1/29/24
Right Ascension (2000)	00h45m06s	Time	19:38
Declination (2000)	+64˚19'08"	Sky: Transparency	Below Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	9.2	Location	West Columbia TX
Angular Diameter (')	5	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)	7500	Sub Exposure (sec)	15
Diameter (ly)	11	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description Small cluster with the 4 brighter members forming an arrowhead. Less than 50 total members with some centralization.
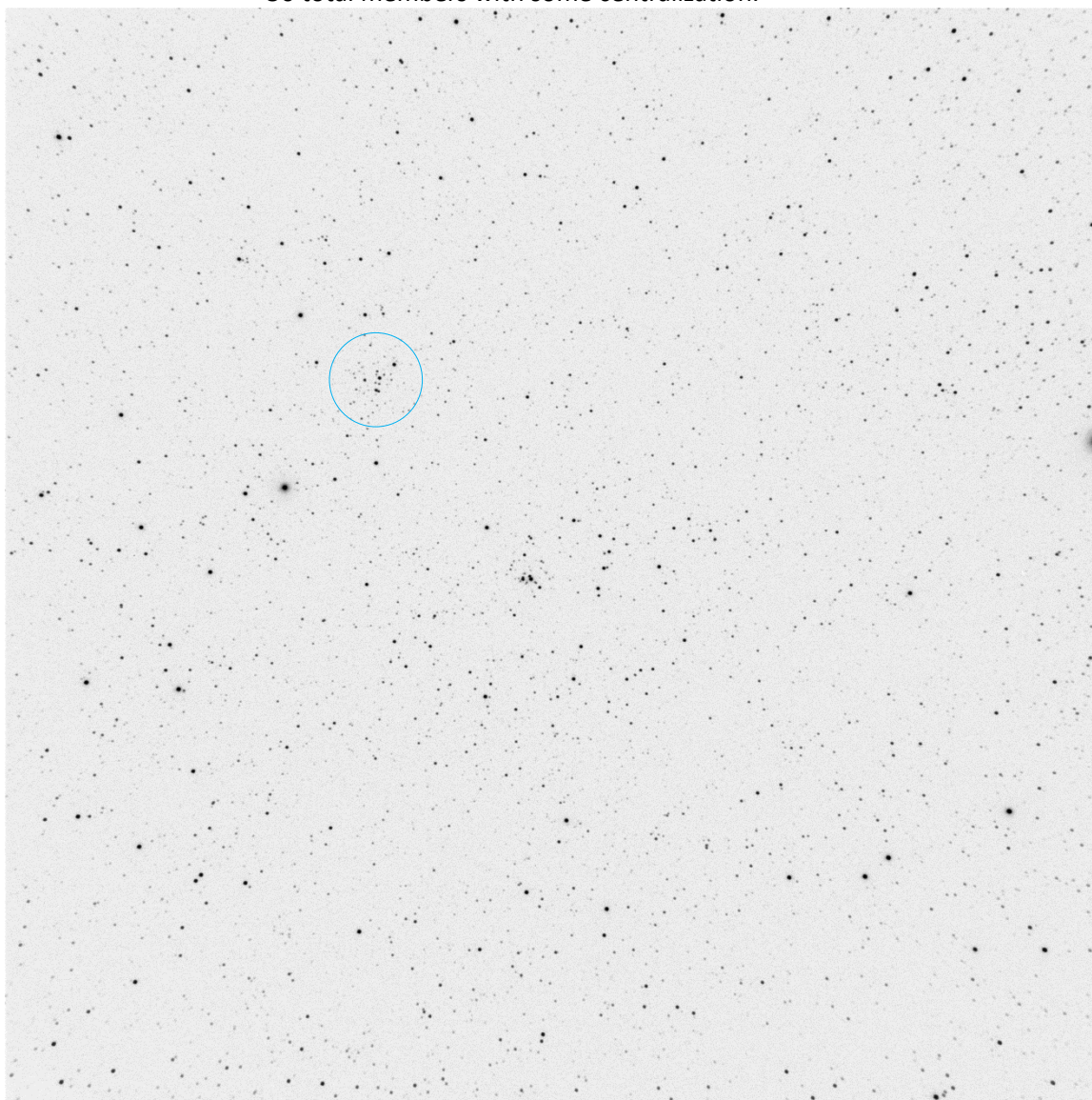
Observation Log Sheet

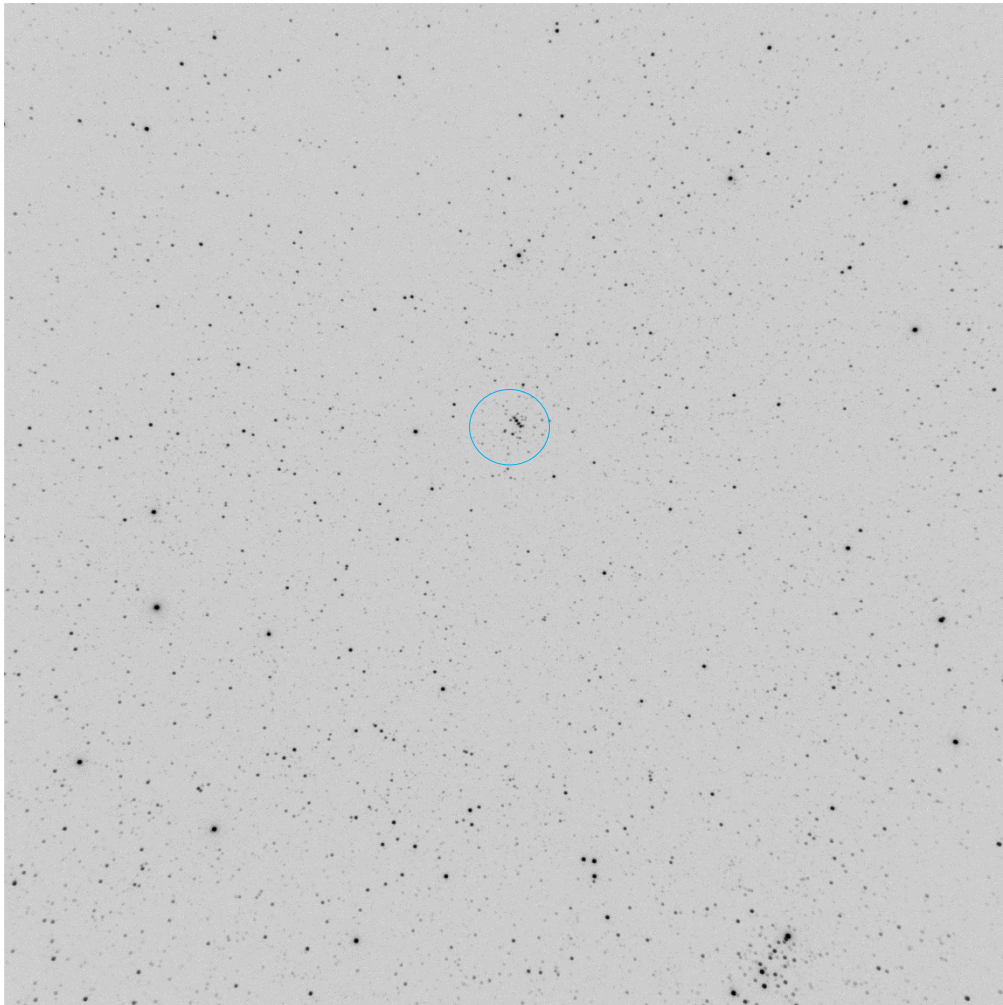|			
Object	**M103**	Date	12/10/23
Right Ascension (2000)	01h34m59s	Time	16:11
Declination (2000)	+60˚46'36"	Sky: Transparency	Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	6.6	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p (III-2-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	7200	Sub Exposure (sec)	15
Diameter (ly)	10	Total Exposure (min)	6.75
		Image Software	SharpCap 4.0

Visual Description   A small triangular shaped cluster of less than 50 stars. Half a dozen brighter members and the remainder fainter. Detached and some concentration.

Observation Log Sheet

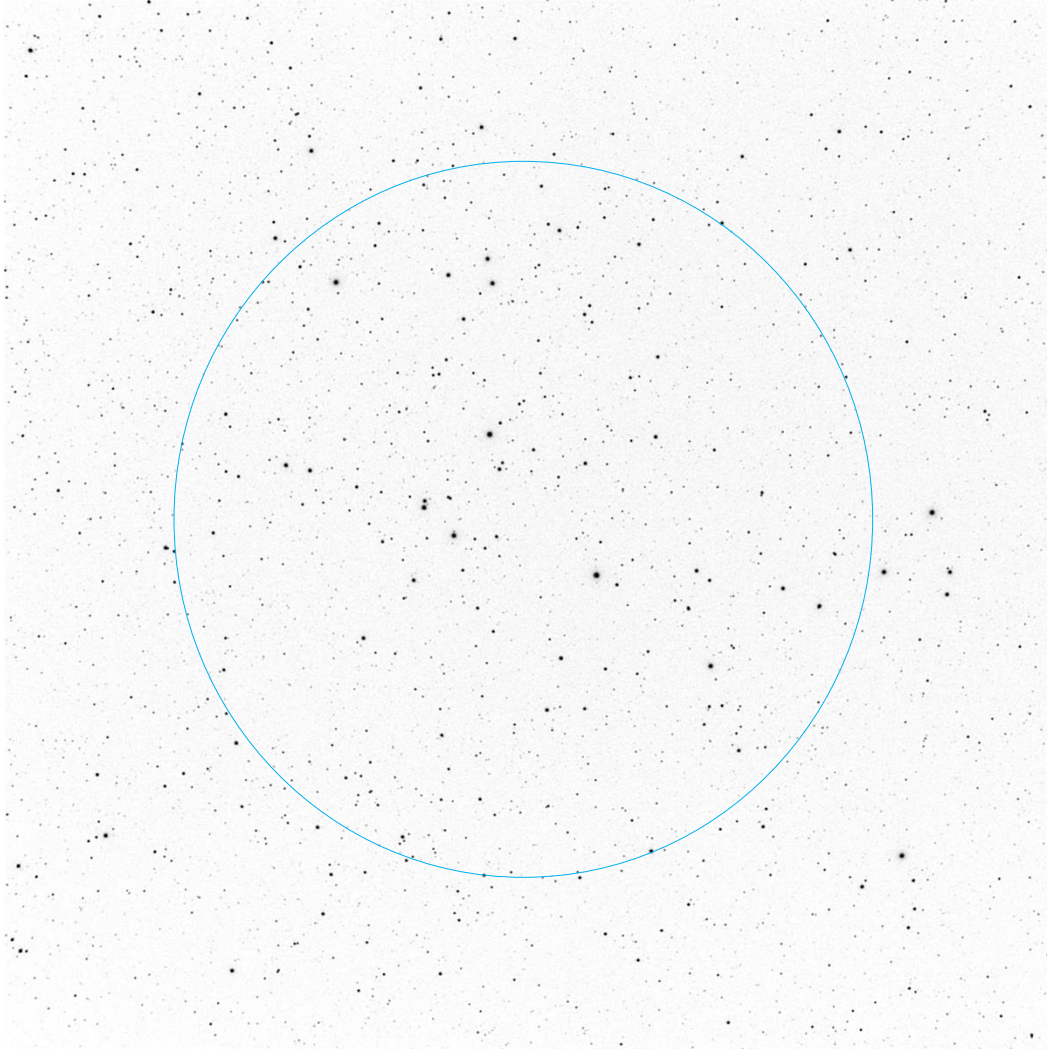|			
Object	**Collinder 15**	Date	12/18/23
Right Ascension (2000)	01h35m42s	Time	19:06
Declination (2000)	+61°17'00"	Sky: Transparency	Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	10.0	Location	West Columbia TX
Angular Diameter (')	3.0	Instrument	Astro Tech AT80ED
Concentration Class	II-1-p	Camera	ZWO ASI533MC Pro
Distance (ly)	8400	Sub Exposure (sec)	15
Diameter (ly)	7	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   A tiny cluster with 4 brighter stars in a line. Cluster has about a dozen members, some concentration, and some detachment. Messier 103 is to the lower right in the image.
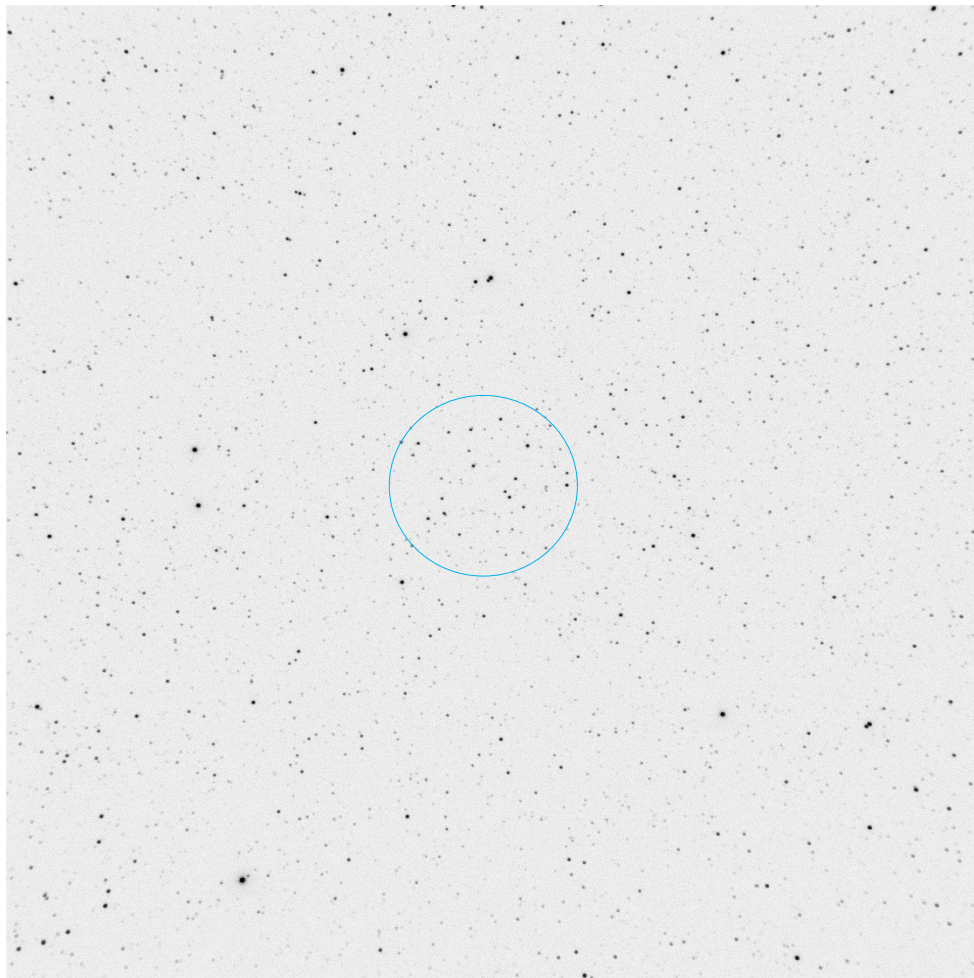
Observation Log Sheet

Object	**Collinder 463**	Date	11/7/24
Right Ascension (2000)	01h47m49s	Time	20:04
Declination (2000)	+71˚56'13"	Sky: Transparency	Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	5.1	Location	West Columbia TX
Angular Diameter (')	57	Instrument	Astro Tech AT80ED
Concentration Class	III-2-m	Camera	ZWO ASI533MC Pro
Distance (ly)	2300	Sub Exposure (sec)	15
Diameter (ly)	38	Total Exposure (min)	4
		Image Software	SharpCap 4.0

Visual Description   Large, dispersed open cluster of 50 or more stars. Detached from field.
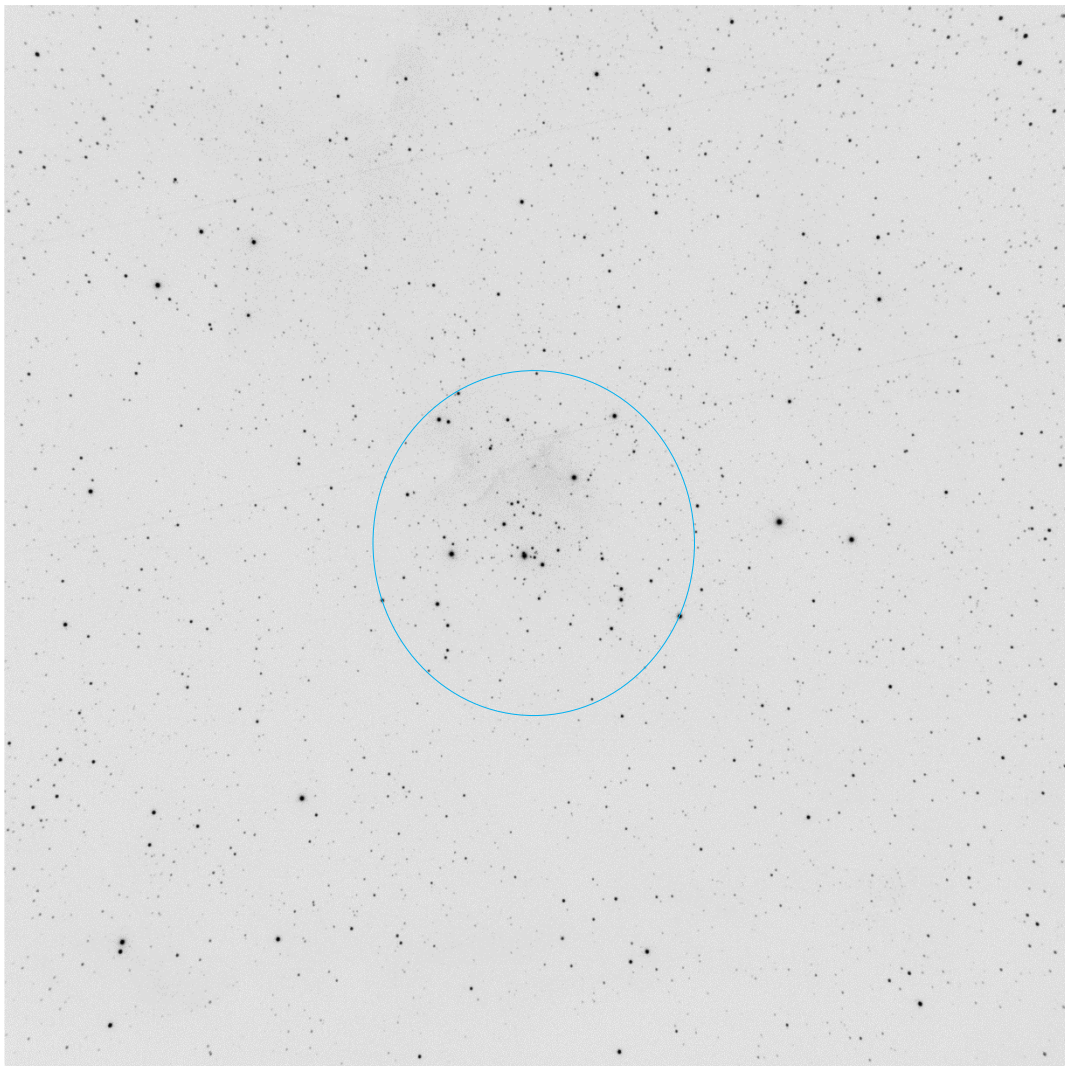
Observation Log Sheet

Object	**Stock 4**	Date	12/18/23
Right Ascension (2000)	01h52m48s	Time	18:59
Declination (2000)	+57°04'00"	Sky: Transparency	Average
Constellation	Perseus	Seeing	Average
Magnitude	7.7	Location	West Columbia TX
Angular Diameter (')	12	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p	Camera	ZWO ASI533MC Pro
Distance (ly)	5000	Sub Exposure (sec)	15
Diameter (ly)	18	Total Exposure (min)	7.45
		Image Software	SharpCap 4.0

Visual Description   A small cluster containing less than 50 stars of similar brightness, not well detached or centralized.

Observation Log Sheet

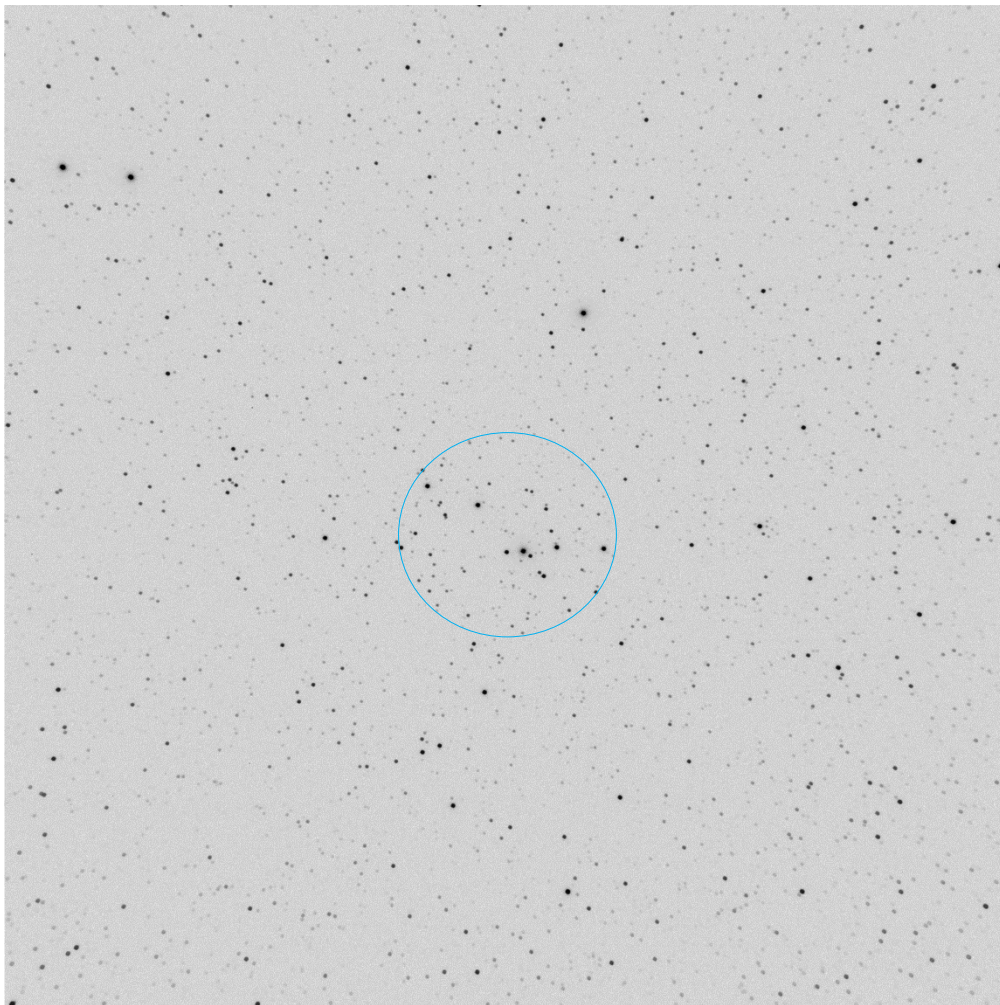|			
Object	**IC 1805**	Date	12/10/23
Right Ascension (2000)	02h34m33s	Time	18:45
Declination (2000)	+61°31'32"	Sky: Transparency	Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	6.1	Location	West Columbia TX
Angular Diameter (')	20	Instrument	Astro Tech AT80ED
Concentration Class	I-2-m-n (III-3-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	6100	Sub Exposure (sec)	15
Diameter (ly)	36	Total Exposure (min)	8.25
		Image Software	SharpCap 4.0

Visual Description — A fine medium sized cluster embedded in some nebulosity. More than 50 stars of varying brightness. Cluster well detached and somewhat concentrated.

Observation Log Sheet

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Object	**Collinder 29**		Date	12/17/23
Right Ascension (2000)	02h36m53s		Time	19:38
Declination (2000)	+55°54'54"		Sky: Transparency	Average
Constellation	Perseus		Seeing	Average
Magnitude	6.6		Location	West Columbia TX
Angular Diameter (')	17		Instrument	Astro Tech AT80ED
Concentration Class	II-3-p		Camera	ZWO ASI533MC Pro
Distance (ly)	2100		Sub Exposure (sec)	15
Diameter (ly)	10		Total Exposure (min)	4.0
			Image Software	SharpCap 4.0

Visual Description   A small cluster containing about a dozen brighter stars and twice that many fainter ones. Somewhat detached with little centralization.

Observation Log Sheet

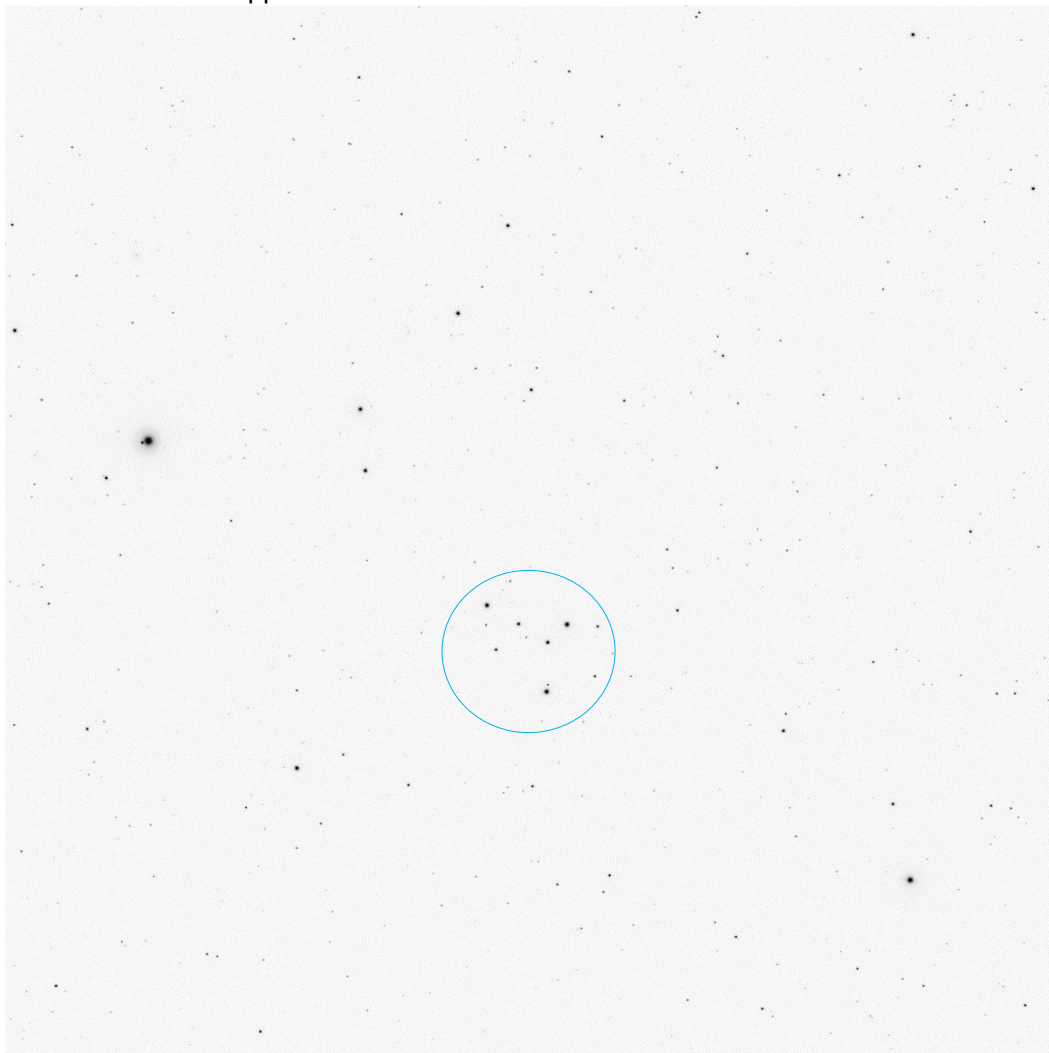|			
Object	**NGC 1027**	Date	12/18/23
Right Ascension (2000)	02h42m40s	Time	19:14
Declination (2000)	+61˚35'42"	Sky: Transparency	Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	6.2	Location	West Columbia TX
Angular Diameter (')	20	Instrument	Astro Tech AT80ED
Concentration Class	II-2-m (III-2-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	2500	Sub Exposure (sec)	15
Diameter (ly)	15	Total Exposure (min)	6.0
		Image Software	SharpCap 4.0

Visual Description   A medium sized cluster with 50+ members of varying brightness. Good detachment and centralization.
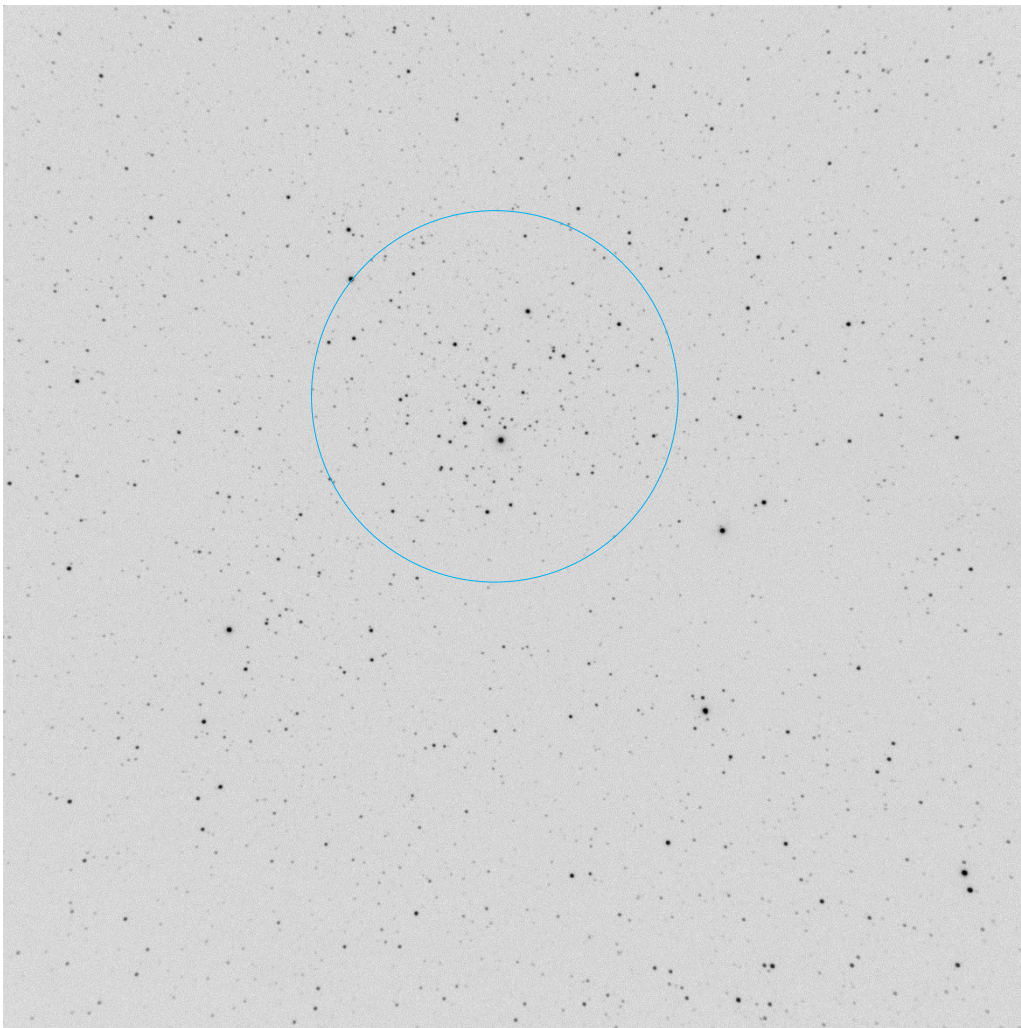
Observation Log Sheet

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Object	**Dol-Dzim 1**	Date	1/9/24
Right Ascension (2000)	02h47m30s	Time	19:13
Declination (2000)	+17°16'00"	Sky: Transparency	Above Average
Constellation	Aries	Seeing	Below Average
Magnitude	8.0	Location	West Columbia TX
Angular Diameter (')	14	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	7.0
		Image Software	SharpCap 4.0

Visual Description   A small cluster consisting of 5 brighter stars and a similar number of fainter ones. Well detached, but not centralized. Pi Aries is in the frame to the upper left.

Observation Log Sheet

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Object	**IC1848 (Soul Nebula)**	Date	1/29/24
Right Ascension (2000)	02h51m12s	Time	19:56
Declination (2000)	+60°26'00"	Sky: Transparency	Below Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	6.20	Location	West Columbia TX
Angular Diameter (')	18	Instrument	Astro Tech AT80ED
Concentration Class	IV-2-p-n (IV-3-p-n)	Camera	ZWO ASI533MC Pro
Distance (ly)	6500	Sub Exposure (sec)	15
Diameter (ly)	34	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Medium cluster with the 2 brighter members. Less than 50 total members with some centralization but not well detached. Nebulosity is barely visible.
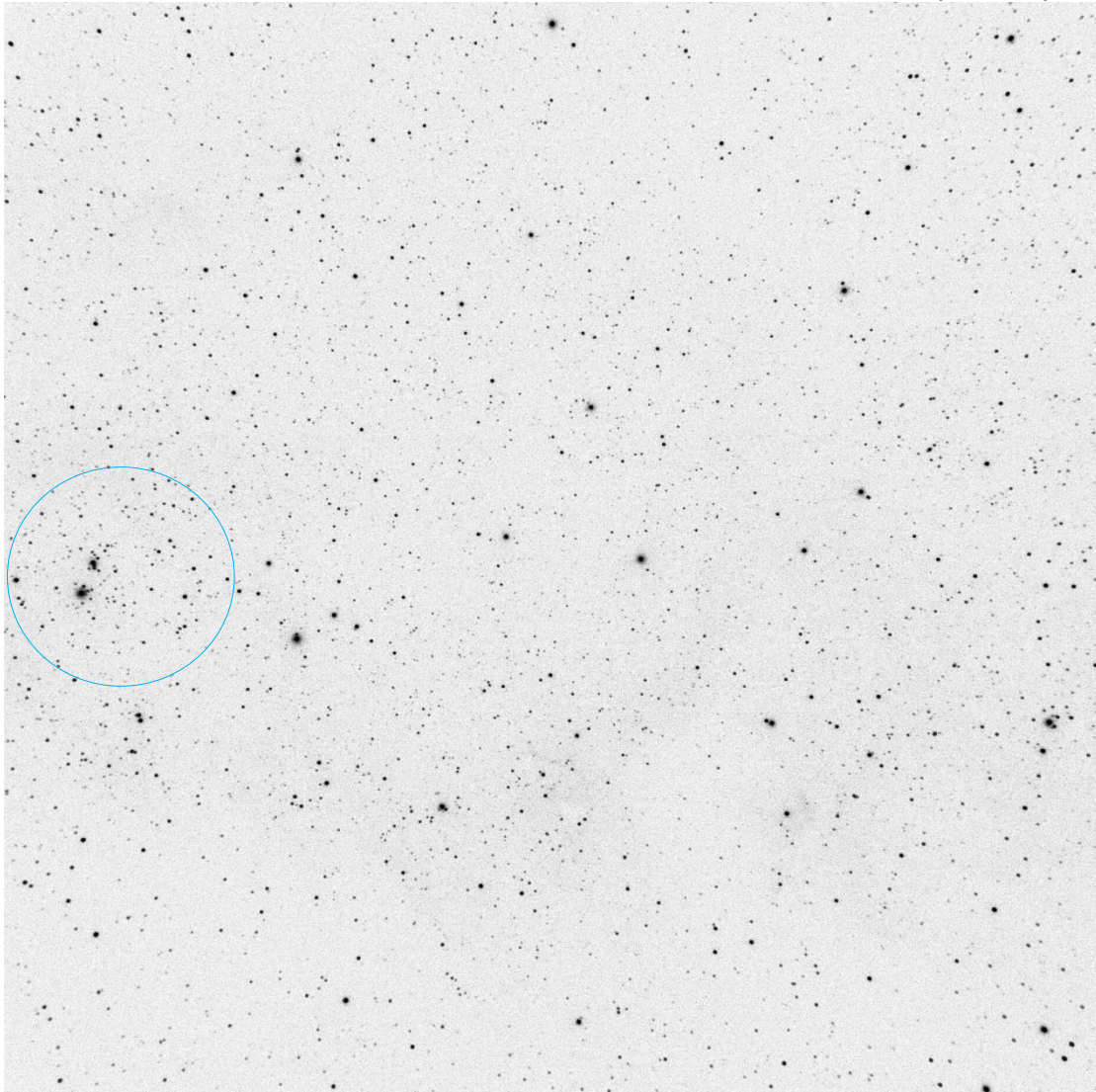
Observation Log Sheet

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Object	**Collinder 34**	Date	12/17/23
Right Ascension (2000)	02h59m23s	Time	19:32
Declination (2000)	+60°34'25"	Sky: Transparency	Average
Constellation	Cassiopeia	Seeing	Average
Magnitude	6.8	Location	West Columbia TX
Angular Diameter (')	25	Instrument	Astro Tech AT80ED
Concentration Class	III-2-m	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	6.0
		Image Software	SharpCap 4.0

Visual Description   A large cluster within the Soul Nebula. There are 50+ members, widely spread out with a handful of brighter members. Not well detached from field.
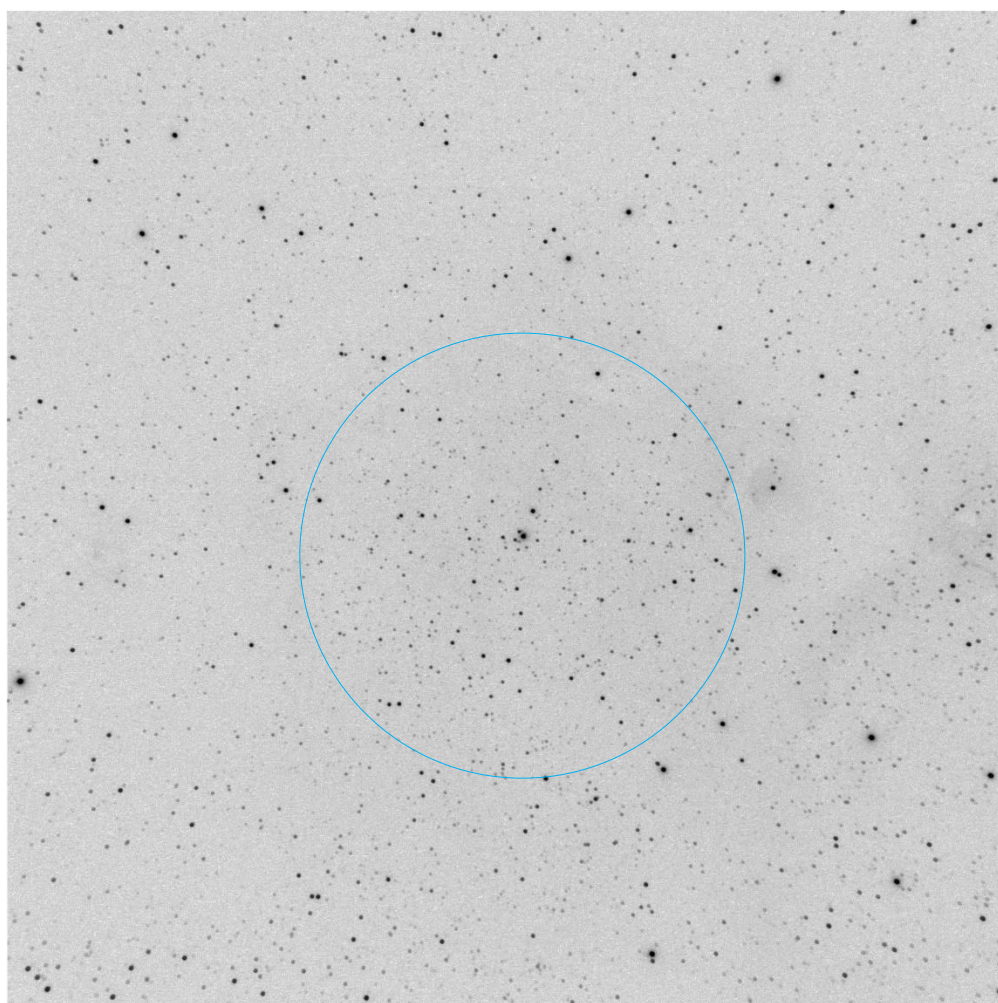
Observation Log Sheet

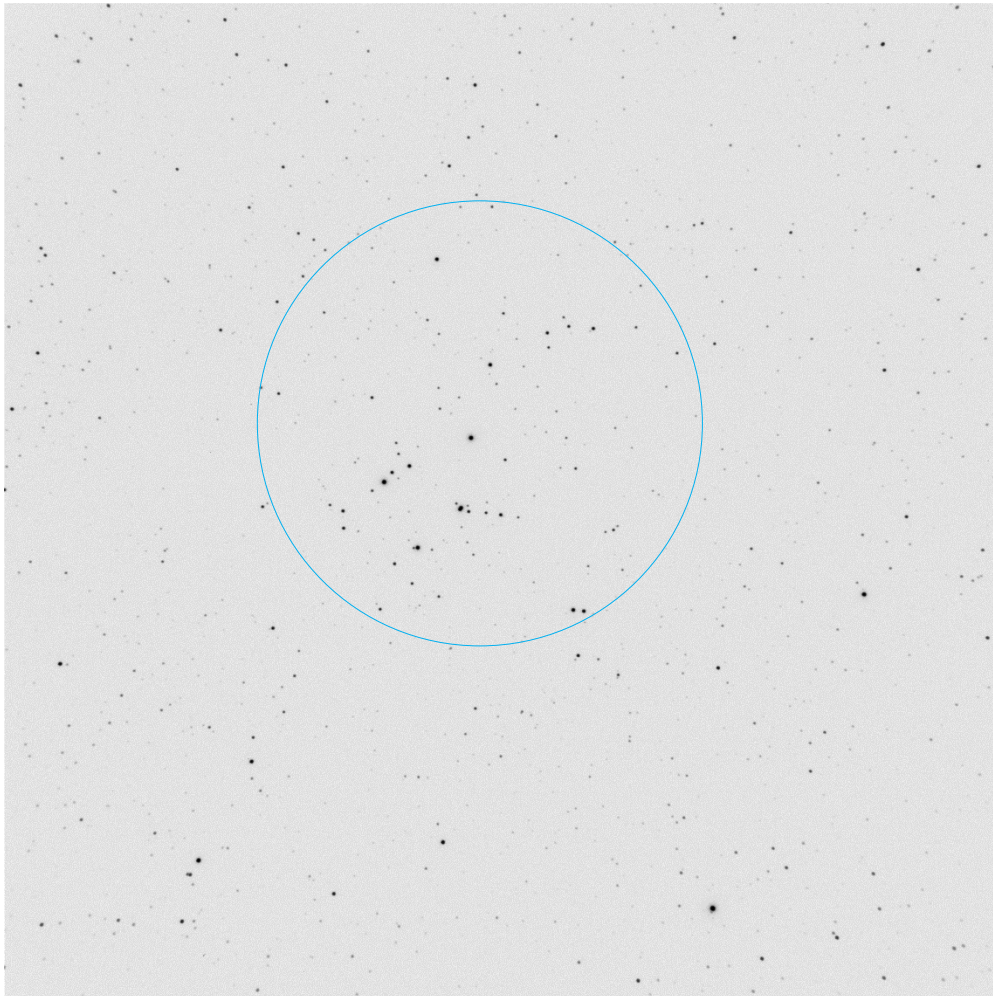|			
Object	**Collinder 36**	Date	1/9/24
Right Ascension (2000)	03h11m48s	Time	19:45
Declination (2000)	+63°15'00"	Sky: Transparency	Above Average
Constellation	Cassiopeia	Seeing	Below Average
Magnitude	7.6	Location	West Columbia TX
Angular Diameter (')	14	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p	Camera	ZWO ASI533MC Pro
Distance (ly)	2700	Sub Exposure (sec)	15
Diameter (ly)	11	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description — Medium sized cluster made up of three brighter stars in a line surrounded by less than 50 fainter ones of varying brightness. Detached with some central concentration.
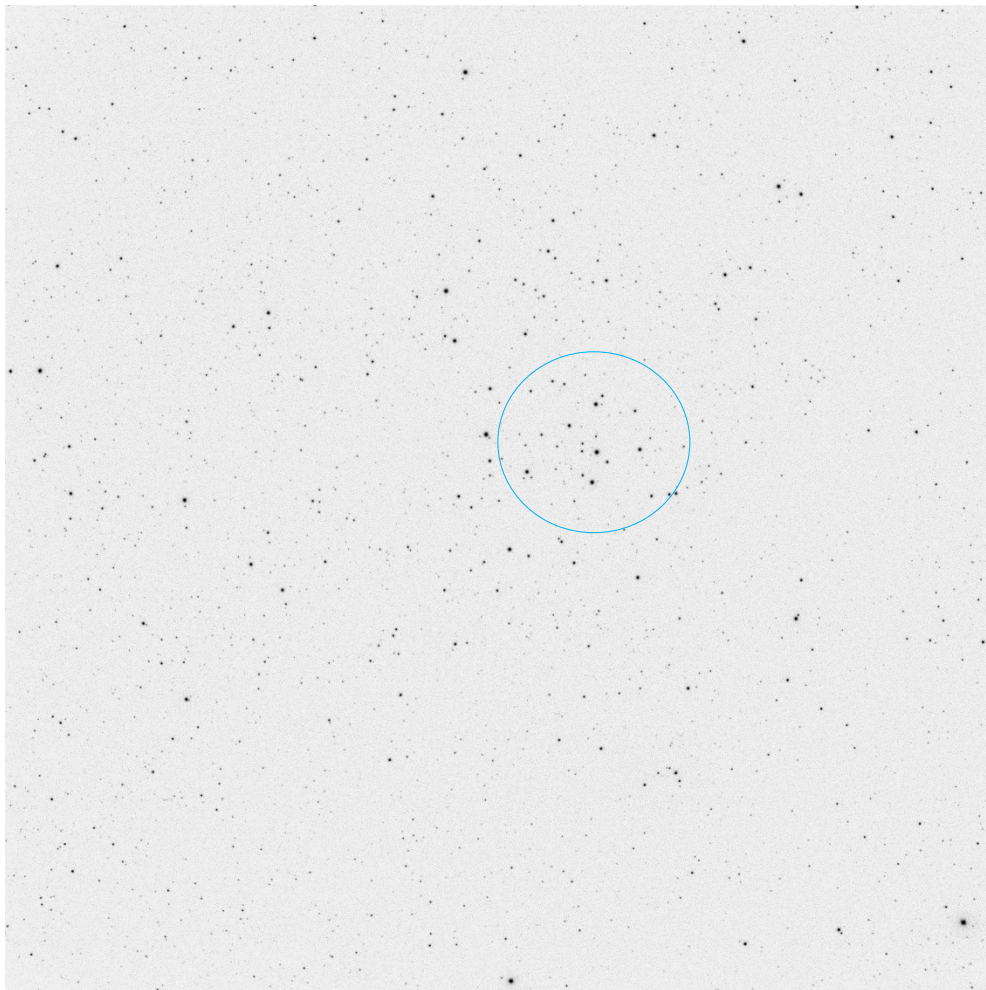
Observation Log Sheet

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Object	**Pazimo's Cluster**	Date	12/18/23
Right Ascension (2000)	03h16m11s	Time	19:20
Declination (2000)	+60˚06'56"	Sky: Transparency	Average
Constellation	Camelopardalis	Seeing	Average
Magnitude	5.9	Location	West Columbia TX
Angular Diameter (')	29	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p (III-3-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	3300	Sub Exposure (sec)	15
Diameter (ly)	28	Total Exposure (min)	6.0
		Image Software	SharpCap 4.0

Visual Description — A large cluster with less than 50 members dominated by a half dozen brighter members. Cluster composed of brighter and fainter members, somewhat detached and poorly concentrated.

Observation Log Sheet

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Object	**NGC 1342**	Date	1/9/24
Right Ascension (2000)	03h31m38s	Time	18:48
Declination (2000)	+37°22'36"	Sky: Transparency	Above Average
Constellation	Perseus	Seeing	Below Average
Magnitude	6.8	Location	West Columbia TX
Angular Diameter (')	15	Instrument	Astro Tech AT80ED
Concentration Class	II-2-m (III-3-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	2200	Sub Exposure (sec)	15
Diameter (ly)	10	Total Exposure (min)	6.25
		Image Software	SharpCap 4.0

Visual Description   A medium cluster with more than 50 members of varying brightnesses, detached and loosely concentrated. Star colors range from green through yellow to orange.
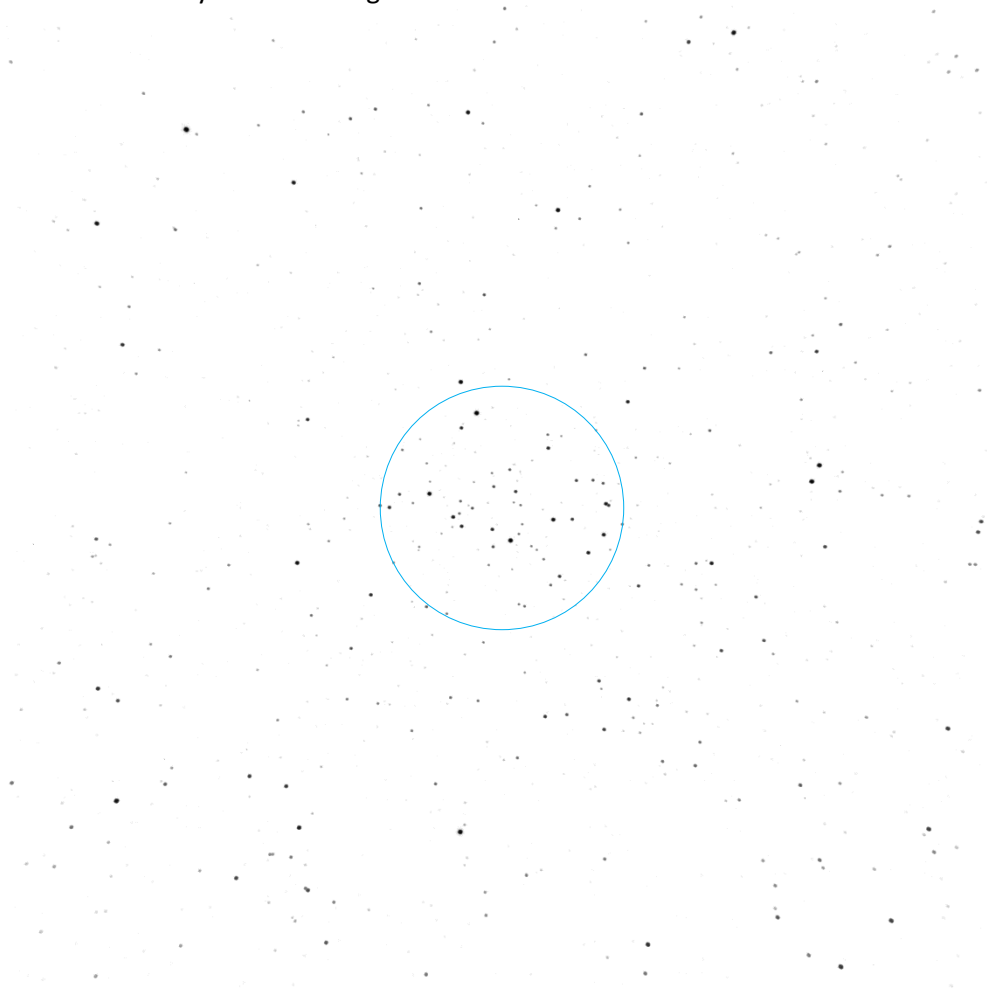
Observation Log Sheet

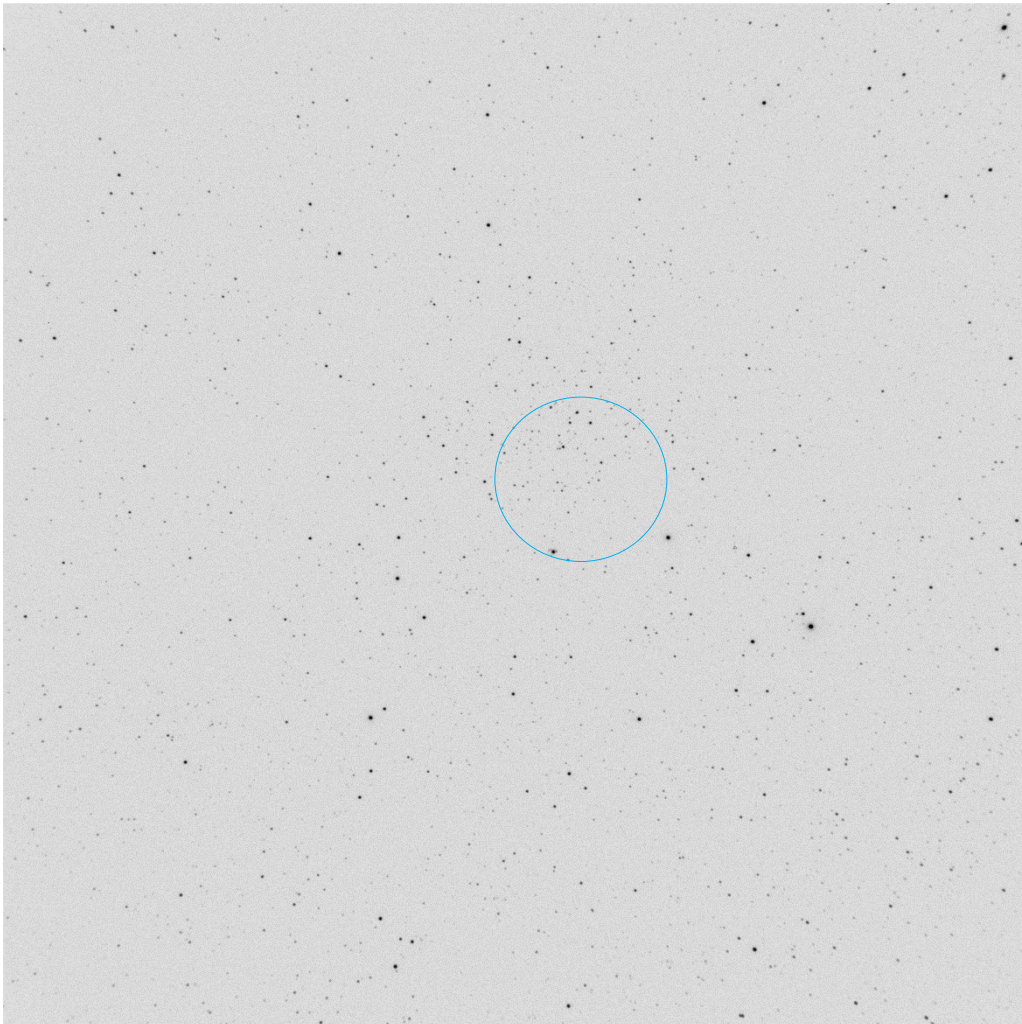|			
Object	**IC 348**	Date	1/9/24
Right Ascension (2000)	03h44m36s	Time	19:04
Declination (2000)	+32°10'00"	Sky: Transparency	Above Average
Constellation	Perseus	Seeing	Below Average
Magnitude	5	Location	West Columbia TX
Angular Diameter (')	8.0	Instrument	Astro Tech AT80ED
Concentration Class	I-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   A very small cluster of about 10 stars contained within a reflection nebula. There are 2 brighter stars with the remainder of fainter and similar in brightness. Well detached and some centralization. Bright star above the cluster is Atik, Omicron Per.
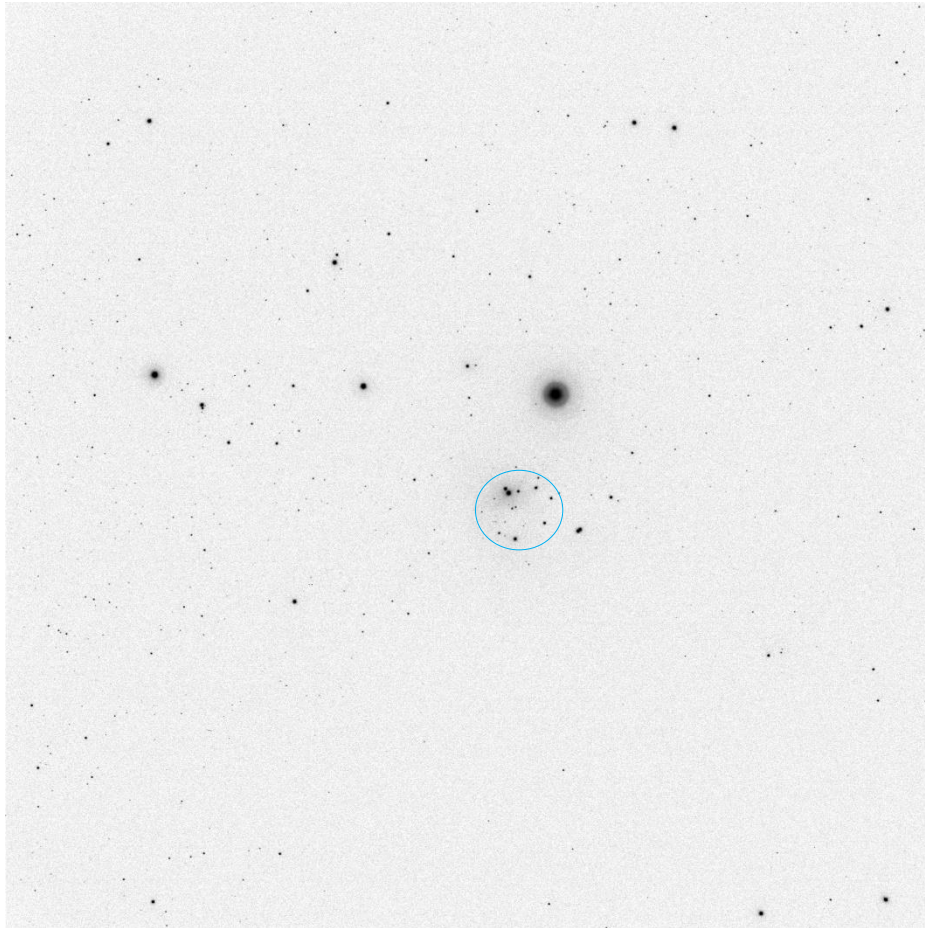
Observation Log Sheet

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Object	**Tombaugh 5**	Date	12/18/23
Right Ascension (2000)	03h47m48s	Time	20:05
Declination (2000)	+59°03'00"	Sky: Transparency	Average
Constellation	Camelopardalis	Seeing	Average
Magnitude	8.6	Location	West Columbia TX
Angular Diameter (')	14	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p (III-2-m)	Camera	ZWO ASI533MC Pro
Distance (ly)	5900	Sub Exposure (sec)	15
Diameter (ly)	24	Total Exposure (min)	6.25
		Image Software	SharpCap 4.0

Visual Description   A very small cluster with <50 members. There are four of five brighter ones that stand out. The cluster has minimal concentration and is not well detached from the field stars.

Observation Log Sheet

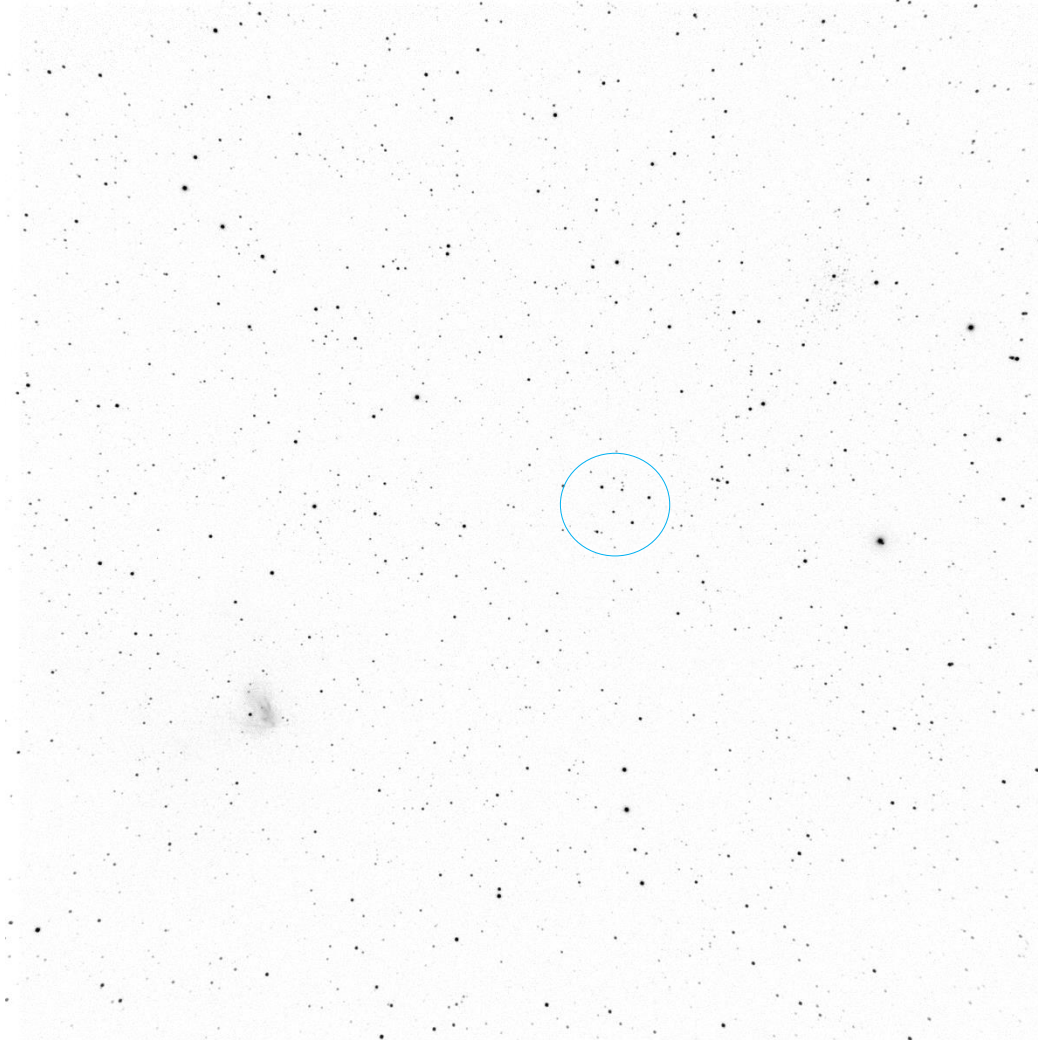|			
Object	**NGC 1444**	Date	1/9/24
Right Ascension (2000)	03h51m15s	Time	18:40
Declination (2000)	+52°44'05"	Sky: Transparency	Average
Constellation	Perseus	Seeing	Below Average
Magnitude	6.0	Location	West Columbia TX
Angular Diameter (')	4	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p (IV-1-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	3900	Sub Exposure (sec)	15
Diameter (ly)	4	Total Exposure (min)	8.0
		Image Software	SharpCap 4.0

Visual Description   A very small cluster with about a dozen visible members, including 4 of similar brightness that form a straight line. The cluster has some concentration and is somewhat detached from the field stars.
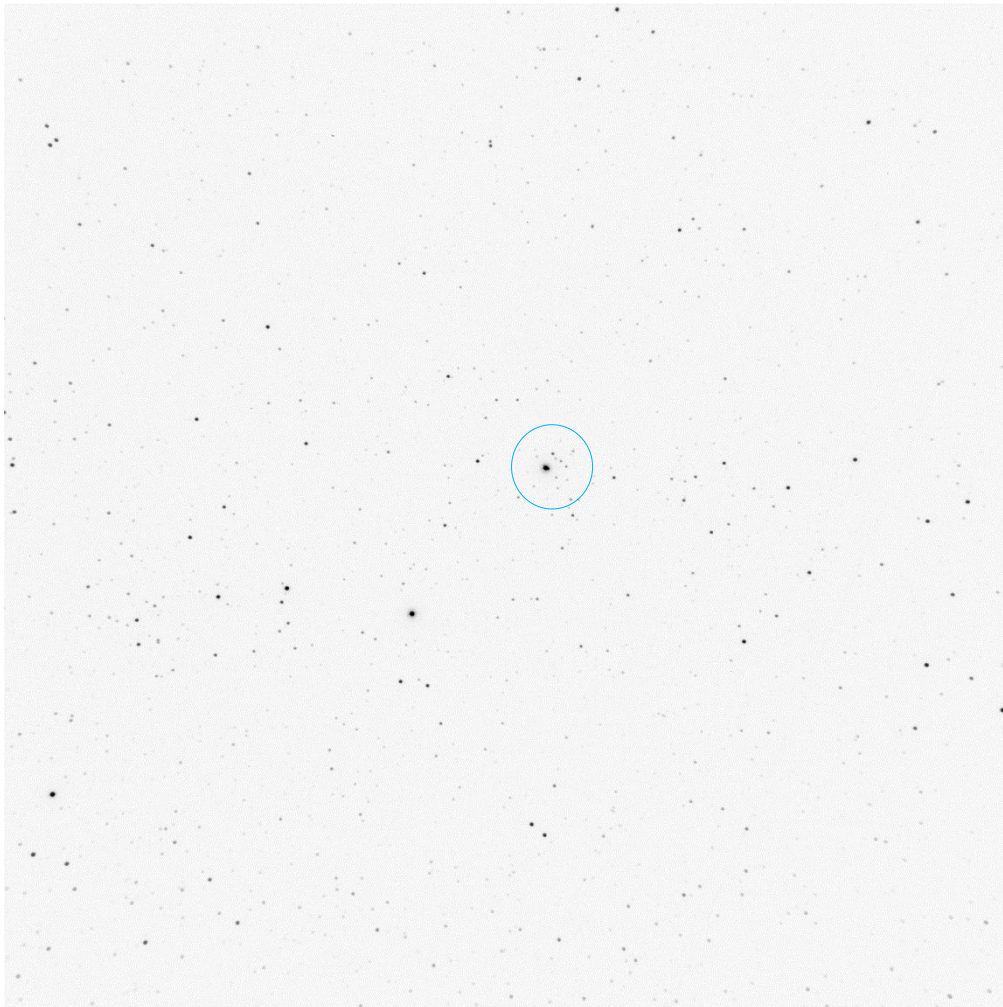
Observation Log Sheet

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Object	**King 7**	Date	1/29/24
Right Ascension (2000)	03h59m00s	Time	19:28
Declination (2000)	+51˚48'00"	Sky: Transparency	Below Average
Constellation	Perseus	Seeing	Average
Magnitude	10.4	Location	West Columbia TX
Angular Diameter (')	7.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)	7200	Sub Exposure (sec)	15
Diameter (ly)	15	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description — A small cluster, difficult to identify. Has 2 brighter members and 6 fainter ones. Small reflection nebula, GM 1-34 visible to the lower left in the image.

Observation Log Sheet

|			
Object	**NGC 1496**	Date	1/9/24
Right Ascension (2000)	04h04m32s	Time	19:38
Declination (2000)	+52˚39'42"	Sky: Transparency	Average
Constellation	Perseus	Seeing	Below Average
Magnitude	9.8	Location	West Columbia TX
Angular Diameter (')	4.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)	4000	Sub Exposure (sec)	15
Diameter (ly)	5	Total Exposure (min)	6.0
		Image Software	SharpCap 4.0

Visual Description   A tiny cluster with 5 brighter members making a "V" shape and another 20 or so fainter ones. Somewhat detached with some concentration.
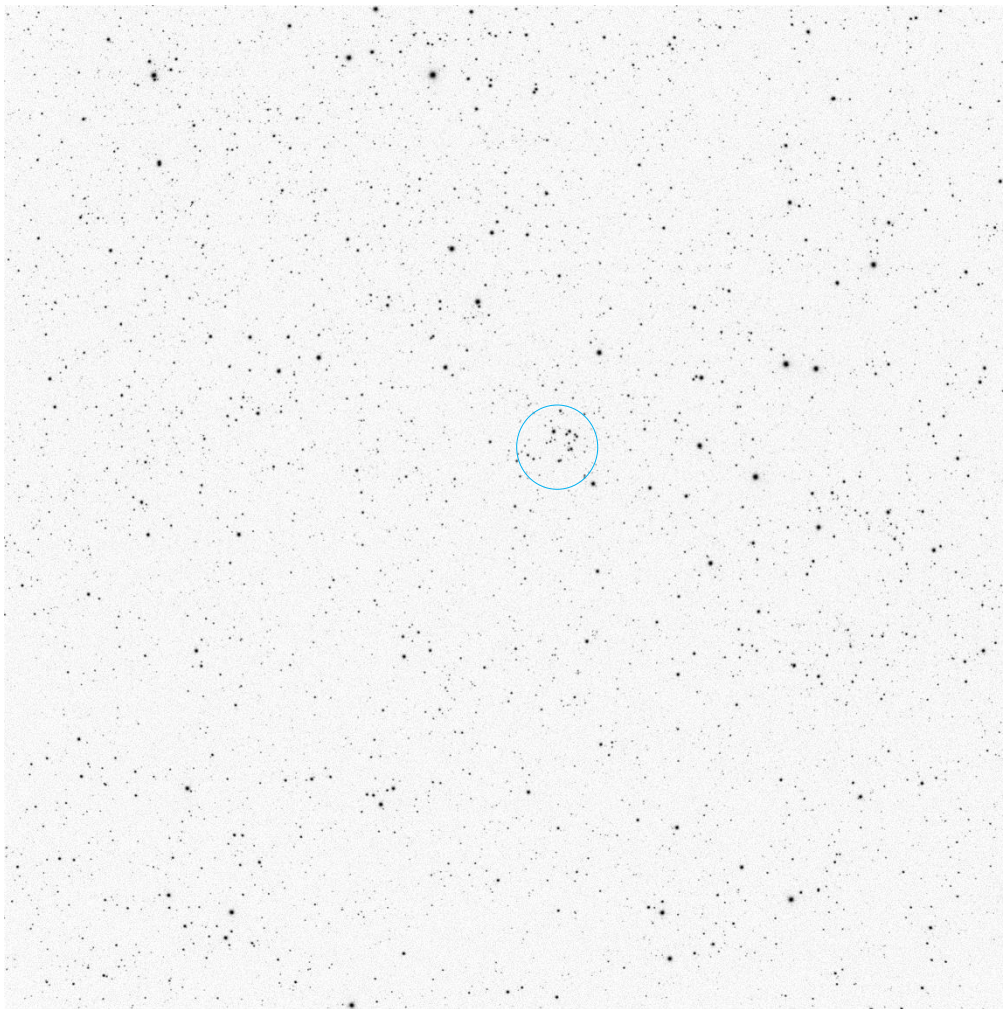
Observation Log Sheet

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Object	**Golden Harp Cluster**	Date	12/18/23
Right Ascension (2000)	04h07m50s	Time	19:41
Declination (2000)	+62°19'54"	Sky: Transparency	Average
Constellation	Camelopardalis	Seeing	Average
Magnitude	5.3	Location	West Columbia TX
Angular Diameter (')	8.0	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)	2700	Sub Exposure (sec)	15
Diameter (ly)	6	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description Small cluster, dominated by a half dozen brighter stars Some detachment and some central concentration. Less than 50 members.
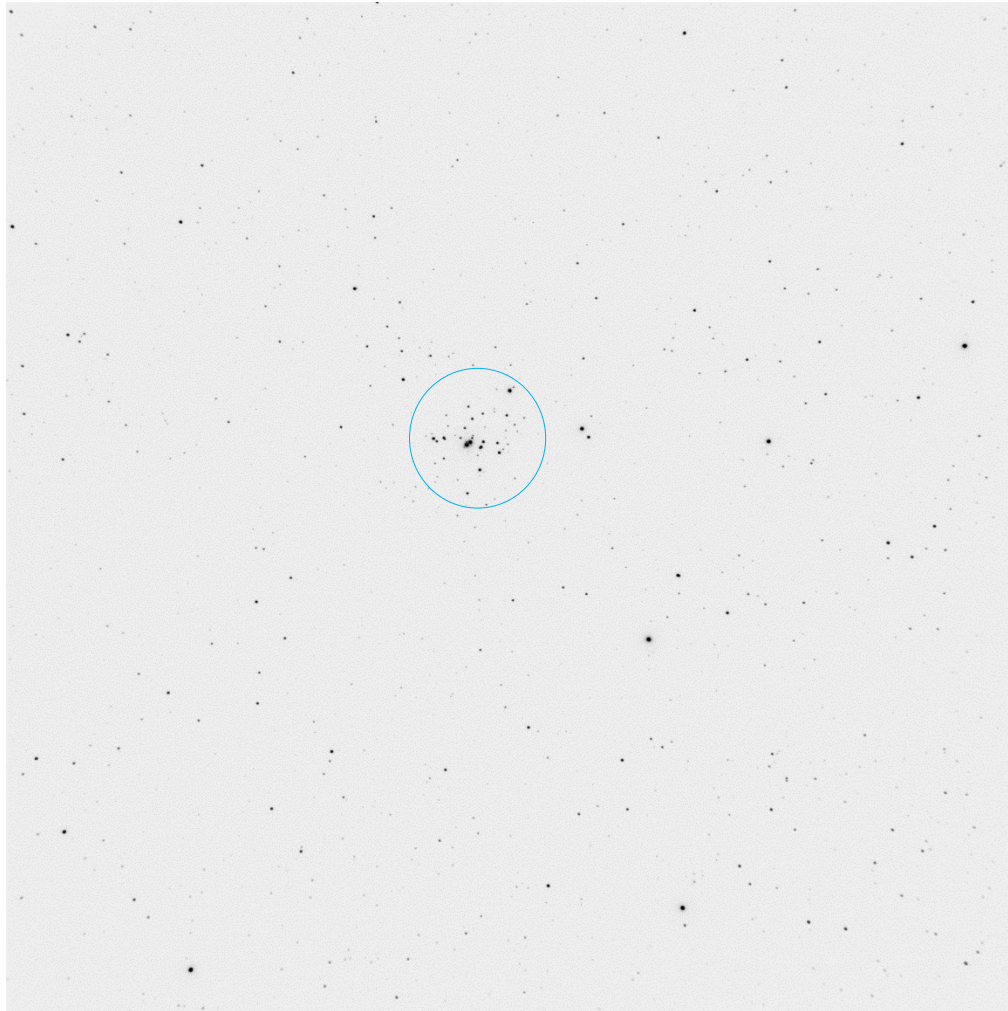
Observation Log Sheet

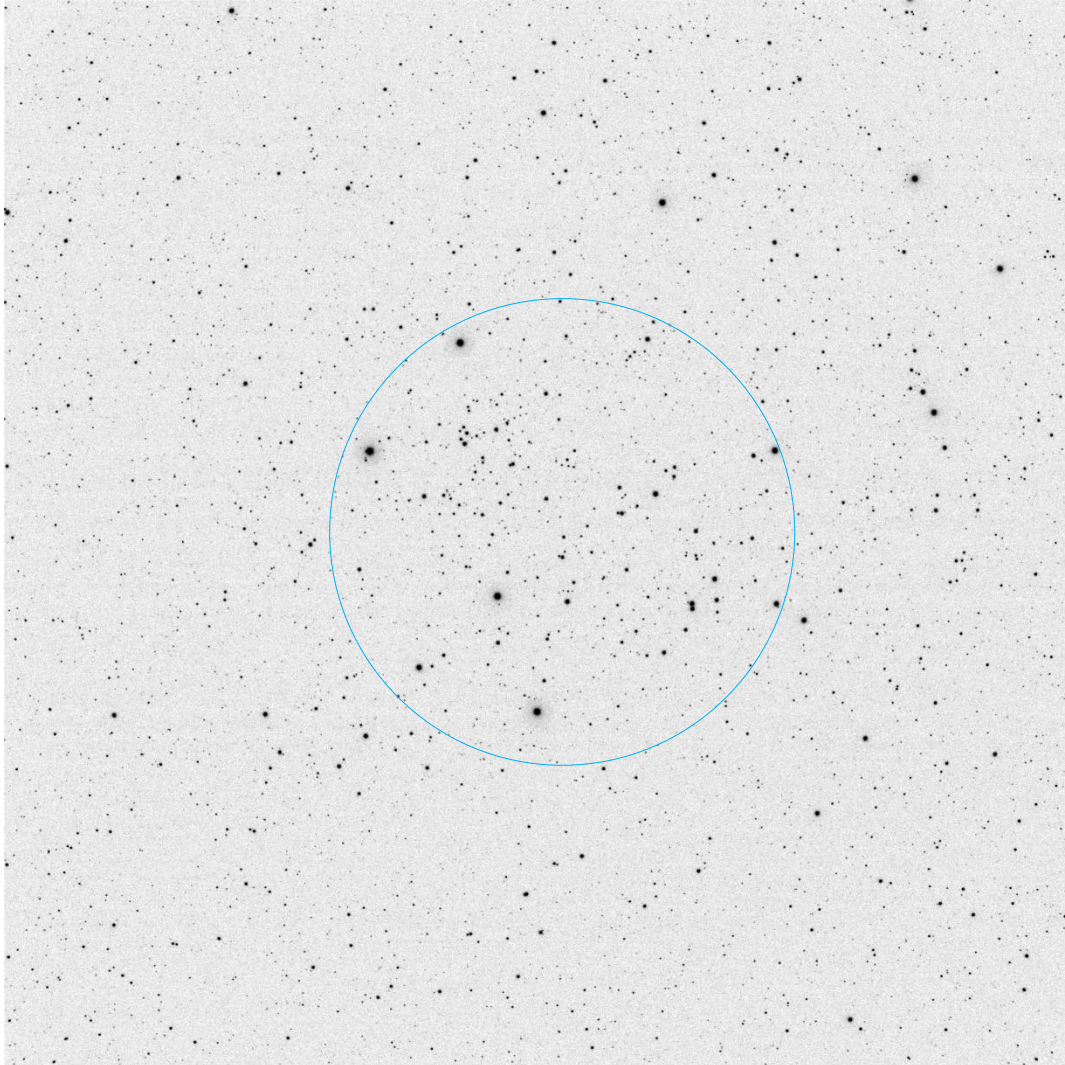|			
Object	**NGC 1662**	Date	1/12/24
Right Ascension (2000)	04h48m27s	Time	21:08
Declination (2000)	+10°56'12"	Sky: Transparency	Above Average
Constellation	Orion	Seeing	Average
Magnitude	6.8	Location	West Columbia TX
Angular Diameter (')	20.0	Instrument	Astro Tech AT80ED
Concentration Class	I-2-p (I-2-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	1400	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A medium sized cluster, well centralized and detached. About 14 brighter stars and another 20 or so fainter ones.
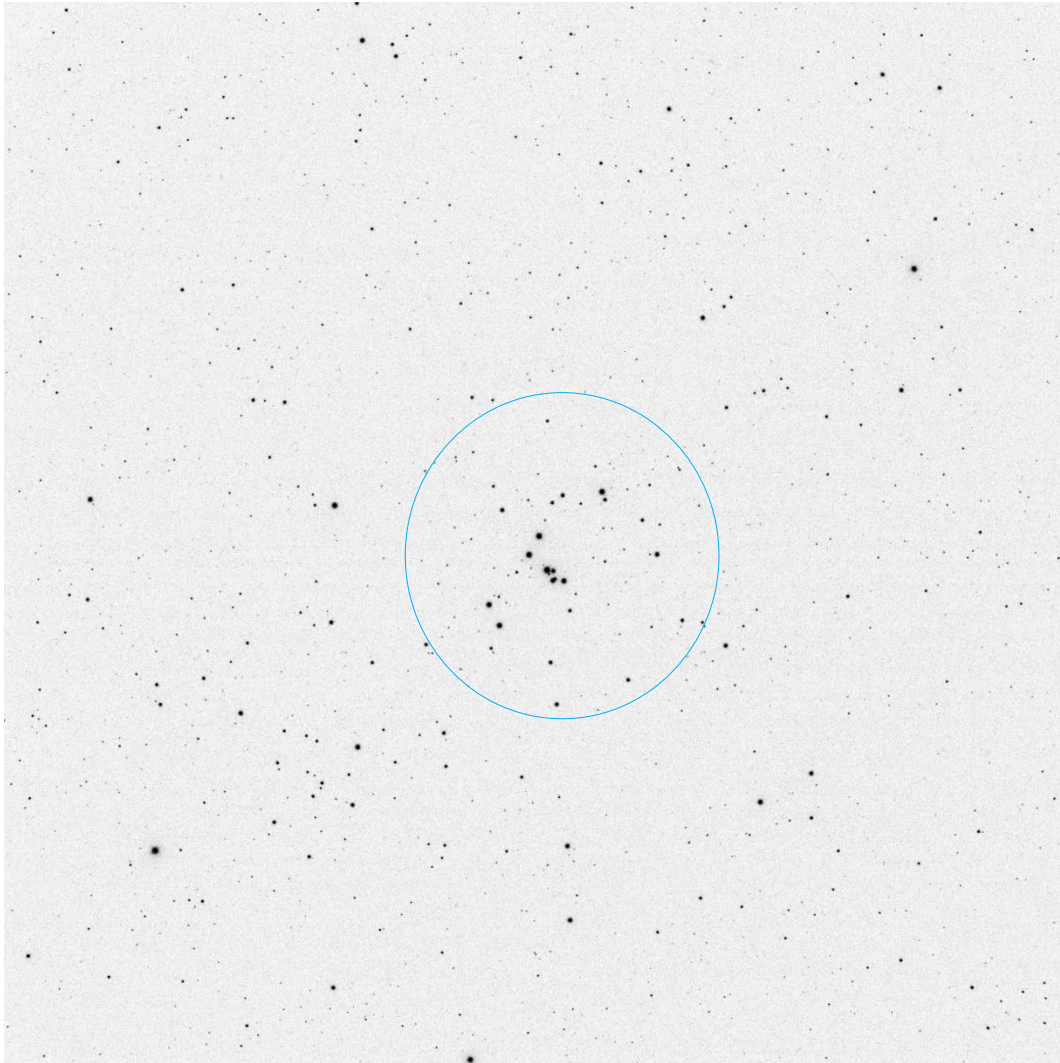
Observation Log Sheet

|			
Object	**NGC 1746**	Date	1/12/24
Right Ascension (2000)	05h03m50s	Time	20:54
Declination (2000)	+23°46'12"	Sky: Transparency	Above Average
Constellation	Taurus	Seeing	Average
Magnitude	5.2	Location	West Columbia TX
42	20.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-m (III-1-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	1400	Sub Exposure (sec)	15
Diameter (ly)	17	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A medium sized cluster, not well centralized but detached. More than 50 associated stars with about a half dozen or so brighter ones.

Observation Log Sheet

|			
Object	**NGC 1807**	Date	1/12/24
Right Ascension (2000)	05h10m43s	Time	21:01
Declination (2000)	+16˚31'18"	Sky: Transparency	Above Average
Constellation	Taurus	Seeing	Average
Magnitude	7.7	Location	West Columbia TX
42	15.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p (II-2-p)	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A medium sized cluster with less than 50 stars, 10 brighter ones and the remainder of varying brightness. Detached with weak concentration
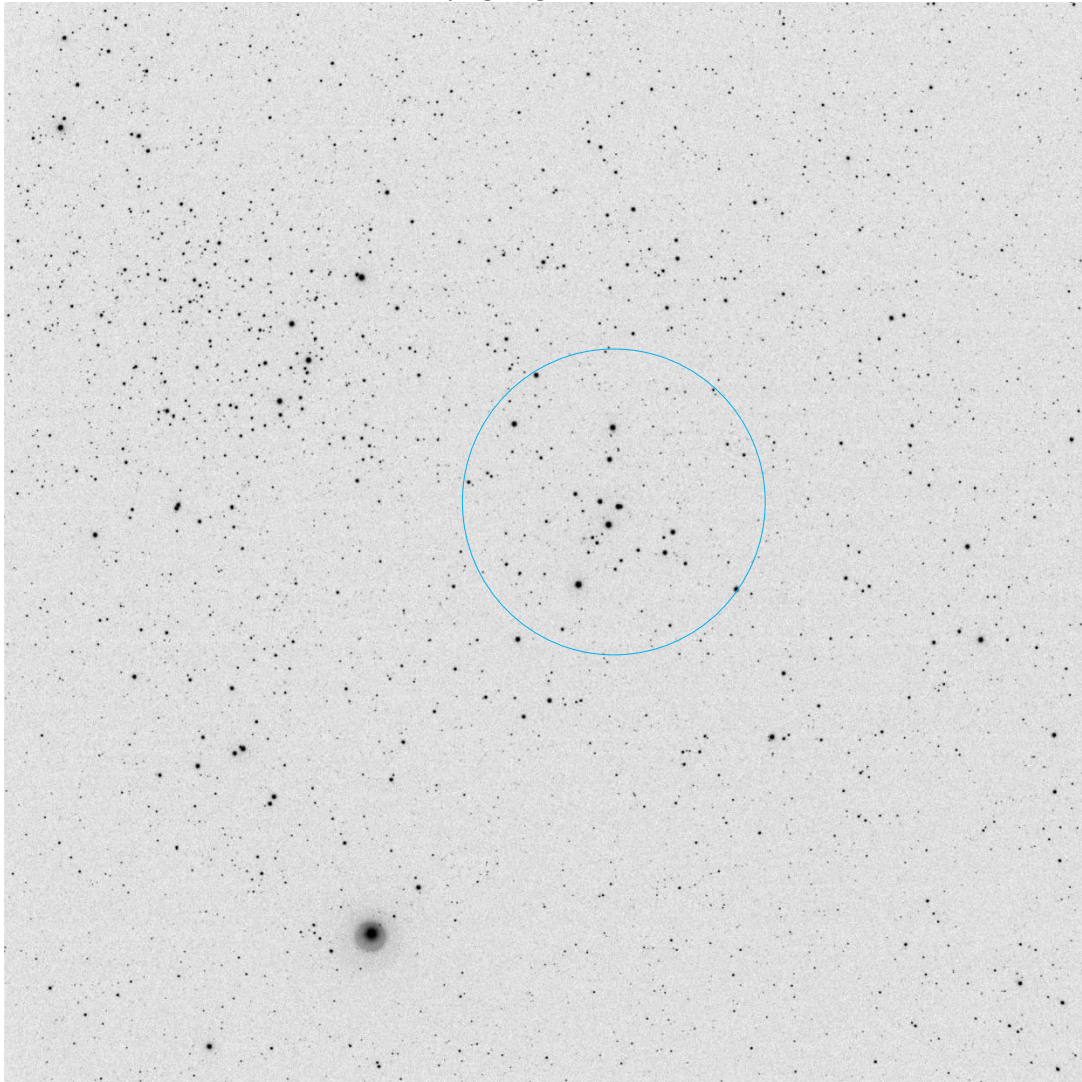
Observation Log Sheet

|			
Object	**NGC 1798**	Date	1/9/24
Right Ascension (2000)	05h11m39s	Time	19:25
Declination (2000)	+47°41'30"	Sky: Transparency	Above Average
Constellation	Auriga	Seeing	Below Average
Magnitude	10.3	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-m	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.25
		Image Software	SharpCap 4.0

Visual Description   A very small cluster with very faint stars. Not well detached but somewhat concentrated. More than 50 members.
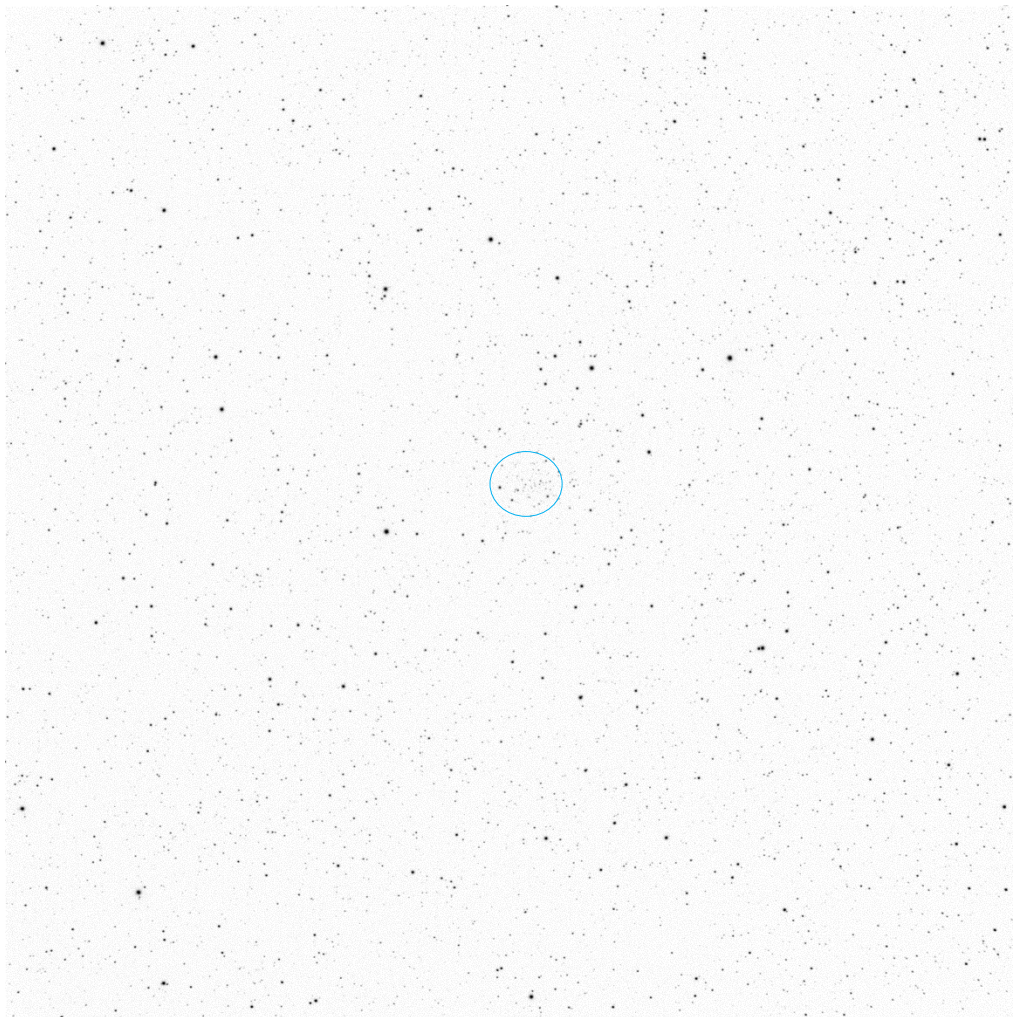
Observation Log Sheet

|			
Object	**NGC 1893**	Date	12/18/23
Right Ascension (2000)	05h22m44s	Time	19:27
Declination (2000)	+33°24'42"	Sky: Transparency	Average
Constellation	Auriga	Seeing	Average
Magnitude	6.8	Location	West Columbia TX
Angular Diameter (')	25	Instrument	Astro Tech AT80ED
Concentration Class	I-3-m (II-2-m)	Camera	ZWO ASI533MC Pro
Distance (ly)	20000	Sub Exposure (sec)	15
Diameter (ly)	140	Total Exposure (min)	5.5
		Image Software	SharpCap 4.0

Visual Description   Large, rich cluster imbedded in nebulosity. Some concentration and detachment. More than 50 stars of brighter and fainter concentration.
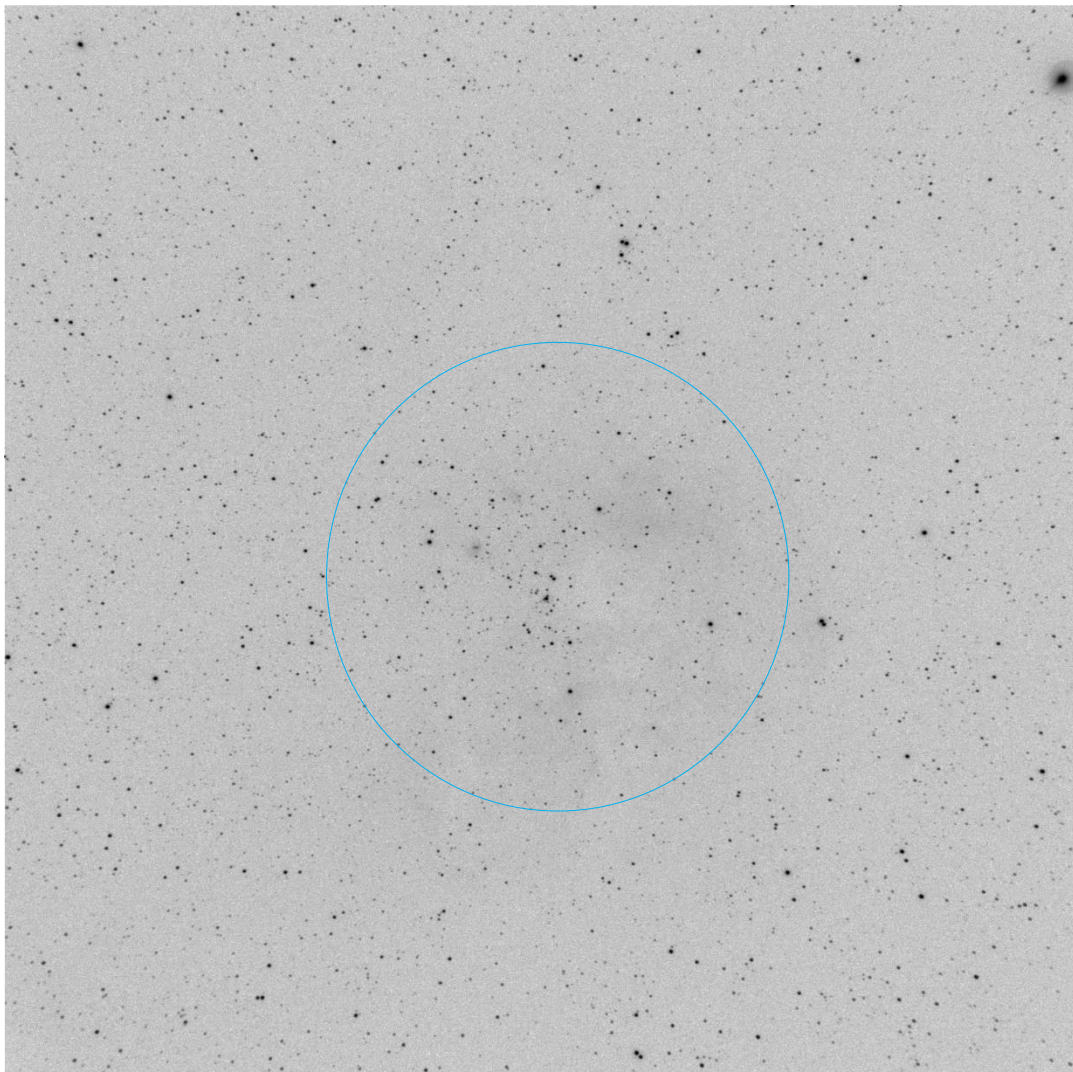
Observation Log Sheet

|			
Object	**Messier 38**	Date	12/18/23
Right Ascension (2000)	05h28m40s	Time	19:49
Declination (2000)	+35°50'54"	Sky: Transparency	Average
Constellation	Auriga	Seeing	Average
Magnitude	5.9	Location	West Columbia TX
Angular Diameter (')	20	Instrument	Astro Tech AT80ED
Concentration Class	II-2-r (III-2-m)	Camera	ZWO ASI533MC Pro
Distance (ly)	3500	Sub Exposure (sec)	15
Diameter (ly)	20	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Large, rich cluster with a range of brightness and some centralization.
Cluster is detached with more than 100 members.
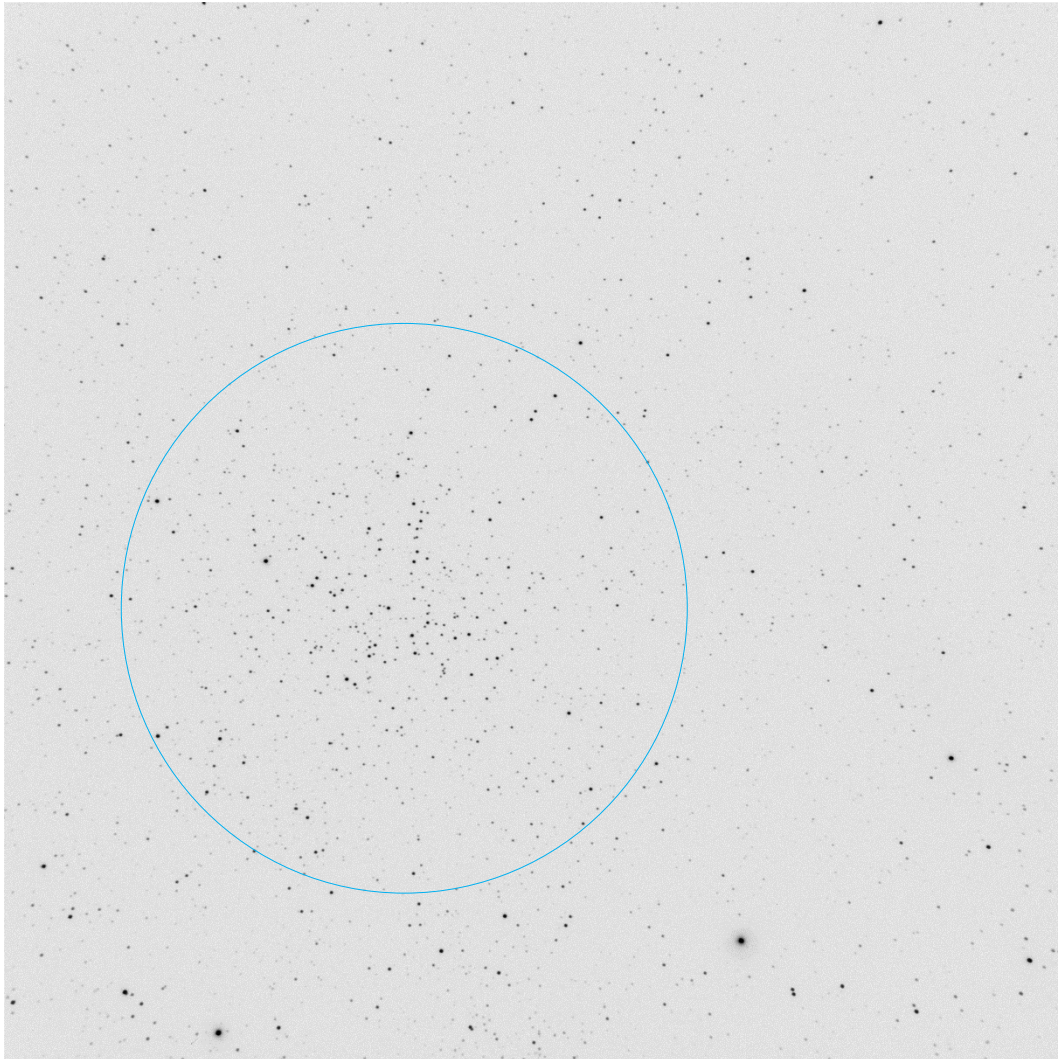
Observation Log Sheet

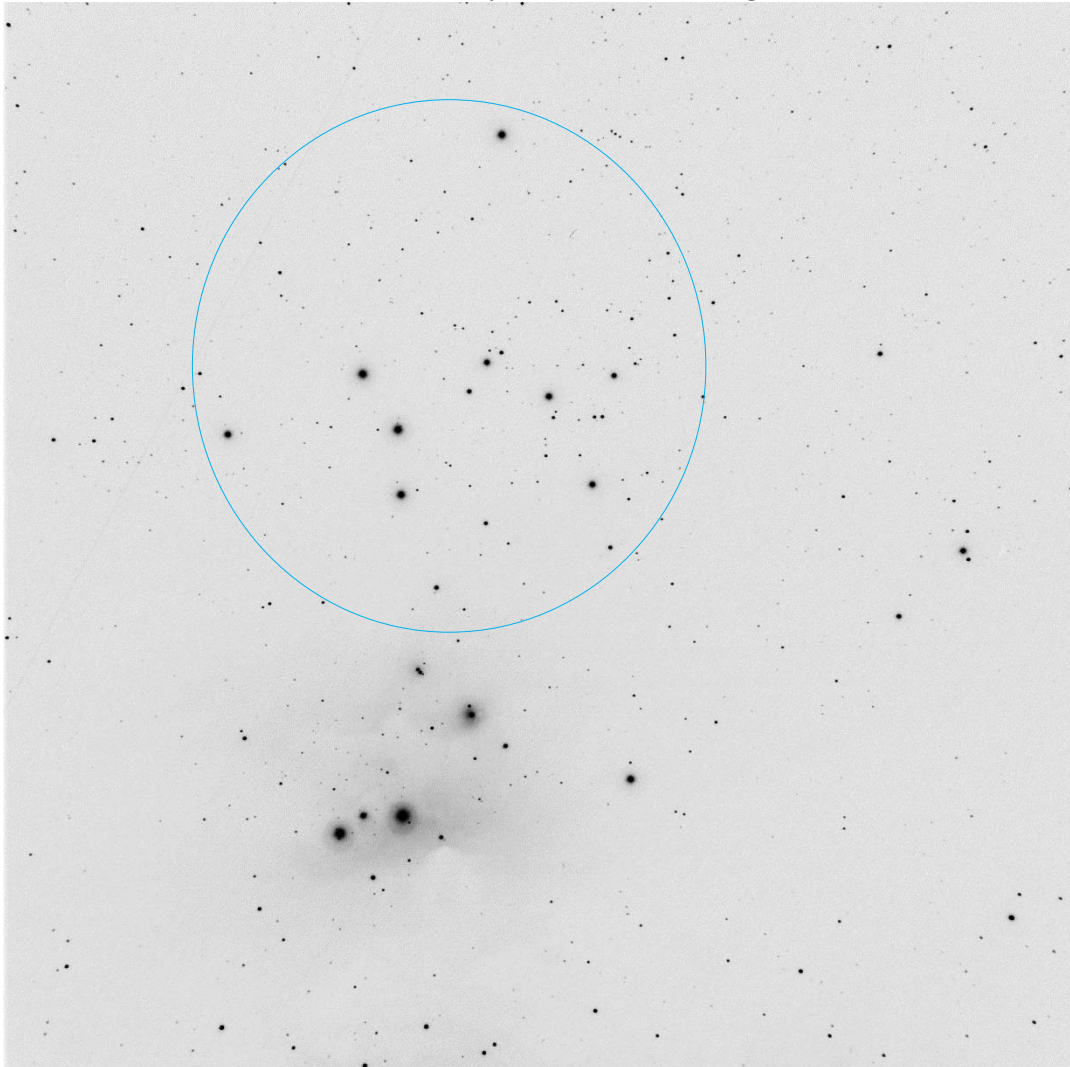|			
Object	**Collinder 69**	Date	1/12/24
Right Ascension (2000)	05h35m06s	Time	21:15
Declination (2000)	+09°56'00"	Sky: Transparency	Above Average
Constellation	Orion	Seeing	Average
Magnitude	2.3	Location	West Columbia TX
Angular Diameter (')	70	Instrument	Astro Tech AT80ED
Concentration Class	II-2-m	Camera	ZWO ASI533MC Pro
Distance (ly)	1300	Sub Exposure (sec)	15
Diameter (ly)	27	Total Exposure (min)	5.5
		Image Software	SharpCap 4.1

Visual Description A very large cluster, larger than the f.o.v. of the image below. Well detached, little centralization, moderate range of brightness with 50+ stars, dominated by 3 brighter ones.
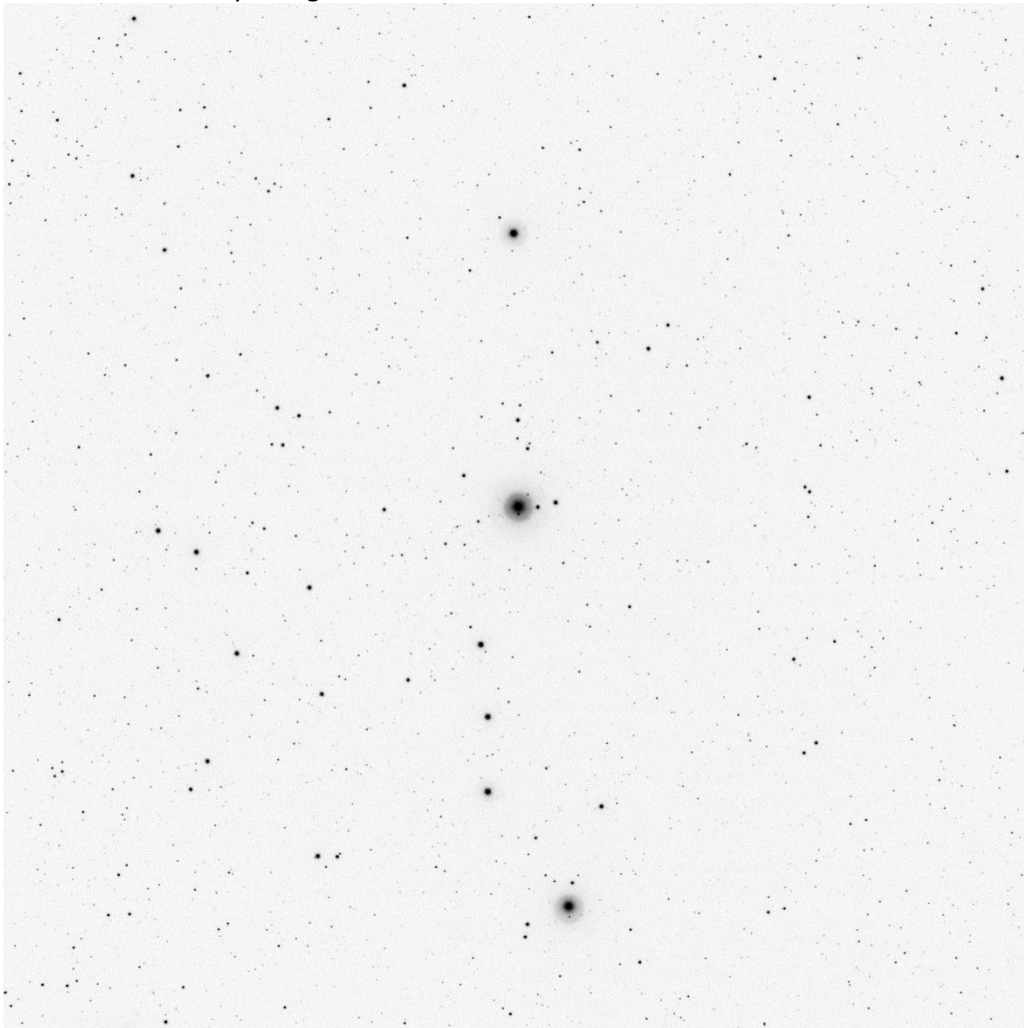
Observation Log Sheet

|			
Object	**NGC 1981**	Date	1/29/24
Right Ascension (2000)	05h35m09s	Time	19:06
Declination (2000)	-04°25'54"	Sky: Transparency	Below Average
Constellation	Orion	Seeing	Average
Magnitude	4.5	Location	West Columbia TX
Angular Diameter (')	28	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p (III-2-p-n)	Camera	ZWO ASI533MC Pro
Distance (ly)	1300	Sub Exposure (sec)	15
Diameter (ly)	11	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   A large cluster of 9 bright stars and about two dozen fainter ones. The cluster is immediately North of the Running Man Nebula.

Observation Log Sheet

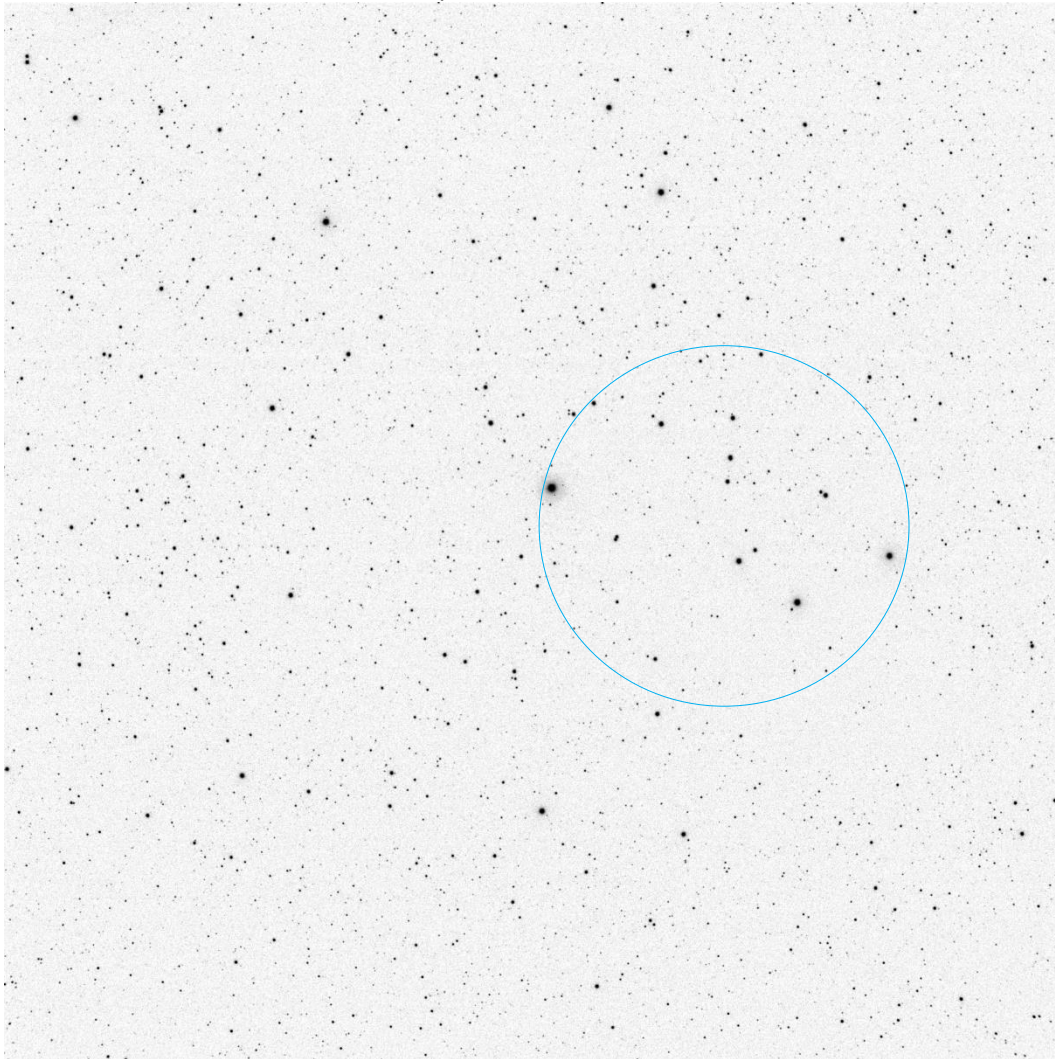|			
Object	**Dol Dzim 3**	Date	1/12/24
Right Ascension (2000)	05h35m12s	Time	20:45
Declination (2000)	+26˚29'00"	Sky: Transparency	Above Average
Constellation	Taurus	Seeing	Average
Magnitude	9.6	Location	West Columbia TX
Angular Diameter (')	10.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A small cluster of 10 stars of similar brightness. Well detached with no centralization.
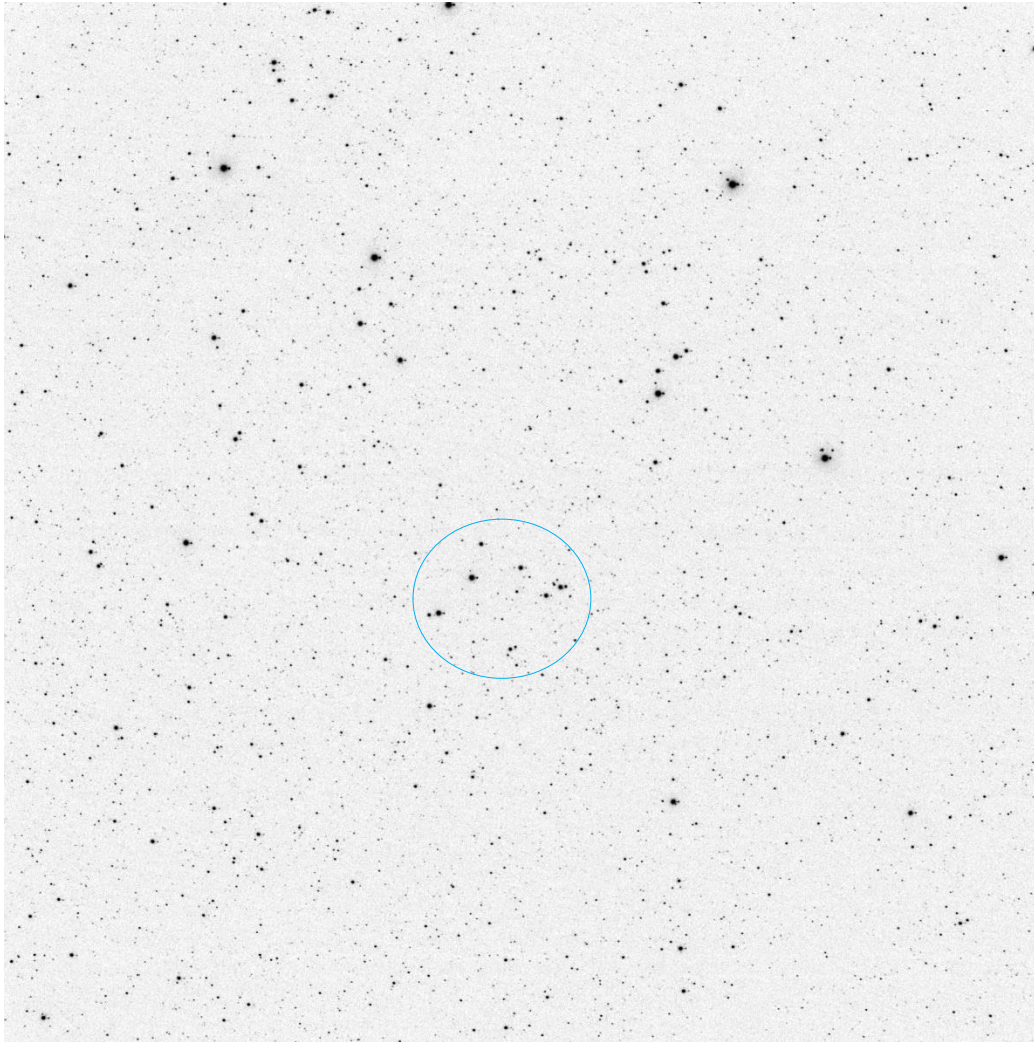
Observation Log Sheet

|			
Object	**Dol Dzim 4**	Date	1/12/24
Right Ascension (2000)	05h35m54s	Time	21:37
Declination (2000)	+25˚57'00"	Sky: Transparency	Above Average
Constellation	Taurus	Seeing	Average
Magnitude	6.8	Location	West Columbia TX
Angular Diameter (')	25.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A large cluster with 12 brighter stars and many fainter ones. Good detachment, but poor centralization.

Observation Log Sheet

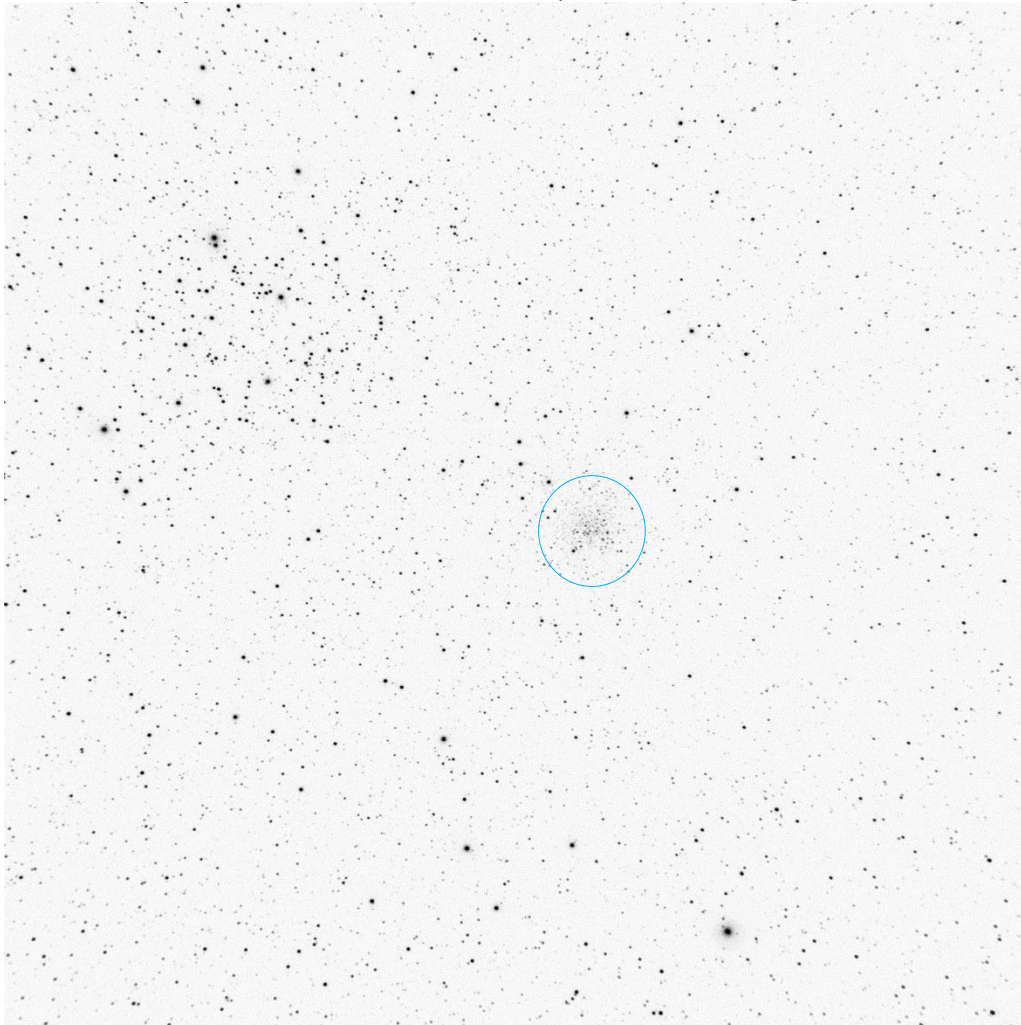|			
Object	**NGC 2141**	Date	1/12/24
Right Ascension (2000)	06h02m55s	Time	21:22
Declination (2000)	+10˚26'48"	Sky: Transparency	Above Average
Constellation	Orion	Seeing	Average
Magnitude	8.2	Location	West Columbia TX
Angular Diameter (')	10.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-m	Camera	ZWO ASI533MC Pro
Distance (ly)	13000	Sub Exposure (sec)	15
Diameter (ly)	38	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A medium, faint cluster with little centralization. Probably 50+ stars.
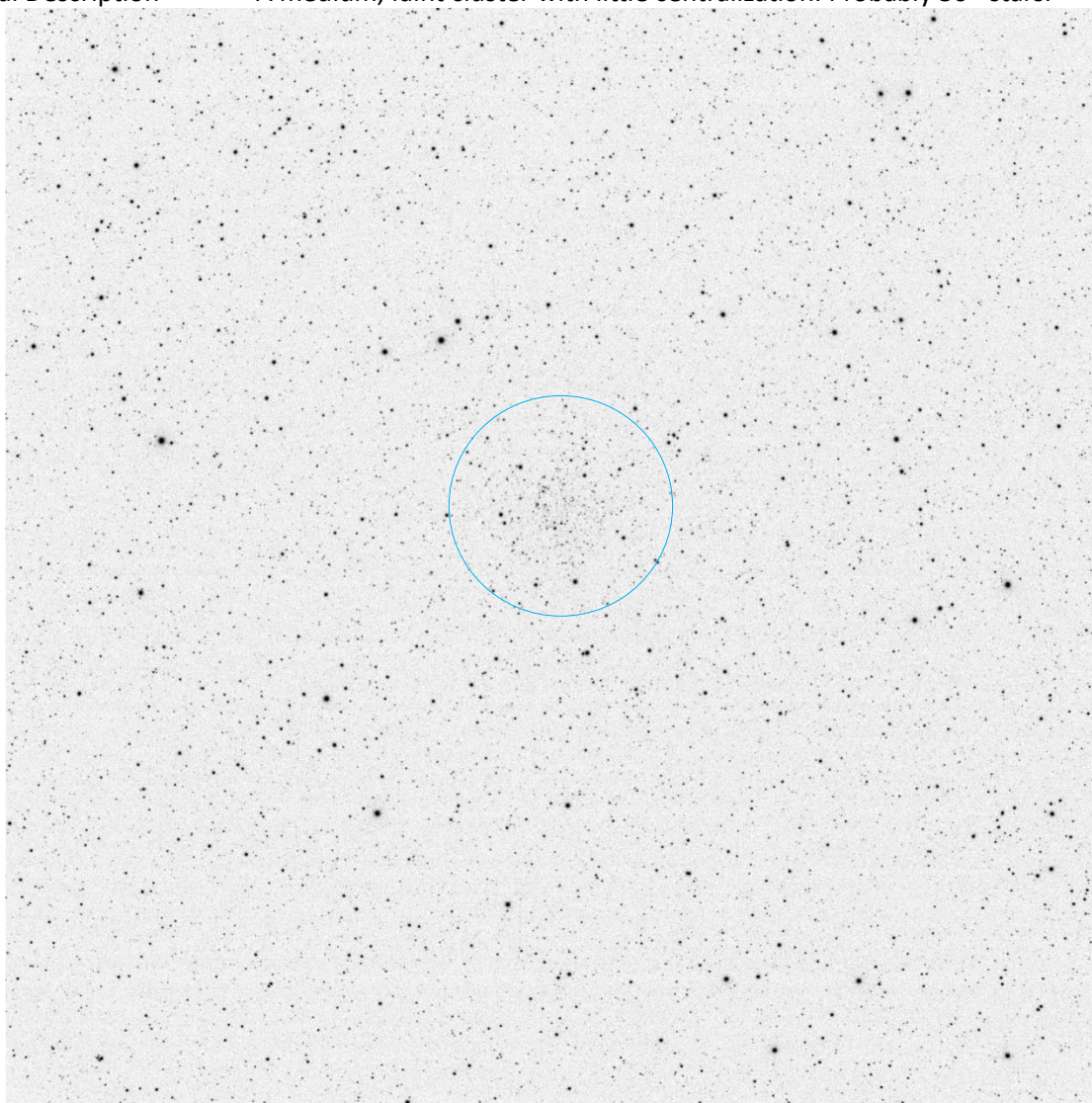
Observation Log Sheet

|			
Object	**NGC 2158**	Date	1/29/24
Right Ascension (2000)	06h07m25s	Time	19:17
Declination (2000)	+24°05'48"	Sky: Transparency	Below Average
Constellation	Gemini	Seeing	Average
Magnitude	9.3	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-1-m (II-3-r)	Camera	ZWO ASI533MC Pro
Distance (ly)	17000	Sub Exposure (sec)	15
Diameter (ly)	24	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   A small cluster just to the South-west of M35, well detached and somewhat concentrated. More than fifty stars of similar brightness.

Observation Log Sheet

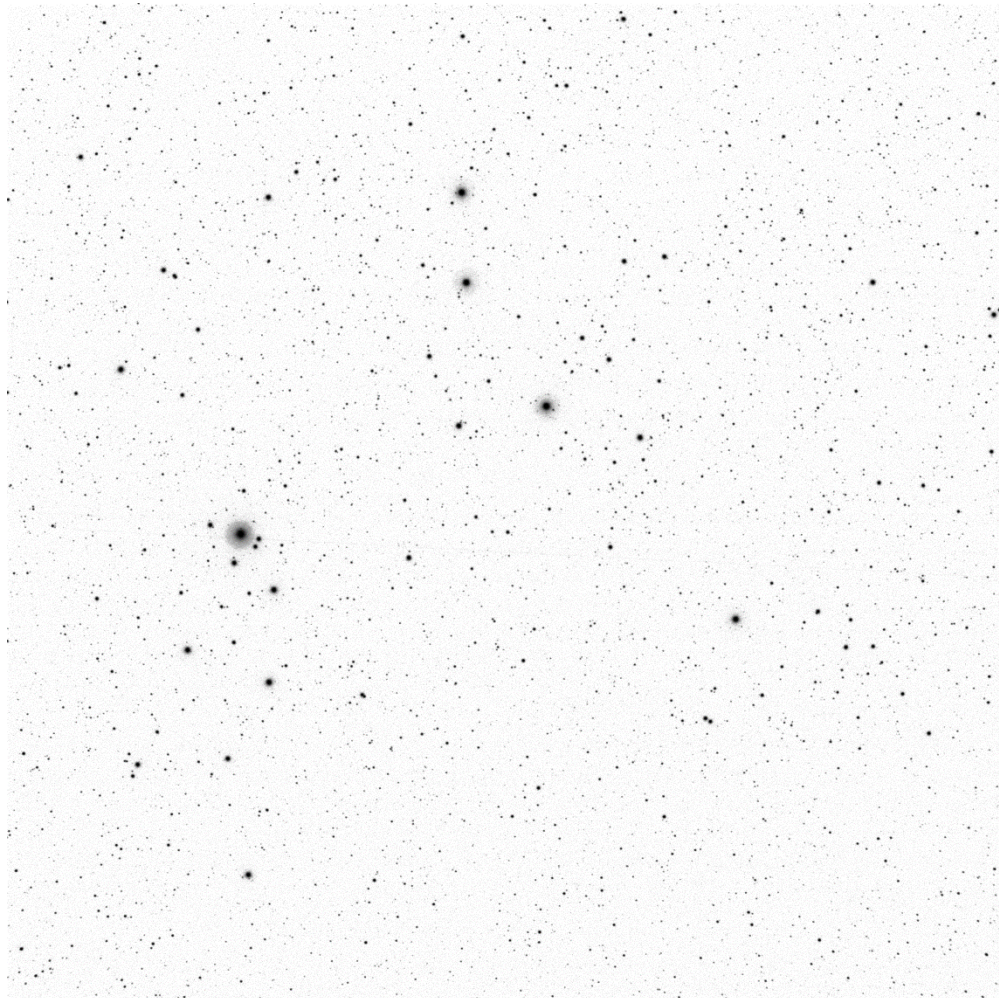|			
Object	**37 Cluster**	Date	1/12/24
Right Ascension (2000)	06h08m24s	Time	21:29
Declination (2000)	+13˚57'54"	Sky: Transparency	Above Average
Constellation	Orion	Seeing	Average
Magnitude	5.6	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	I-2-p	Camera	ZWO ASI533MC Pro
Distance (ly)	3400	Sub Exposure (sec)	15
Diameter (ly)	5	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A small cluster of 20 or so stars, well detached and centralized with a medium range in brightness. Stars arranged in two wavy lines.
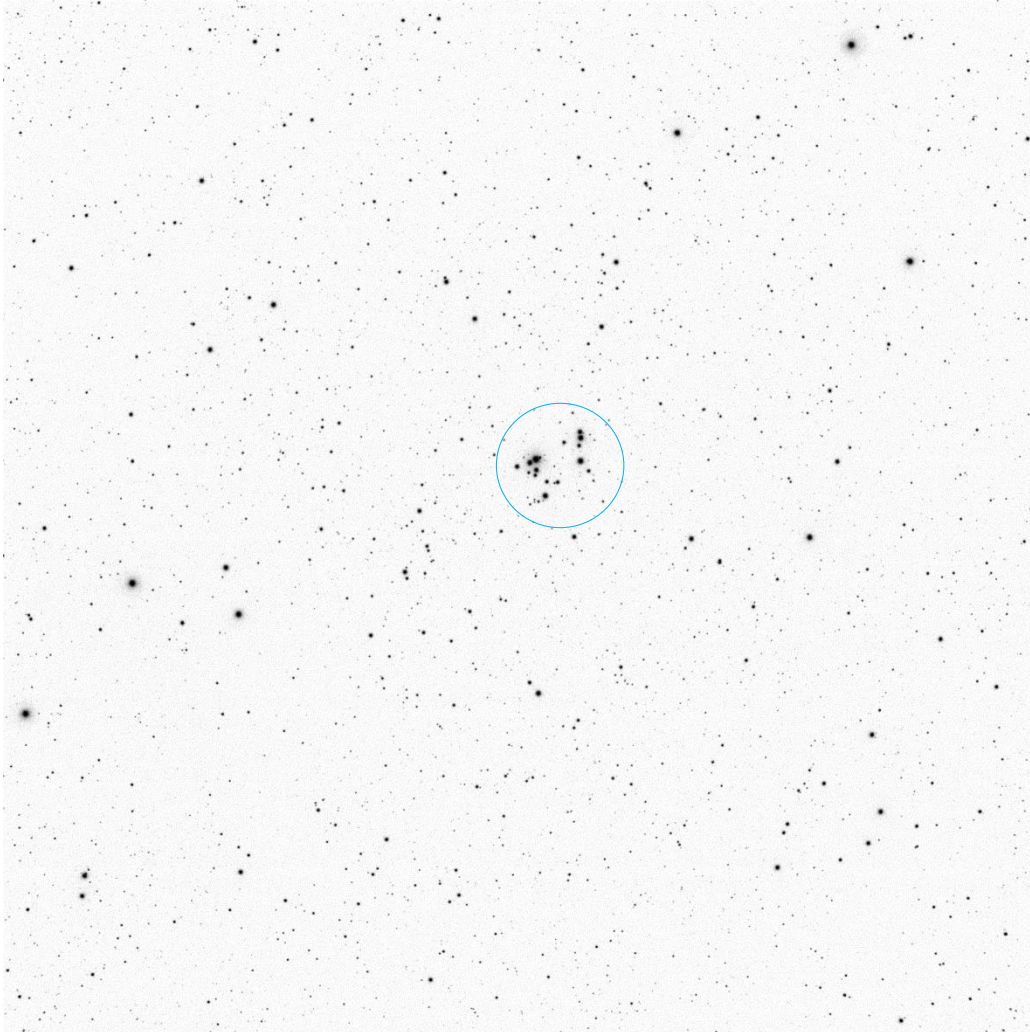
Observation Log Sheet

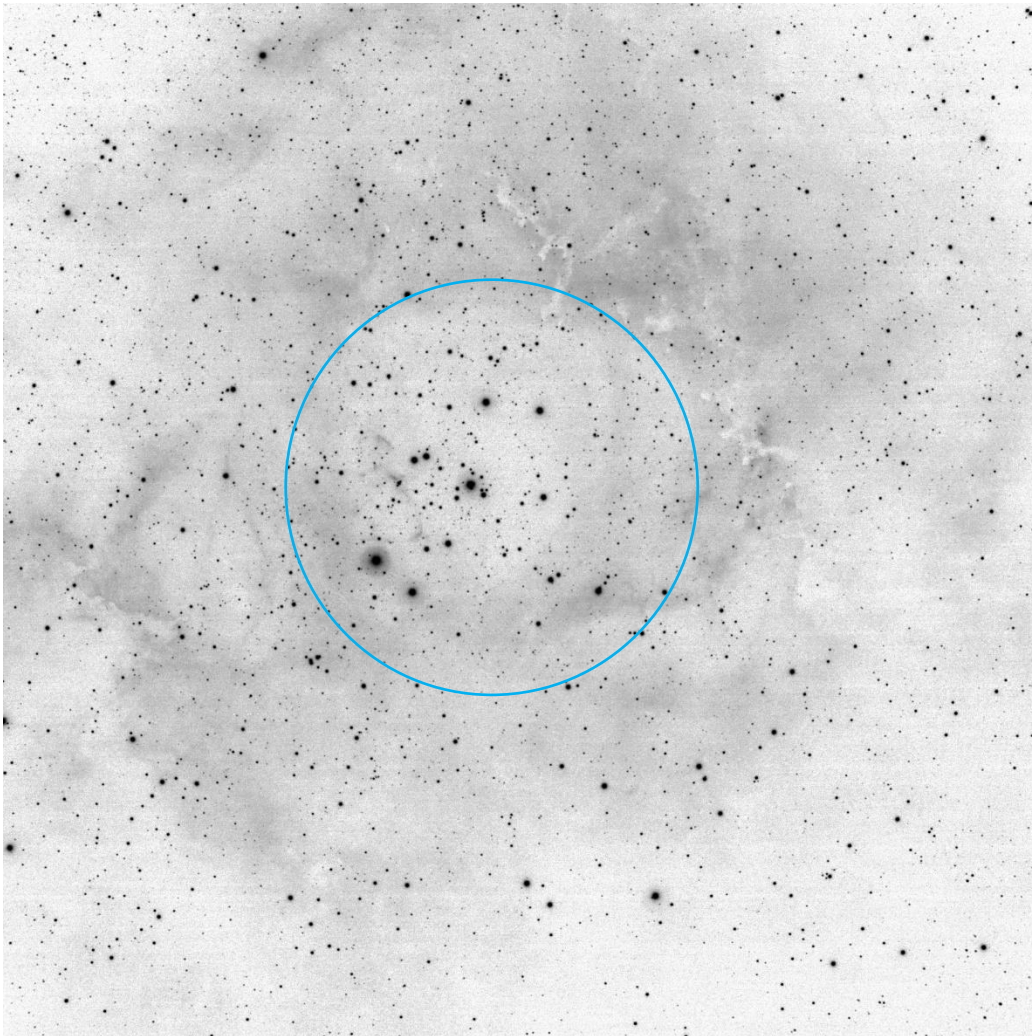|			
Object	**NGC 2232**	Date	1/12/24
Right Ascension (2000)	06h27m15s	Time	22:21
Declination (2000)	-04°45'30"	Sky: Transparency	Above Average
Constellation	Orion	Seeing	Average
Magnitude	4.0	Location	West Columbia TX
Angular Diameter (')	53	Instrument	Astro Tech AT80ED
Concentration Class	III-3-r (IV-3-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	1200	Sub Exposure (sec)	15
Diameter (ly)	18	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A very large cluster completely fills the f.o.v. Five brighter predominant members with probably 100 + fainter ones, although what is field and what is associated is difficult to determine. Strong detachment, but poor centralization.

Observation Log Sheet

|			
Object	**NGC 2244 (Rosette)**	Date	1/12/24
Right Ascension (2000)	06h31m55s	Time	22:11
Declination (2000)	-04°56'30"	Sky: Transparency	Above Average
Constellation	Monoceros	Seeing	Average
Magnitude	4.7	Location	West Columbia TX
Angular Diameter (')	29.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-m-n (II-3-p-n)	Camera	ZWO ASI533MC Pro
Distance (ly)	4700	Sub Exposure (sec)	15
Diameter (ly)	40	Total Exposure (min)	20.0
		Image Software	SharpCap 4.1

Visual Description   A medium sized cluster centered in the Rosette Nebula. The cluster contains 50+ stars of which about a dozen or so are brighter ones. The cluster is well detached with some centralization.

Observation Log Sheet

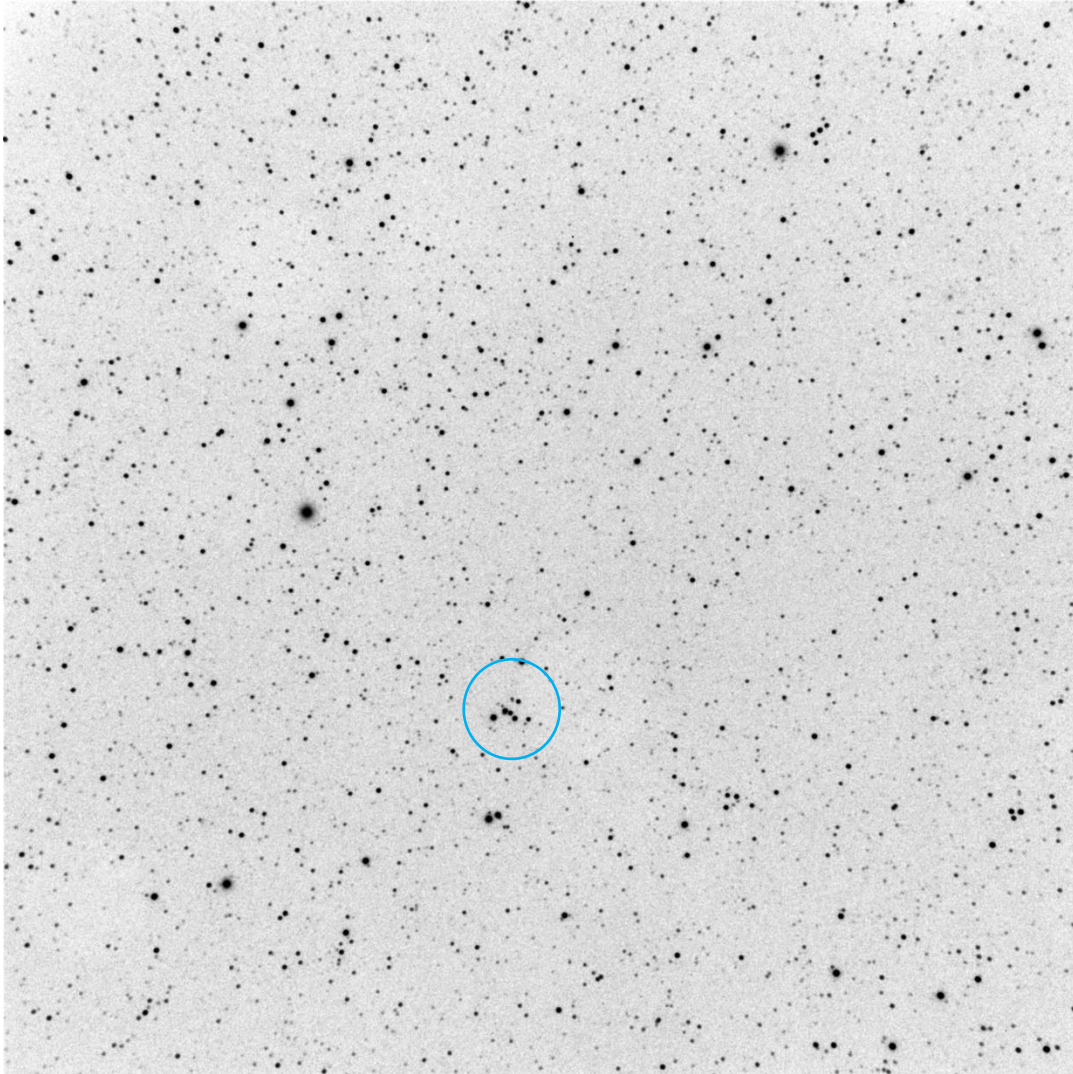|			
Object	**Ruprecht 1**	Date	1/12/24
Right Ascension (2000)	06h36m24s	Time	22:29
Declination (2000)	-14°11'00"	Sky: Transparency	Above Average
Constellation	Canis Major	Seeing	Average
Magnitude	10.3	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-1-p	Camera	ZWO ASI533MC Pro
Distance (ly)	3300	Sub Exposure (sec)	15
Diameter (ly)	5	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description A small cluster of about 20 or so members of similar brightness, Detached with some centralization.
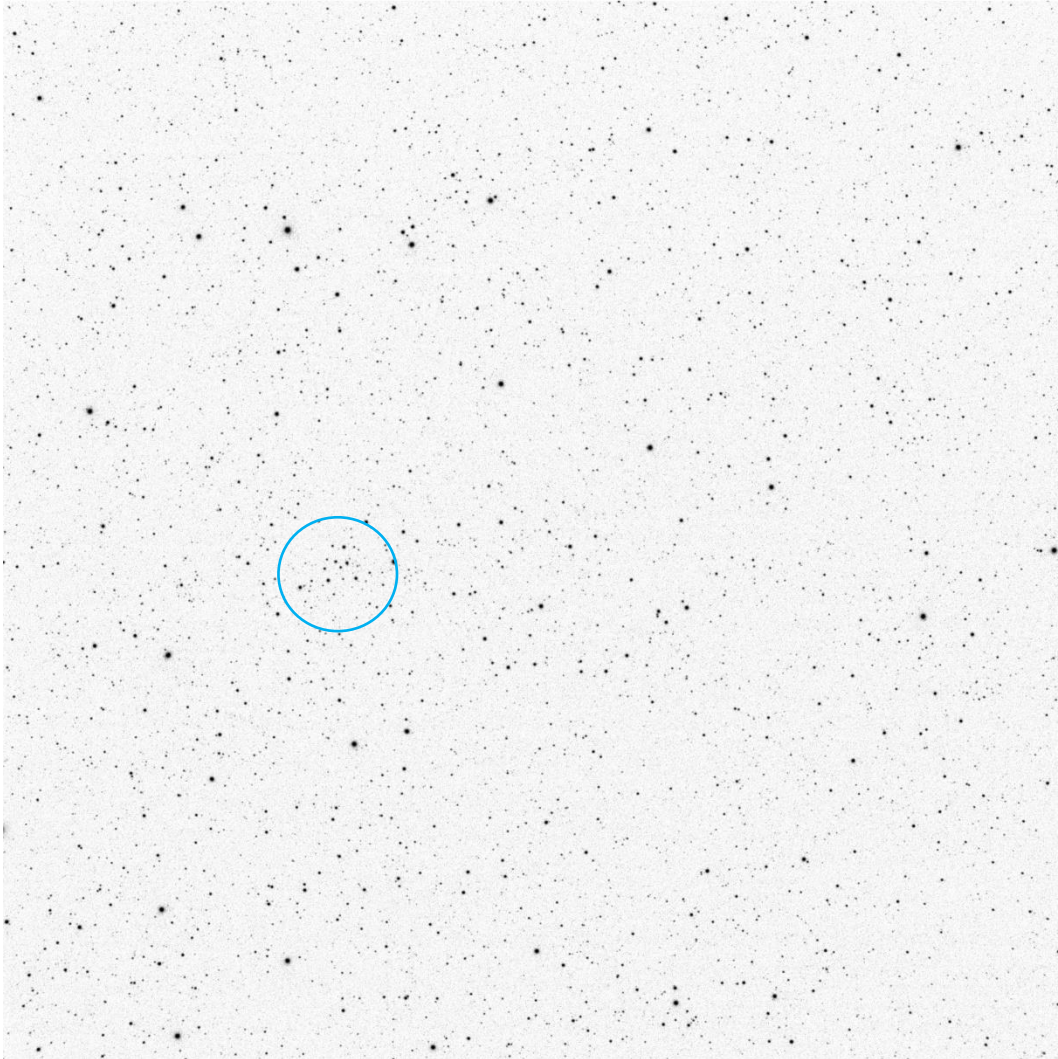
Observation Log Sheet

|			
Object	**Ruprecht 3**	Date	2/20/24
Right Ascension (2000)	06h42m07s	Time	21:12
Declination (2000)	-29°27'00"	Sky: Transparency	Average
Constellation	Canis Major	Seeing	Average
Magnitude	10.10	Location	West Columbia TX
Angular Diameter (')	3.0	Instrument	Astro Tech AT80ED
Concentration Class	I-1-p	Camera	ZWO ASI533MC Pro
Distance (ly)	2300	Sub Exposure (sec)	15
Diameter (ly)	2	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A tiny cluster composed of less than 10 stares of similar brightness with strong central concentration.

Observation Log Sheet

|			
Object	**Berkeley 33**	Date	2/20/24
Right Ascension (2000)	06h57m42s	Time	21:23
Declination (2000)	-13°13'00"	Sky: Transparency	Average
Constellation	Canis Major	Seeing	Average
Magnitude	11.4	Location	West Columbia TX
Angular Diameter (')	4.0	Instrument	Astro Tech AT80ED
Concentration Class	II-1-p	Camera	ZWO ASI533MC Pro
Distance (ly)	15000	Sub Exposure (sec)	15
Diameter (ly)	18	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A tiny cluster composed of less than 50 stares of similar brightness with weak central concentration and little detachment.
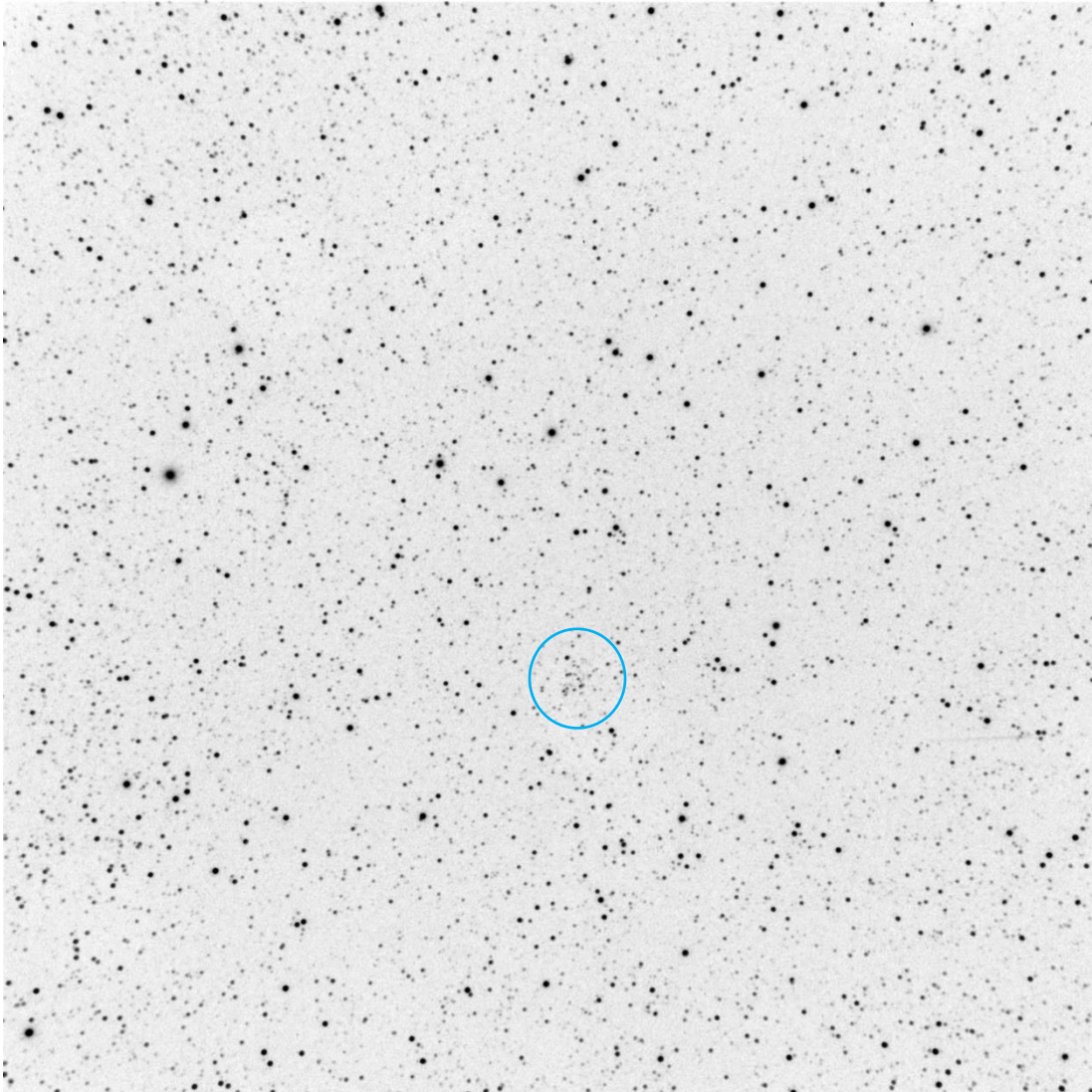
Observation Log Sheet

|			
Object	**Berkely 30**	Date	1/12/24
Right Ascension (2000)	06h57m54s	Time	21:46
Declination (2000)	+03°13'00"	Sky: Transparency	Above Average
Constellation	Monoceros	Seeing	Average
Magnitude	11.0	Location	West Columbia TX
Angular Diameter (')	3.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p	Camera	ZWO ASI533MC Pro
Distance (ly)	16000	Sub Exposure (sec)	15
Diameter (ly)	14	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A very small and fain cluster of less than 50 stars, not well detached but well centralized. Most stars are similar in brightness.
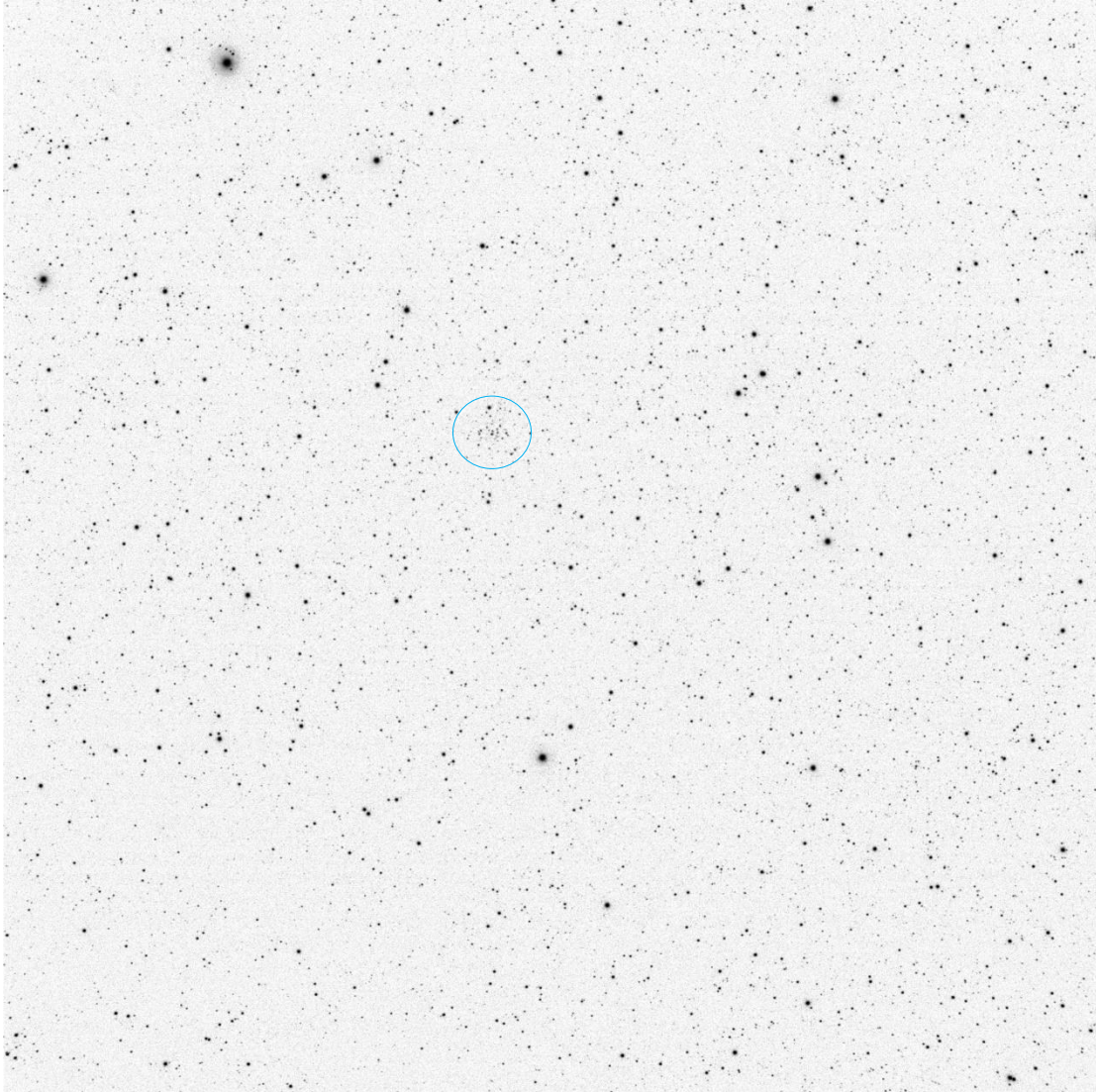
Observation Log Sheet

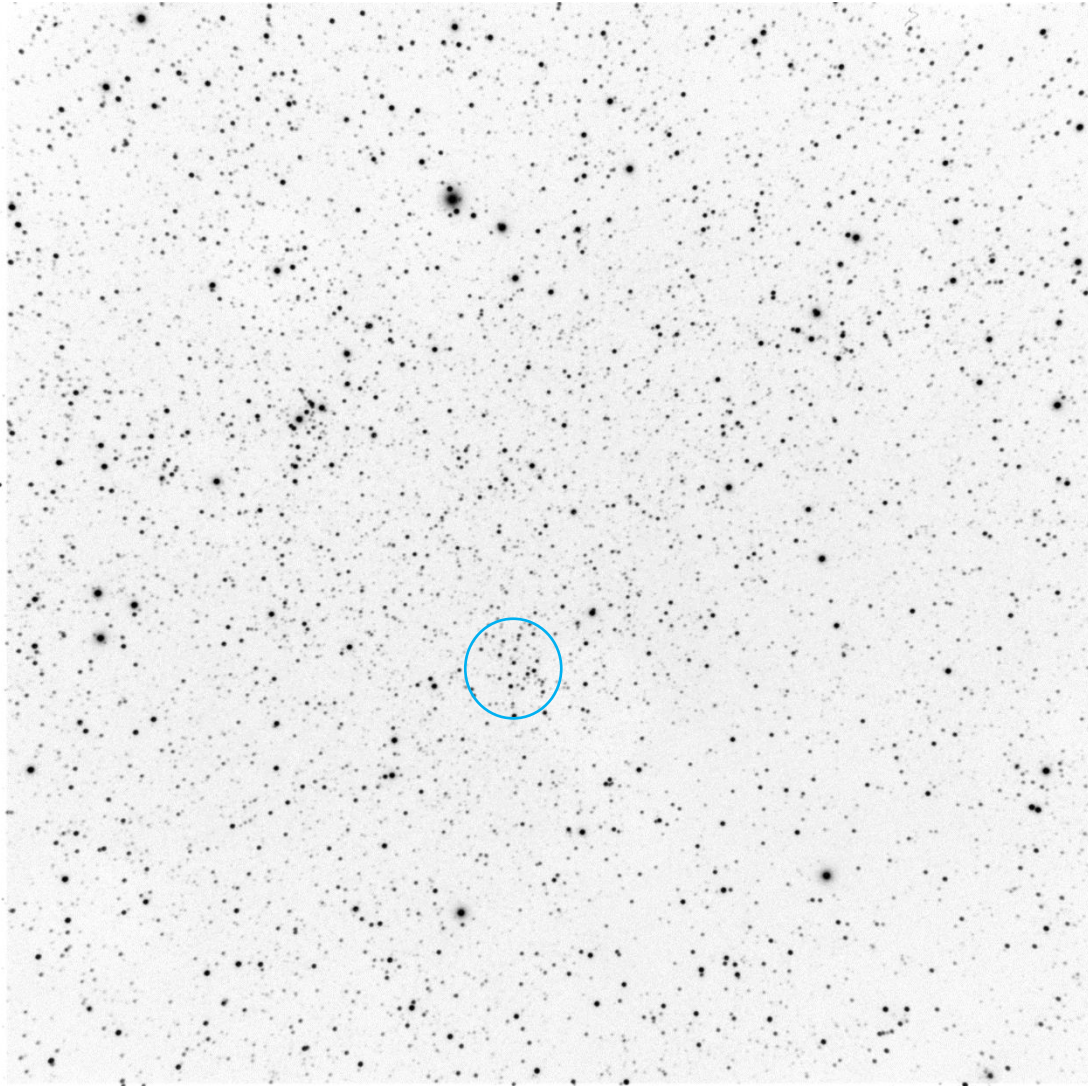|			
Object	**NGC 2353**	Date	1/12/24
Right Ascension (2000)	07h14m30s	Time	22:37
Declination (2000)	-10°16'00"	Sky: Transparency	Above Average
Constellation	Monoceros	Seeing	Average
Magnitude	5.7	Location	West Columbia TX
Angular Diameter (')	18.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-3-p (II-2-p)	Camera	ZWO ASI533MC Pro
Distance (ly)	3600	Sub Exposure (sec)	15
Diameter (ly)	19	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A medium sized cluster. There are about eight brighter members with another 30 or so fainter ones. Not well detached but good concentration.
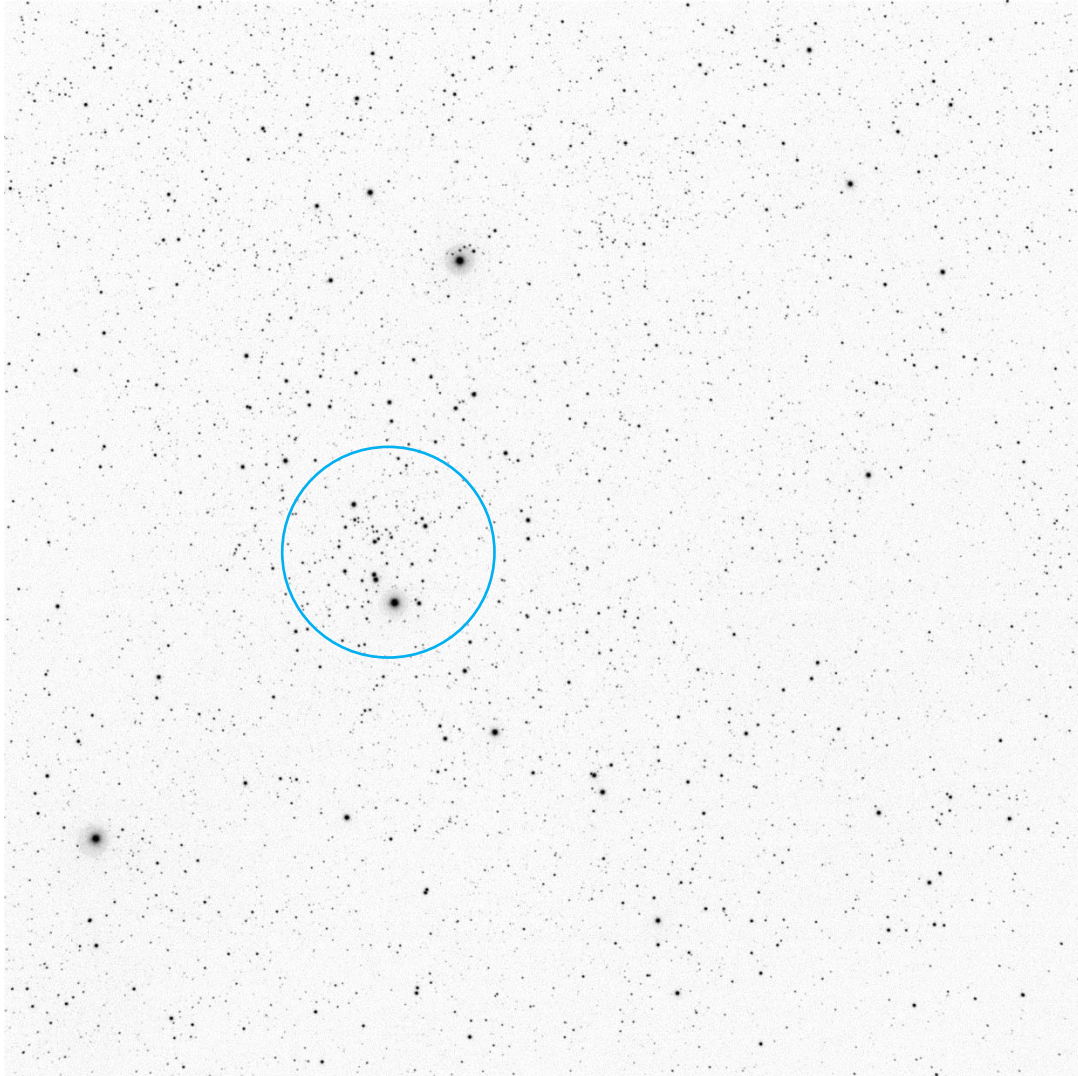
Observation Log Sheet

|			
Object	**Collinder 145**	Date	2/20/24
Right Ascension (2000)	07h26m25s	Time	20:15
Declination (2000)	-24°12'00"	Sky: Transparency	Average
Constellation	Canis Major	Seeing	Average
Magnitude	9.10	Location	West Columbia TX
Angular Diameter (')	6.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A small cluster composed of less than 50 stares of varying brightness with weak central concentration and little detachment.

Observation Log Sheet

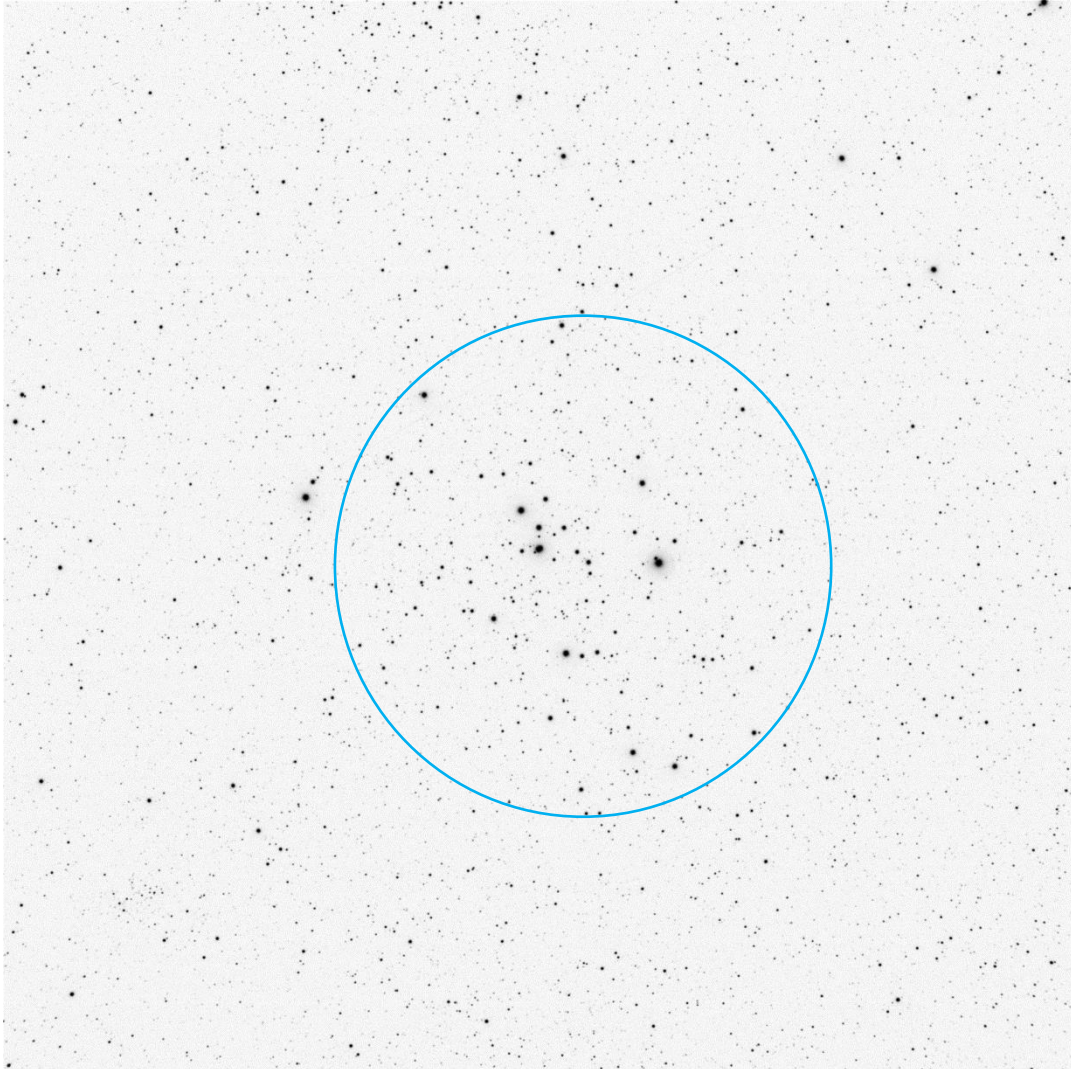|			
Object	**Collinder 146**	Date	2/20/24
Right Ascension (2000)	07h27m22s	Time	20:54
Declination (2000)	-23°57'00"	Sky: Transparency	Average
Constellation	Puppis	Seeing	Average
Magnitude	8.6	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-2-p	Camera	ZWO ASI533MC Pro
Distance (ly)	4800	Sub Exposure (sec)	15
Diameter (ly)	7	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A small cluster composed of less than 20 stars of varying brightness with some central concentration and little detachment.
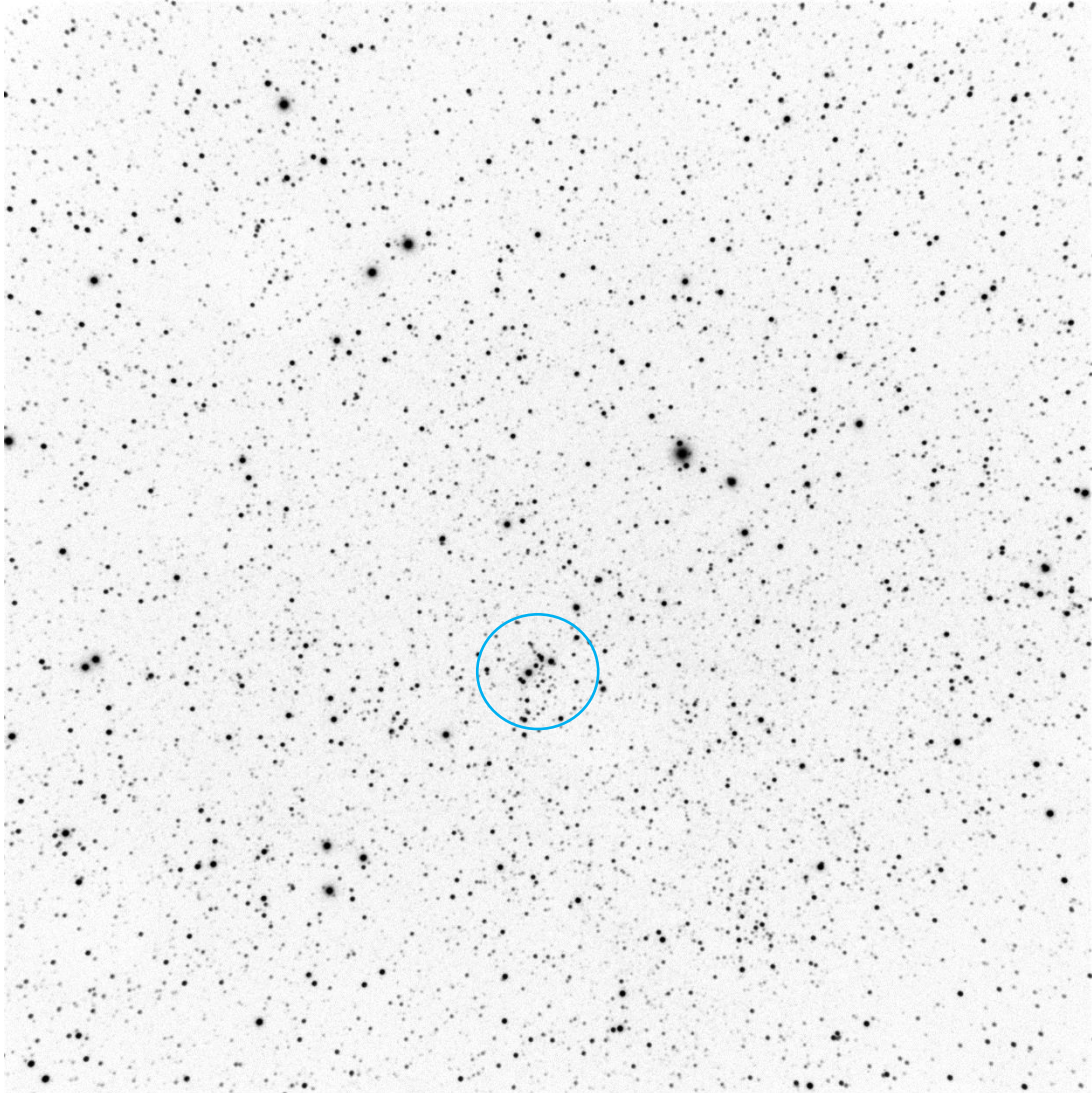
Observation Log Sheet

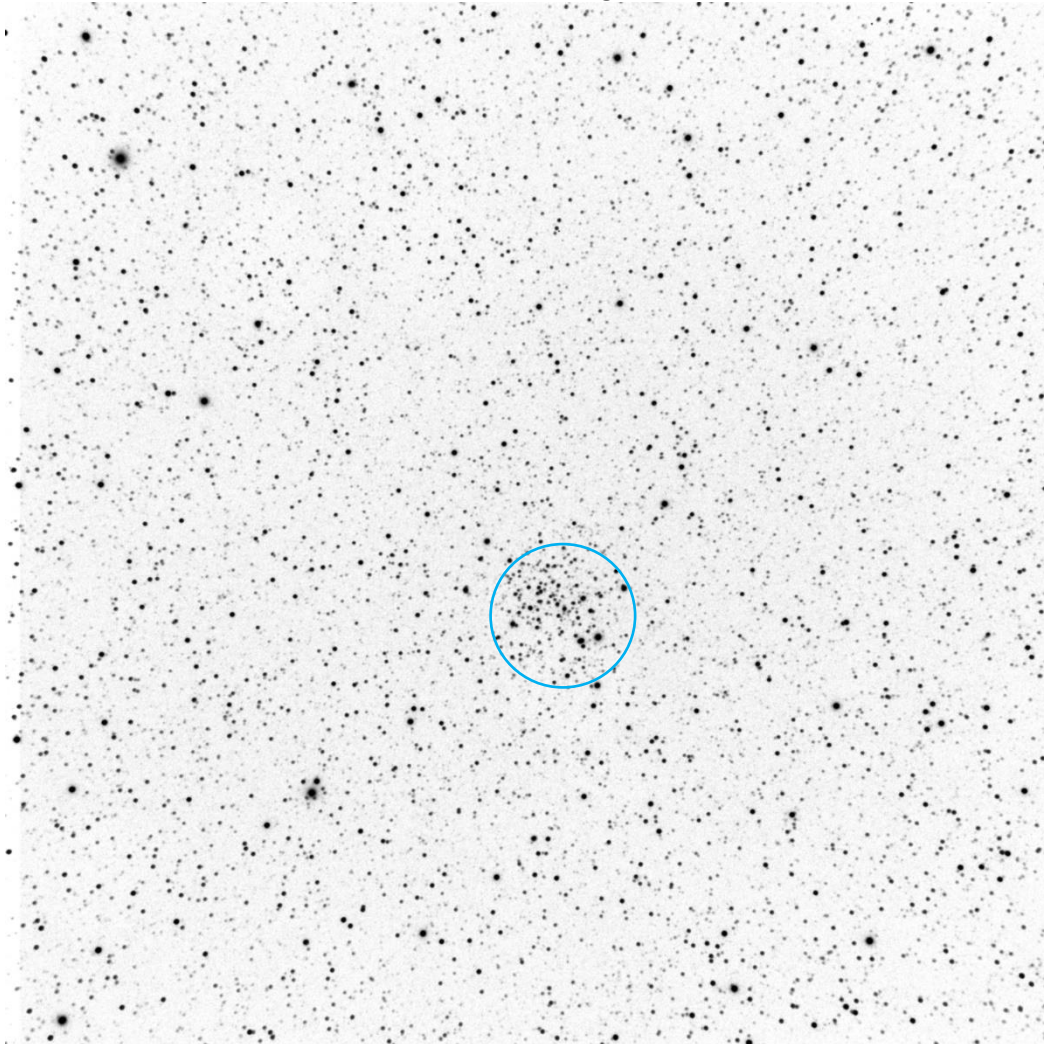|			
Object	**M 47**	Date	1/12/24
Right Ascension (2000)	07h36m35s	Time	22:47
Declination (2000)	-14°29'00"	Sky: Transparency	Above Average
Constellation	Puppis	Seeing	Average
Magnitude	4.40	Location	West Columbia TX
Angular Diameter (')	25.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-m (III-2-m)	Camera	ZWO ASI533MC Pro
Distance (ly)	1600	Sub Exposure (sec)	15
Diameter (ly)	12	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A medium sized cluster. There is a range of brightnesses in the 50+ stars. The cluster is detached with some centralization.

Observation Log Sheet

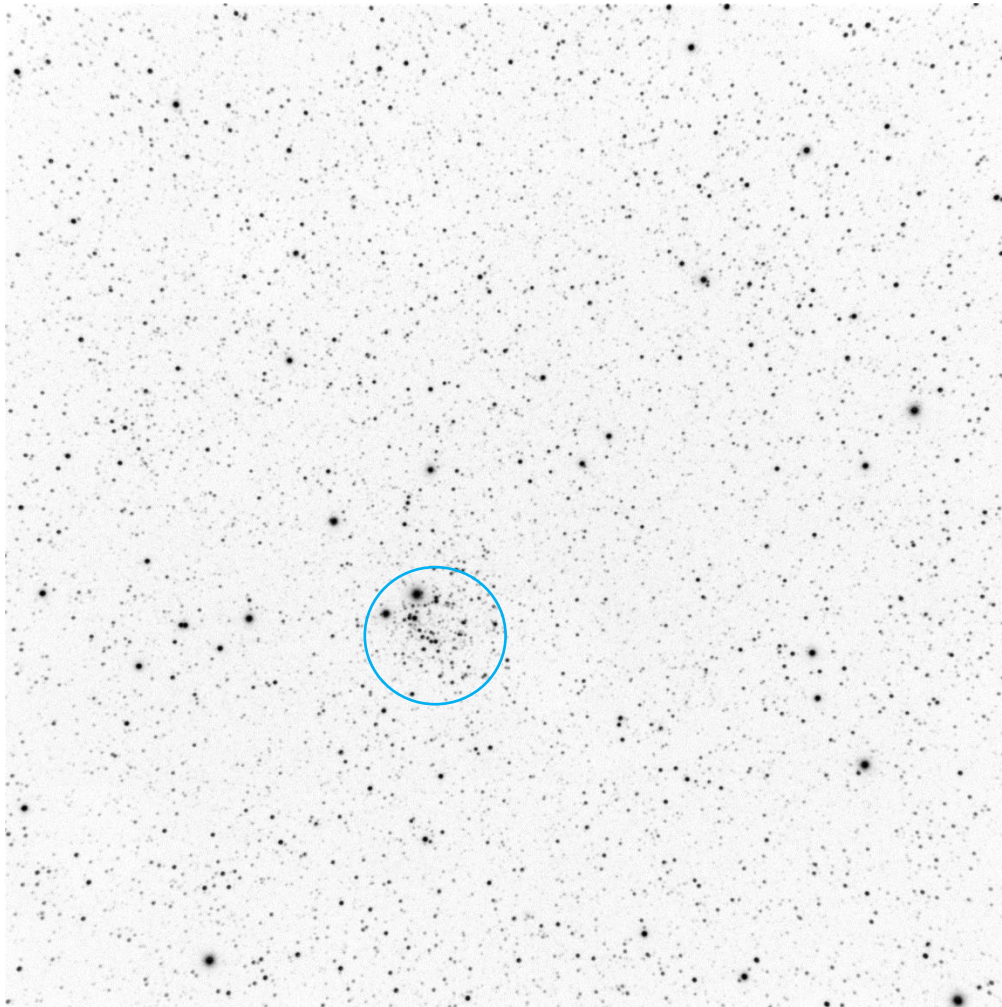|			
Object	**Collinder 155**	Date	2/20/24
Right Ascension (2000)	07h37m30s	Time	20:31
Declination (2000)	-12°04'00"	Sky: Transparency	Average
Constellation	Puppis	Seeing	Average
Magnitude	8.3	Location	West Columbia TX
Angular Diameter (')	7.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-m	Camera	ZWO ASI533MC Pro
Distance (ly)	10000	Sub Exposure (sec)	15
Diameter (ly)	21	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A small cluster composed of more than 50 stars of varying brightness with little central concentration and good detachment.

Observation Log Sheet

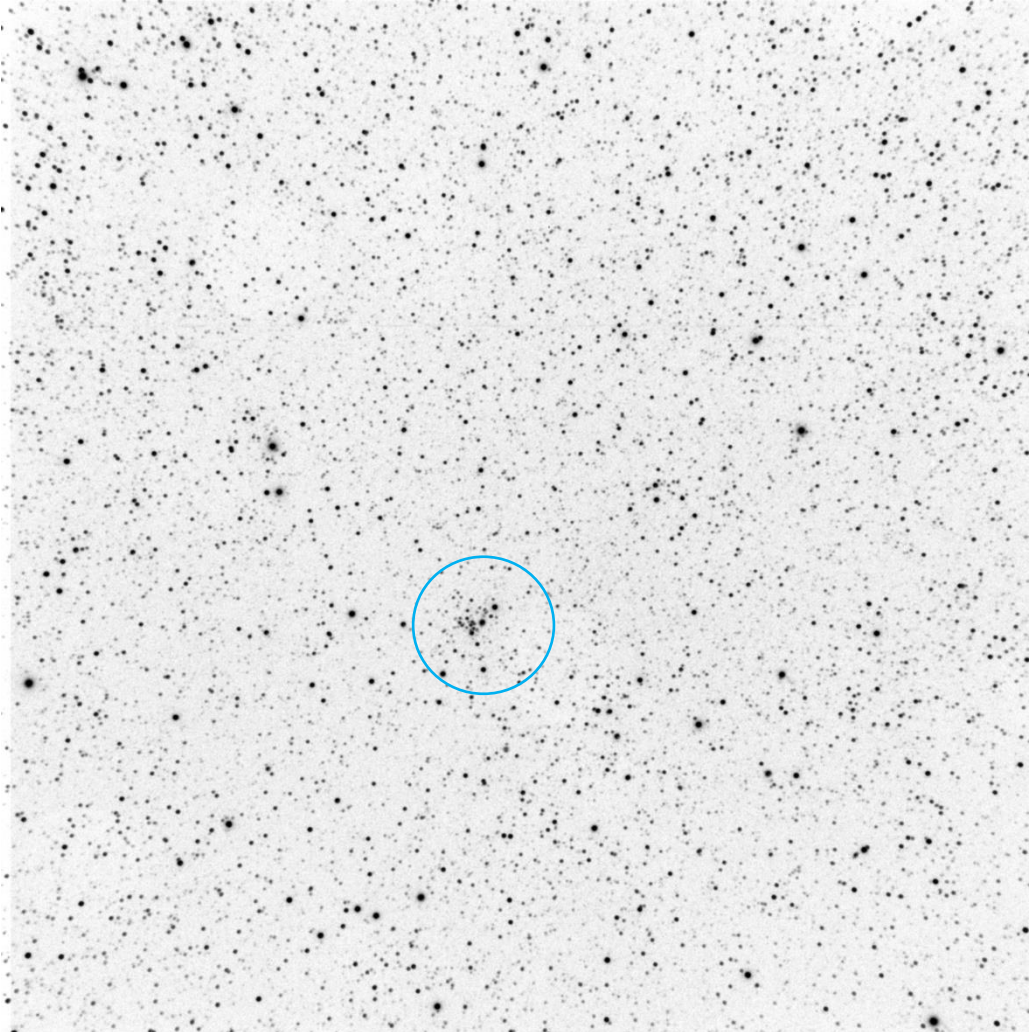|			
Object	**NGC 2439**	Date	2/20/24
Right Ascension (2000)	07h40m45s	Time	20:39
Declination (2000)	-31°41'36"	Sky: Transparency	Average
Constellation	Puppis	Seeing	Average
Magnitude	6.2	Location	West Columbia TX
Angular Diameter (')	9.0	Instrument	Astro Tech AT80ED
Concentration Class	I-2-p	Camera	ZWO ASI533MC Pro
Distance (ly)	13000	Sub Exposure (sec)	15
Diameter (ly)	33	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A small cluster composed of less than 50 stars of varying brightness, dominated by two brighter ones. Some central concentration and good detachment.

Observation Log Sheet

|			
Object	**NGC 2453**	Date	2/20/24
Right Ascension (2000)	07h47m35s	Time	20:47
Declination (2000)	-27°11'42"	Sky: Transparency	Average
Constellation	Puppis	Seeing	Average
Magnitude	9.4	Location	West Columbia TX
Angular Diameter (')	4.0	Instrument	Astro Tech AT80ED
Concentration Class	I-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)	7000	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A tiny cluster composed of about 20 stars of mainly bright and faint stars. Strong central concentration and good detachment.

Observation Log Sheet

|			
Object	**Collinder 168**	Date	2/20/24
Right Ascension (2000)	07h55m40s	Time	21:03
Declination (2000)	-25°53'00"	Sky: Transparency	Average
Constellation	Puppis	Seeing	Average
Magnitude	8.5	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p	Camera	ZWO ASI533MC Pro
Distance (ly)	7500	Sub Exposure (sec)	15
Diameter (ly)	11	Total Exposure (min)	5.0
		Image Software	SharpCap 4.1

Visual Description   A tiny cluster composed of about 12 stars of similar brightness. Weak central concentration and good detachment.
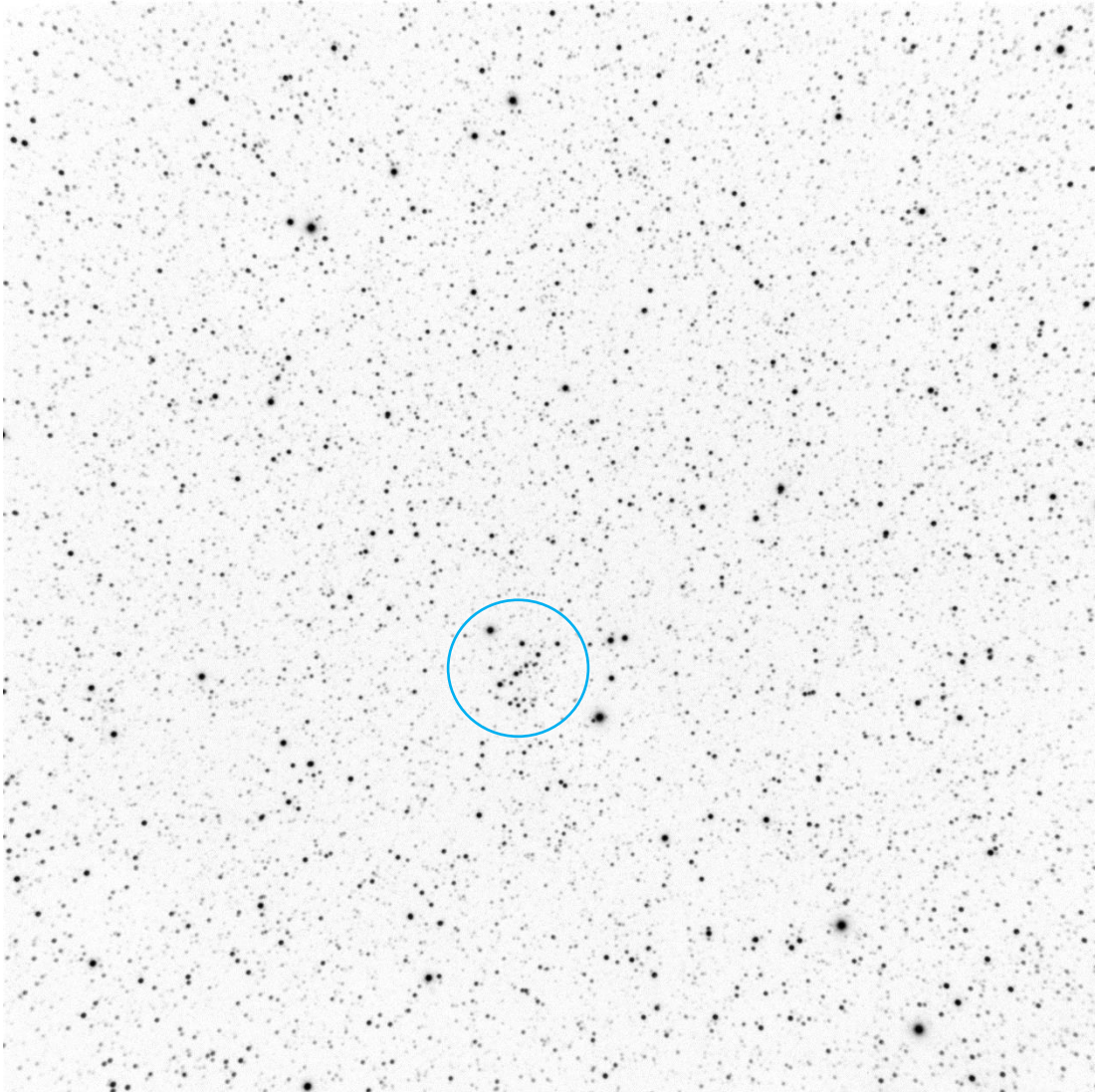
Observation Log Sheet

|			
Object	**M 48**	Date	1/12/24
Right Ascension (2000)	08h13m43s	Time	22:56
Declination (2000)	-05°45'00"	Sky: Transparency	Above Average
Constellation	Hydra	Seeing	Average
Magnitude	5.3	Location	West Columbia TX
Angular Diameter (')	30.0	Instrument	Astro Tech AT80ED
Concentration Class	I-2-m (I-2-m)	Camera	ZWO ASI533MC Pro
Distance (ly)	2500	Sub Exposure (sec)	15
Diameter (ly)	22	Total Exposure (min)	5.75
		Image Software	SharpCap 4.1

Visual Description   A medium sized cluster with 50+ members of varying brightness. The cluster has strong concentration and good detachment.
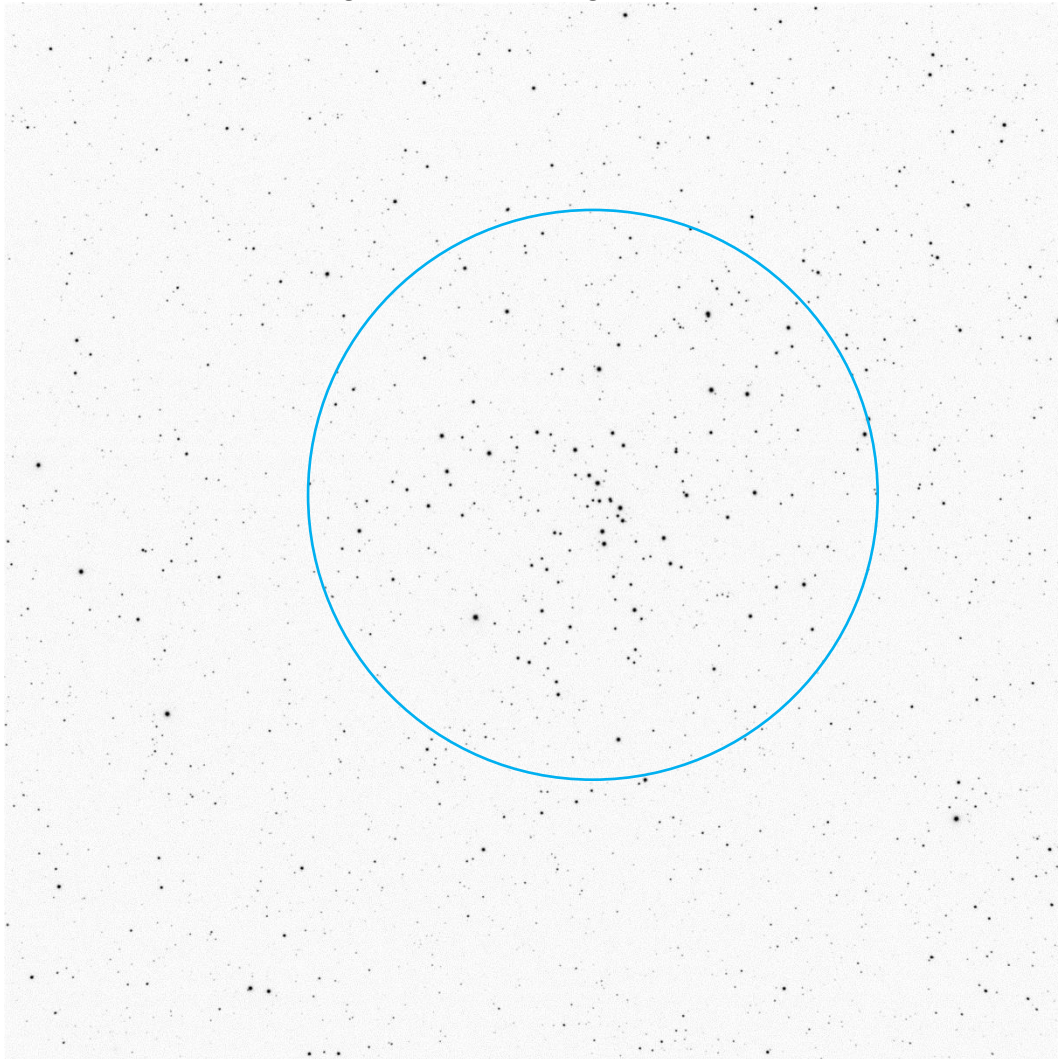
Observation Log Sheet

|			
Object	**Messier 44 – The Beehive**	Date	1/29/24
Right Ascension (2000)	08h40m24s	Time	20:15
Declination (2000)	+19°40'00"	Sky: Transparency	Below Average
Constellation	Cancer	Seeing	Average
Magnitude	3.4	Location	West Columbia TX
Angular Diameter (')	70	Instrument	Astro Tech AT80ED
Concentration Class	II-3-m (II-2-m)	Camera	ZWO ASI533 MC Pro
Distance (ly)	610	Sub Exposure (sec)	15
Diameter (ly)	12	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   This is a very large cluster that fills the field of view. Detached with some centralization. Twenty brighter stars and another 40 fainter ones.
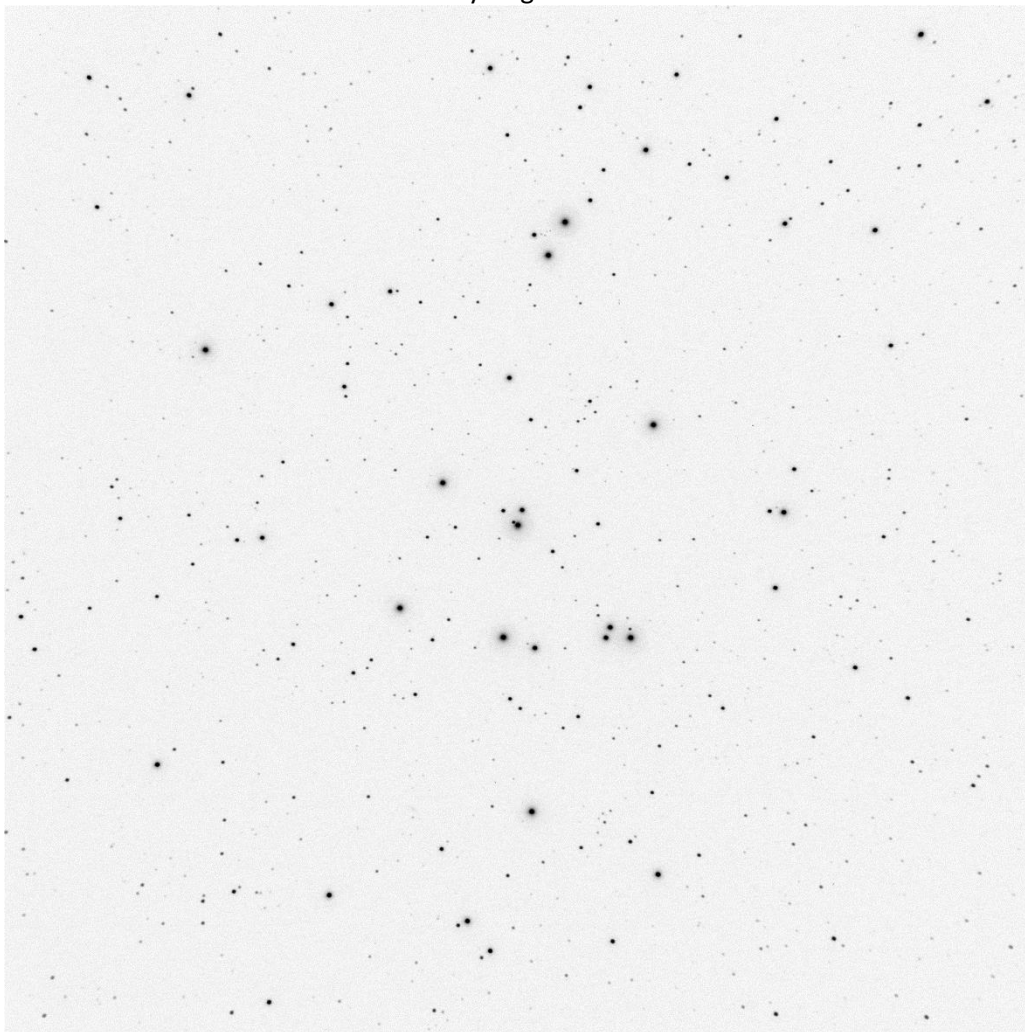
Observation Log Sheet

Object	**Messier 67**	Date	1/29/24
Right Ascension (2000)	08h51m29s	Time	20:23
Declination (2000)	+11˚49'44"	Sky: Transparency	Below Average
Constellation	Cancer	Seeing	Average
Magnitude	6.0	Location	West Columbia TX
Angular Diameter (')	25	Instrument	Astro Tech AT80ED
Concentration Class	II-2-r (II-2-m)	Camera	ZWO ASI533 MC Pro
Distance (ly)	3000	Sub Exposure (sec)	15
Diameter (ly)	22	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Large cluster well detached with some centralization. Rich with a range of brightness.
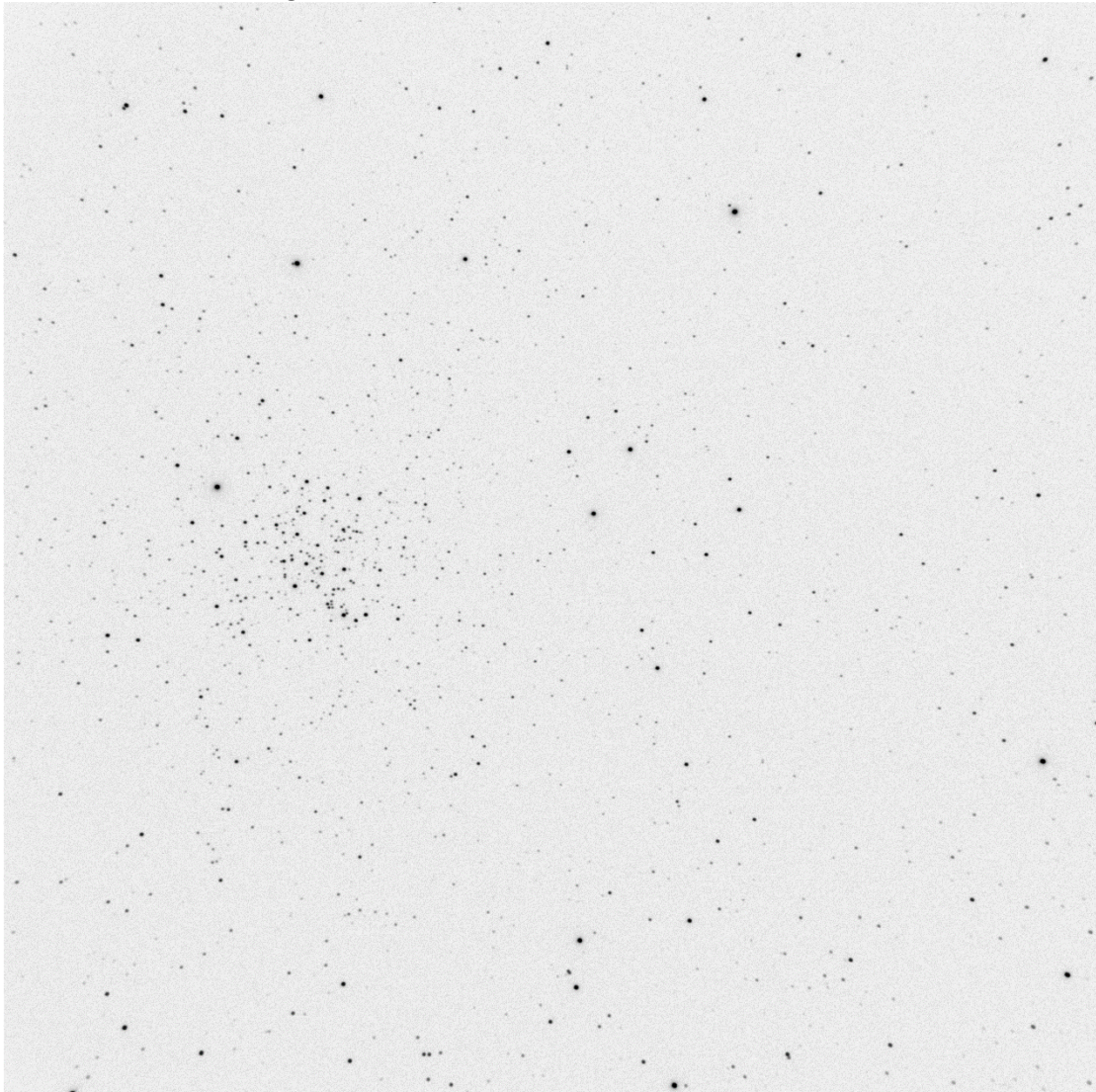
Observation Log Sheet

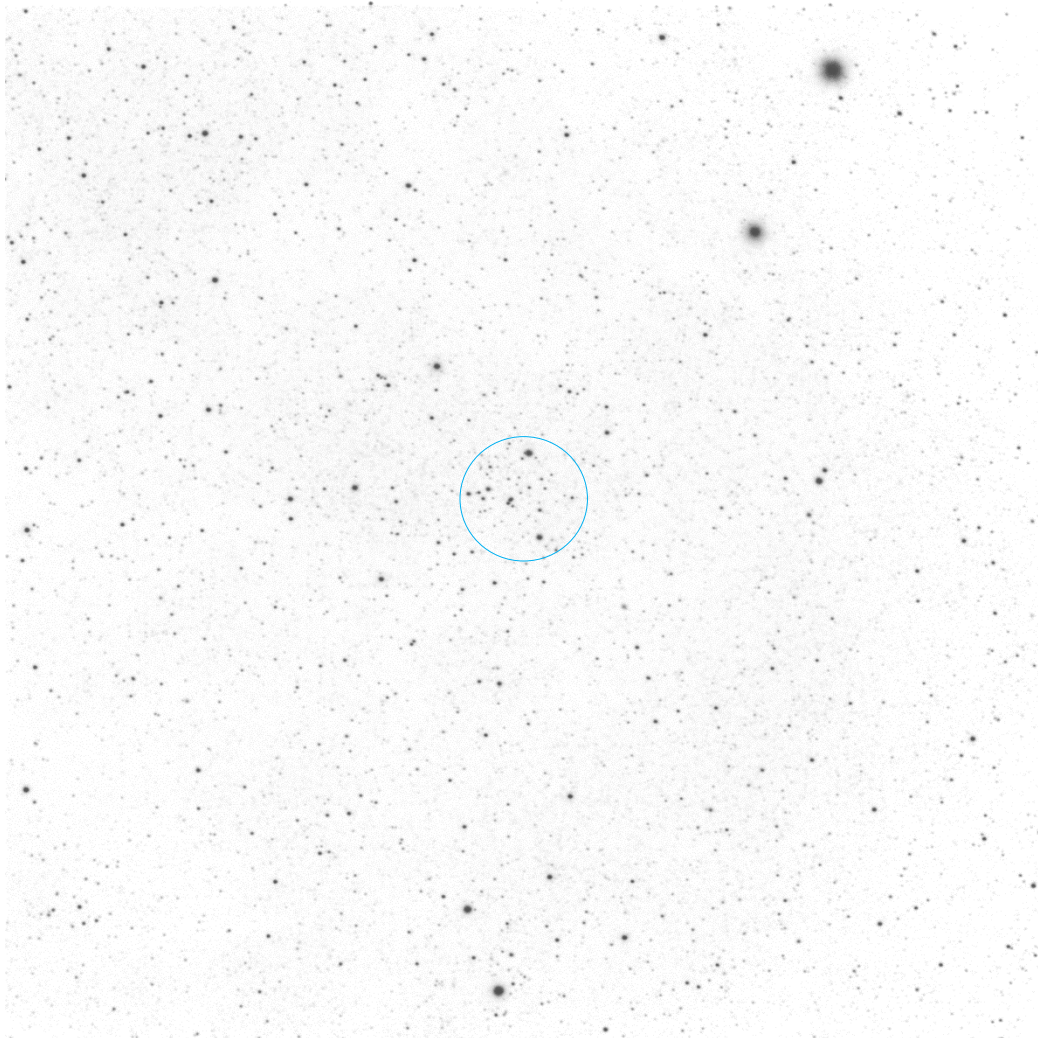|			
Object	**Dolidze 27**	Date	9/4/23
Right Ascension (2000)	16h37m44s	Time	22:07
Declination (2000)	-08°59'48"	Sky: Transparency	Above Average
Constellation	Ophiuchus	Seeing	Above Average
Magnitude	7.3	Location	West Columbia TX
Angular Diameter (')	28.1'	Instrument	Astro Tech AT80ED
Concentration Class	IV-2-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	3.0
		Image Software	SharpCap 4.0

Visual Description   A very wide and poorly populated cluster with only about 9 members, dominated by 2 brighter ones. Stars are organized in three distinct lines.

Observation Log Sheet

Object	**Collinder 331**	Date	9/4/23
Right Ascension (2000)	17h30m03s	Time	21:13
Declination (2000)	-29°31'14"	Sky: Transparency	Above Average
Constellation	Ophiuchus	Seeing	Above Average
Magnitude	8.6	Location	West Columbia TX
Angular Diameter (')	6'	Instrument	Astro Tech AT80ED
Concentration Class	IV-3-p	Camera	ZWO ASI183MC
Distance (ly)	9100	Sub Exposure (sec)	15
Diameter (ly)	16	Total Exposure (min)	3.0
		Image Software	SharpCap 4.0

Visual Description   Small cluster of about 20 stars, not well detached from field.

Observation Log Sheet

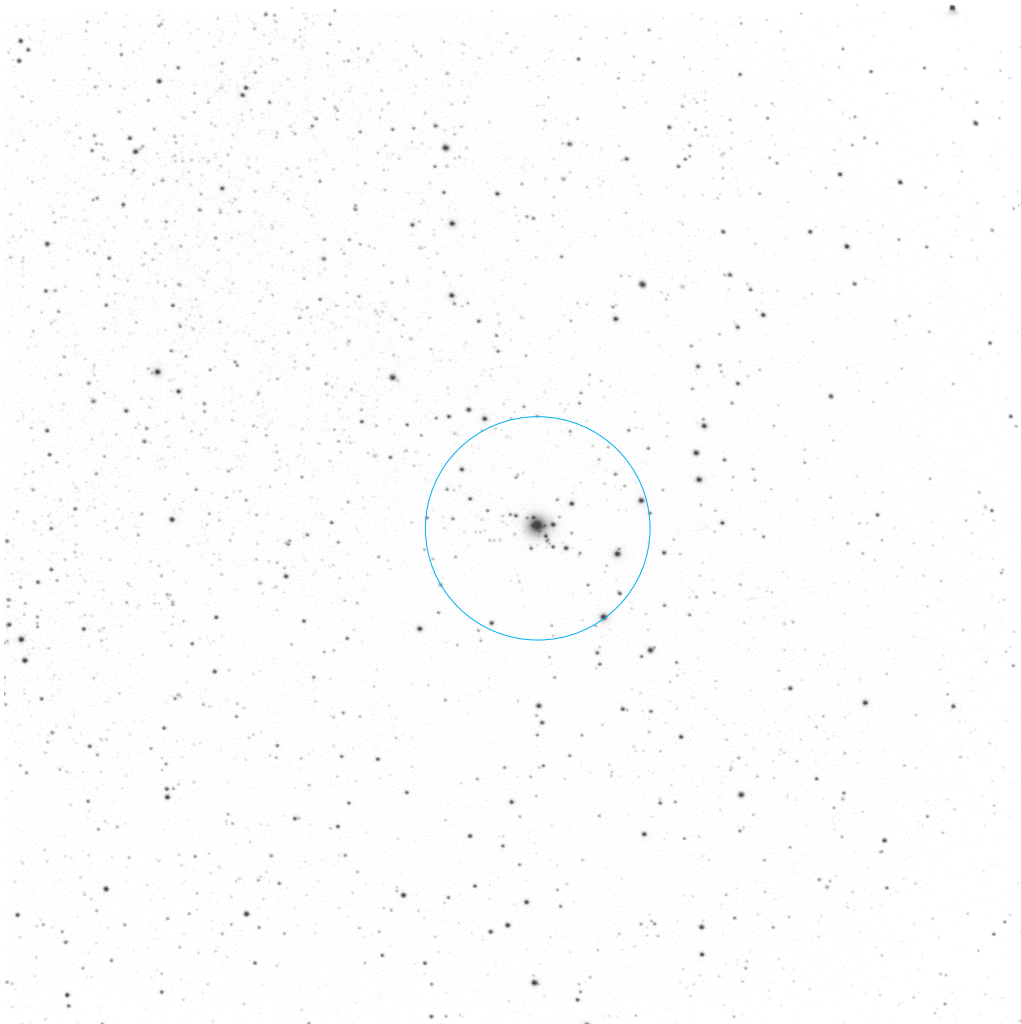|			
Object	**Collinder 333**	Date	9/4/23
Right Ascension (2000)	17h31m31s	Time	21:57
Declination (2000)	-34°01'00"	Sky: Transparency	Above Average
Constellation	Ophiuchus	Seeing	Above Average
Magnitude	8.4	Location	West Columbia TX
Angular Diameter (')	7'	Instrument	Astro Tech AT80ED
Concentration Class	II-1-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	6.0
		Image Software	SharpCap 4.0

Visual Description — Small cluster of a dozen or so members, all similar in brightness, arranged in a "V" shape.
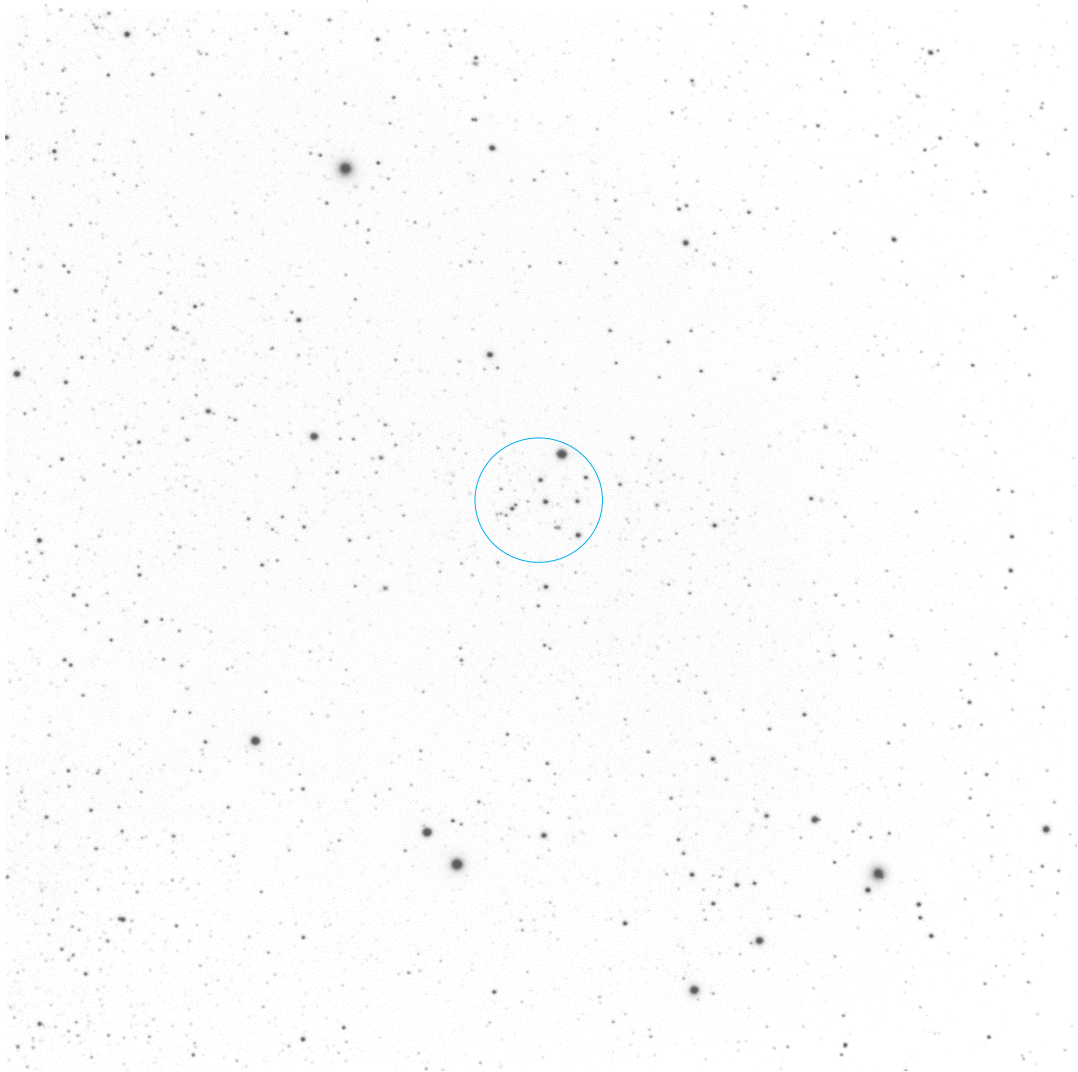
Observation Log Sheet

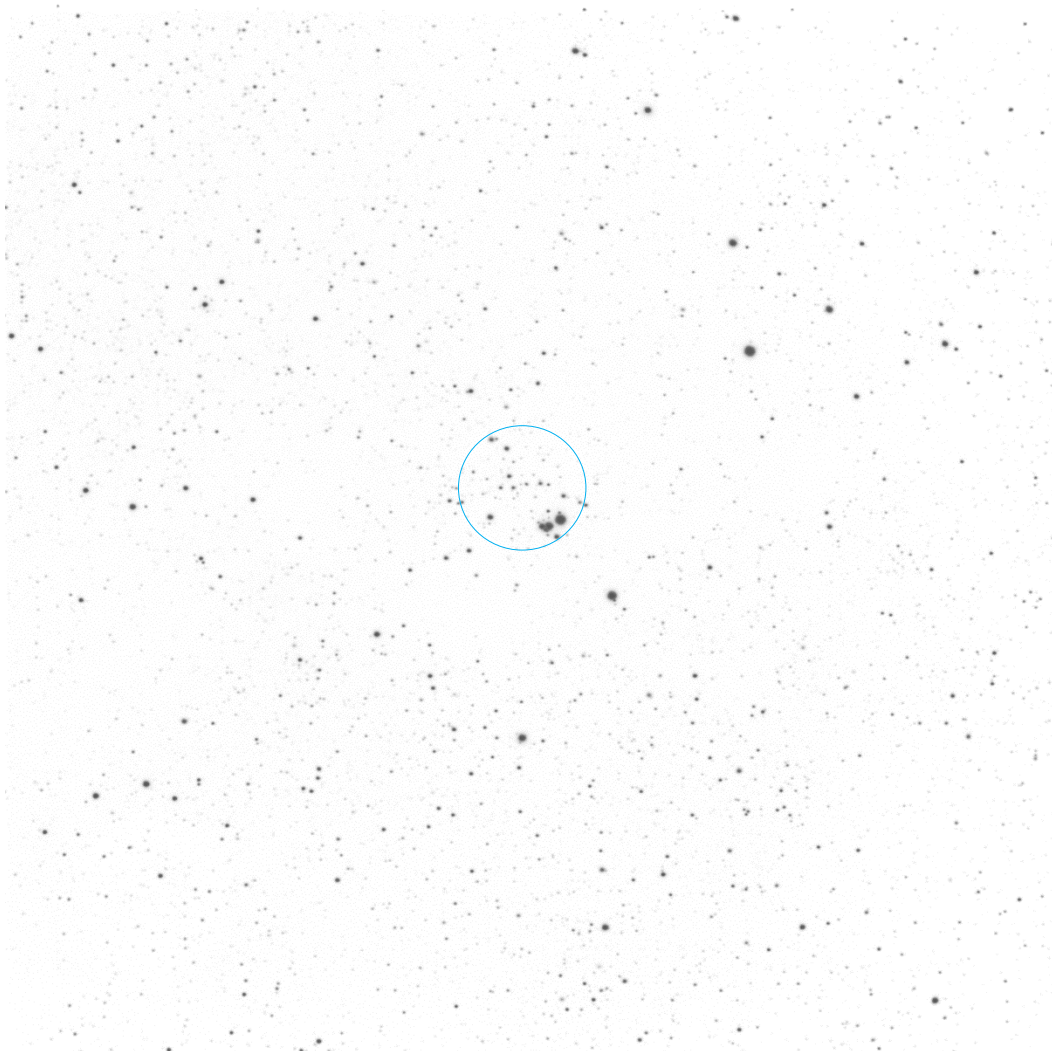|			
Object	**Collinder 333**	Date	9/4/23
Right Ascension (2000)	17h36m20.6s	Time	20:44
Declination (2000)	-32°35'02"	Sky: Transparency	Above Average
Constellation	Scorpius	Seeing	Above Average
Magnitude	4.4	Location	West Columbia TX
Angular Diameter (')	20.0'	Instrument	Astro Tech AT80ED
Concentration Class	IV-2-p	Camera	ZWO ASI183MC
Distance (ly)	3200	Sub Exposure (sec)	15
Diameter (ly)	19	Total Exposure (min)	6.0
		Image Software	SharpCap 4.0

Visual Description   Medium sized cluster, not well detached, some concentration, medium range of brightness. About 20 visible stars. Dominated by central single bright star.

Observation Log Sheet

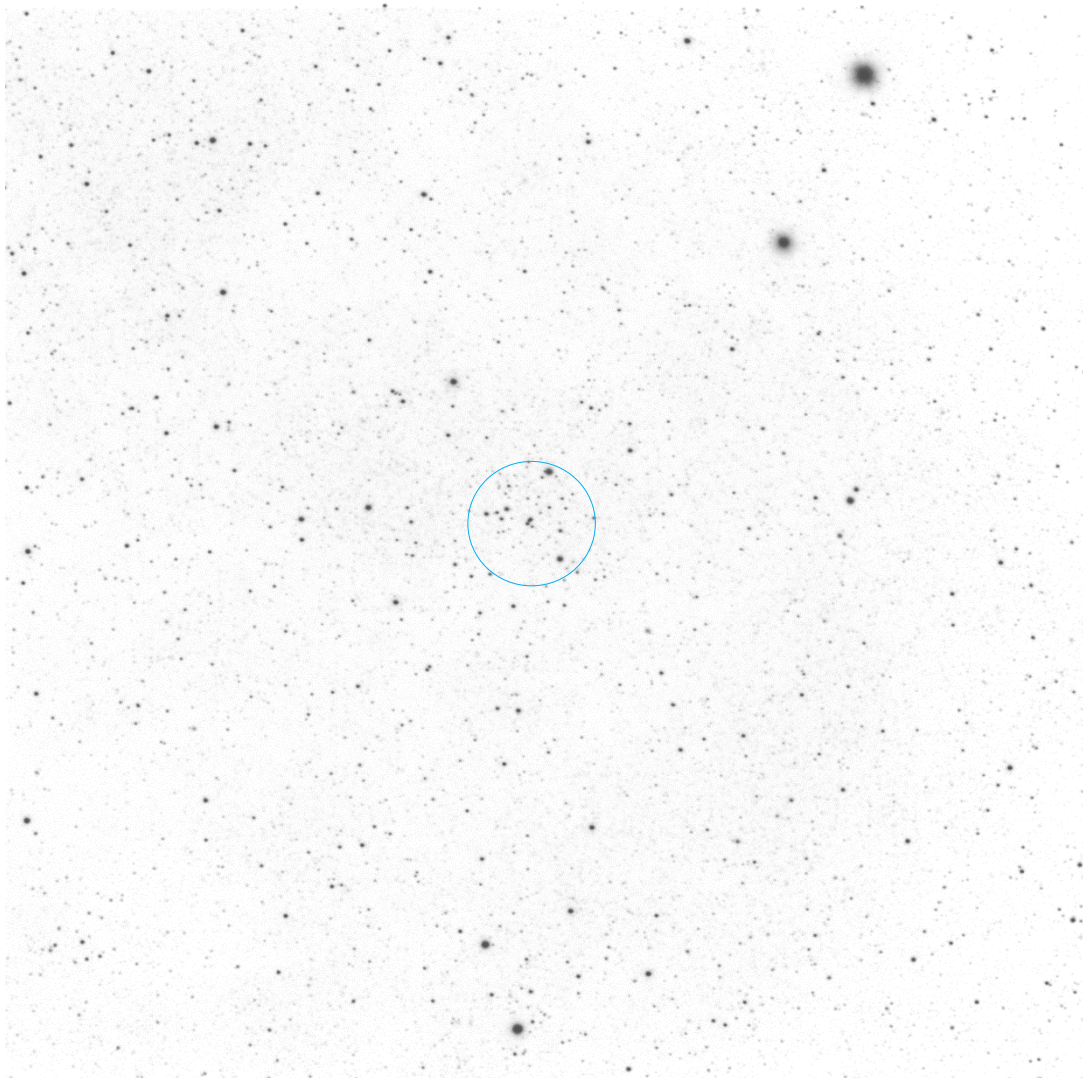|			
Object	**Collinder 336**	Date	9/4/23
Right Ascension (2000)	17h36m20.6s	Time	21:05
Declination (2000)	-33˚31'00"	Sky: Transparency	Above Average
Constellation	Scorpius	Seeing	Above Average
Magnitude	8.1	Location	West Columbia TX
Angular Diameter (')	6.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-3-p	Camera	ZWO ASI183MC
Distance (ly)	3900	Sub Exposure (sec)	15
Diameter (ly)	7	Total Exposure (min)	6.0
		Image Software	SharpCap 4.0

Visual Description   Small cluster of about 30 members, dominate by grouping of 5 brighter ones.

Observation Log Sheet

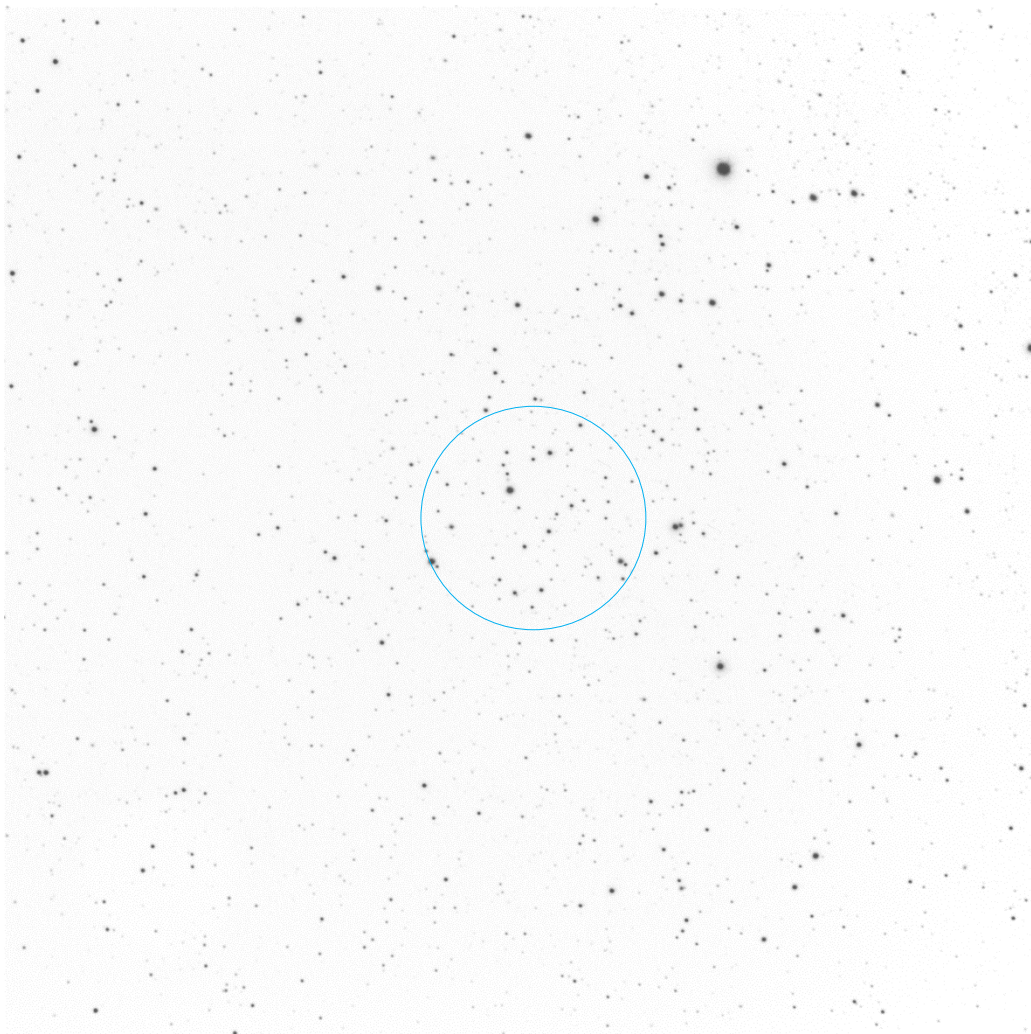|			
Object	**Collinder 337**	Date	9/4/23
Right Ascension (2000)	17h37m00s	Time	21:48
Declination (2000)	-32°29'00"	Sky: Transparency	Above Average
Constellation	Scorpius	Seeing	Above Average
Magnitude	9.0	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p	Camera	ZWO ASI183MC
Distance (ly)	4400	Sub Exposure (sec)	15
Diameter (ly)	6	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Small, not well detached, some concentration, 20 stars of similar brightness.

Observation Log Sheet

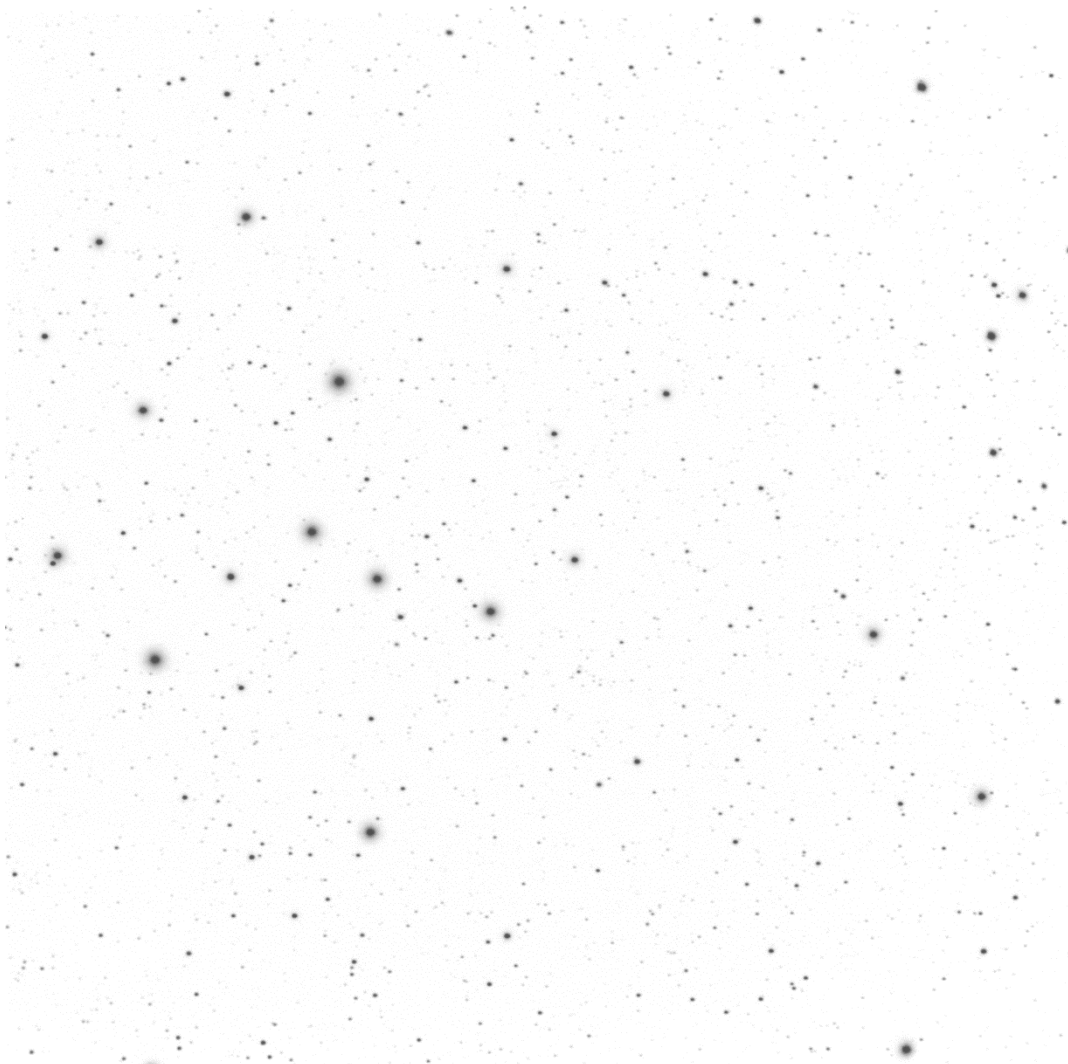|			
Object	**NGC 6416**	Date	9/4/23
Right Ascension (2000)	17h44m19s	Time	20:52
Declination (2000)	-32°21'41"	Sky: Transparency	Above Average
Constellation	Scorpius	Seeing	Above Average
Magnitude	7.4	Location	West Columbia TX
Angular Diameter (')	14.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p (IV-1-p)	Camera	ZWO ASI183MC
Distance (ly)	2400	Sub Exposure (sec)	15
Diameter (ly)	10	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description Medium size cluster, not well detached. About 20 stars all similar in brightness.

Observation Log Sheet

|			
Object	**IC 4665**	Date	9/4/23
Right Ascension (2000)	17h46m18s	Time	20:52
Declination (2000)	-05°43'00"	Sky: Transparency	Above Average
Constellation	Ophiuchus	Seeing	Above Average
Magnitude	4.5	Location	West Columbia TX
Angular Diameter (')	70.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p (III-2-p)	Camera	ZWO ASI183MC
Distance (ly)	1100	Sub Exposure (sec)	15
Diameter (ly)	23	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description — Wide cluster with less than 20 members. No concentration, all members similar in brightness.
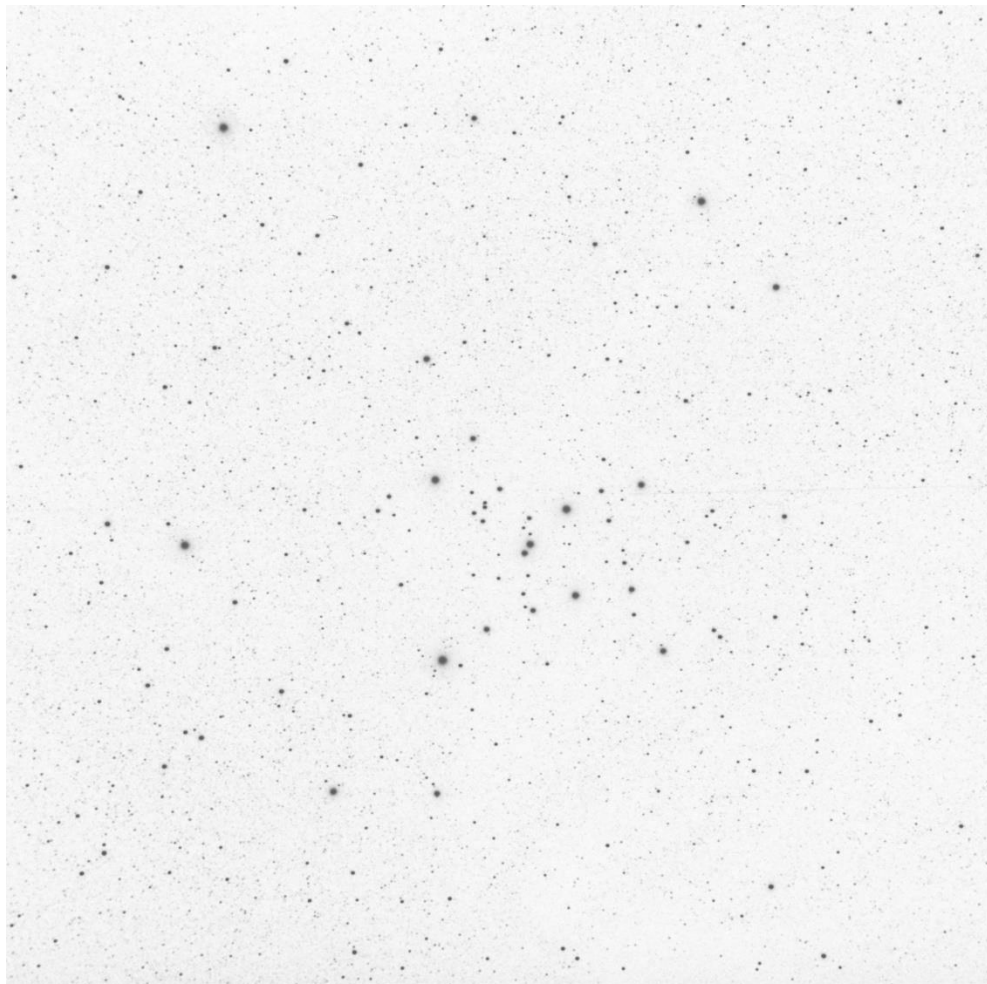
Observation Log Sheet

Object	**Collinder 347**	Date	9/4/23
Right Ascension (2000)	17h46m18s	Time	21:27
Declination (2000)	-29°20'00"	Sky: Transparency	Above Average
Constellation	Sagittarius	Seeing	Above Average
Magnitude	8.4	Location	West Columbia TX
Angular Diameter (')	10	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p	Camera	ZWO ASI183MC
Distance (ly)	4900	Sub Exposure (sec)	15
Diameter (ly)	14	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Wide cluster with less than 20 members. No concentration, all members similar in brightness.
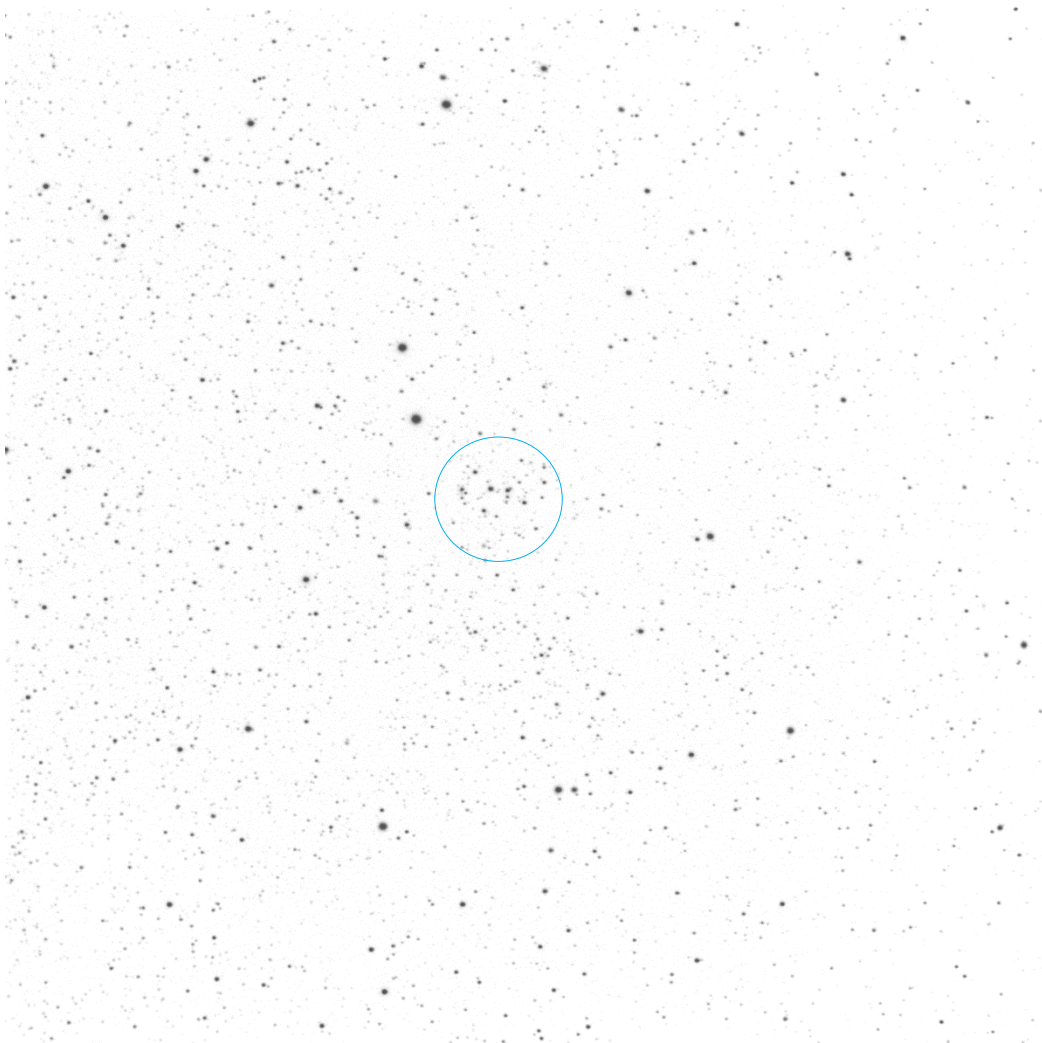
Observation Log Sheet

Object	**Messier 7**	Date	7-22-23
Right Ascension (2000)	17h55m25	Time	21:12
Declination (2000)	-34°48'00"	Sky: Transparency	Above Average
Constellation	Scorpius	Seeing	Above Average
Magnitude	2.5	Location	West Columbia TX
Angular Diameter (')	80	Instrument	Astro Tech AT80ED
Concentration Class	III-2-p (II-2-r)	Camera	ZWO ASI183MC
Distance (ly)	980	Sub Exposure (sec)	15
Diameter (ly)	23	Total Exposure (min)	5.25
		Image Software	SharpCap 4.0

Visual Description   Less than 50 members with some variation in brightness. One orange star on lower left edge.
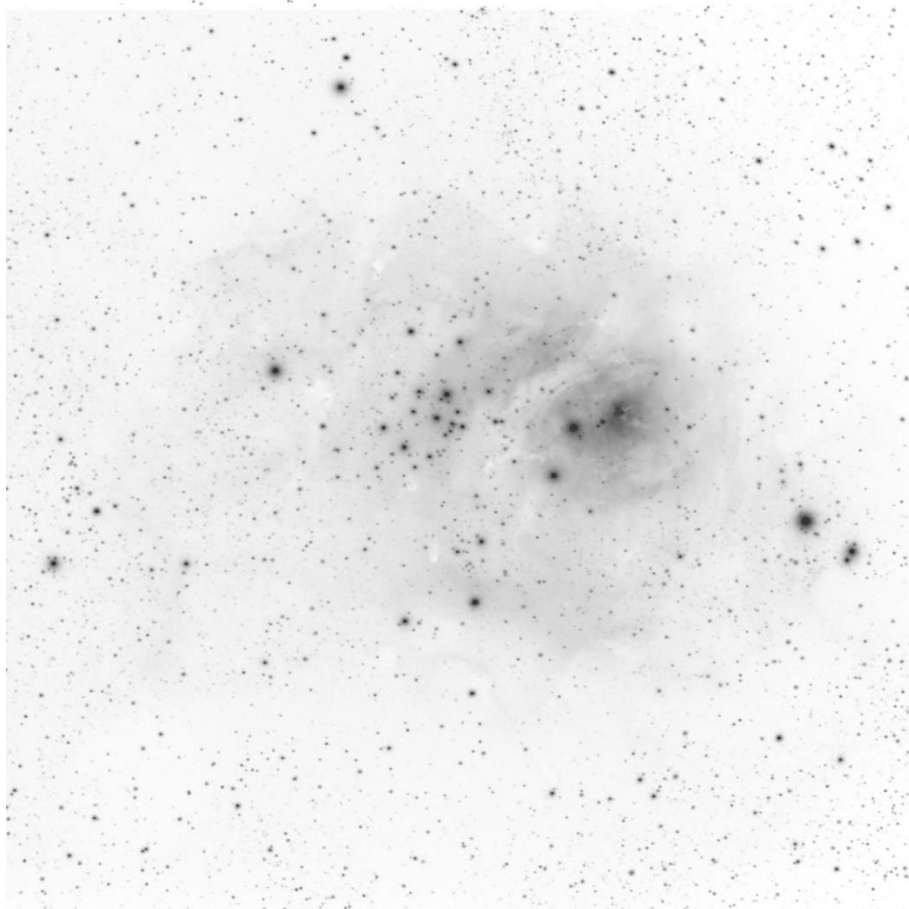
Observation Log Sheet

Object	**NGC 6520**	Date	9/4/23
Right Ascension (2000)	18h03m24s	Time	21:28
Declination (2000)	-27°53'18"	Sky: Transparency	Above Average
Constellation	Sagittarius	Seeing	Above Average
Magnitude	7.4	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	I-2-p (I-2-m)	Camera	ZWO ASI183MC
Distance (ly)	5100	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Small, well concentrated cluster with 20 stars, all except three brightest ones are similar brightness.
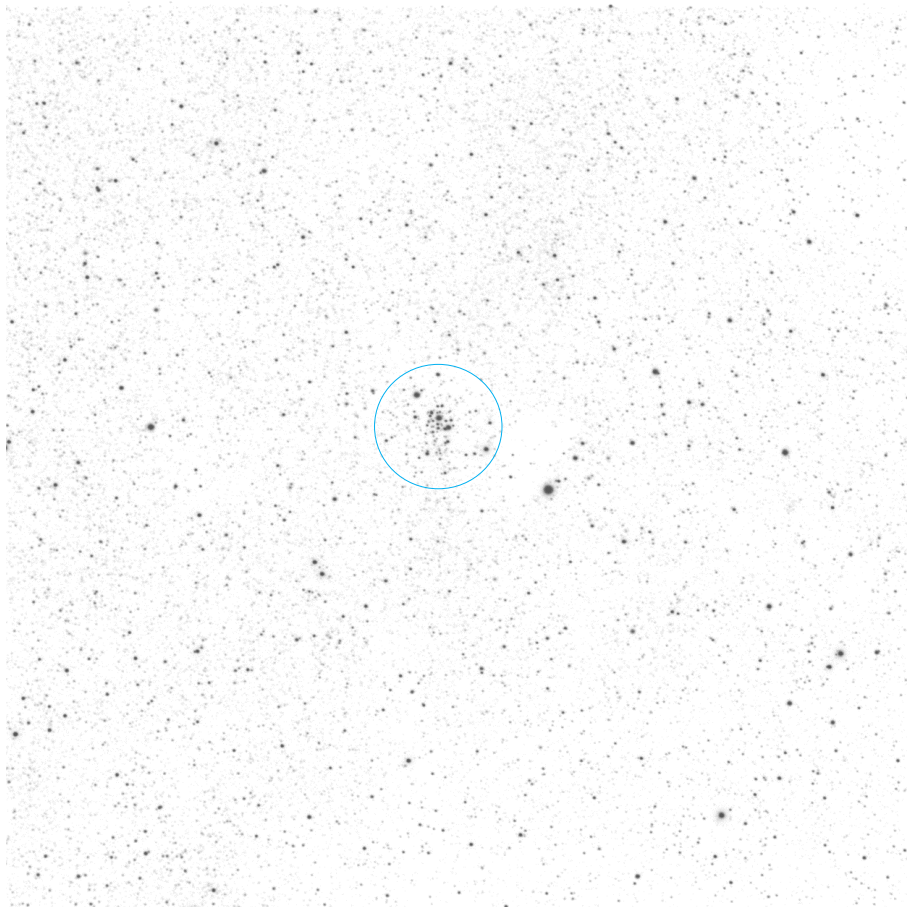
Observation Log Sheet

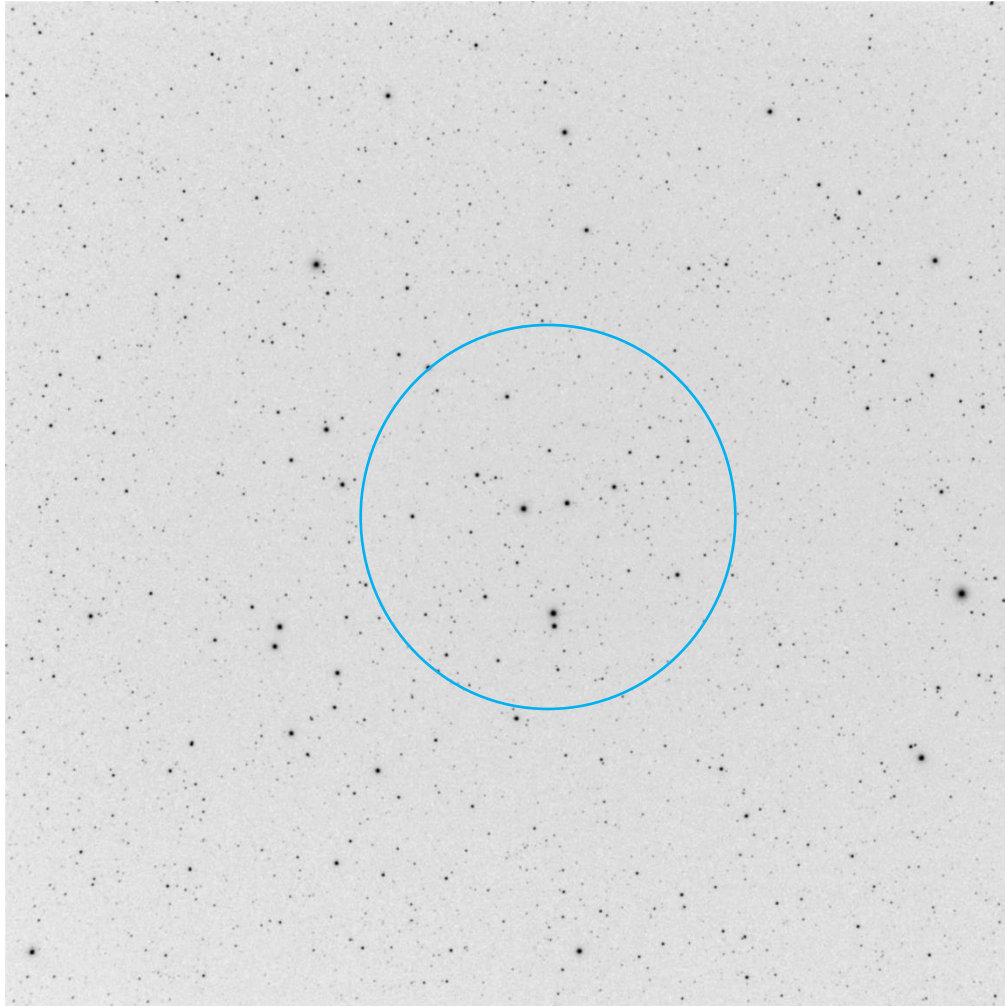|			
Object	**NGC 6530**	Date	9/4/23
Right Ascension (2000)	18h04m31s	Time	21:28
Declination (2000)	-24°21'30"	Sky: Transparency	Above Average
Constellation	Sagittarius	Seeing	Above Average
Magnitude	5.2	Location	West Columbia TX
Angular Diameter (')	14.0	Instrument	Astro Tech AT80ED
Concentration Class	I-2-m-n (II-2-m-n)	Camera	ZWO ASI183MC
Distance (ly)	4300	Sub Exposure (sec)	15
Diameter (ly)	18	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description

Fantastic cluster for nothing more than the Lagoon Nebula bordering it. The cluster is apparent both in brightness of its blue-white major members as well as its concentration. Most probably a young cluster, especially if the nebula is associated with it.

Observation Log Sheet

|			
Object	**Dol-Dzim 9**	Date	11/7/24
Right Ascension (2000)	18h08m48s	Time	19:12
Declination (2000)	+31°32'00"	Sky: Transparency	Average
Constellation	Hercules	Seeing	Average
Magnitude	7.0	Location	West Columbia TX
Angular Diameter (')	28	Instrument	Astro Tech AT80ED
Concentration Class	IV-2-m	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	7.45
		Image Software	SharpCap 4.0

Visual Description   Large, dispersed cluster with 6 brighter stars and 30 fainter ones.

Observation Log Sheet

|			
Object	**NGC 6604**	Date	9/4/23
Right Ascension (2000)	18h18m03s	Time	22:01
Declination (2000)	-12°14'30"	Sky: Transparency	Above Average
Constellation	Serpens Cauda	Seeing	Above Average
Magnitude	8.3	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	I-1-p (I-3-p-n)	Camera	ZWO ASI183MC
Distance (ly)	5500	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Very small cluster of < a dozen stars. Seems to be well concentrated around single brightest star which seems to have two fainter companions.
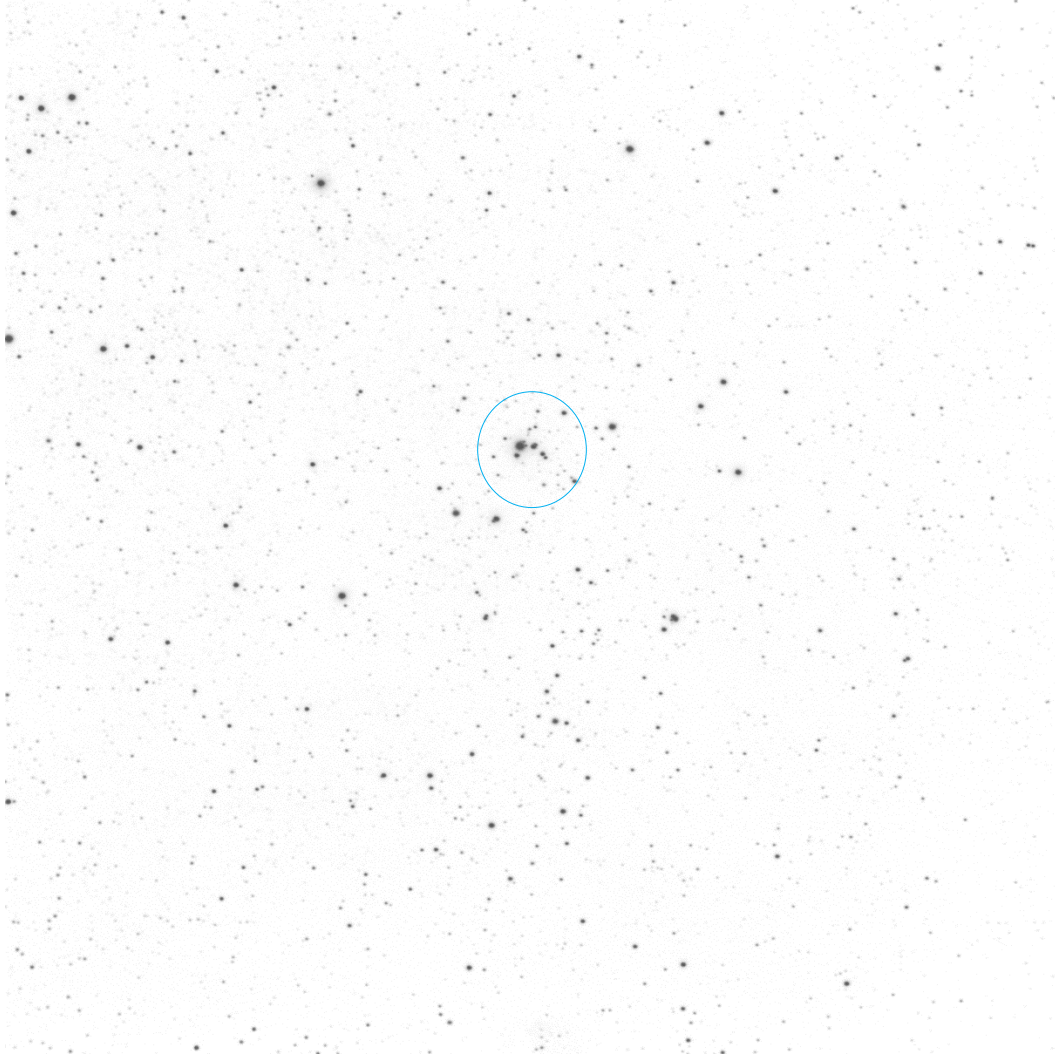
Observation Log Sheet

|			
Object	**Collinder 372**	Date	7/15/24
Right Ascension (2000)	18h18m35s	Time	22:15
Declination (2000)	-13°20'45"	Sky: Transparency	Average
Constellation	Serpens Cauda	Seeing	Below Average
Magnitude	9.8	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-m	Camera	ZWO ASI533MC
Distance (ly)	5600	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	10.5
		Image Software	SharpCap 4.0

Visual Description   OC within 1 degree of M16. 10-15 minutes in diameter, stars of mostly similar brightness. Possibly some elongation in M16 direction.
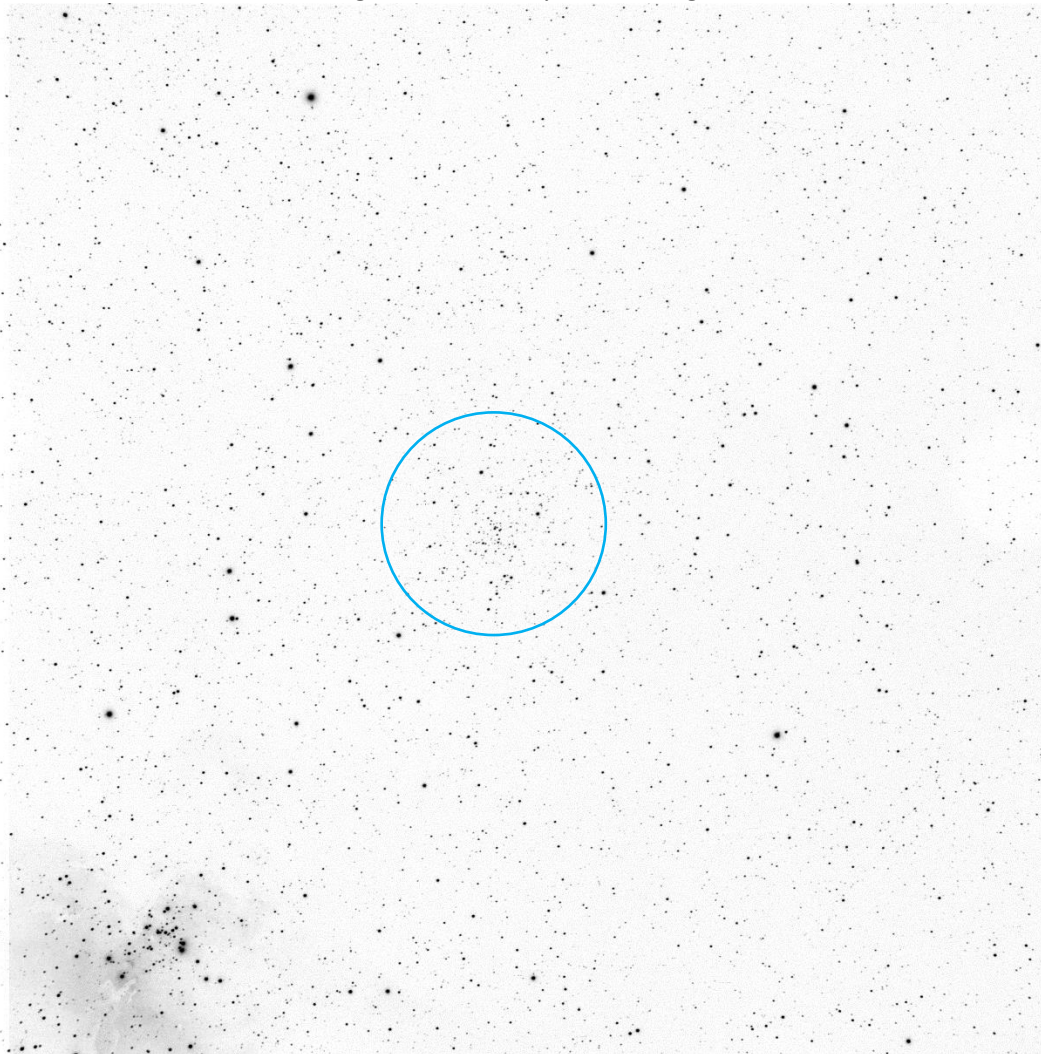
Observation Log Sheet

Object	**Collinder 378**	Date	7/15/24
Right Ascension (2000)	18h26m10s	Time	22:10
Declination (2000)	-19°42'13"	Sky: Transparency	Average
Constellation	Sagittarius	Seeing	Below Average
Magnitude	8.5	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-m	Camera	ZWO ASI533MC
Distance (ly)	5700	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	6.25
		Image Software	SharpCap 4.0

Visual Description   Five brighter stars in a bowl or crescent shape, another 30 or so fainter ones.
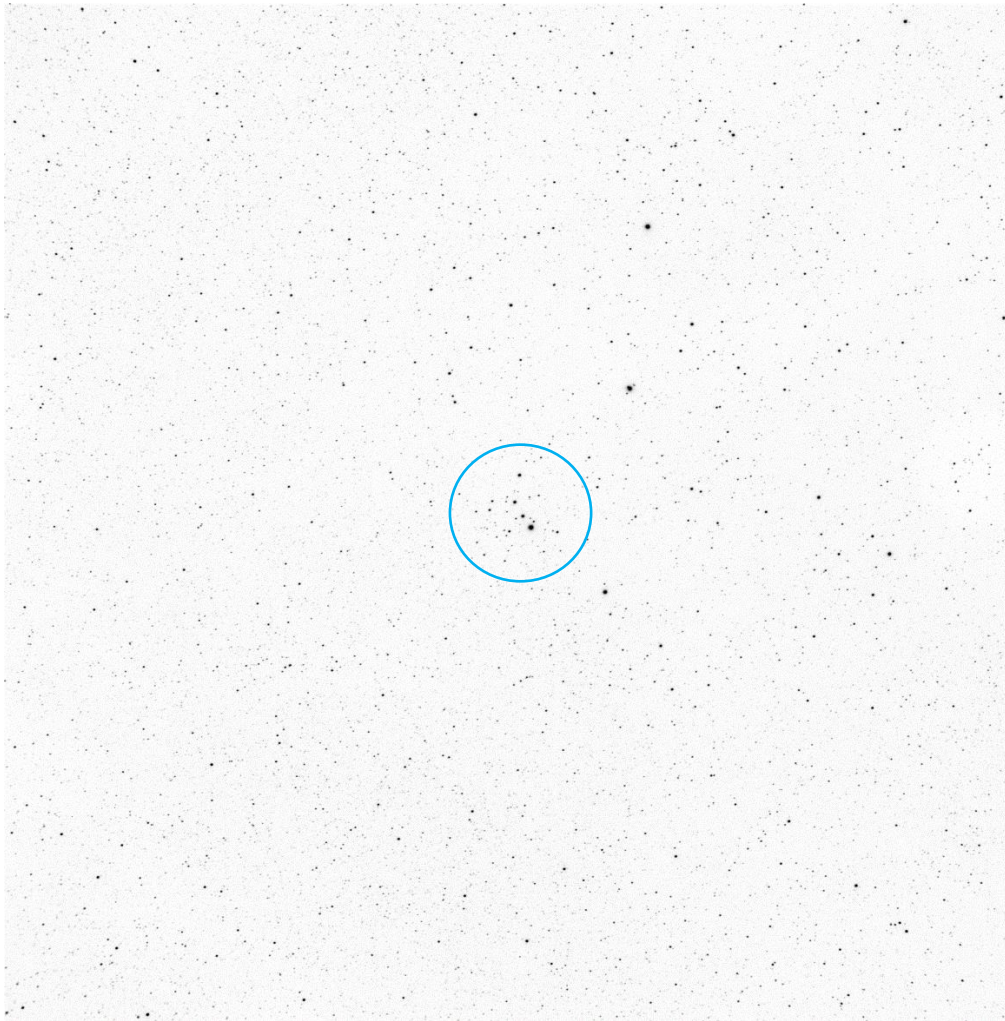
Observation Log Sheet

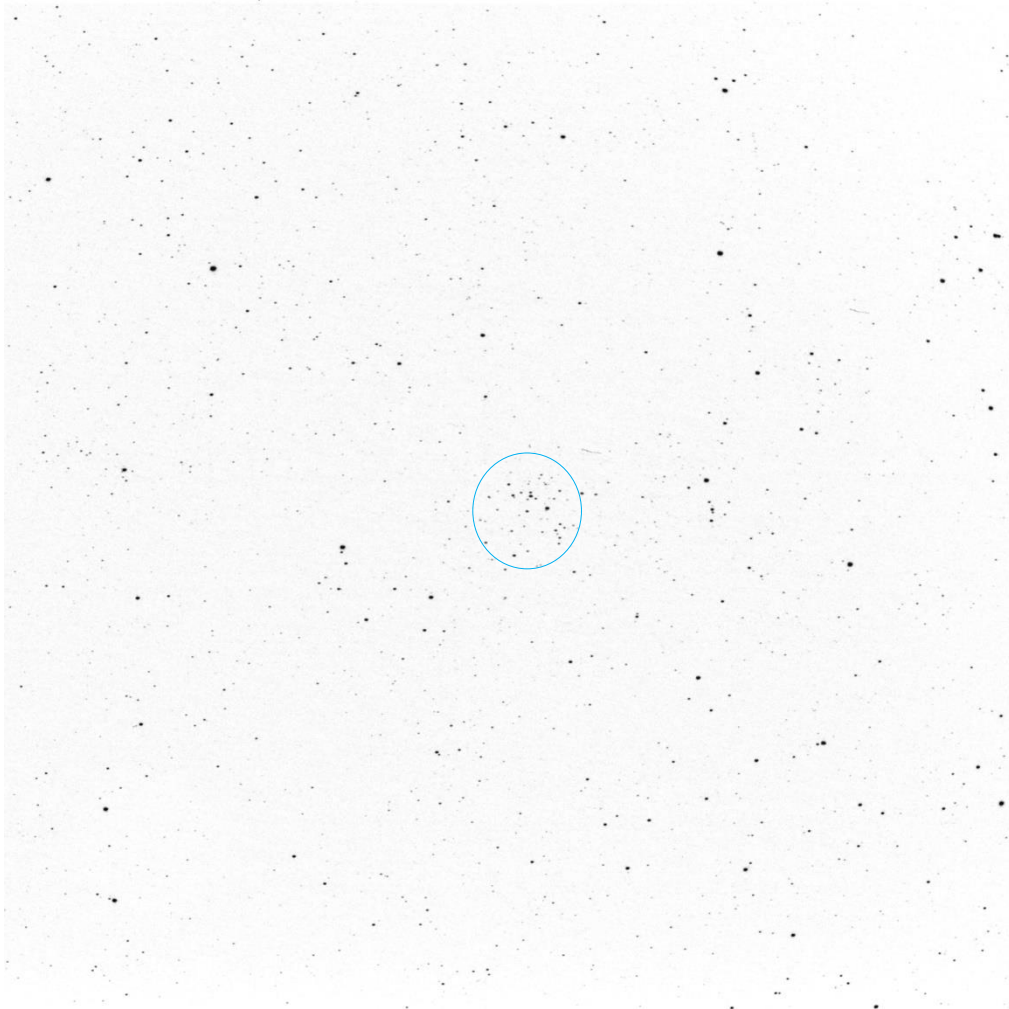|			
Object	**NGC6649**	Date	9/2/23
Right Ascension (2000)	18h34m45	Time	22:56
Declination (2000)	-10°23'06"	Sky: Transparency	Below Average
Constellation	Scutum	Seeing	Average
Magnitude	9.0	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-m	Camera	ZWO ASI183MC
Distance (ly)	6	Sub Exposure (sec)	15
Diameter (ly)	.036	Total Exposure (min)	10.25
		Image Software	SharpCap 4.0

Visual Description   Small cluster, arrow shaped with one bright star at the apex. 50+ stars
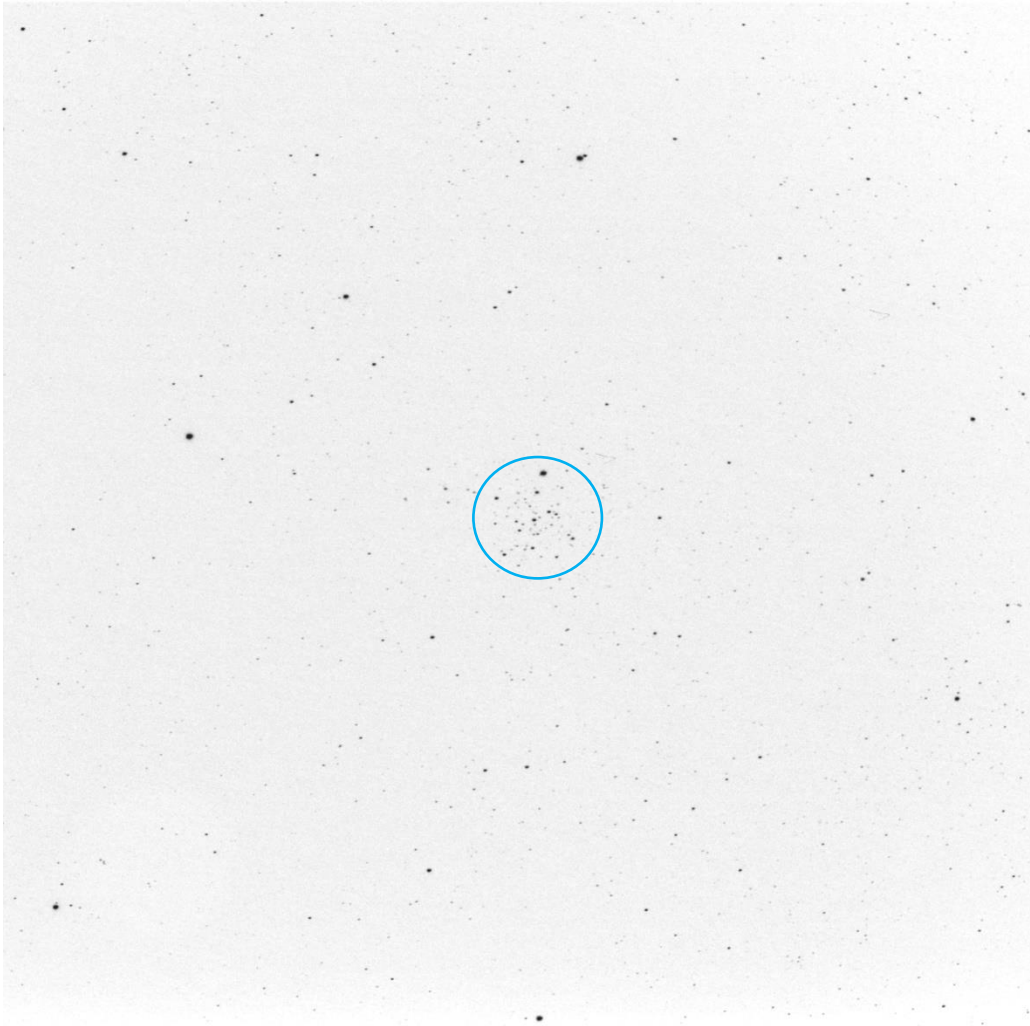
Observation Log Sheet

Object	**Trumpler 35**	Date	9/2/23
Right Ascension (2000)	18h44m15	Time	22:56
Declination (2000)	-04˚10'54"	Sky: Transparency	Below Average
Constellation	Scutum	Seeing	Average
Magnitude	9.0	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI183MC
Distance (ly)	3,900	Sub Exposure (sec)	15
Diameter (ly)	6	Total Exposure (min)	6.5
		Image Software	SharpCap 4.0

Visual Description   Small OC, little central concentration, less than 50 stars.

Observation Log Sheet

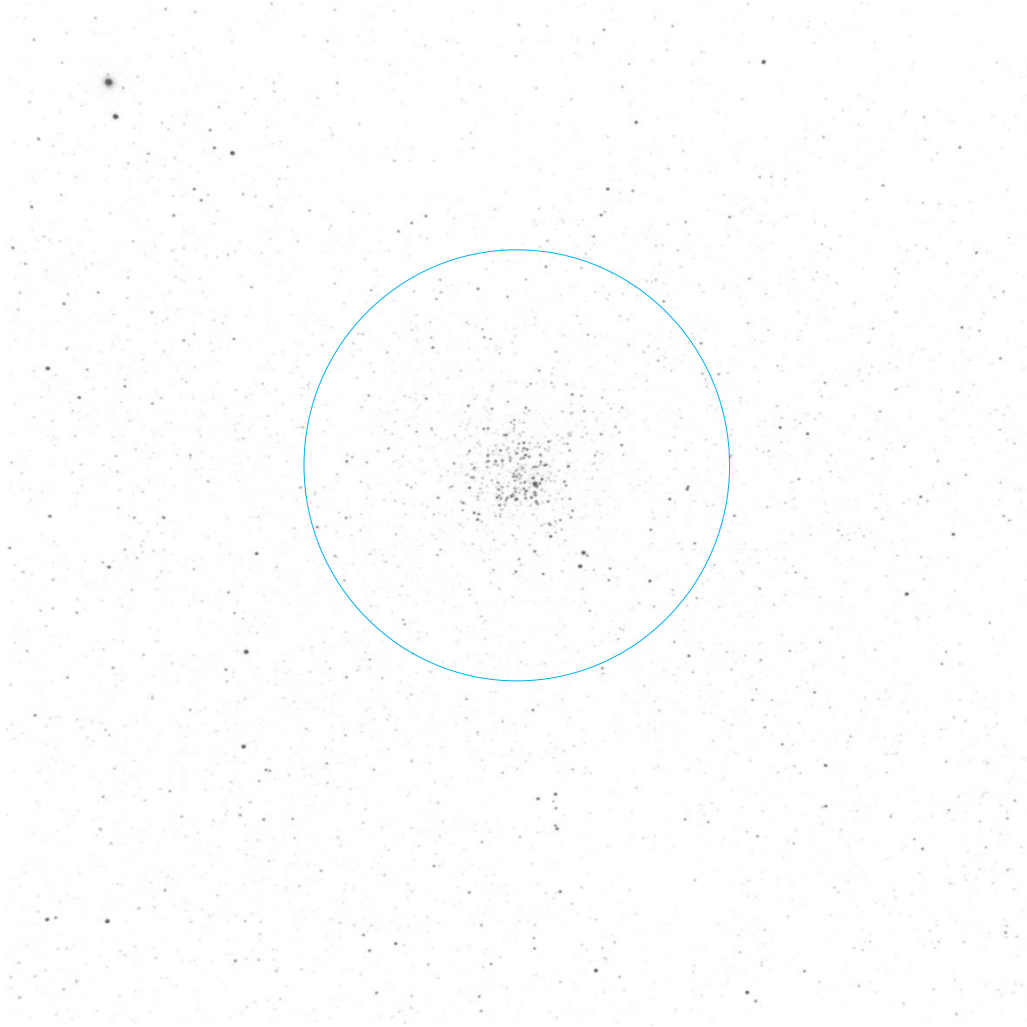|			
Object	**M 26**	Date	9/2/23
Right Ascension (2000)	18h45m08s	Time	22:56
Declination (2000)	-09°23'00"	Sky: Transparency	Above Average
Constellation	Scutum	Seeing	Average
Magnitude	8.1	Location	West Columbia TX
Angular Diameter (')	7.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-m (I-1-m)	Camera	ZWO ASI183MC
Distance (ly)	5200	Sub Exposure (sec)	15
Diameter (ly)	11	Total Exposure (min)	6.5
		Image Software	SharpCap 4.0

Visual Description — Small cluster with 50+ stars. Detached from field, but little central concentration.
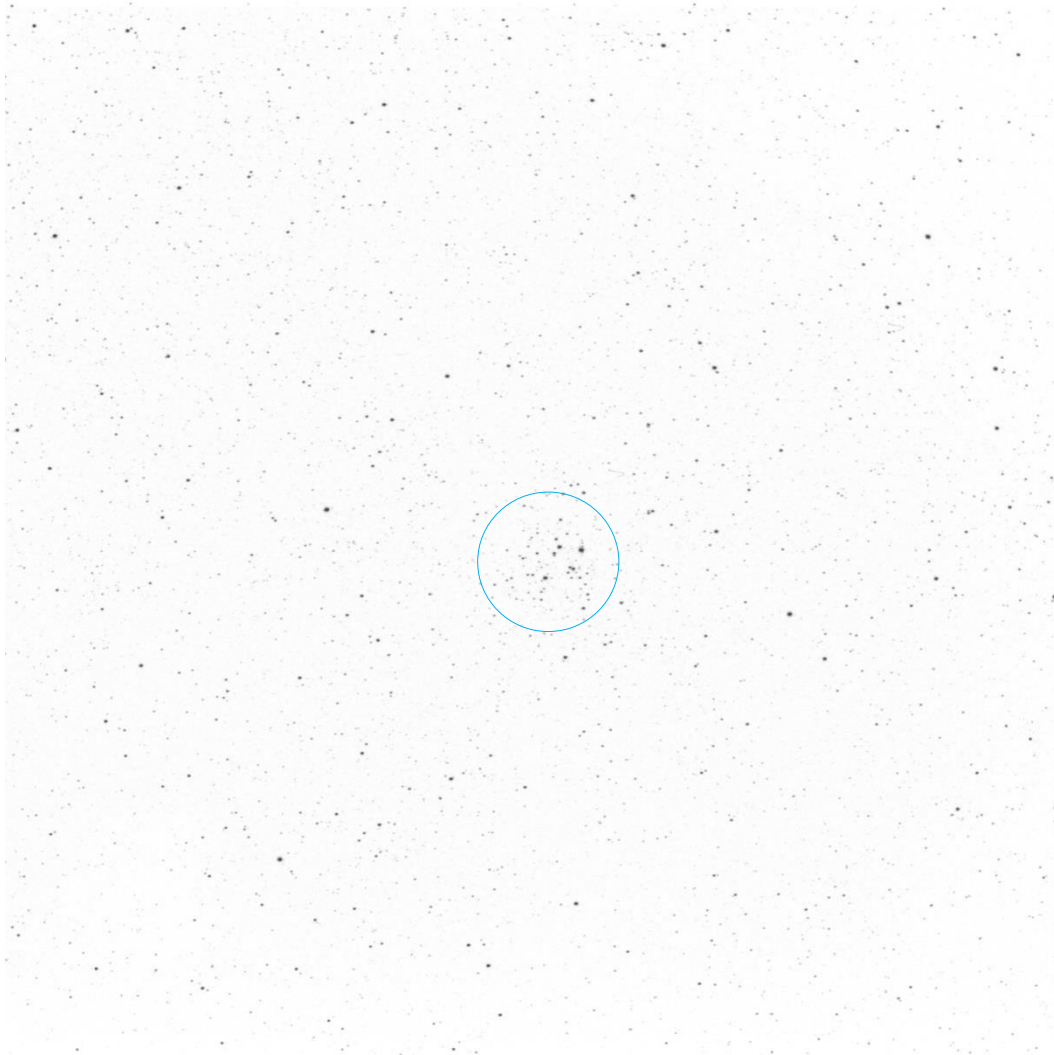
Observation Log Sheet

|			
Object	**M 11**	Date	9/2/23
Right Ascension (2000)	18h51m05s	Time	22:56
Declination (2000)	-06°16'12"	Sky: Transparency	Above Average
Constellation	Scutum	Seeing	Average
Magnitude	5.2	Location	West Columbia TX
Angular Diameter (')	32.0	Instrument	Astro Tech AT80ED
Concentration Class	I-2-r (I-2-r)	Camera	ZWO ASI183MC
Distance (ly)	6100	Sub Exposure (sec)	15
Diameter (ly)	57	Total Exposure (min)	6.5
		Image Software	SharpCap 4.0

Visual Description   Very rich, highly concentrated cluster. > 50 brighter members, similar number of fainter ones.

Observation Log Sheet

|			
Object	**NGC 6709**	Date	9/4/23
Right Ascension (2000)	18h51m18s	Time	22:31
Declination (2000)	-10˚19'06"	Sky: Transparency	Above Average
Constellation	Scutum	Seeing	Above Average
Magnitude	6.8	Location	West Columbia TX
Angular Diameter (')	14.0	Instrument	Astro Tech AT80ED
Concentration Class	III-1-p (III-2-m)	Camera	ZWO ASI183MC
Distance (ly)	3500	Sub Exposure (sec)	15
Diameter (ly)	14	Total Exposure (min)	6.5
		Image Software	SharpCap 4.0

Visual Description   Custer is not well detached from field stars, except for the brightness of the stars. Little concentration.
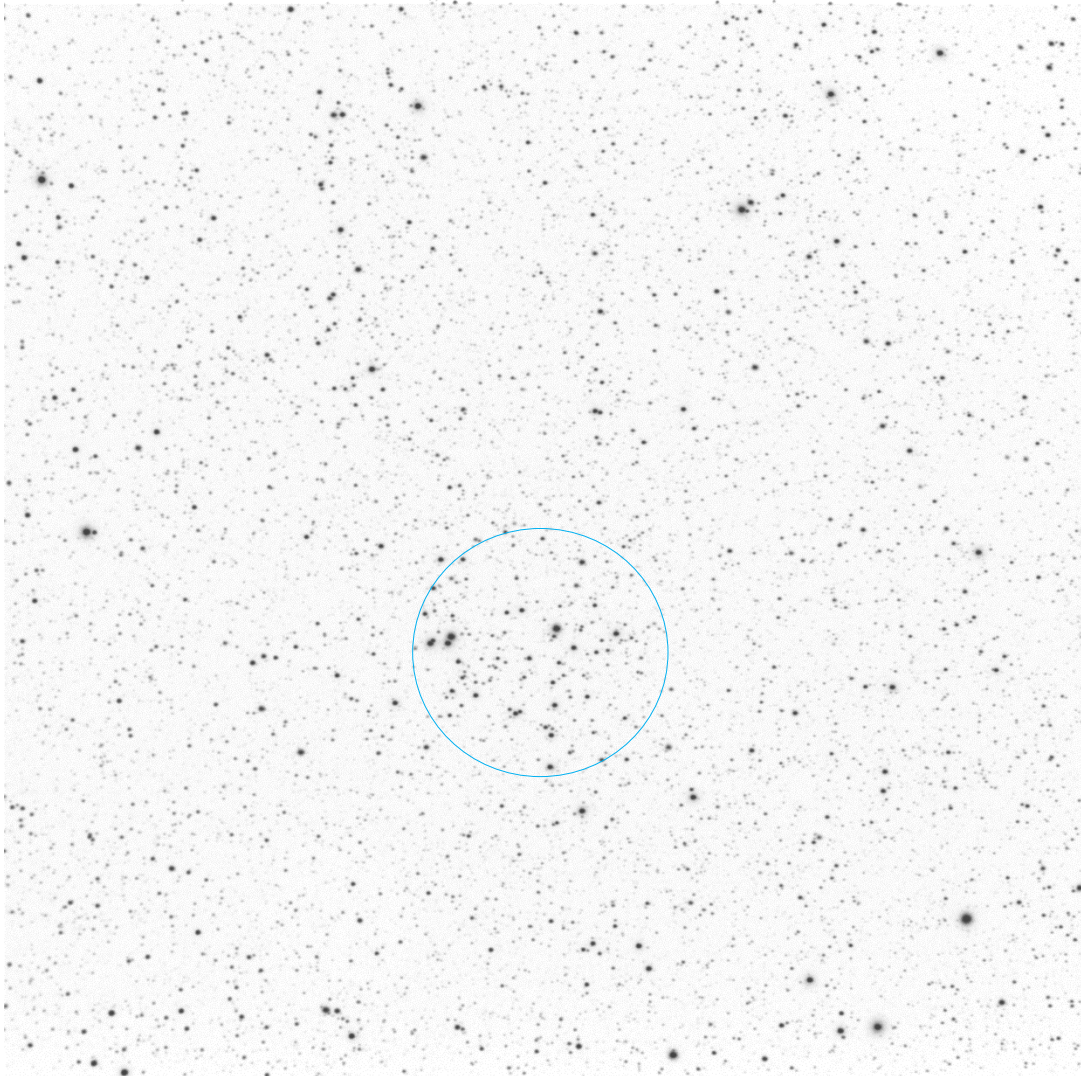
Observation Log Sheet

|			
Object	**Ruprecht 146**	Date	7/15/24
Right Ascension (2000)	18h54m00s	Time	22:36
Declination (2000)	-21°03'13"	Sky: Transparency	Average
Constellation	Sagittarius	Seeing	Below Average
Magnitude	10.2	Location	West Columbia TX
Angular Diameter (')	4.0	Instrument	Astro Tech AT80ED
Concentration Class	III-1-p	Camera	ZWO ASI533MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	15
		Image Software	SharpCap 4.0

Visual Description — Very small cluster, < 5' in diameter. Less than 20 visible stars all similar brightness.
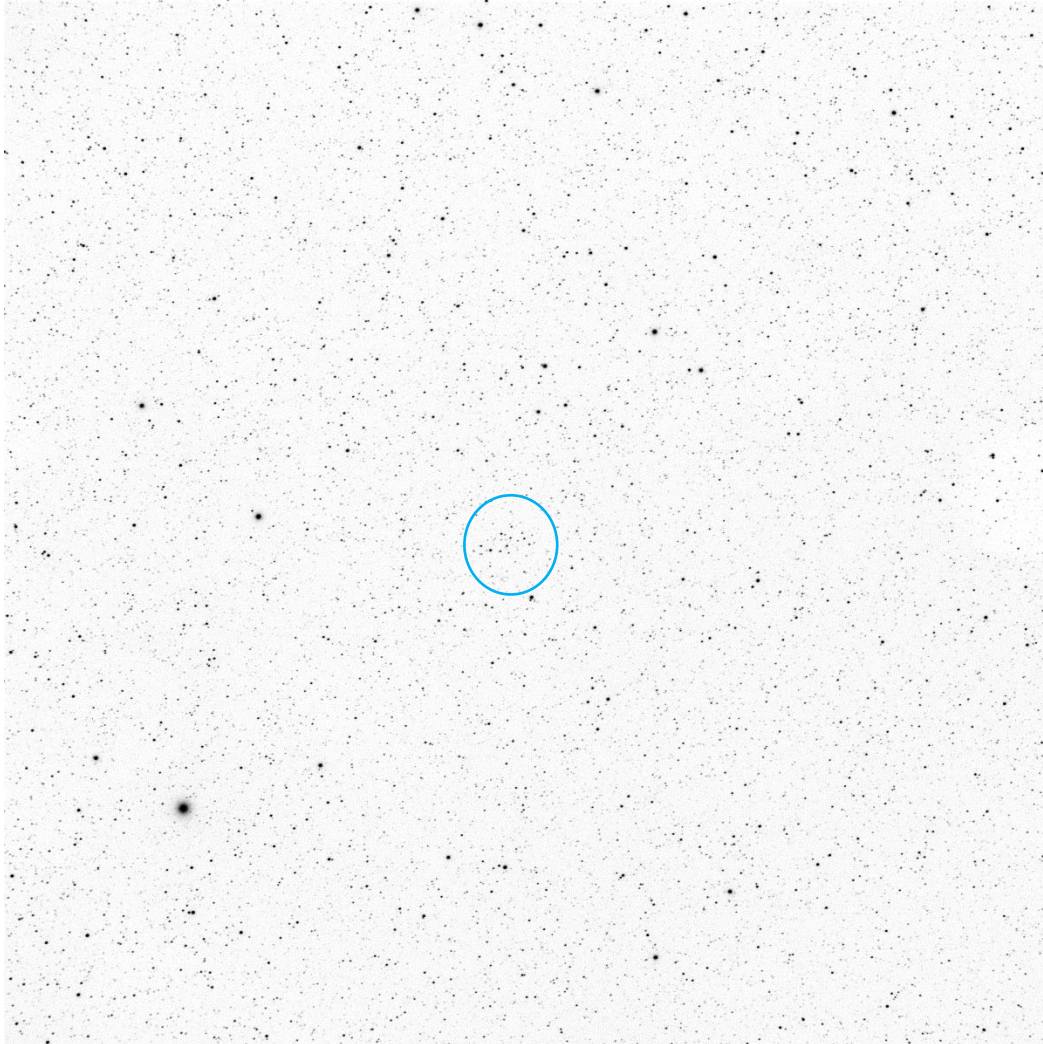
Observation Log Sheet

|			
Object	**Stephenson 1**	Date	9/4/23
Right Ascension (2000)	18h54m02s	Time	21:42
Declination (2000)	+36˚53'03"	Sky: Transparency	Below Average
Constellation	Lyra	Seeing	Average
Magnitude	3.9	Location	West Columbia TX
Angular Diameter (')	20	Instrument	Astro Tech AT80ED
Concentration Class	III-2-p (IV-2-p)	Camera	ZWO ASI183MC
Distance (ly)	1300	Sub Exposure (sec)	15
Diameter (ly)	7	Total Exposure (min)	3.5
		Image Software	SharpCap 4.0

Visual Description   Medium sized cluster consisting of Delta 1 and Delta 2 of Lyra. Delta 2 is a beautiful orange colored star. Only about a dozen members of the cluster consisting of a range of brightness. Somewhat detached from field stars.
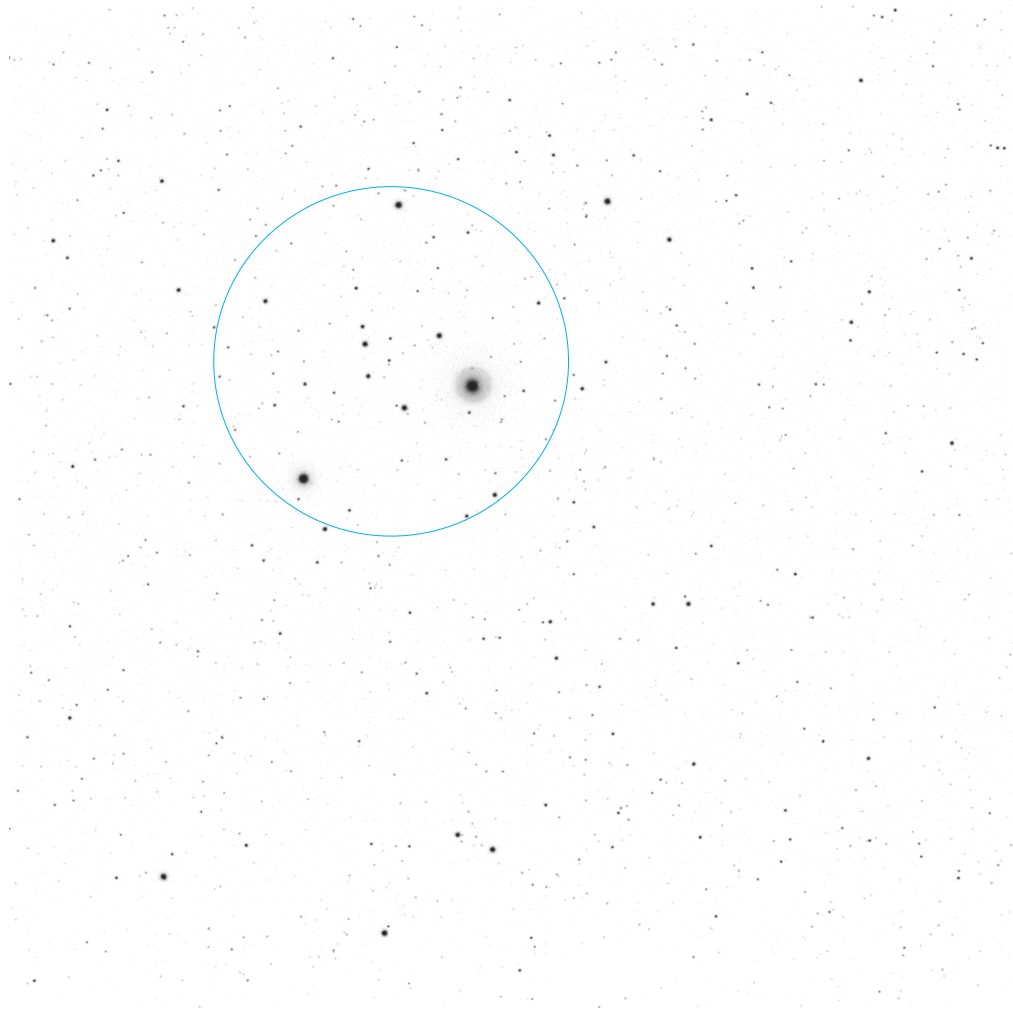
Observation Log Sheet

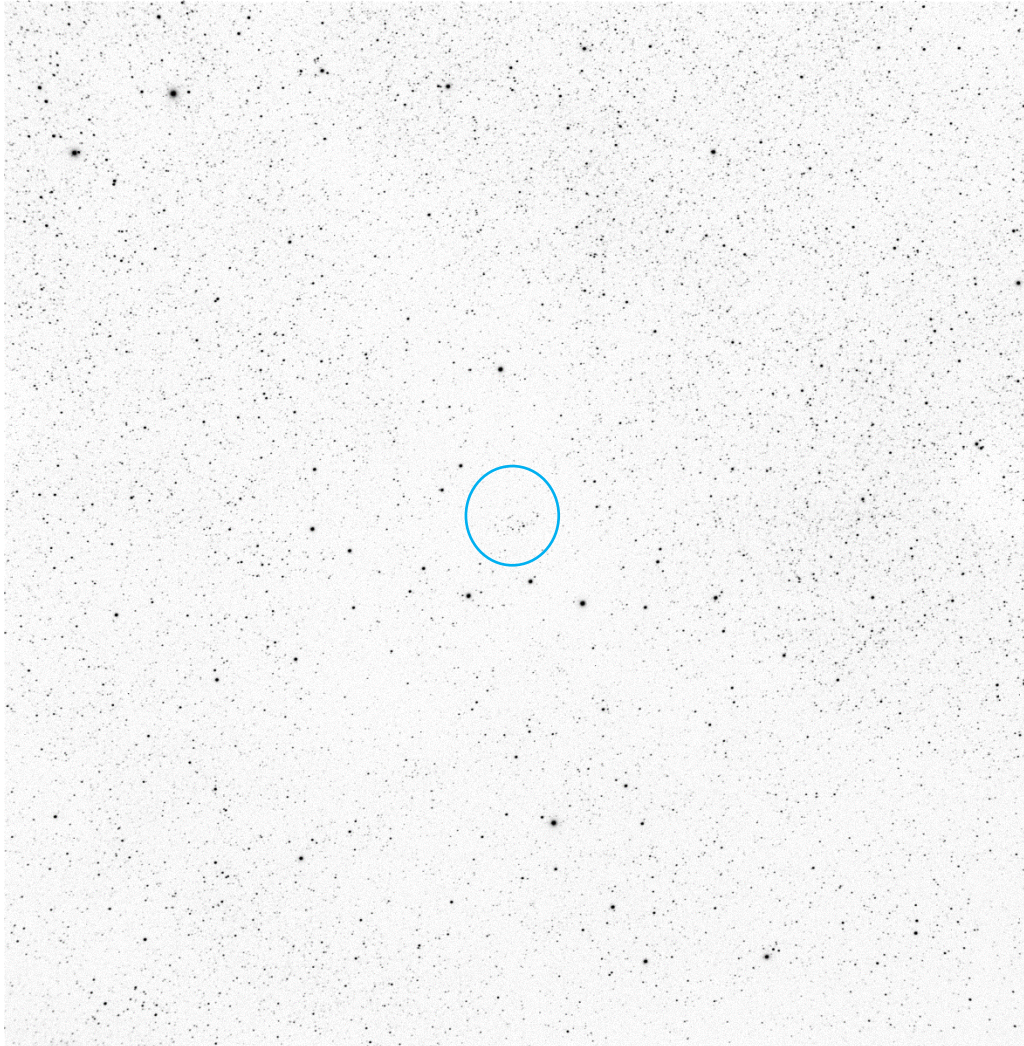|			
Object	**NGC 6716**	Date	9/4/23
Right Ascension (2000)	18h54m34s	Time	22:52
Declination (2000)	-19°54'06"	Sky: Transparency	Above Average
Constellation	Sagittarius	Seeing	Above Average
Magnitude	7.3	Location	West Columbia TX
Angular Diameter (')	10.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p (IV-1-p)	Camera	ZWO ASI183MC
Distance (ly)	2600	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	5.25
		Image Software	SharpCap 4.0

Visual Description   Custer is not well detached from field stars, except for the brightness of the stars. Little concentration.
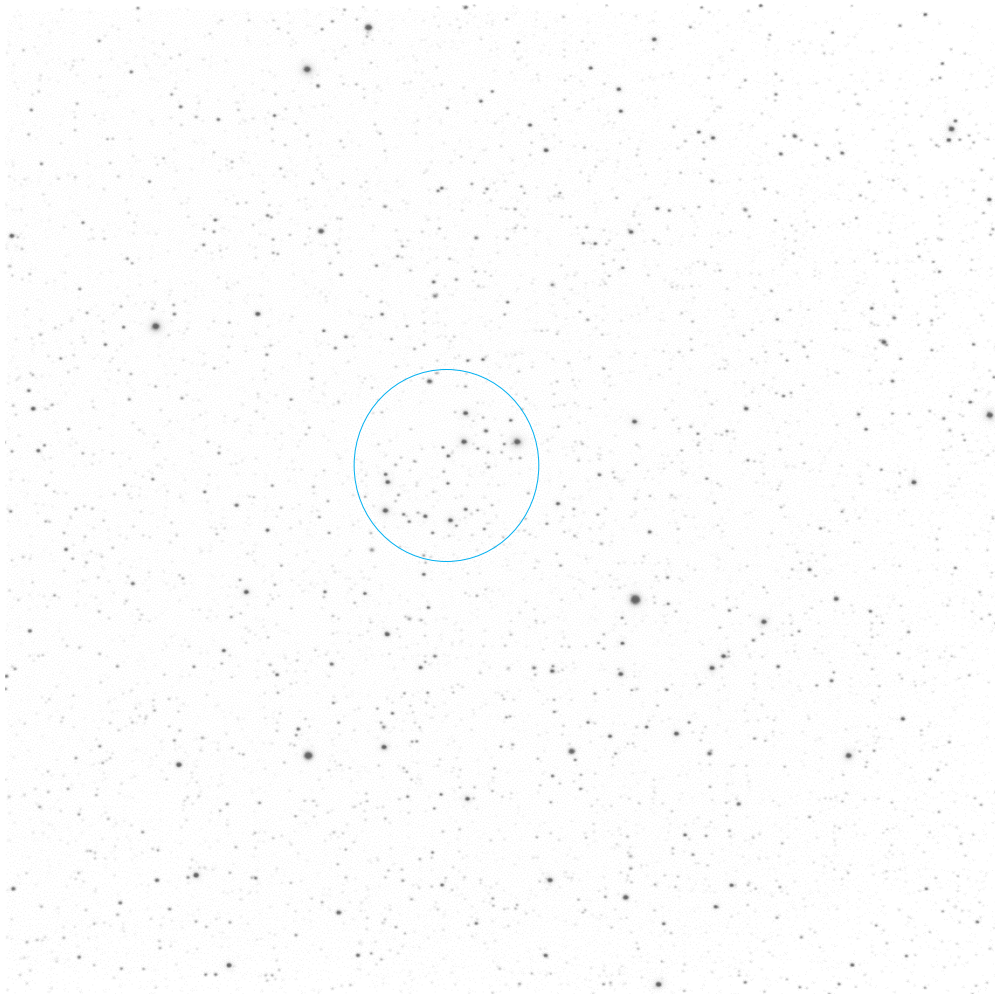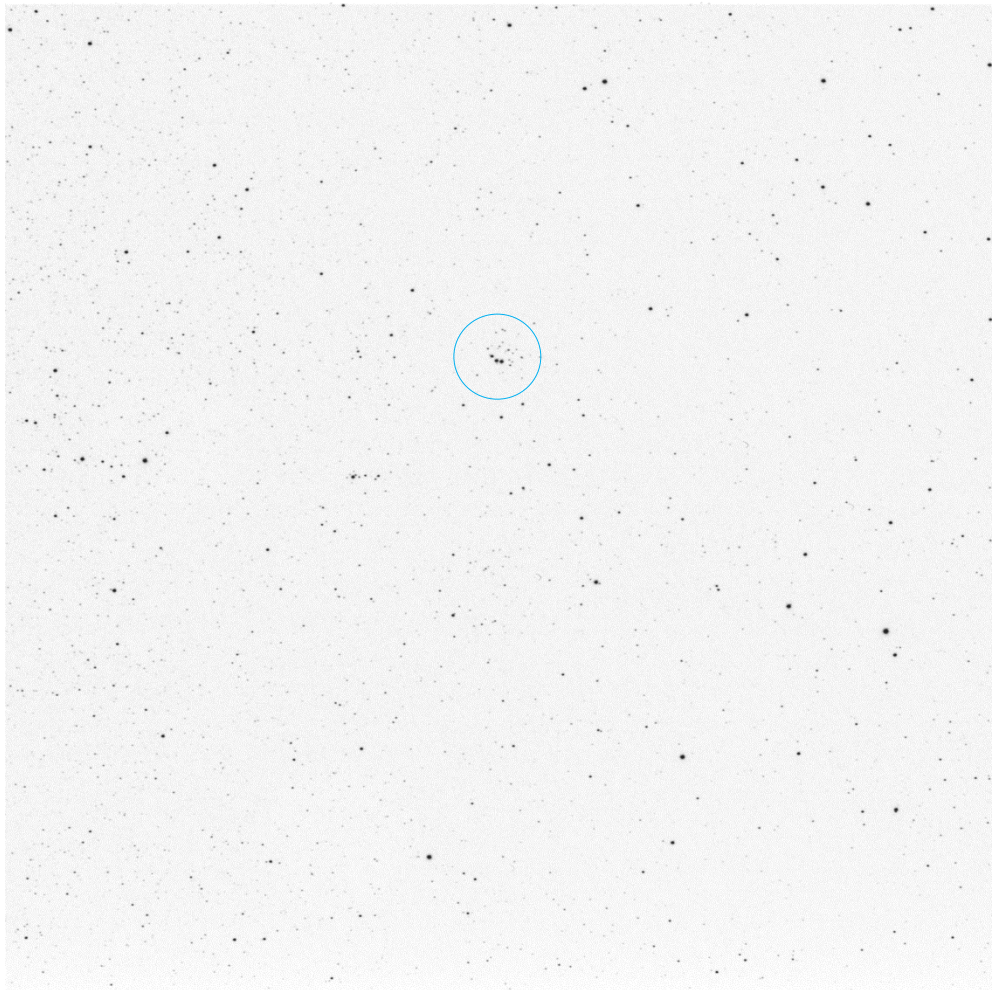
Observation Log Sheet

Object	**Berkeley 80**	Date	7/15/24
Right Ascension (2000)	18h55m39s	Time	22:36
Declination (2000)	-01°11'08"	Sky: Transparency	Average
Constellation	Aquilla	Seeing	Below Average
Magnitude	11.5	Location	West Columbia TX
Angular Diameter (')	4.0	Instrument	Astro Tech AT80ED
Concentration Class	II-1-p	Camera	ZWO ASI533MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	15
		Image Software	SharpCap 4.0

Visual Description — Small knot of stars on a dark, relatively starless backdrop. Less than 30 stars of similar brightness
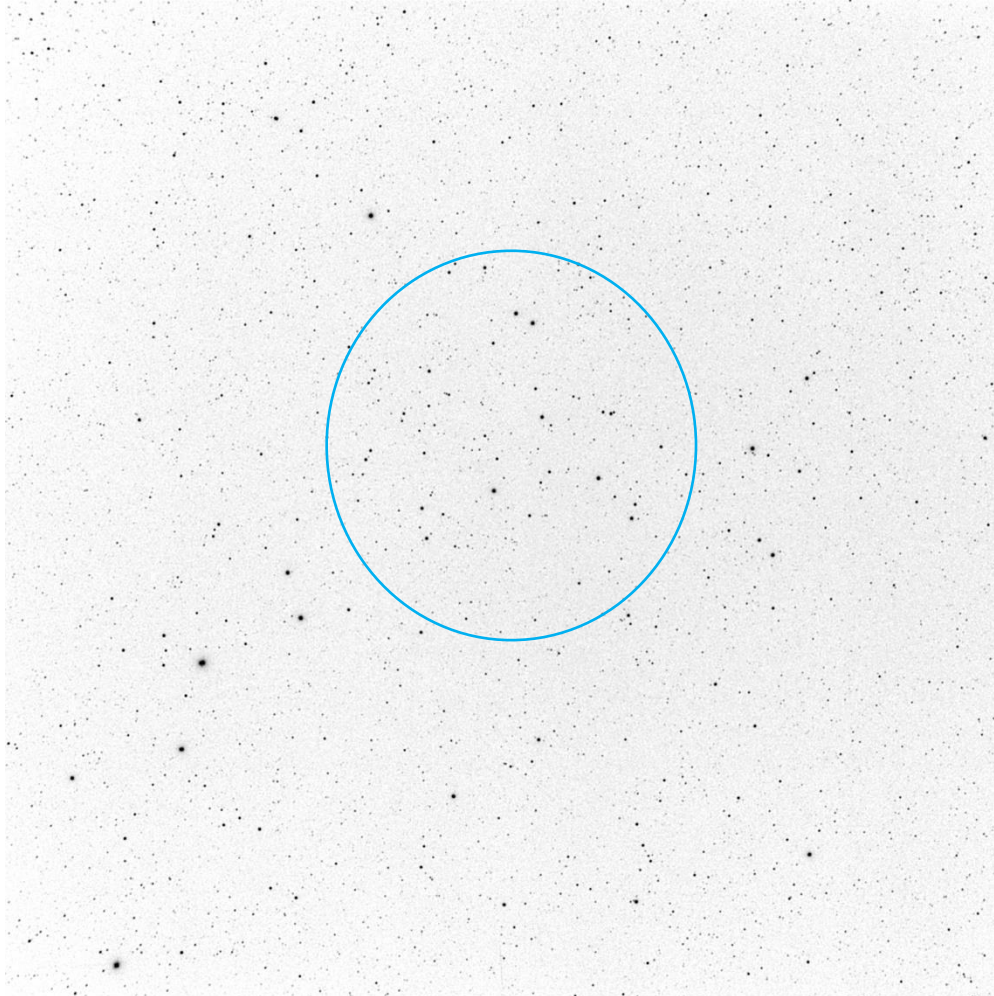
Observation Log Sheet

Object	**Berkeley 82**	Date	9/23/23
Right Ascension (2000)	19h11m20s	Time	22:10
Declination (2000)	+13°07'06"	Sky: Transparency	Below Average
Constellation		Seeing	Average
Magnitude	9.4	Location	West Columbia TX
Angular Diameter (')	2.0	Instrument	Astro Tech AT80ED
Concentration Class	I-3-p	Camera	ZWO ASI183MC
Distance (ly)	2800	Sub Exposure (sec)	15
Diameter (ly)	2	Total Exposure (min)	3.5
		Image Software	SharpCap 4.0

Visual Description   A very tight knot of about two dozen stars, dominated by a pair of orange stars and a singular fainter reddish star.

Observation Log Sheet

|			
Object	**Ruprecht 147**	Date	11/7/24
Right Ascension (2000)	19h16m42s	Time	19:54
Declination (2000)	-16°17'00"	Sky: Transparency	Average
Constellation		Seeing	Average
Magnitude	6.1	Location	West Columbia TX
Angular Diameter (')	25	Instrument	Astro Tech AT80ED
Concentration Class	III-2-m	Camera	ZWO ASI183MC
Distance (ly)	570	Sub Exposure (sec)	15
Diameter (ly)	4	Total Exposure (min)	4.25
		Image Software	SharpCap 4.0

Visual Description   Large, widely dispersed cluster of 50+ stars, detached from field.

Observation Log Sheet

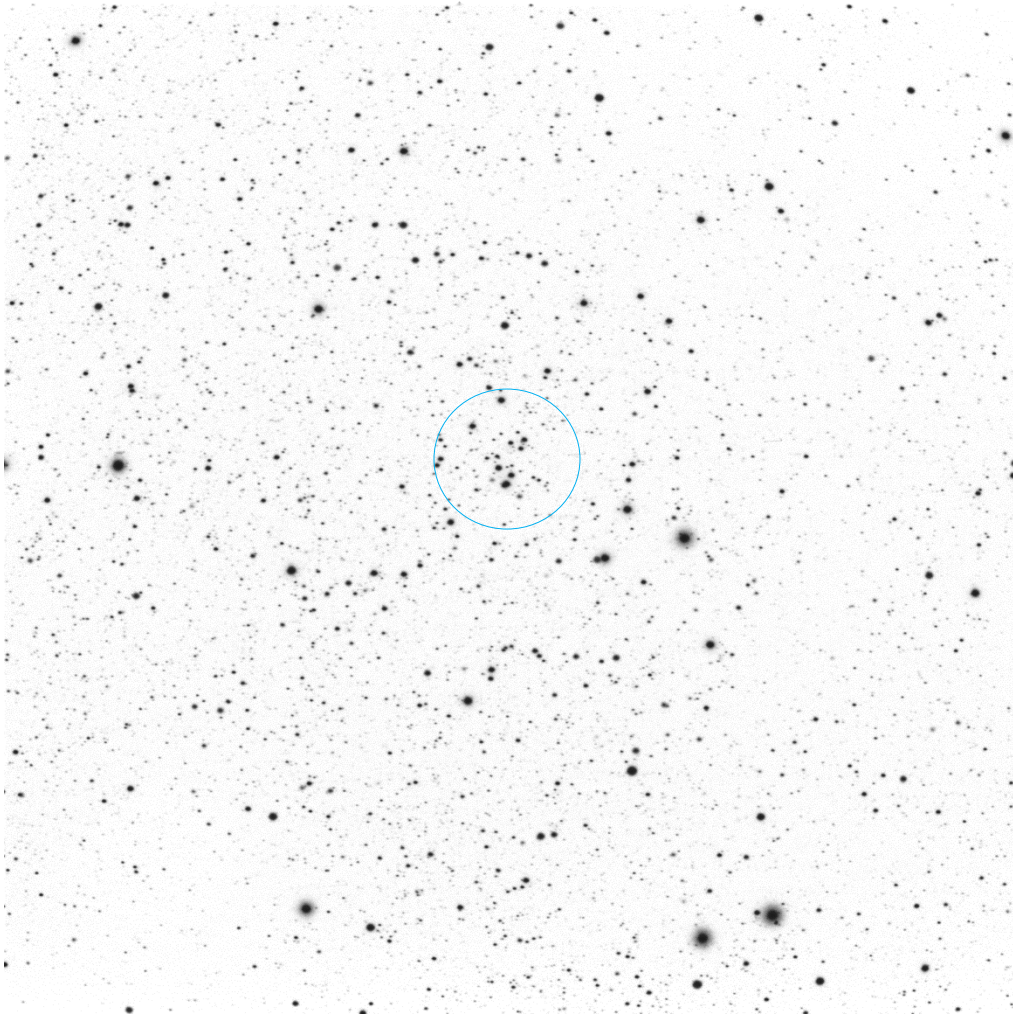|			
Object	**NGC 6791**	Date	10/12/23
Right Ascension (2000)	19h20m53s	Time	20:28
Declination (2000)	+37°46'18"	Sky: Transparency	Average
Constellation	Lyra	Seeing	Average
Magnitude	8.7	Location	West Columbia TX
Angular Diameter (')	10.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-r	Camera	ZWO ASI183MC
Distance (ly)	19000	Sub Exposure (sec)	15
Diameter (ly)	56	Total Exposure (min)	4.5
		Image Software	SharpCap 4.0

Visual Description — A medium sized open cluster consisting of brighter and fainter stars. Somewhat detached from field with little central concentration.
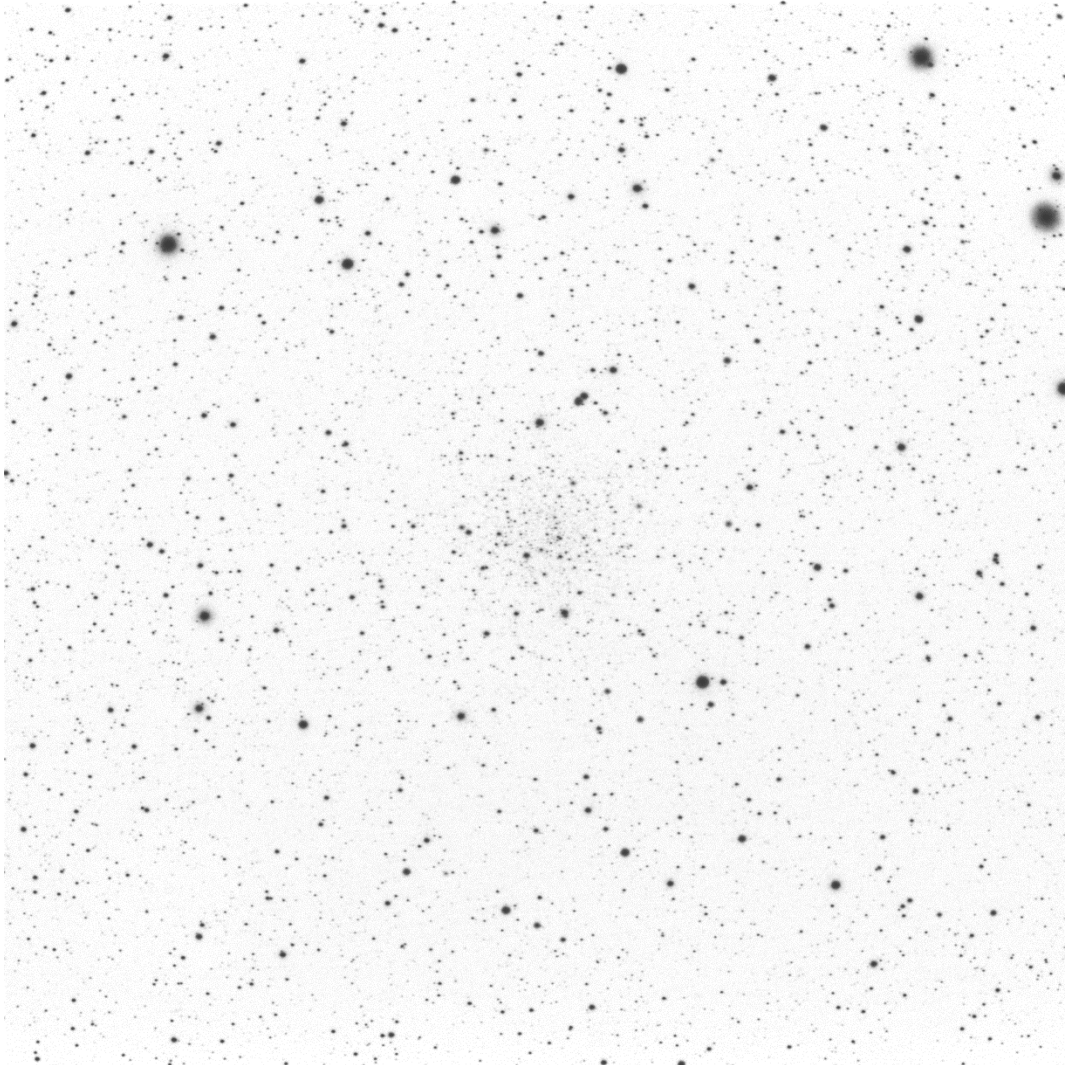
Observation Log Sheet

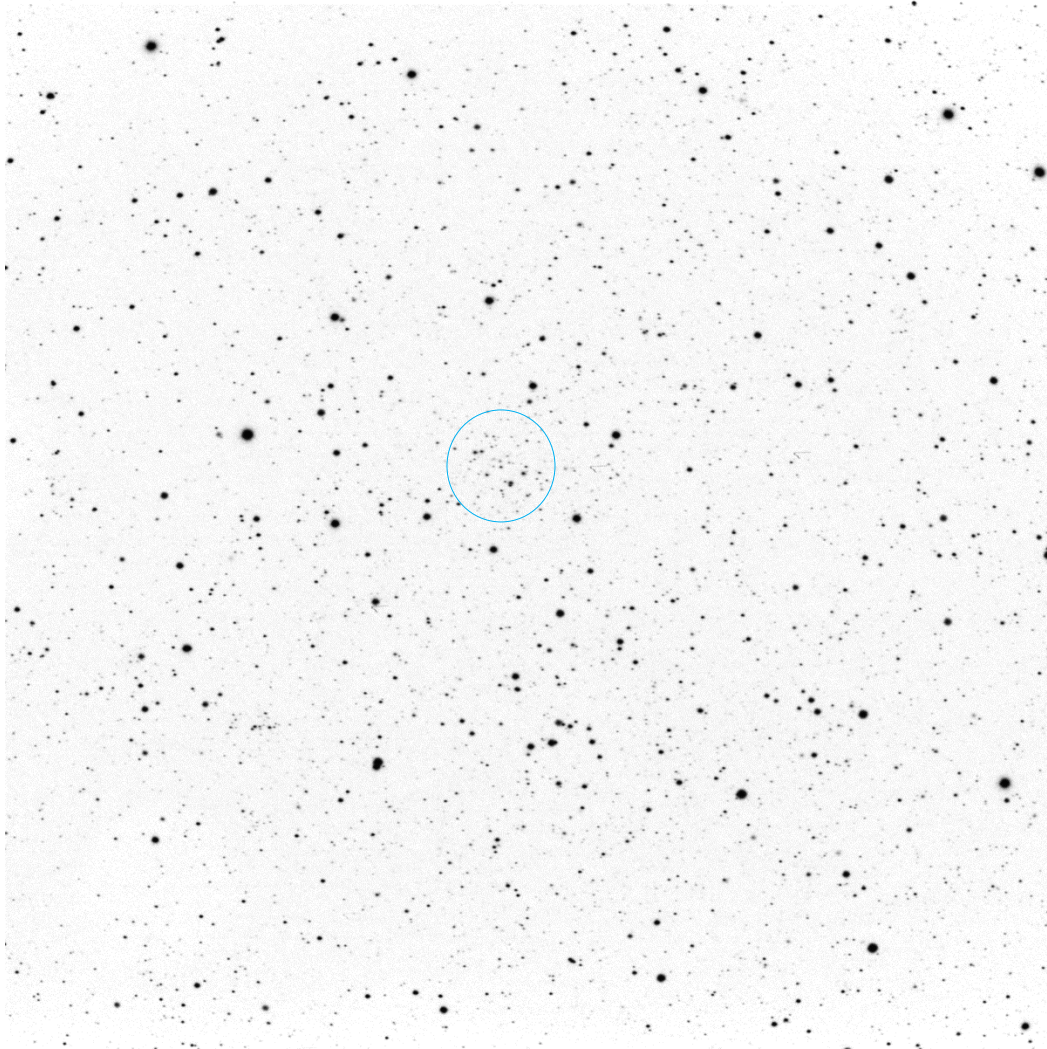|			
Object	**NGC 6793**	Date	10/12/23
Right Ascension (2000)	19h23m14s	Time	20:39
Declination (2000)	+22°08'30"	Sky: Transparency	Average
Constellation	Vulpecula	Seeing	Average
Magnitude	9.2	Location	West Columbia TX
Angular Diameter (')	6.0	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p	Camera	ZWO ASI183MC
Distance (ly)	3000	Sub Exposure (sec)	15
Diameter (ly)	5	Total Exposure (min)	4.25
		Image Software	SharpCap 4.0

Visual Description   Small cluster of < 50 stars, little to no central concentration and not well detached from field.

Observation Log Sheet

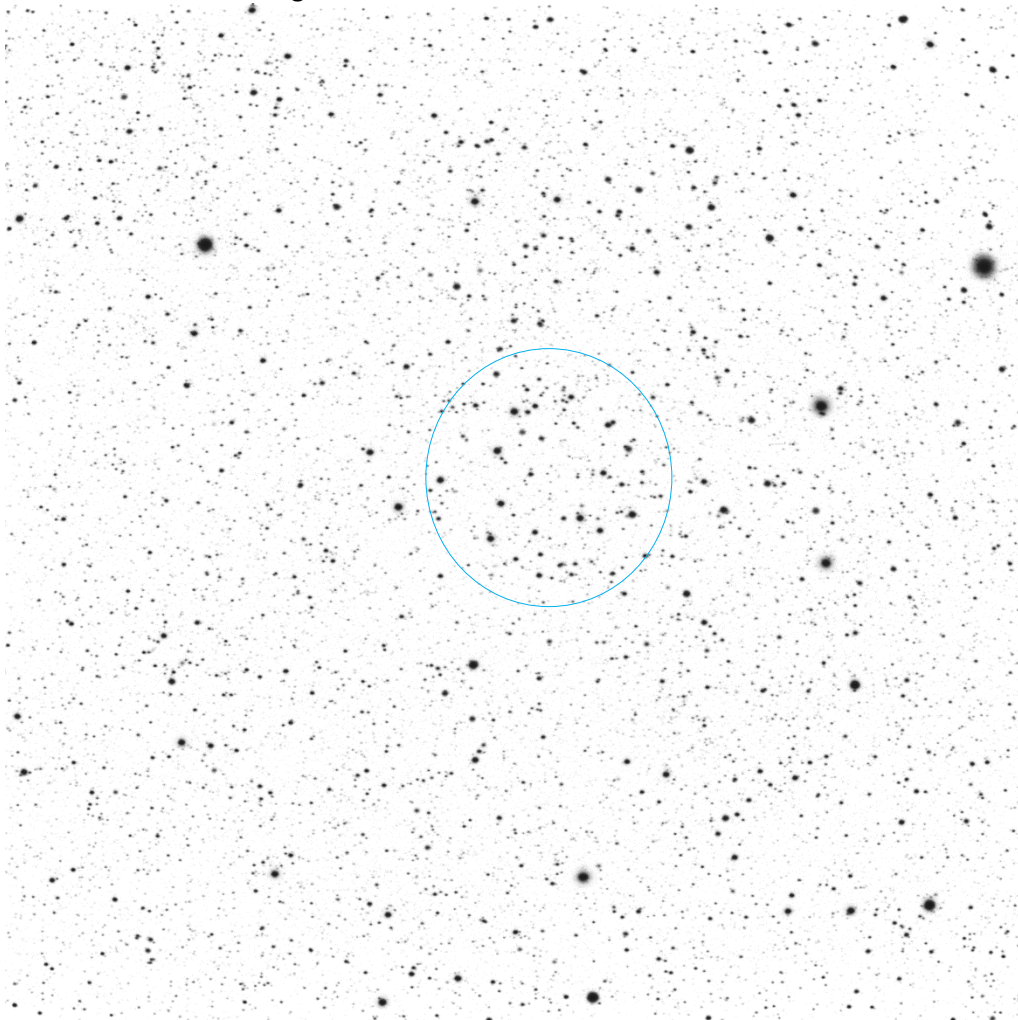|			
Object	**King 25**	Date	10/12/23
Right Ascension (2000)	19h24m30s	Time	20:52
Declination (2000)	+13°42'00"	Sky: Transparency	Average
Constellation	Aquila	Seeing	Average
Magnitude	11.5	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	III-2-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	4.25
		Image Software	SharpCap 4.0

Visual Description: Very small cluster. No noticeable detachment. Cluster made up of a range of brightness. Less than 50 total members with 8 brighter ones.

Observation Log Sheet

|			
Object	**NGC 6800**	Date	10/12/23
Right Ascension (2000)	19h27m07s	Time	20:32
Declination (2000)	+25°08'24"	Sky: Transparency	Average
Constellation	Vulpecula	Seeing	Average
Magnitude	7.5	Location	West Columbia TX
Angular Diameter (')	15.0	Instrument	Astro Tech AT80ED
Concentration Class	III-2-m	Camera	ZWO ASI183MC
Distance (ly)	3300	Sub Exposure (sec)	15
Diameter (ly)	14	Total Exposure (min)	4.25
		Image Software	SharpCap 4.0

Visual Description   A medium sized cluster with about a dozen brighter members with three or four times as many fainter ones. Not well detached from field except for the brighter stars.
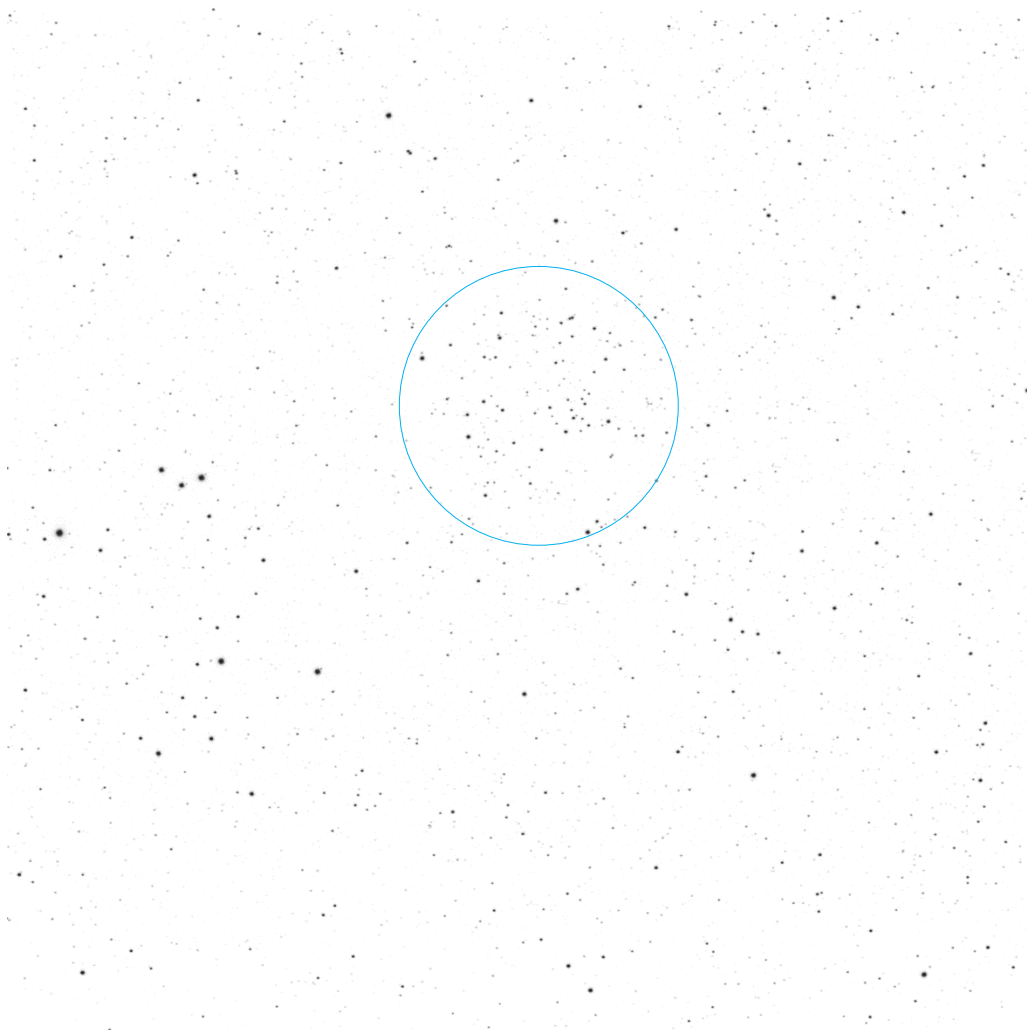
Observation Log Sheet

Object	**Berkeley 47**	Date	10/12/23
Right Ascension (2000)	19h28m36s	Time	20:45
Declination (2000)	+17°22'06"	Sky: Transparency	Average
Constellation	Sagitta	Seeing	Average
Magnitude	12	Location	West Columbia TX
Angular Diameter (')	3.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	4.25
		Image Software	SharpCap 4.0

Visual Description   Faint, very small cluster of 15 stars. Not well concentrated and somewhat detached from field.
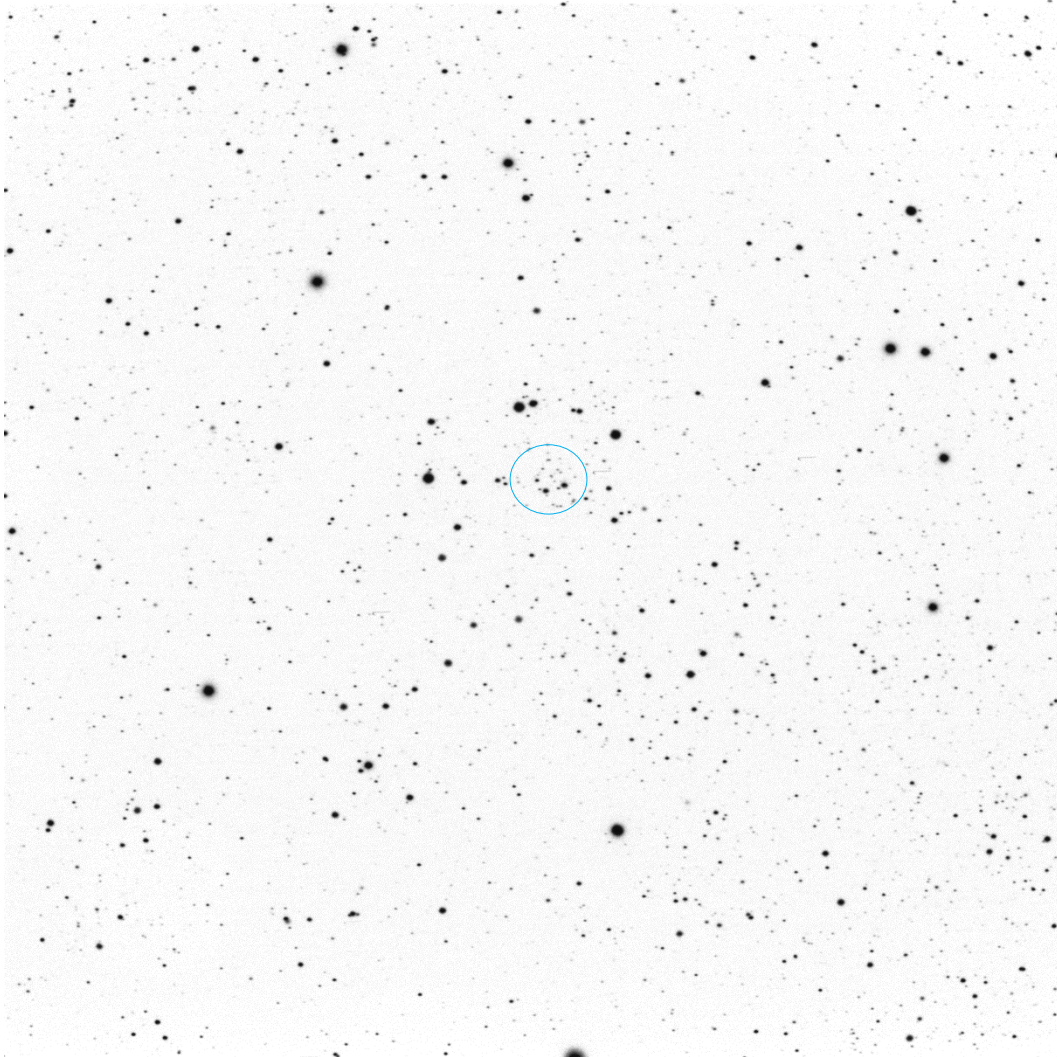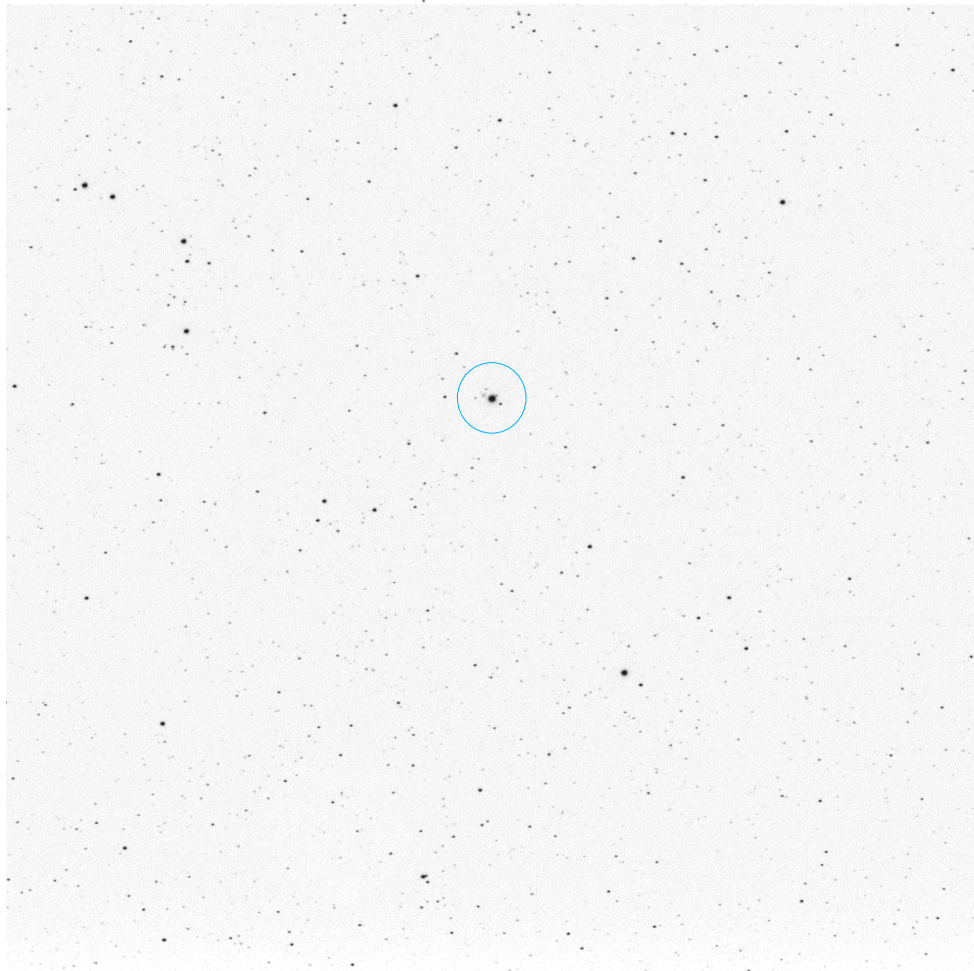
Observation Log Sheet

Object	**NGC 6811**	Date	9/23/23
Right Ascension (2000)	19h37m18s	Time	21:49
Declination (2000)	+46°23'18"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	7.0	Location	West Columbia TX
Angular Diameter (')	14'	Instrument	Astro Tech AT80ED
Concentration Class	III-1-m (IV-3-p)	Camera	ZWO ASI183MC
Distance (ly)	4000	Sub Exposure (sec)	15
Diameter (ly)	16	Total Exposure (min)	3.5
		Image Software	SharpCap 4.0

Visual Description   A medium sized cluster of 50+ members, all similar in brightness. Very little concentration.

Observation Log Sheet

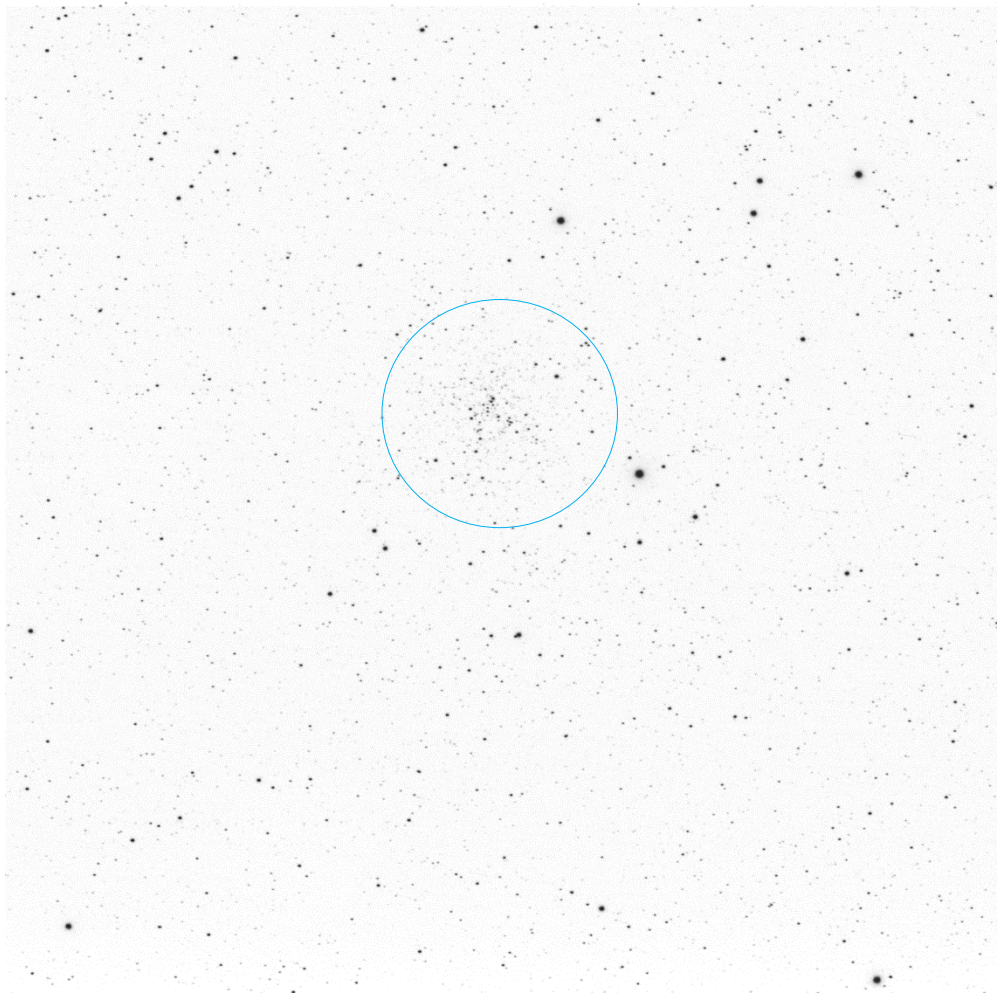|			
Object	**Collinder 401**	Date	9/23/23
Right Ascension (2000)	19h38m21s	Time	22:14
Declination (2000)	+00°20'43"	Sky: Transparency	Below Average
Constellation	Aquilia	Seeing	Average
Magnitude	7.1	Location	West Columbia TX
Angular Diameter (')	1'	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	3.25
		Image Software	SharpCap 4.0

Visual Description   A very small cluster, consisting of 1 brighter star and another 5 or so fainter ones. Detached with little concentration.

Observation Log Sheet

|			
Object	**NGC 6819**	Date	9/23/23
Right Ascension (2000)	19h41m18s	Time	21:53
Declination (2000)	+40°11'12"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	7.6	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-1-m (I-1-r)	Camera	ZWO ASI183MC
Distance (ly)	7700	Sub Exposure (sec)	15
Diameter (ly)	11	Total Exposure (min)	3
		Image Software	SharpCap 4.0

Visual Description   A large cluster with some concentration, little detachment from field stars. Mostly even brightness, but a noticeable orange color to some of the brighter ones. 50+ members.

Observation Log Sheet

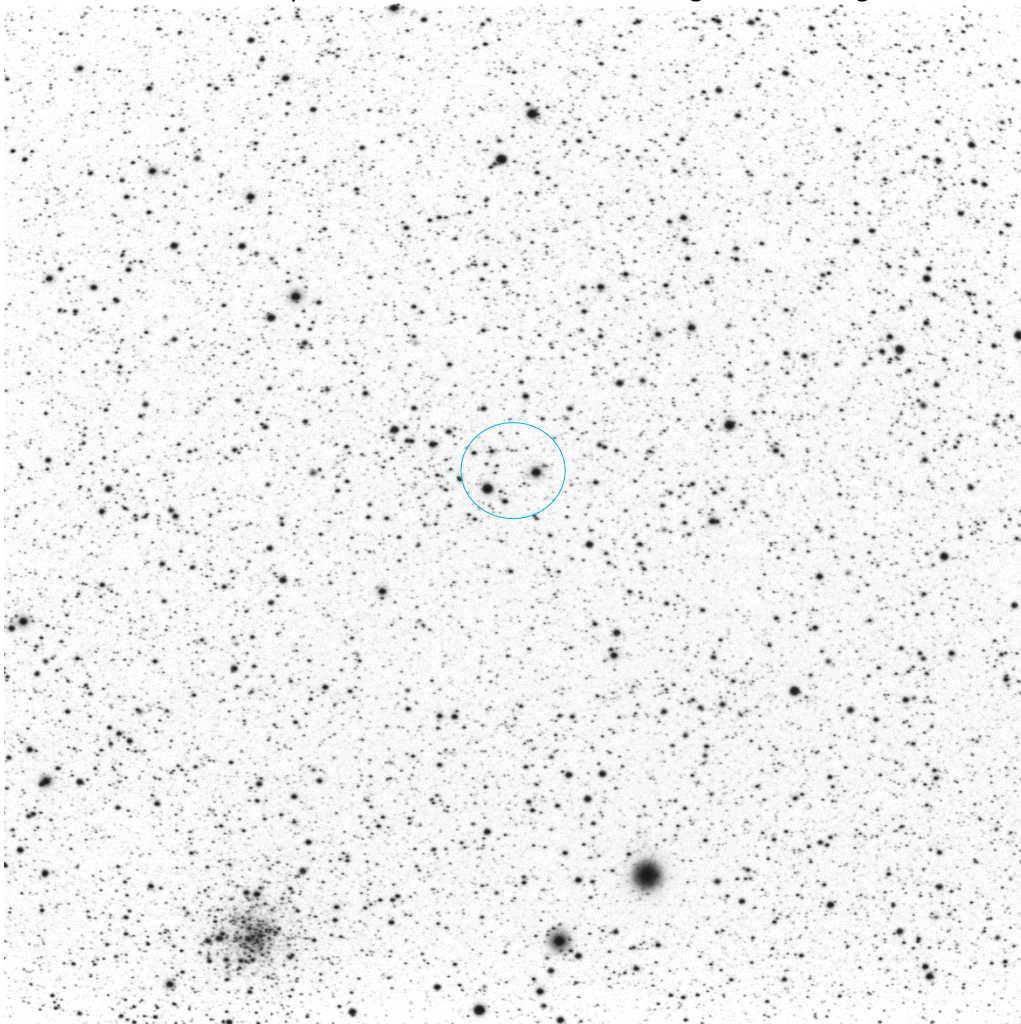|			
Object	**NGC 6823**	Date	9/23/23
Right Ascension (2000)	19h43m09s	Time	21:59
Declination (2000)	+23°18'00"	Sky: Transparency	Below Average
Constellation	Vulpecula	Seeing	Average
Magnitude	8.3	Location	West Columbia TX
Angular Diameter (')	6.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p (I-3-p-n)	Camera	ZWO ASI183MC
Distance (ly)	10000	Sub Exposure (sec)	15
Diameter (ly)	18	Total Exposure (min)	3
		Image Software	SharpCap 4.0

Visual Description   Small cluster with < 50 members, dominated by a grouping of 4 brighter stars. Some detachment and some concentration.
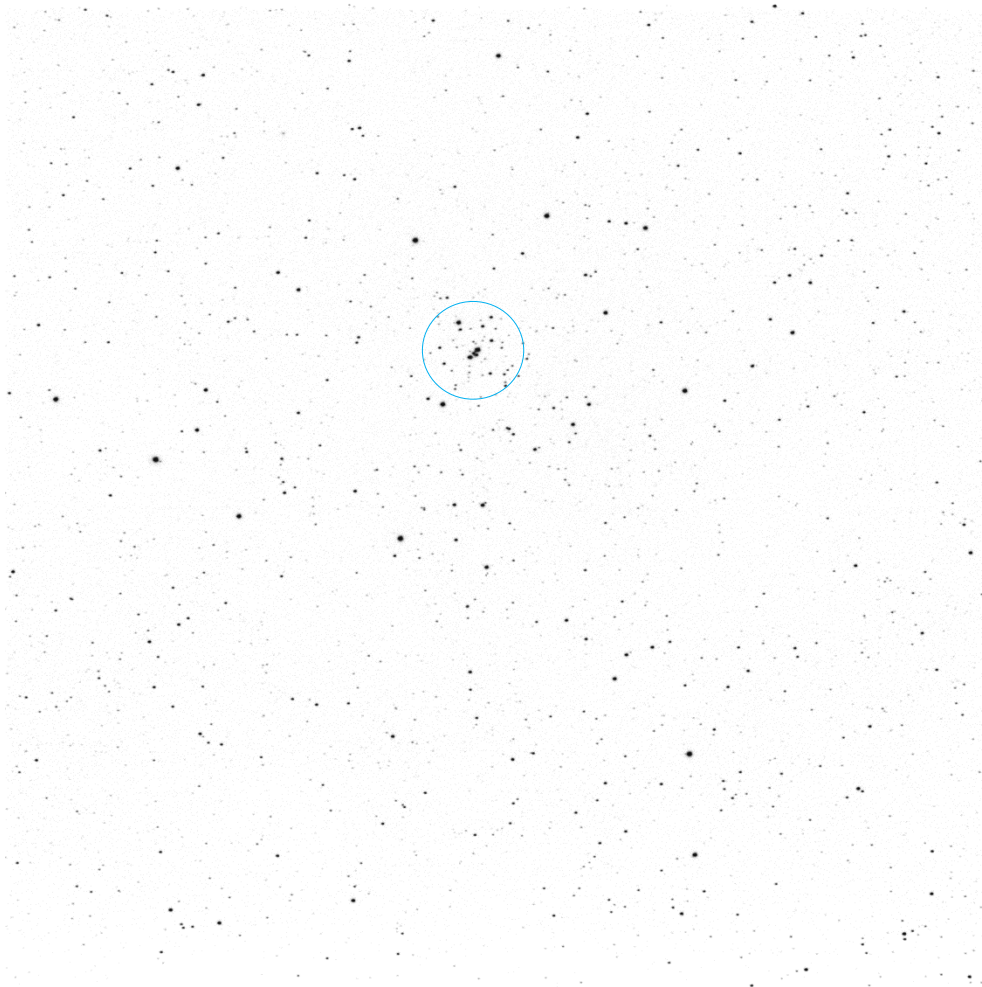
Observation Log Sheet

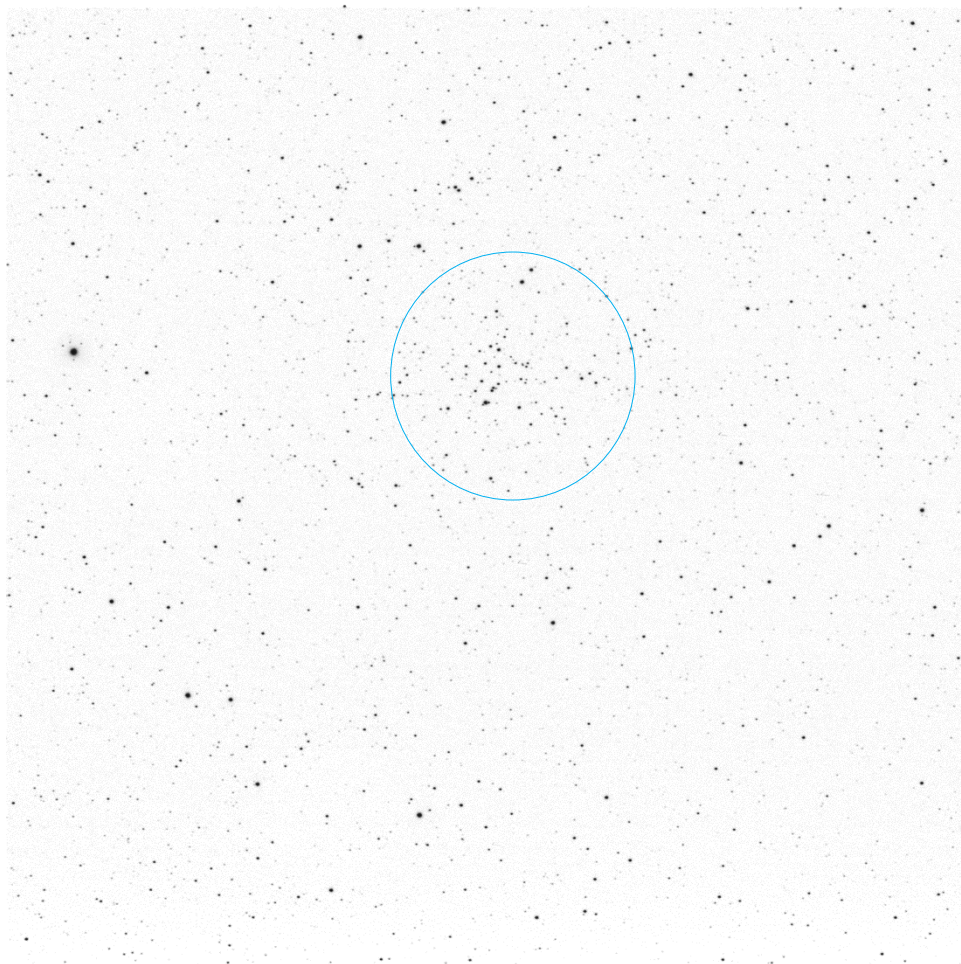|			
Object	**Collinder 408**	Date	10/12/23
Right Ascension (2000)	19h53m06s	Time	21:00
Declination (2000)	+18°20'00"	Sky: Transparency	Average
Constellation	Sagitta	Seeing	Average
Magnitude	9.0	Location	West Columbia TX
Angular Diameter (')	7.0	Instrument	Astro Tech AT80ED
Concentration Class	III-2-m	Camera	ZWO ASI183MC
Distance (ly)	5000	Sub Exposure (sec)	15
Diameter (ly)	10	Total Exposure (min)	5
		Image Software	SharpCap 4.0

Visual Description   A very small cluster dominated by two brighter stars. The cluster is somewhat detached, but no concentration. There are 50+ members in the vicinity. M71 can be seen in the lower right of the image.
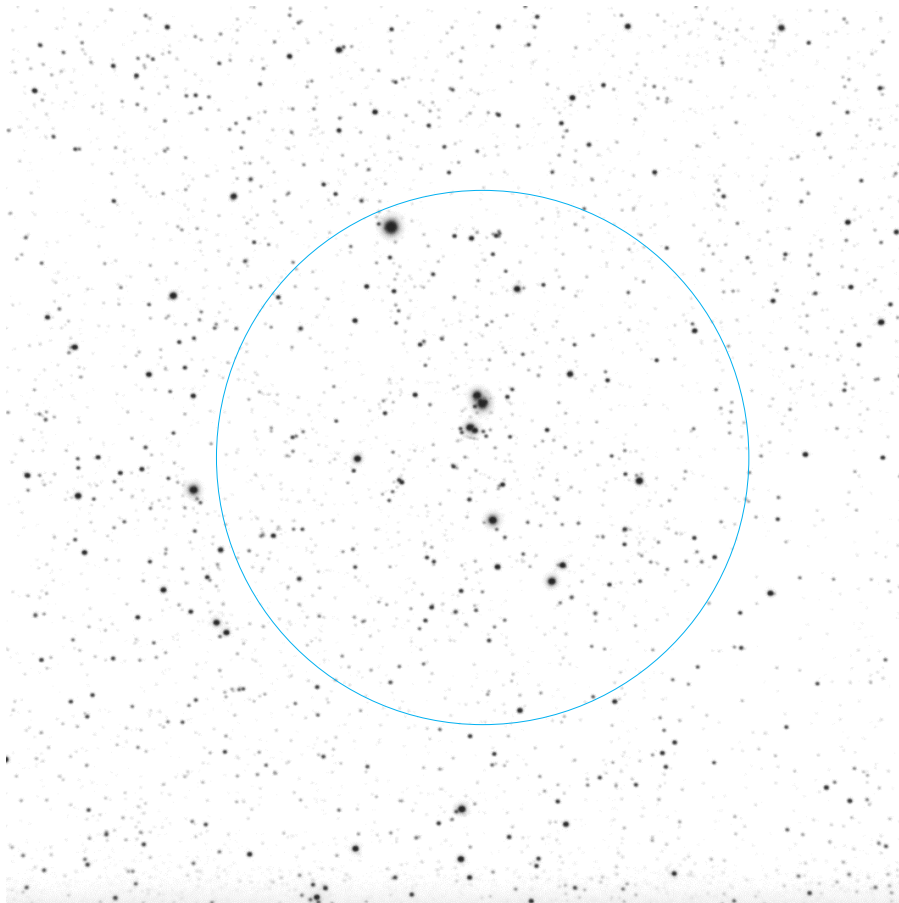
Observation Log Sheet

Object	**NGC 6866**	Date	9/23/23
Right Ascension (2000)	20h03m55s	Time	22:47
Declination (2000)	+44°09'30"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	7.5	Location	West Columbia TX
Angular Diameter (')	14.0	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p (II-2-m)	Camera	ZWO ASI183MC
Distance (ly)	4700	Sub Exposure (sec)	15
Diameter (ly)	19	Total Exposure (min)	3.5
		Image Software	SharpCap 4.0

Visual Description   Medium sized cluster of about 50 or fewer stars, all similar in brightness, little concentration.

Observation Log Sheet

Object	**NGC 6871**	Date	9/23/23
Right Ascension (2000)	20h05m36s	Time	21:10
Declination (2000)	+35°46'36"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	4.5	Location	West Columbia TX
Angular Diameter (')	29.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-3-m (IV-3-p)	Camera	ZWO ASI183MC
Distance (ly)	5100	Sub Exposure (sec)	15
Diameter (ly)	43	Total Exposure (min)	3
		Image Software	SharpCap 4.0

Visual Description   A large cluster with 50+ members. There are two pairs of brighter stars at the core of the cluster and another 5 or six scattered. Some centralization, not well detached. Primarily consists of bright and fainter stars.
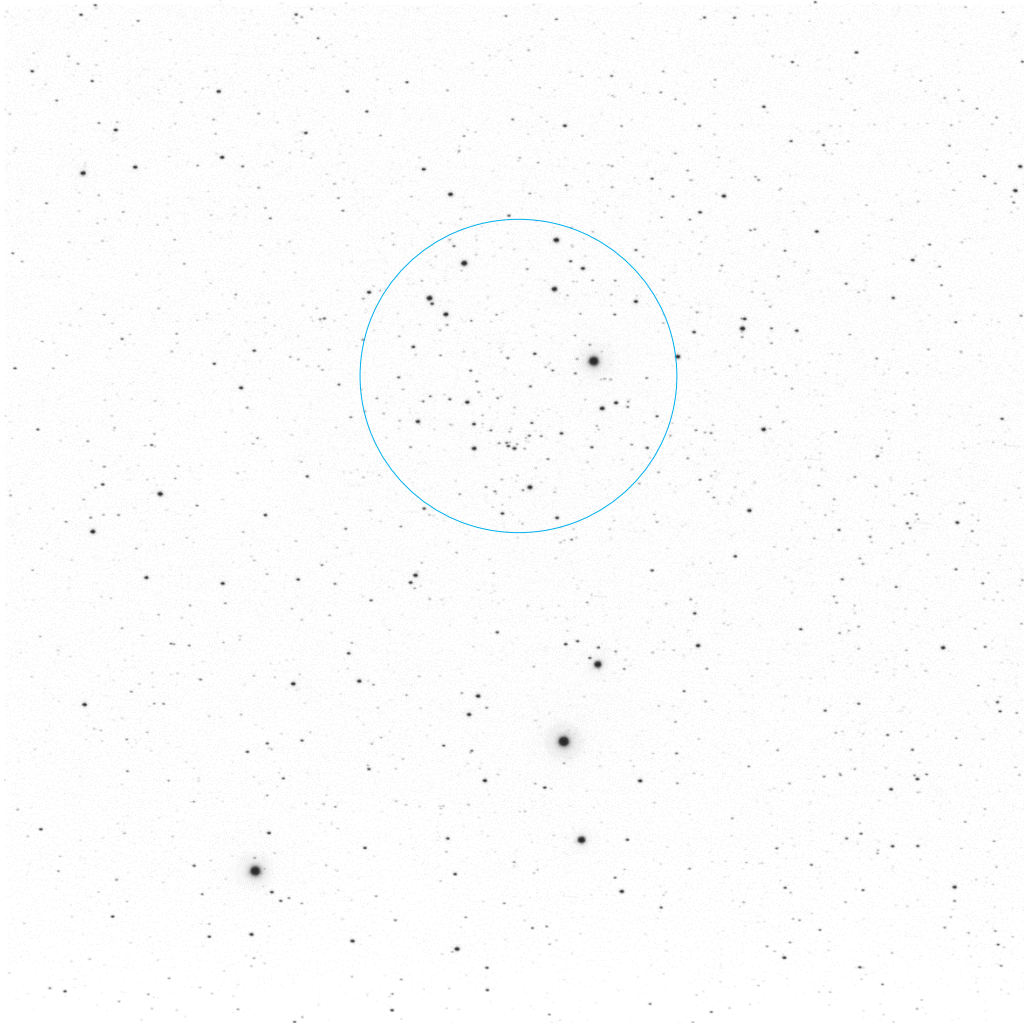
Observation Log Sheet

Object	**Biurakan 2**	Date	9/23/23
Right Ascension (2000)	20h09m12s	Time	21:22
Declination (2000)	+35°29'00"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	6.0	Location	West Columbia TX
Angular Diameter (')	20.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p (III-2-p)	Camera	ZWO ASI183MC
Distance (ly)	3600	Sub Exposure (sec)	15
Diameter (ly)	21	Total Exposure (min)	3.25
		Image Software	SharpCap 4.0

Visual Description   Medium size cluster, about 2 dozen members. Range of brightness, mot well concentrated but detached.
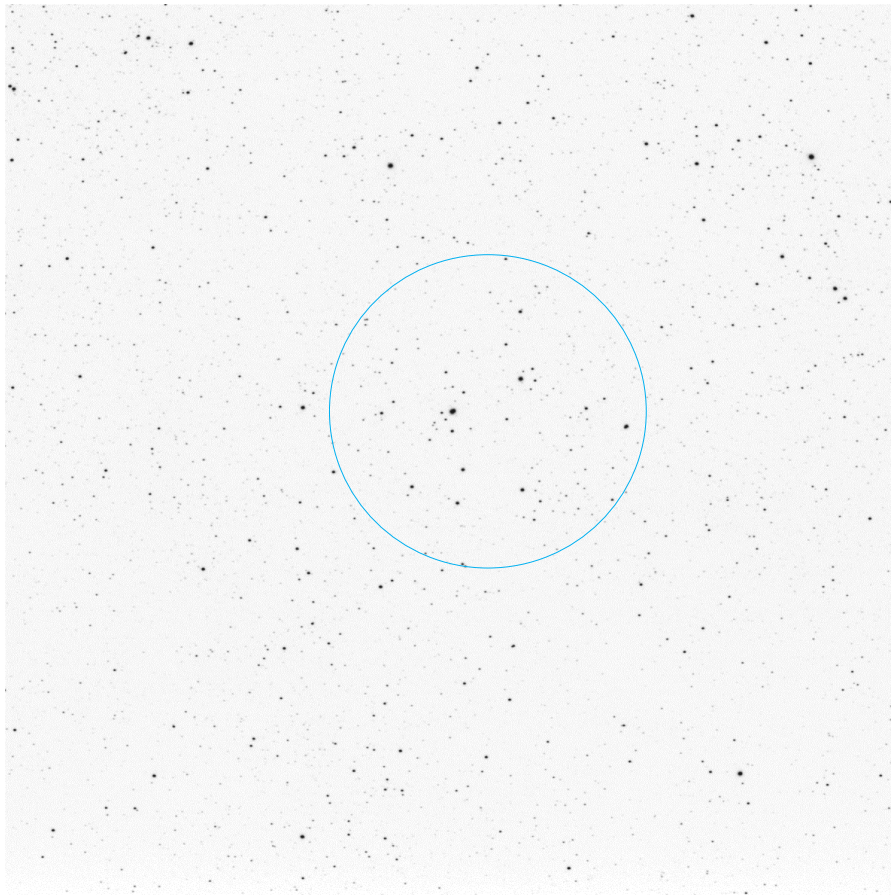
Observation Log Sheet

|			
Object	**NGC 6885**	Date	9/23/23
Right Ascension (2000)	20h12m01s	Time	22:03
Declination (2000)	+26°28'42"	Sky: Transparency	Below Average
Constellation	Vulpecula	Seeing	Average
Magnitude	5.5	Location	West Columbia TX
Angular Diameter (')	20.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-m (III-2-p)	Camera	ZWO ASI183MC
Distance (ly)	1900	Sub Exposure (sec)	15
Diameter (ly)	11	Total Exposure (min)	3.75
		Image Software	SharpCap 4.0

Visual Description   A medium cluster with 50+ members of varying brightness, dominated by a single brighter star. Poor centralization and somewhat detached.

Observation Log Sheet

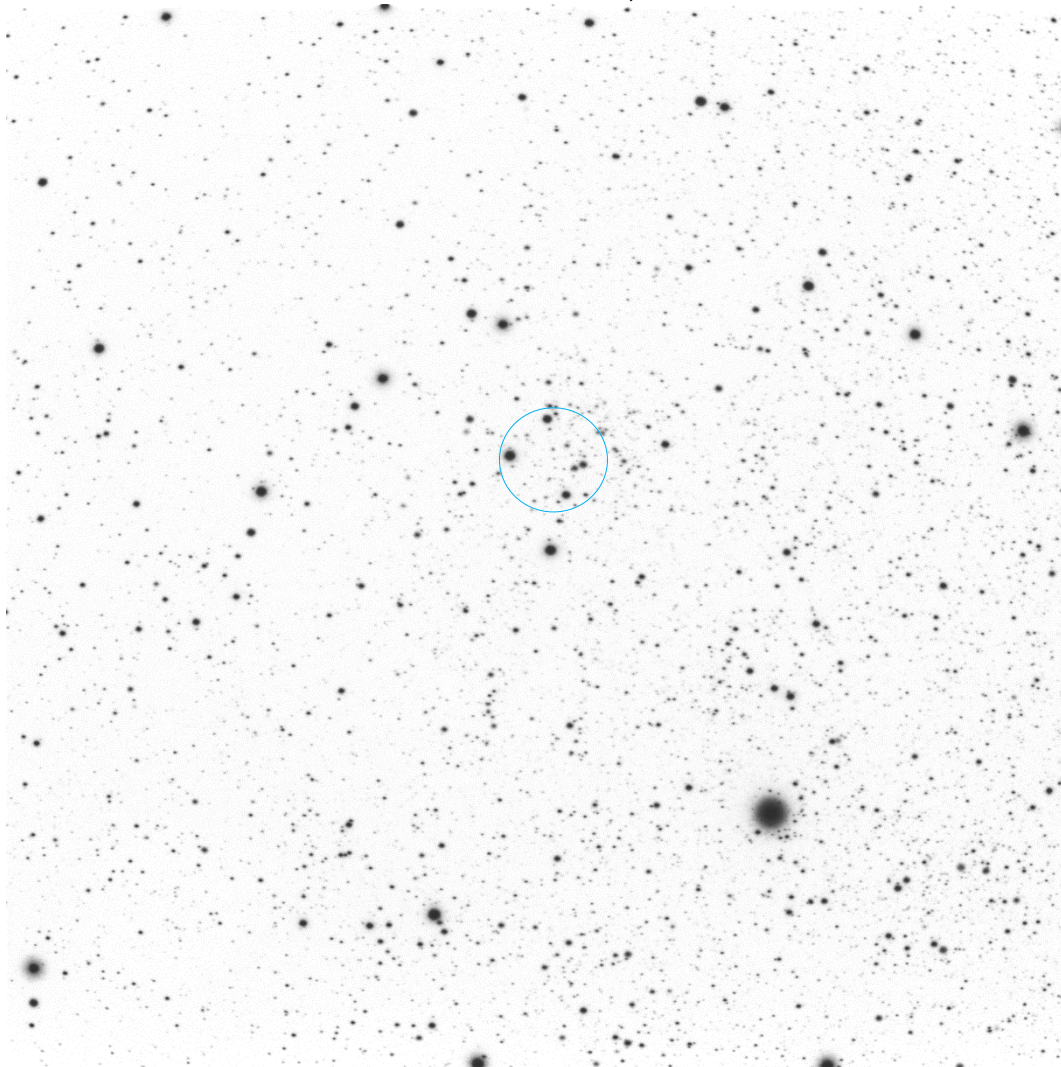|			
Object	**IC 4996**	Date	9/23/23
Right Ascension (2000)	20h16m30s	Time	21:28
Declination (2000)	+37°38'00"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	7.1	Location	West Columbia TX
Angular Diameter (')	6.0	Instrument	Astro Tech AT80ED
Concentration Class	I-3-p (I-3-p-n)	Camera	ZWO ASI183MC
Distance (ly)	5600	Sub Exposure (sec)	15
Diameter (ly)	10	Total Exposure (min)	3
		Image Software	SharpCap 4.0

Visual Description   Very small cluster of less than a dozen stars. There are 3 brighter ones with the remaining members fainter, similar in brightness. Highly concentrated and detached.
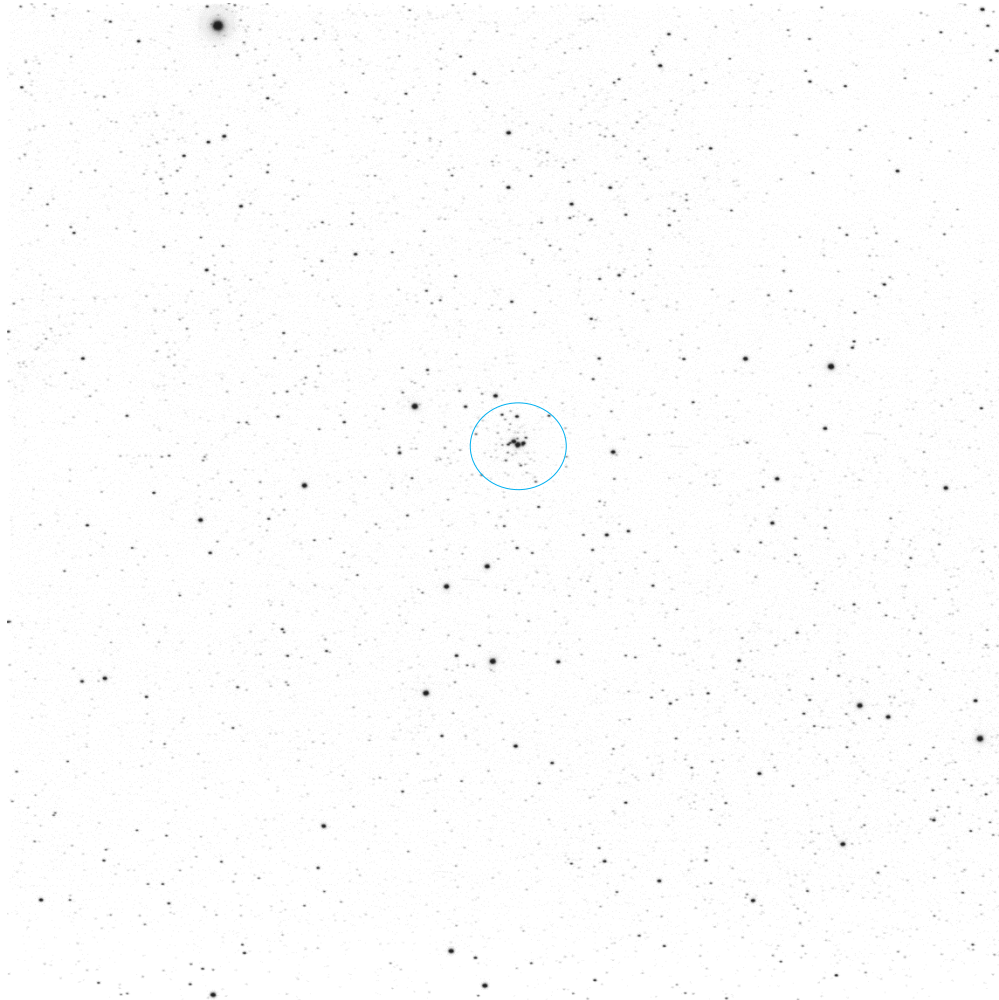
Observation Log Sheet

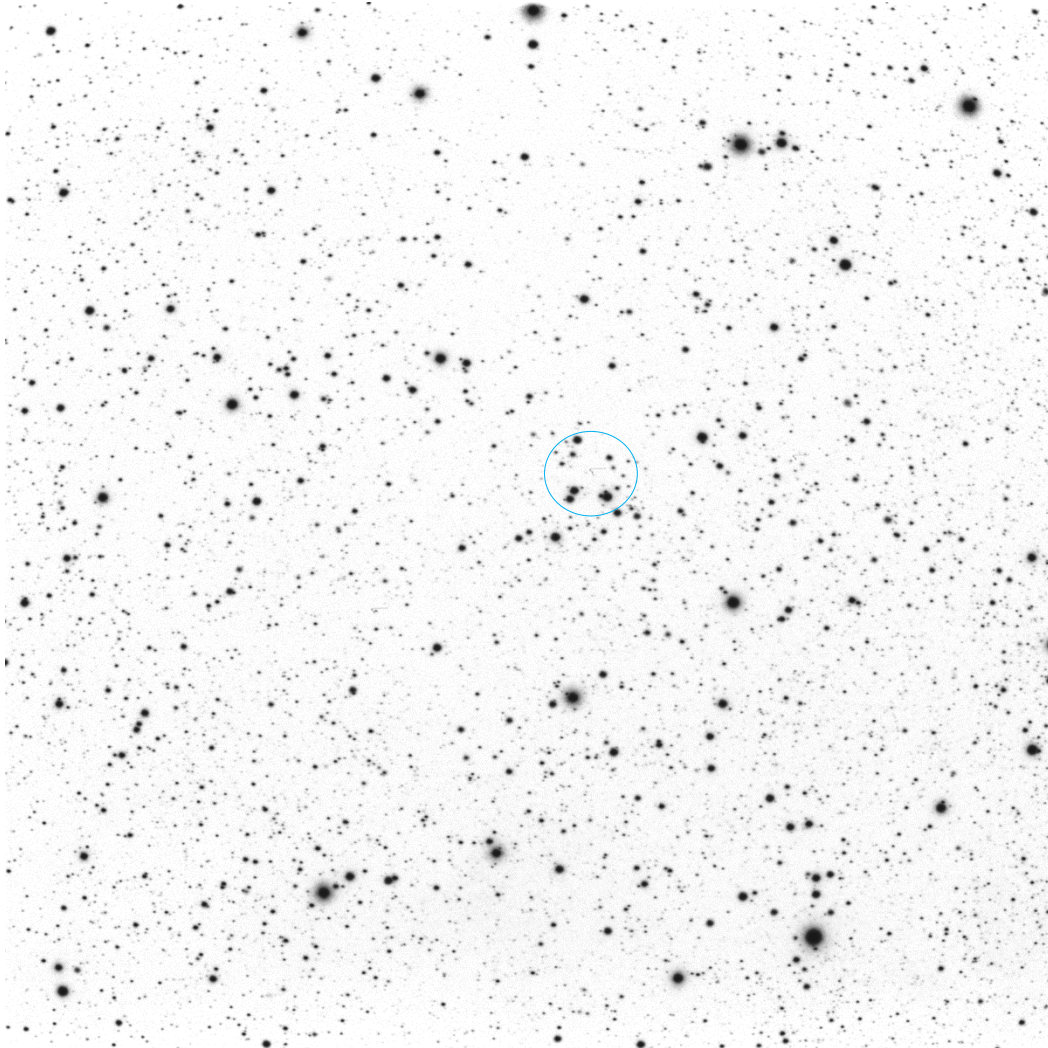|			
Object	**Berkeley 85**	Date	10/12/23
Right Ascension (2000)	20h18m54s	Time	21:44
Declination (2000)	+37°46'23"	Sky: Transparency	Average
Constellation	Cygnus	Seeing	Average
Magnitude	8.1	Location	West Columbia TX
Angular Diameter (')	11.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	4.25
		Image Software	SharpCap 4.0

Visual Description   Small cluster, dominated by 5 brighter stars with another 30 or so fainter ones. Little central concentration, not well detached from field.

Observation Log Sheet

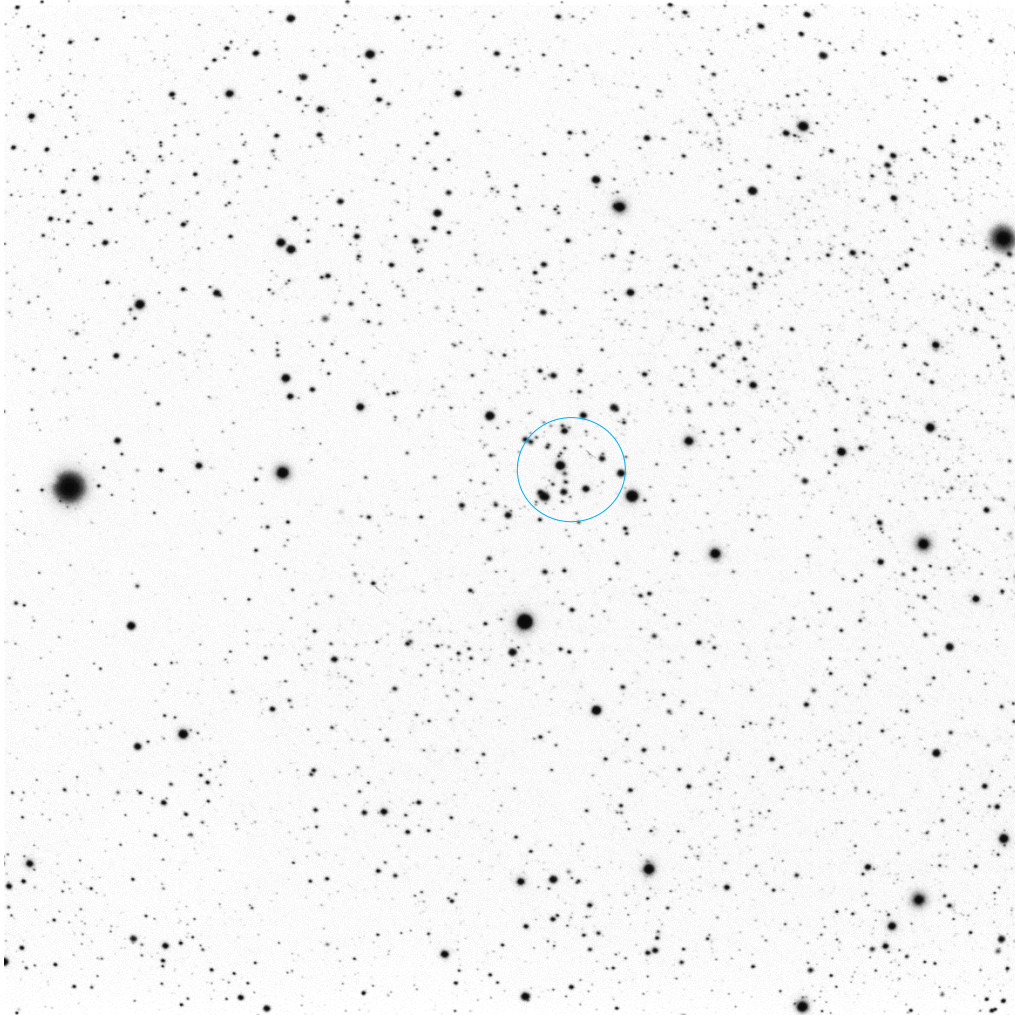|			
Object	**Berkeley 86**	Date	10/12/23
Right Ascension (2000)	20h20m24s	Time	21:08
Declination (2000)	+38˚42'00"	Sky: Transparency	Average
Constellation	Cygnus	Seeing	Average
Magnitude	9.3	Location	West Columbia TX
Angular Diameter (')	6.0	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p	Camera	ZWO ASI183MC
Distance (ly)	3600	Sub Exposure (sec)	15
Diameter (ly)	6	Total Exposure (min)	6.25
		Image Software	SharpCap 4.0

Visual Description Small cluster of 5 brighter stars and another 9 fainter ones. No central concentration.

Observation Log Sheet

Object	**Berkeley 87**	Date	10/12/23
Right Ascension (2000)	20h21m42s	Time	21:52
Declination (2000)	+37˚22'00"	Sky: Transparency	Average
Constellation	Cygnus	Seeing	Average
Magnitude	8.4	Location	West Columbia TX
Angular Diameter (')	10.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p	Camera	ZWO ASI183MC
Distance (ly)	2100	Sub Exposure (sec)	15
Diameter (ly)	6	Total Exposure (min)	4.25
		Image Software	SharpCap 4.0

Visual Description   Small cluster of about 7-8 brighter stars detached from field.

Observation Log Sheet

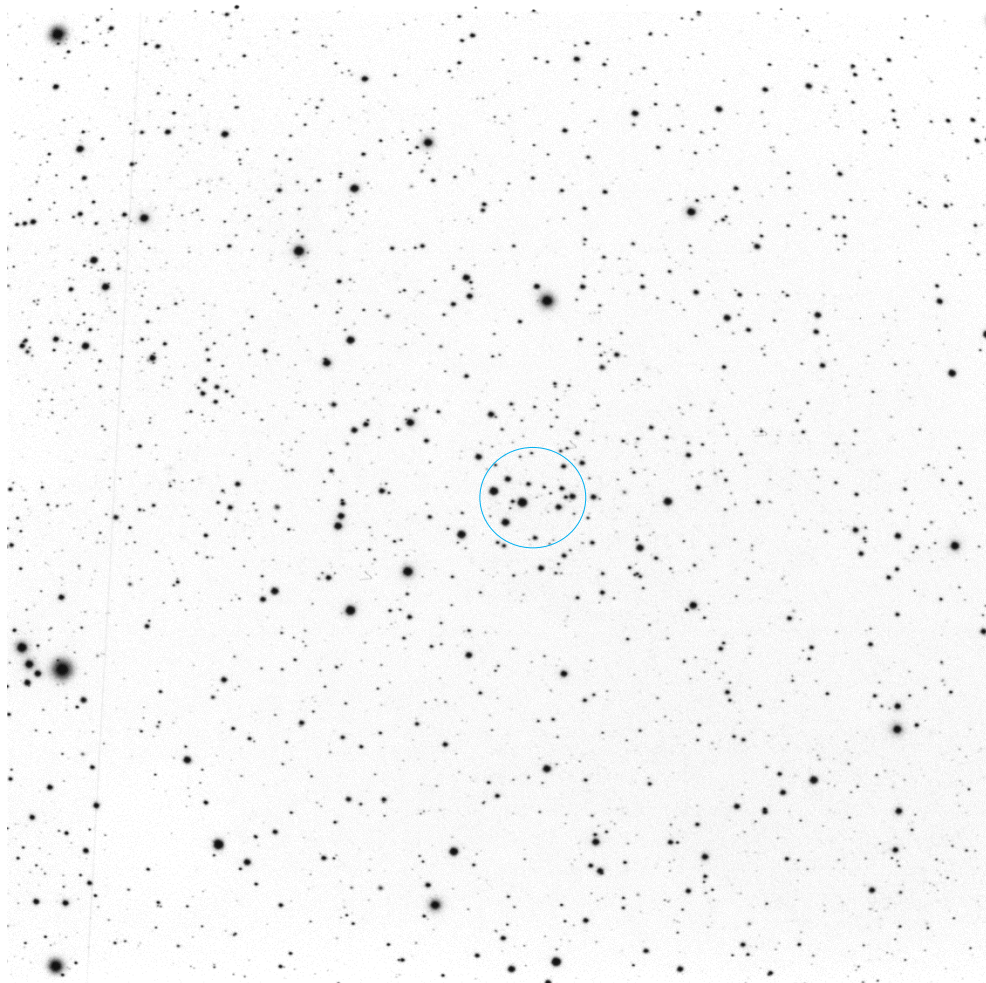|			
Object	**NGC 6910**	Date	9/23/23
Right Ascension (2000)	20h23m12s	Time	21:33
Declination (2000)	+40˚46'42"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	6.2	Location	West Columbia TX
Angular Diameter (')	10.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p (I-2-p)	Camera	ZWO ASI183MC
Distance (ly)	3700	Sub Exposure (sec)	15
Diameter (ly)	11	Total Exposure (min)	3.5
		Image Software	SharpCap 4.0

Visual Description   Medium sized grouping consisting of brighter and fainter stars. Detached with some concentration. Less than 50 members.
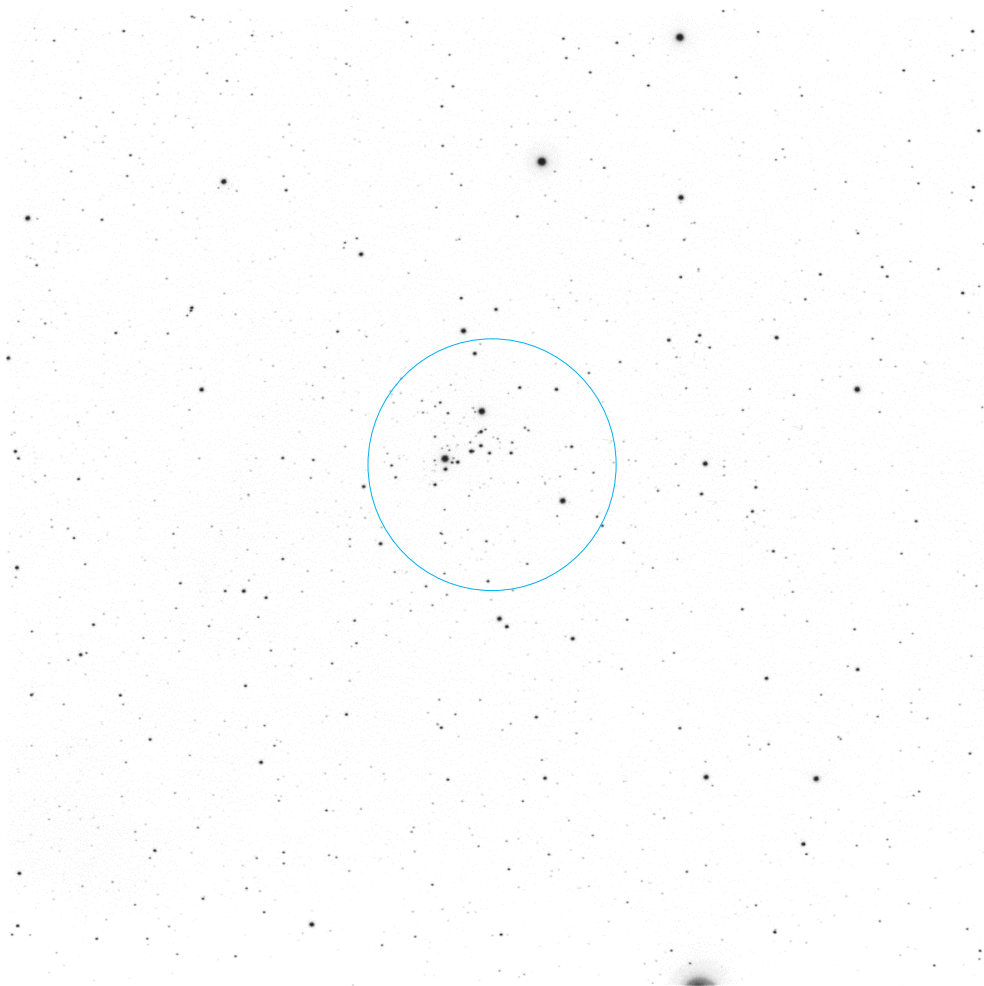
Observation Log Sheet

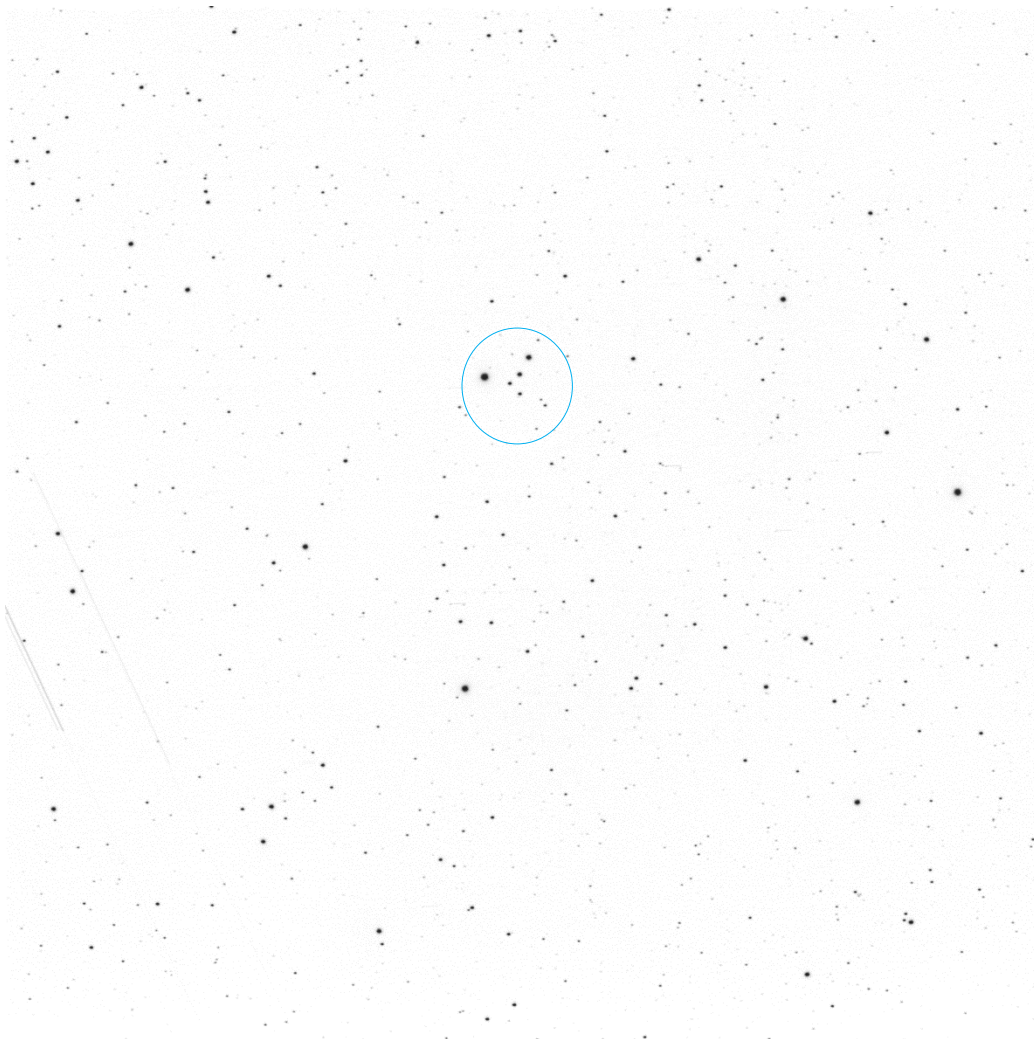|			
Object	**Collinder 421**	Date	9/23/23
Right Ascension (2000)	20h23m18s	Time	21:15
Declination (2000)	+41°42'00"	Sky: Transparency	Average
Constellation	Cygnus	Seeing	Average
Magnitude	9.2	Location	West Columbia TX
Angular Diameter (')	7.0	Instrument	Astro Tech AT80ED
Concentration Class	III-2-p	Camera	ZWO ASI183MC
Distance (ly)	3600	Sub Exposure (sec)	15
Diameter (ly)	7	Total Exposure (min)	6.5
		Image Software	SharpCap 4.0

Visual Description   Small cluster of about a dozen stars ranging in brightness. Little to no central concentration. Somewhat detached from field.
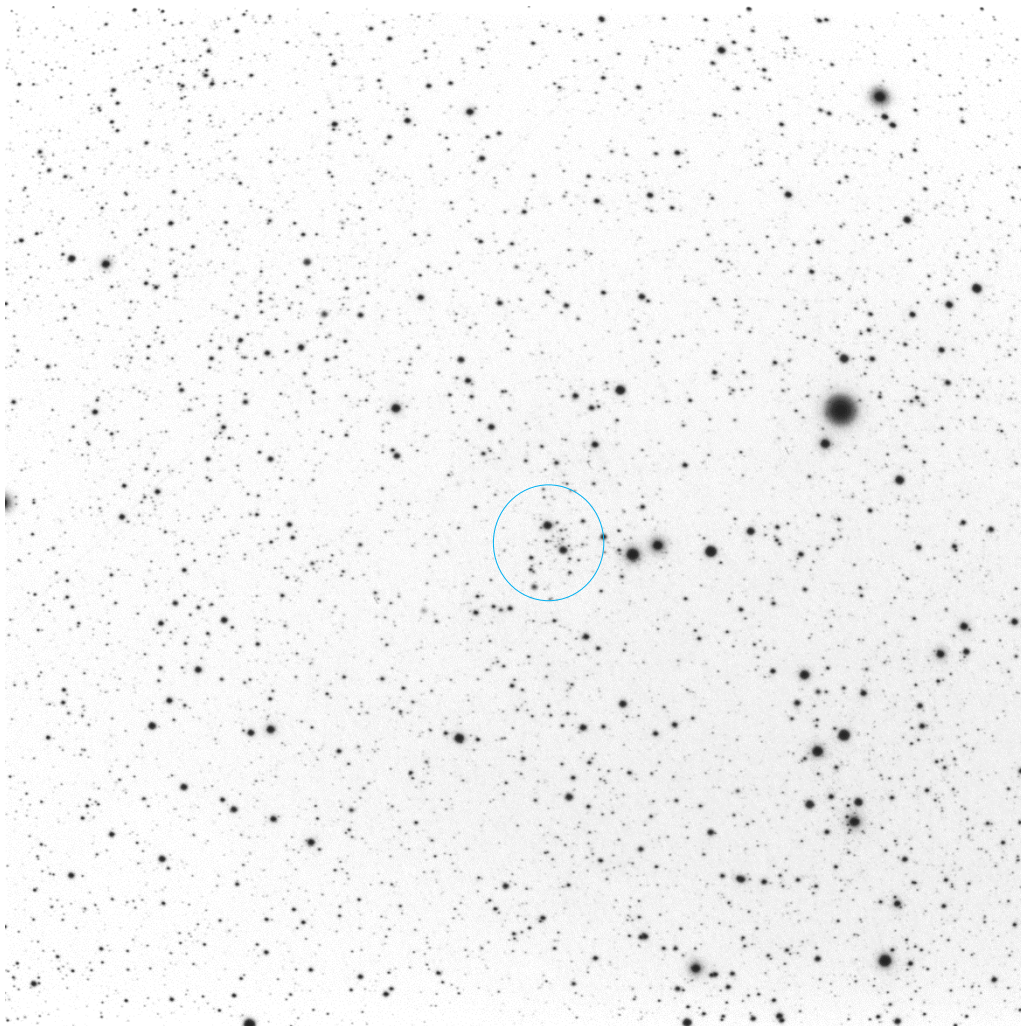
Observation Log Sheet

Object	**Dolidze 9**	Date	9/23/23
Right Ascension (2000)	20h25m12s	Time	21:37
Declination (2000)	+41˚54'38"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	8.8	Location	West Columbia TX
Angular Diameter (')	5.6	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	3.25
		Image Software	SharpCap 4.0

Visual Description   Very small cluster of about 7 stars, ranging in brightness. Somewhat detached and concentrated.

Observation Log Sheet

Object	**Berkeley 90**	Date	10/12/23
Right Ascension (2000)	20h35m15s	Time	21:24
Declination (2000)	+46°50'35"	Sky: Transparency	Average
Constellation	Cygnus	Seeing	Average
Magnitude	10.6	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.5
		Image Software	SharpCap 4.0

Visual Description   A very small cluster, dominated by two brighter stars and another dozen or so fainter ones. Somewhat detached, not well concentrated.
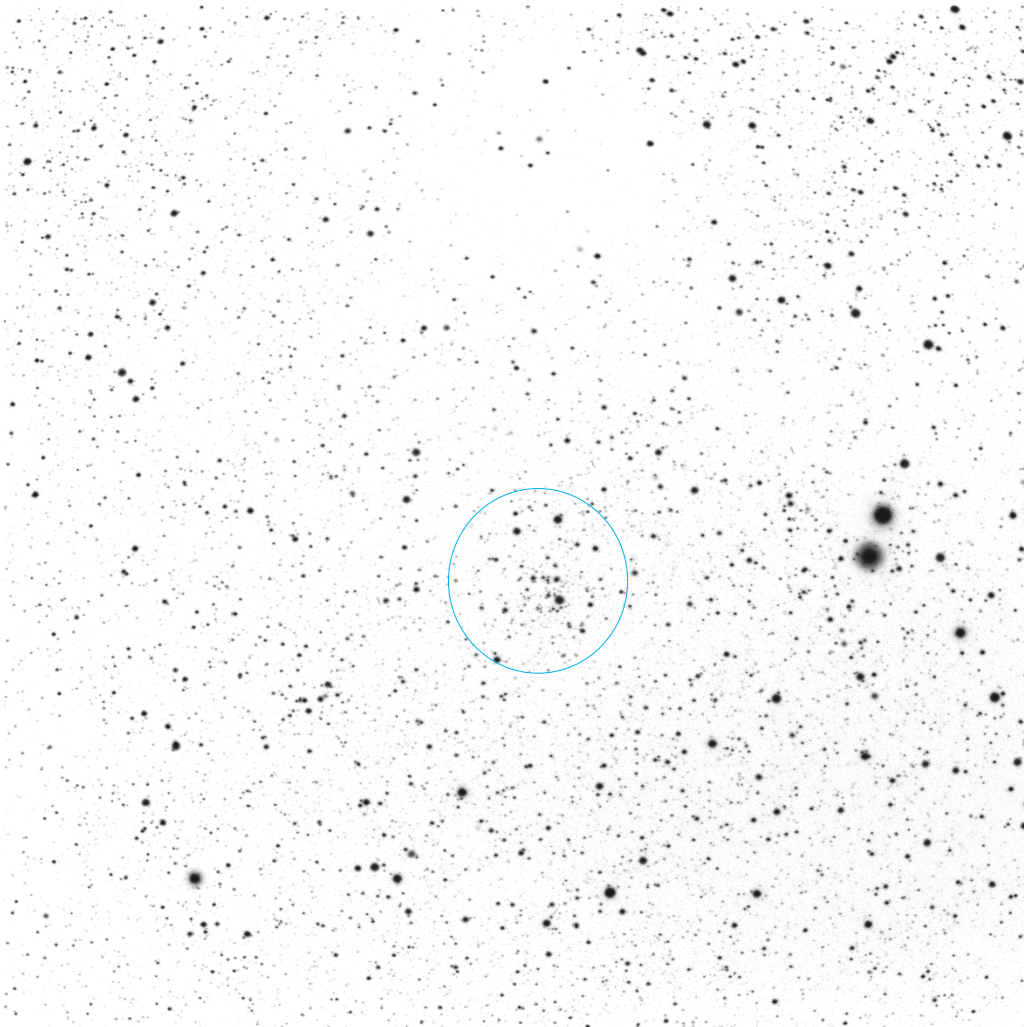
Observation Log Sheet

Object	**French 1**	Date	11/7/24
Right Ascension (2000)	21h07m22s	Time	19:41
Declination (2000)	+16˚17'54"	Sky: Transparency	Average
Constellation	Delphinus	Seeing	Average
Magnitude	?	Location	West Columbia TX
Angular Diameter (')	13	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	4.75
		Image Software	SharpCap 4.0

Visual Description   About a dozen brighter stars, some concentration. There is a tiny galaxy at the edge of the cluster.
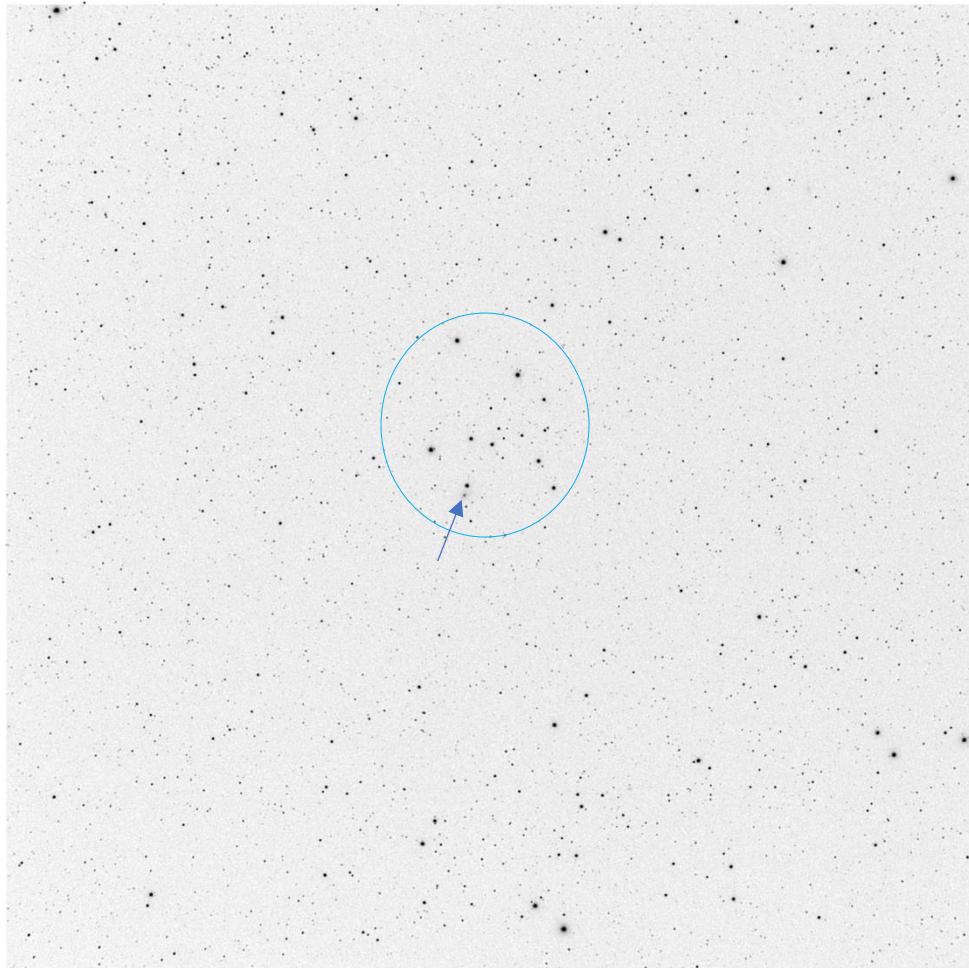
Observation Log Sheet

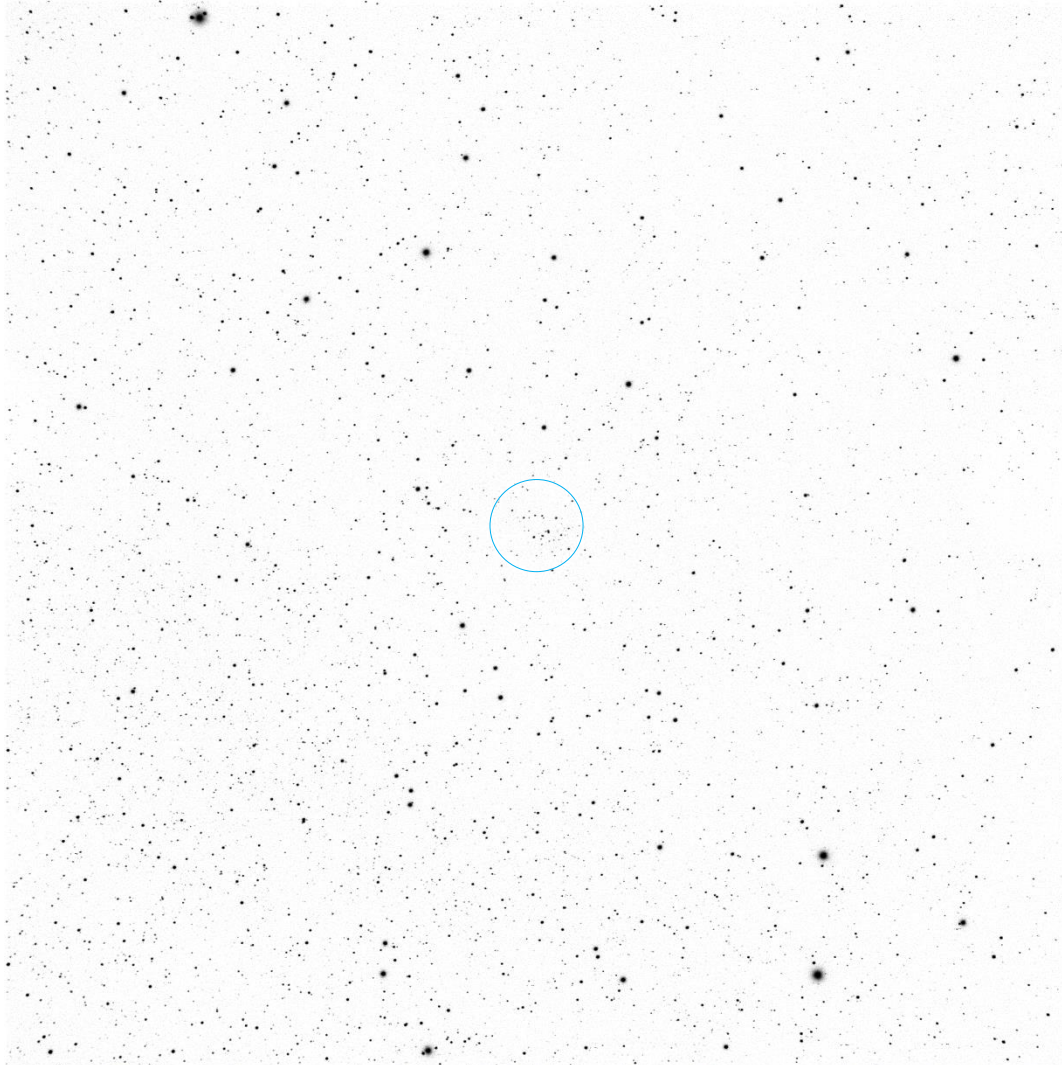|			
Object	**IC 1369**	Date	10/12/23
Right Ascension (2000)	21h12m06s	Time	21:31
Declination (2000)	+47°44'00"	Sky: Transparency	Average
Constellation	Cygnus	Seeing	Average
Magnitude	9.4	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-m (I-1-m)	Camera	ZWO ASI183MC
Distance (ly)	6800	Sub Exposure (sec)	15
Diameter (ly)	10	Total Exposure (min)	5.25
		Image Software	SharpCap 4.0

Visual Description   Small cluster, detached with some concentration. Medium range of brightness with about 50 members.

Observation Log Sheet

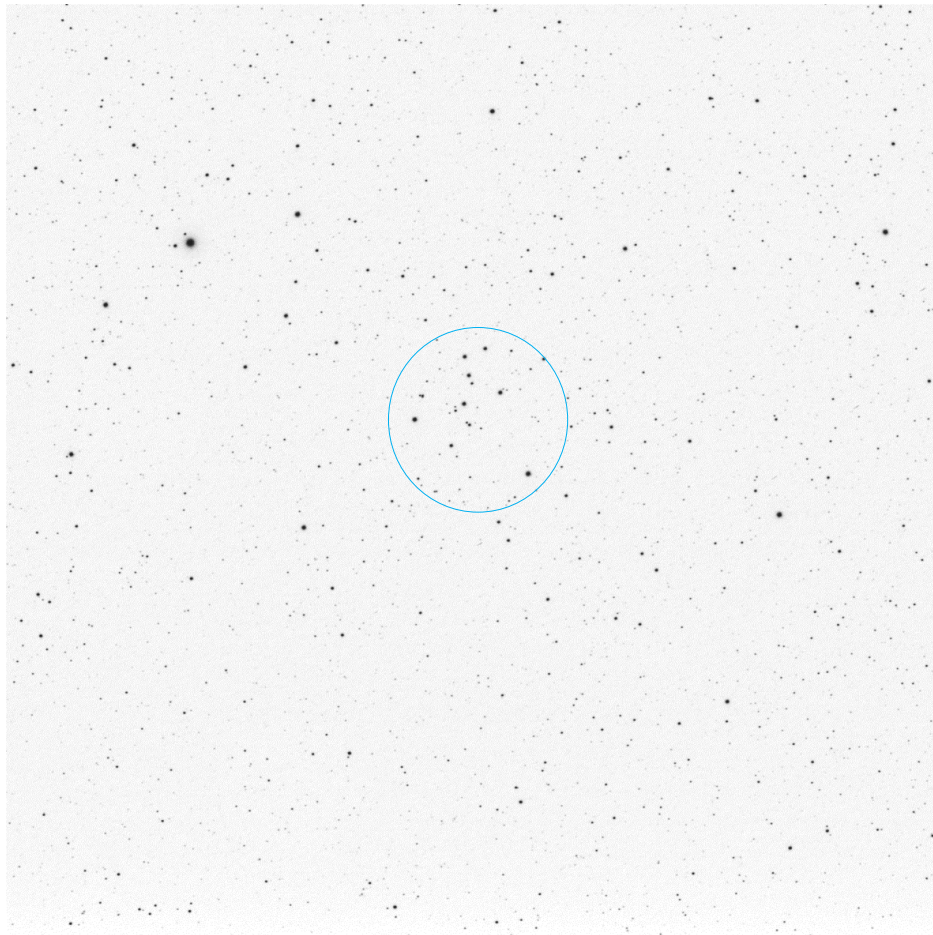|			
Object	**Berkely 55**	Date	07/17/24
Right Ascension (2000)	21h17m50s	Time	00:10
Declination (2000)	+51°51'44"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	11.6	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-2-p	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	6.5
		Image Software	SharpCap 4.0

Visual Description   A very small open cluster of less than 20 visible stars, all similar in brightness forming 'V' shape.
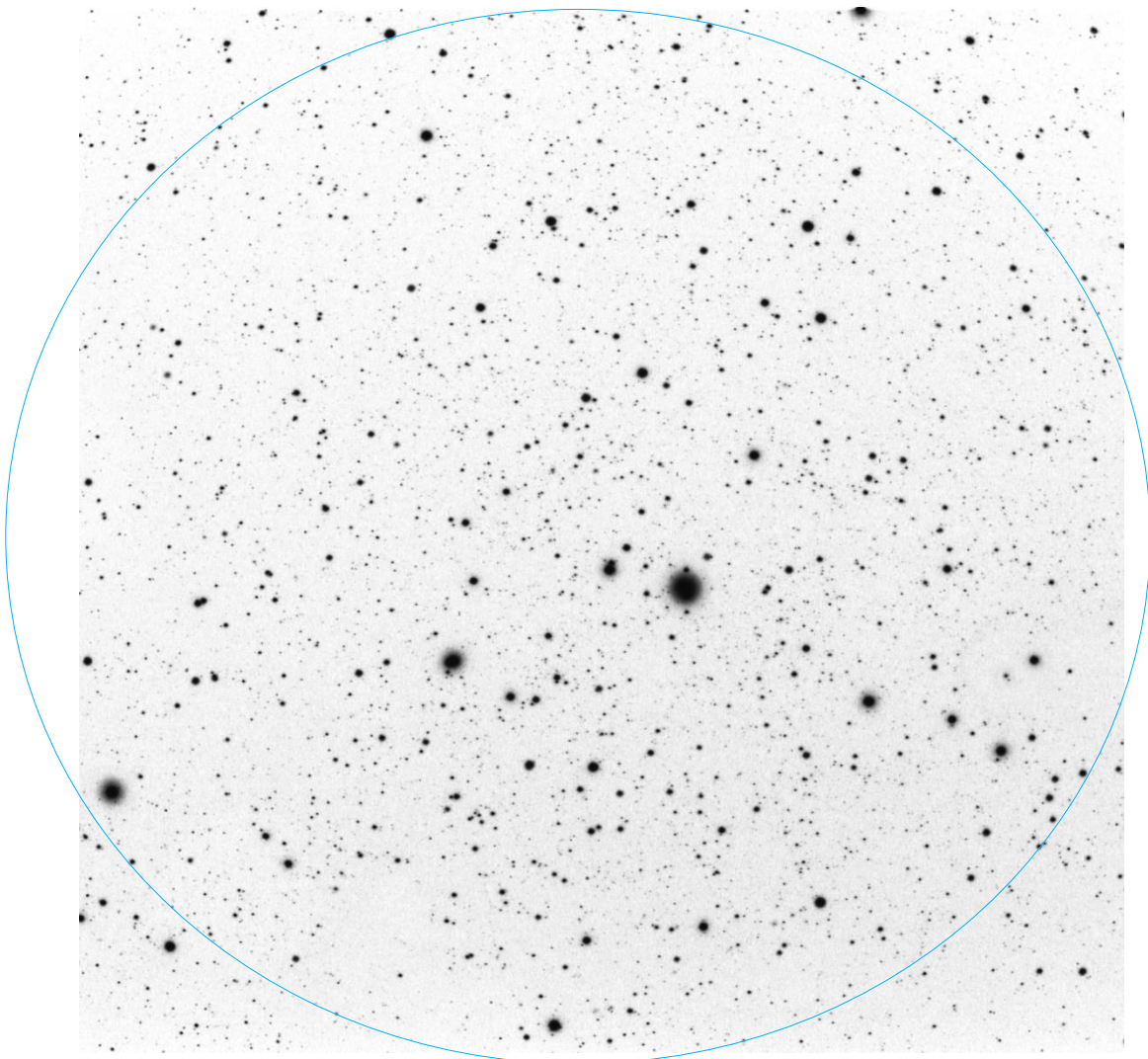
Observation Log Sheet

Object	**NGC 7063**	Date	9/23/23
Right Ascension (2000)	21h24m21s	Time	22:19
Declination (2000)	+36°29'12"	Sky: Transparency	Below Average
Constellation	Cygnus	Seeing	Average
Magnitude	8.0	Location	West Columbia TX
Angular Diameter (')	9.0	Instrument	Astro Tech AT80ED
Concentration Class	III-2-p (III-2-p)	Camera	ZWO ASI183MC
Distance (ly)	2200	Sub Exposure (sec)	15
Diameter (ly)	6	Total Exposure (min)	3.25
		Image Software	SharpCap 4.0

Visual Description   Medium size cluster, less than 50 members with a range of brightness. Somewhat detached but not concentrated.
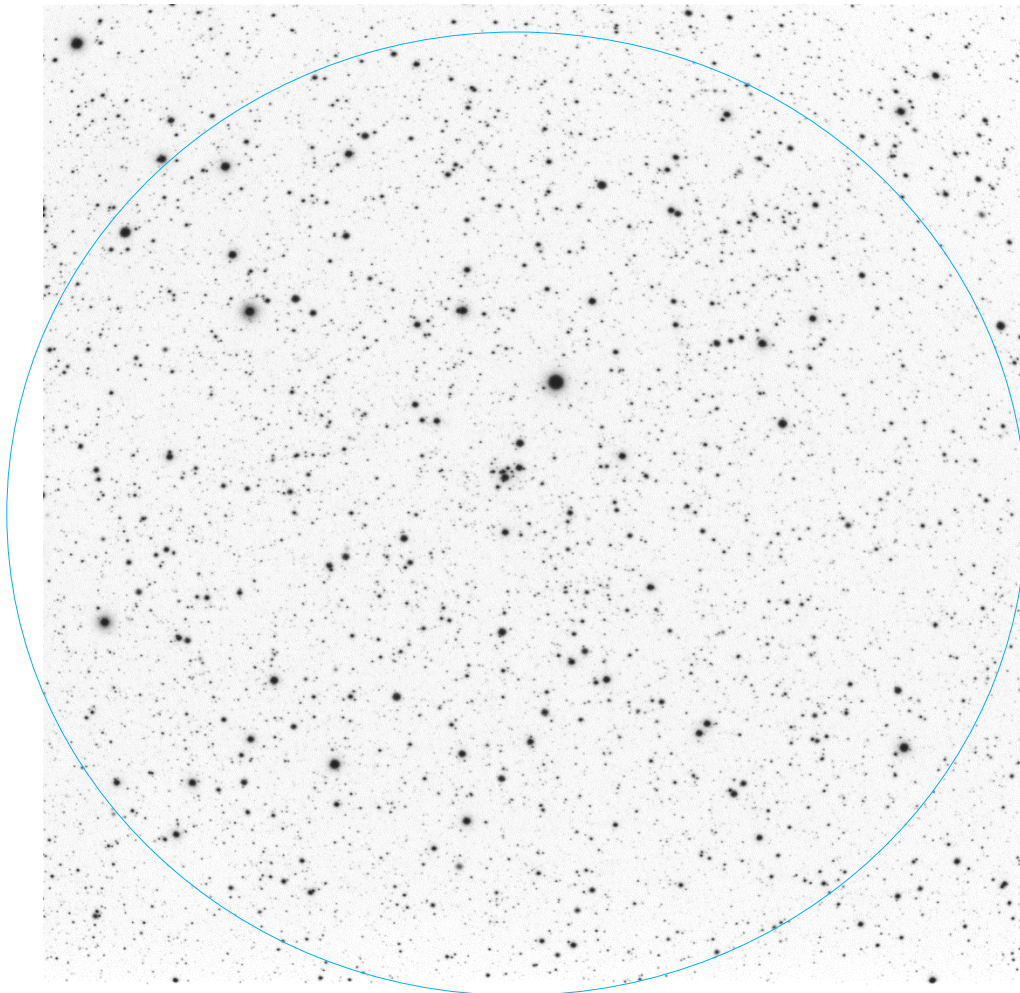
Observation Log Sheet

Object	**IC 1396**	Date	10/12/23
Right Ascension (2000)	21h39m06s	Time	21:38
Declination (2000)	+57°30'00"	Sky: Transparency	Average
Constellation	Cygnus	Seeing	Average
Magnitude		Location	West Columbia TX
Angular Diameter (')	89	Instrument	Astro Tech AT80ED
Concentration Class	II-1-p (II-3-m)	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	
		Image Software	SharpCap 4.0

Visual Description — Large cluster, detached not well concentrated. 5 brighter stars spread across in W to east direction.

Observation Log Sheet

Object	**Berkeley 94**	Date	10/12/23
Right Ascension (2000)	21h39m50s	Time	22:13
Declination (2000)	+57˚36'40"	Sky: Transparency	Average
Constellation	Cygnus	Seeing	Average
Magnitude		Location	West Columbia TX
Angular Diameter (')	89.0	Instrument	Astro Tech AT80ED
Concentration Class	III-2-p	Camera	ZWO ASI183MC
Distance (ly)	2200	Sub Exposure (sec)	15
Diameter (ly)	6	Total Exposure (min)	6.25
		Image Software	SharpCap 4.0

Visual Description   Large cluster not detached nor concentrated. 5 brighter stars spread across in W to east direction.
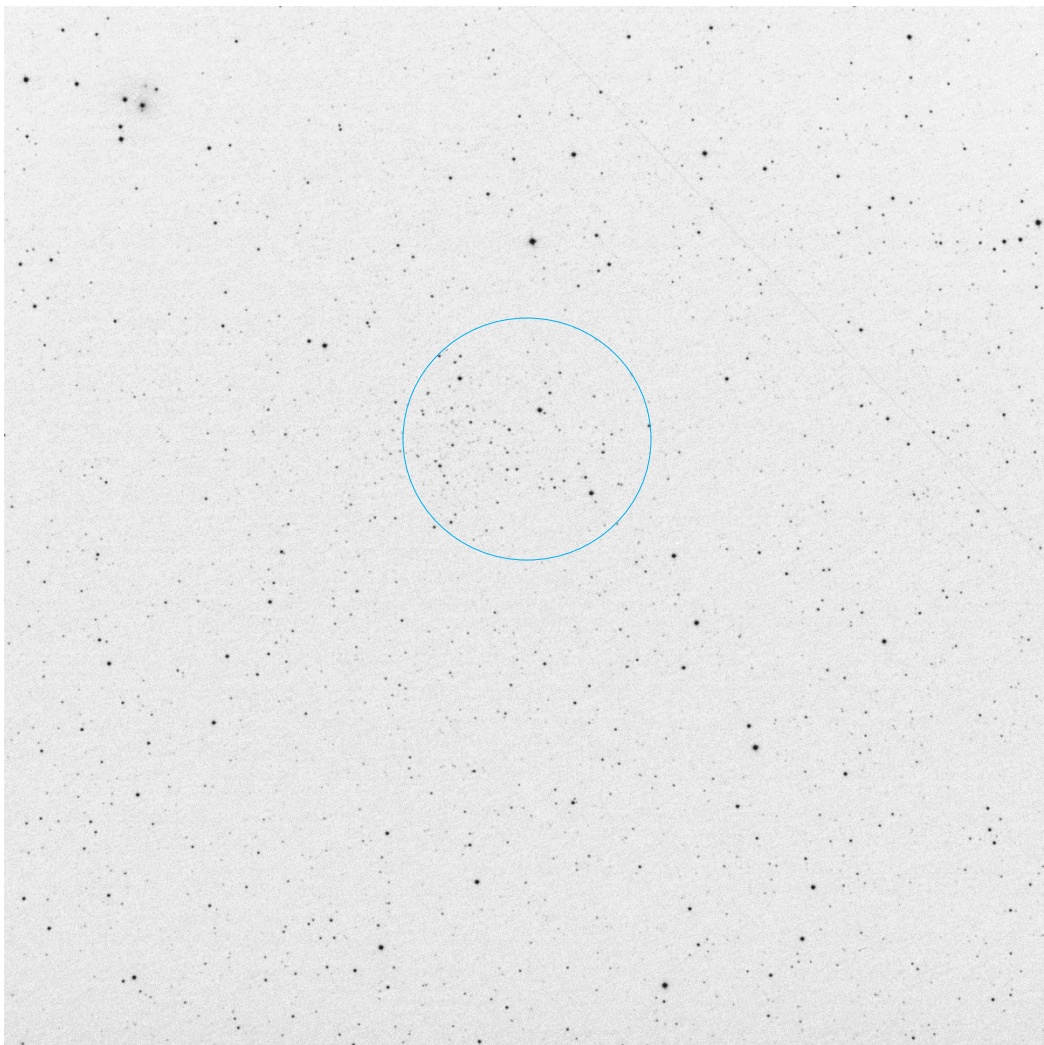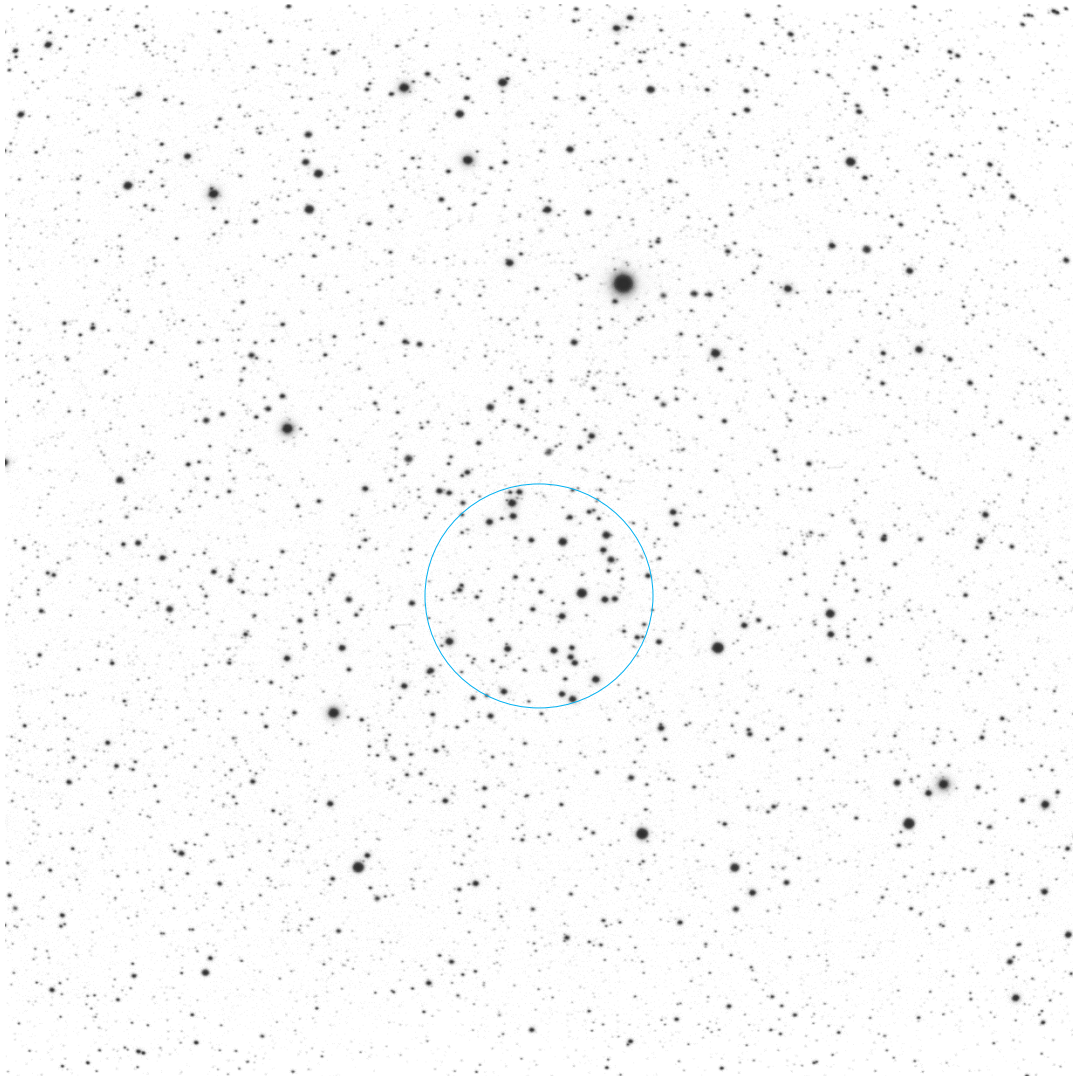
Observation Log Sheet

Object	**NGC 7142**	Date	10/17/23
Right Ascension (2000)	21h45m09s	Time	20:14
Declination (2000)	+65°46'30"	Sky: Transparency	Average
Constellation	Cephus	Seeing	Average
Magnitude	8.6	Location	West Columbia TX
Angular Diameter (')	12.0	Instrument	Astro Tech AT80ED
Concentration Class	III-1-m	Camera	ZWO ASI183MC
Distance (ly)	5500	Sub Exposure (sec)	15
Diameter (ly)	19	Total Exposure (min)	4.0
		Image Software	SharpCap 4.0

Visual Description — Medium sized cluster of about 50 members. Little detachment. NGC7129 is visible to the upper left in the image.

Observation Log Sheet

|			
Object	**NGC 7209**	Date	10/12/23
Right Ascension (2000)	22h05m07s	Time	21:58
Declination (2000)	+46˚29'00"	Sky: Transparency	Average
Constellation	Lacerta	Seeing	Average
Magnitude	7.0	Location	West Columbia TX
Angular Diameter (')	14.0	Instrument	Astro Tech AT80ED
Concentration Class	III-2-p (III-1-p)	Camera	ZWO ASI183MC
Distance (ly)	3800	Sub Exposure (sec)	15
Diameter (ly)	16	Total Exposure (min)	4.5
		Image Software	SharpCap 4.0

Visual Description   Grouping of about 30 to 40 stars. Cluster not well detached or centralized.

Observation Log Sheet

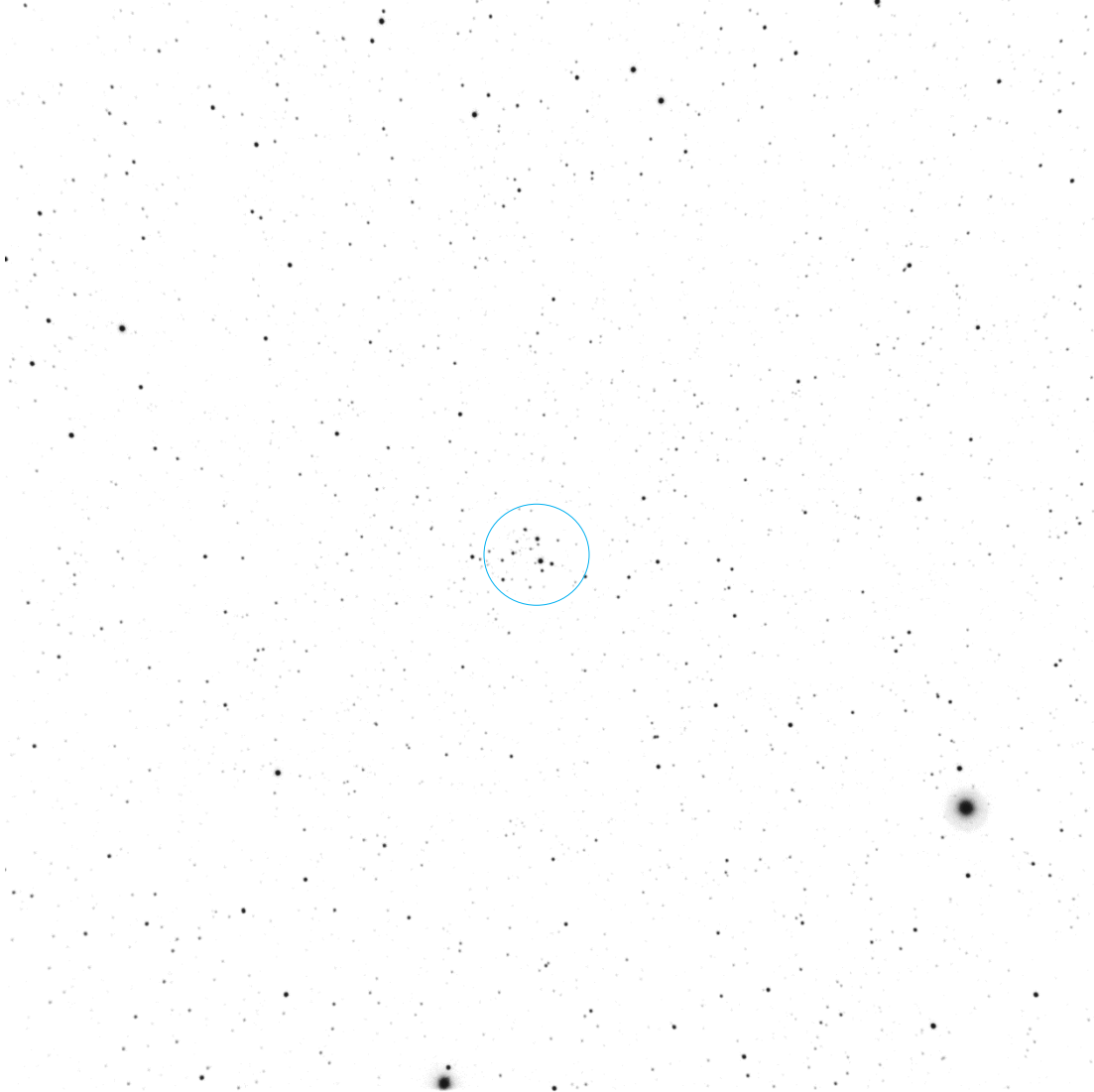|			
Object	**IC 1434**	Date	10/16/23
Right Ascension (2000)	22h10m30s	Time	20:29
Declination (2000)	+52°00'00"	Sky: Transparency	Average
Constellation	Lacerta	Seeing	Average
Magnitude	9.0	Location	West Columbia TX
Angular Diameter (')	6.0	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	4.5
		Image Software	SharpCap 4.0

Visual Description   Very small cluster with little detachment and poor centralization.
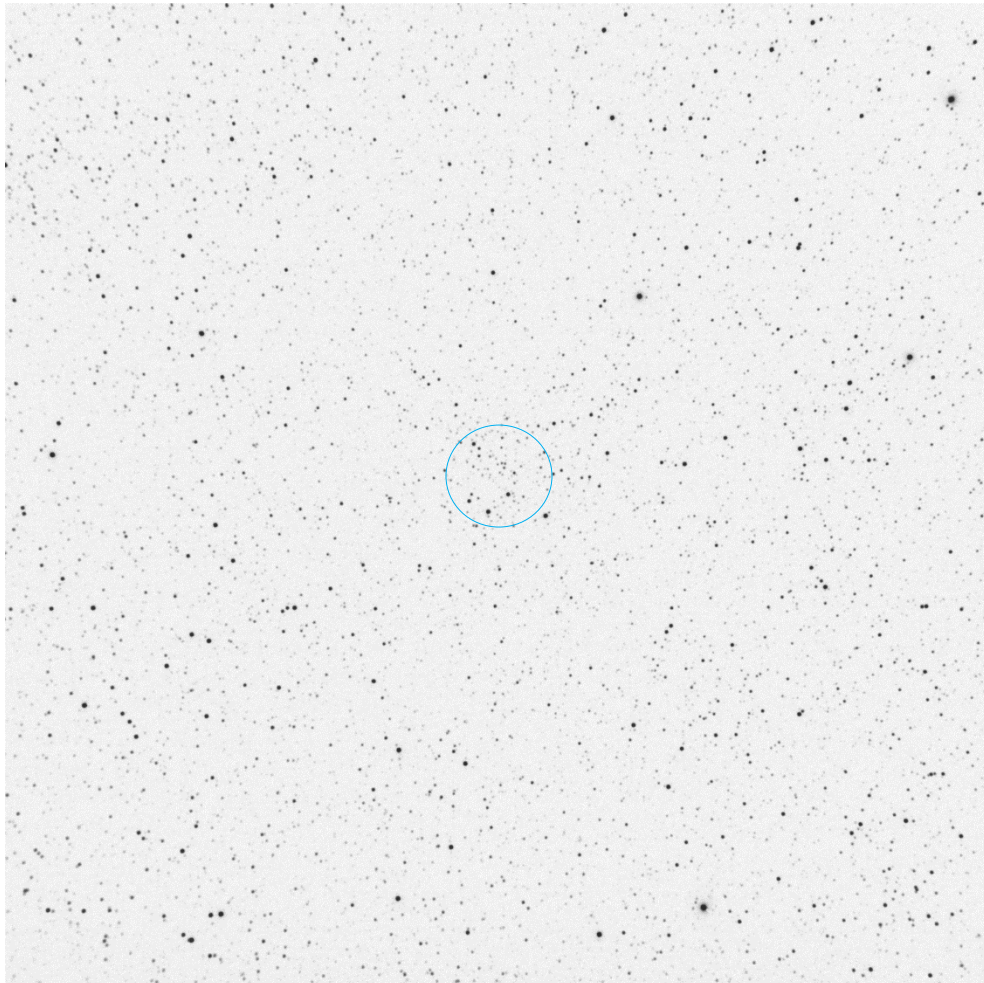
Observation Log Sheet

|			
Object	**NGC 7235**	Date	10/16/23
Right Ascension (2000)	22h12m25s	Time	21:34
Declination (2000)	+57°16'12"	Sky: Transparency	Average
Constellation	Cephus	Seeing	Average
Magnitude	8.8	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p (III-2-p)	Camera	ZWO ASI183MC
Distance (ly)	9200	Sub Exposure (sec)	15
Diameter (ly)	13	Total Exposure (min)	4.5
		Image Software	SharpCap 4.0

Visual Description   Small cluster of < 50 stars. Well detached with some centralization.

Observation Log Sheet

Object	**King 9**	Date	10/16/23
Right Ascension (2000)	22h15m30s	Time	20:21
Declination (2000)	+54˚24'00"	Sky: Transparency	Average
Constellation	Lacerta	Seeing	Average
Magnitude	11.6	Location	West Columbia TX
Angular Diameter (')	3.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-1-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	4.5
		Image Software	SharpCap 4.0

Visual Description   Tiny cluster, not noticeable from field stars.
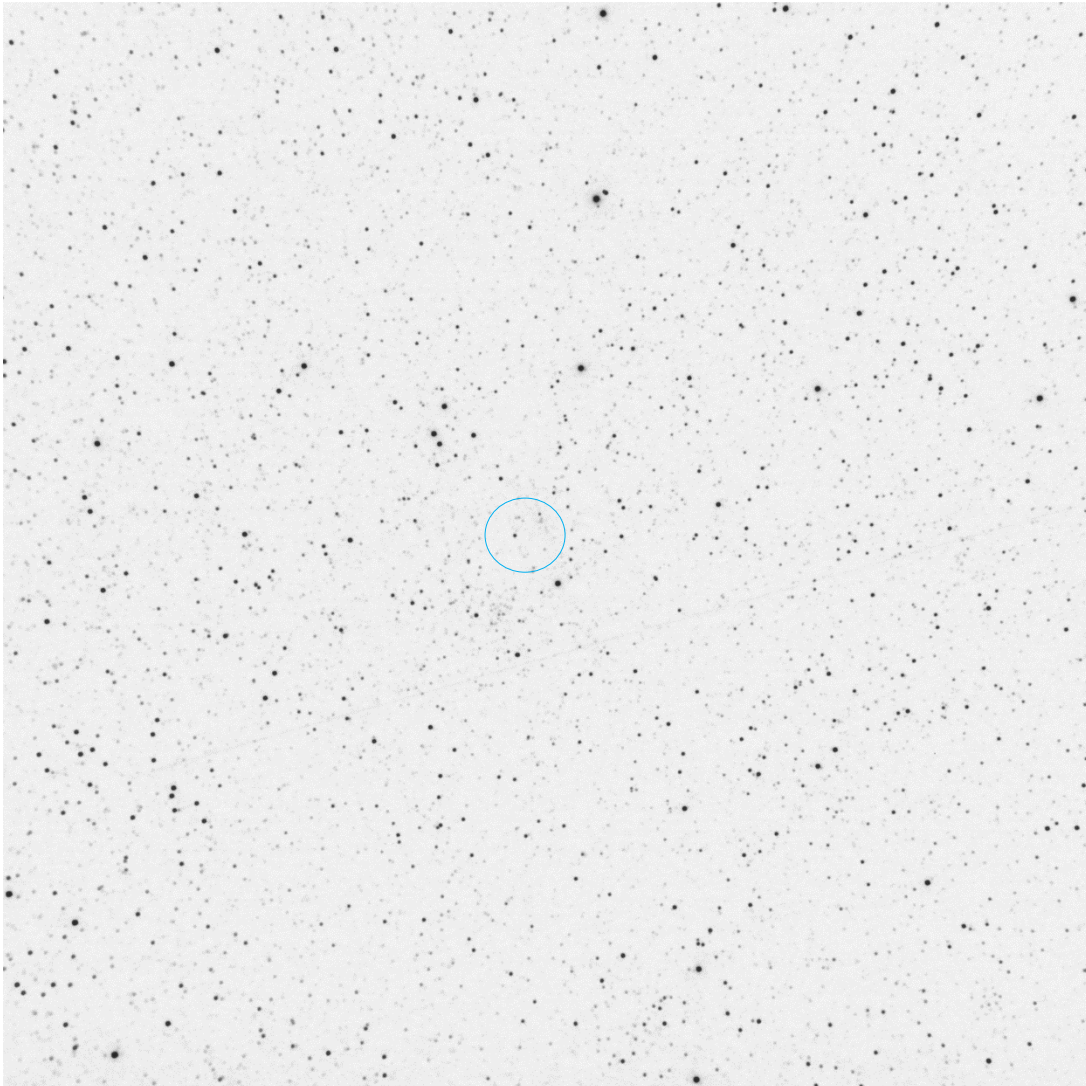
Observation Log Sheet

|			
Object	**Berkeley 96**	Date	7/16/24
Right Ascension (2000)	22h30m22s	Time	00:22
Declination (2000)	+55˚31'20"	Sky: Transparency	Below Average
Constellation	Lacerta	Seeing	Average
Magnitude	13	Location	West Columbia TX
Angular Diameter (')	2.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p	Camera	ZWO ASI533MC Pro
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	4.5
		Image Software	SharpCap 4.0

Visual Description　　　OC is not really detached from the field stars. Approximately 10 stars appear in the position from the chart, all similar in brightness.
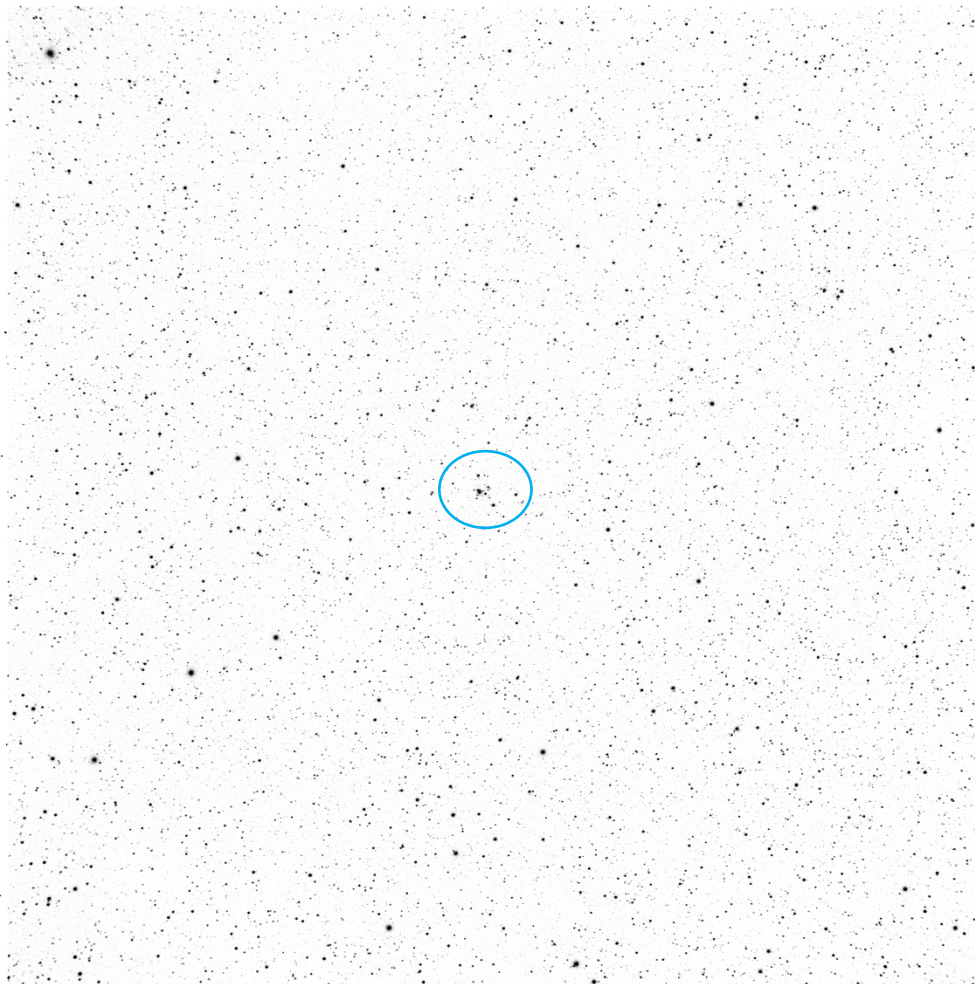
Observation Log Sheet

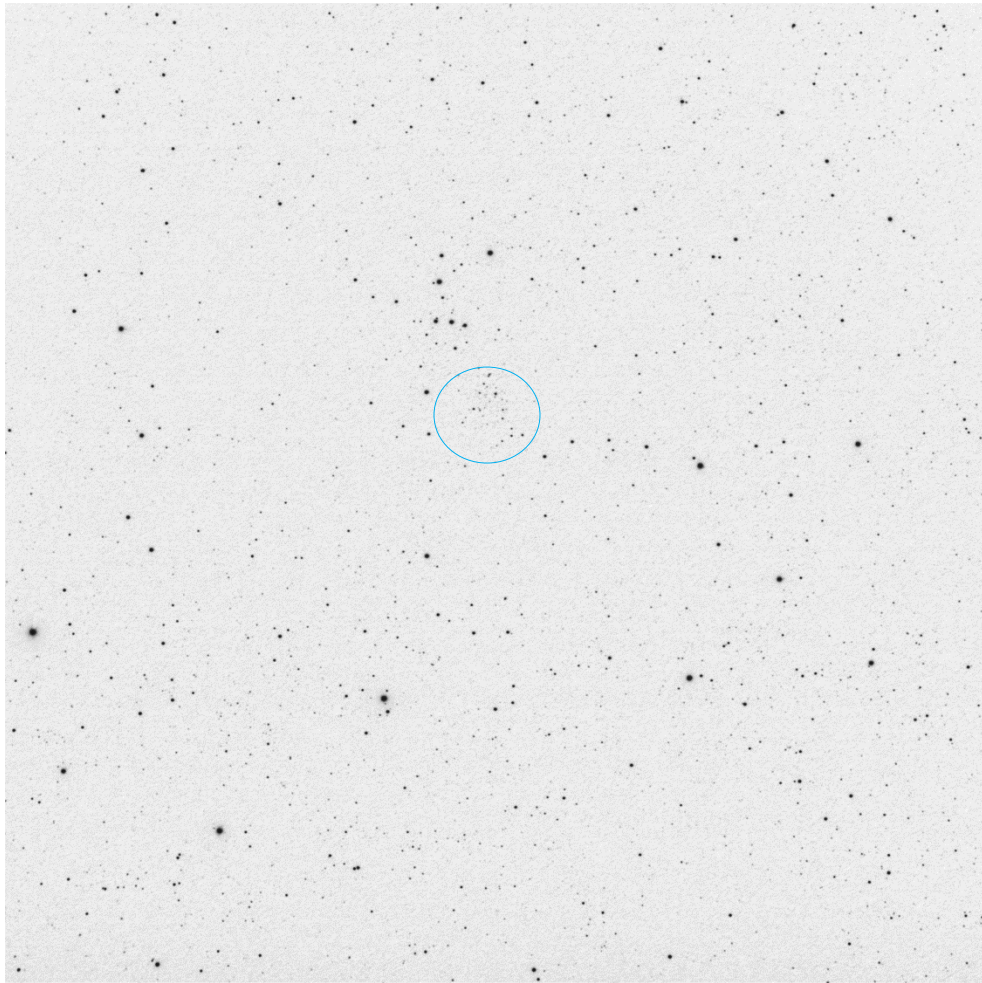|			
Object	**King 18**	Date	10/21/23
Right Ascension (2000)	22h52m06s	Time	20:27
Declination (2000)	+58°17'00"	Sky: Transparency	Average
Constellation	Cephus	Seeing	Average
Magnitude	9.8	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	5.0
		Image Software	SharpCap 4.0

Visual Description   Small cluster with about a dozen brighter stars and then half that many fainter ones.
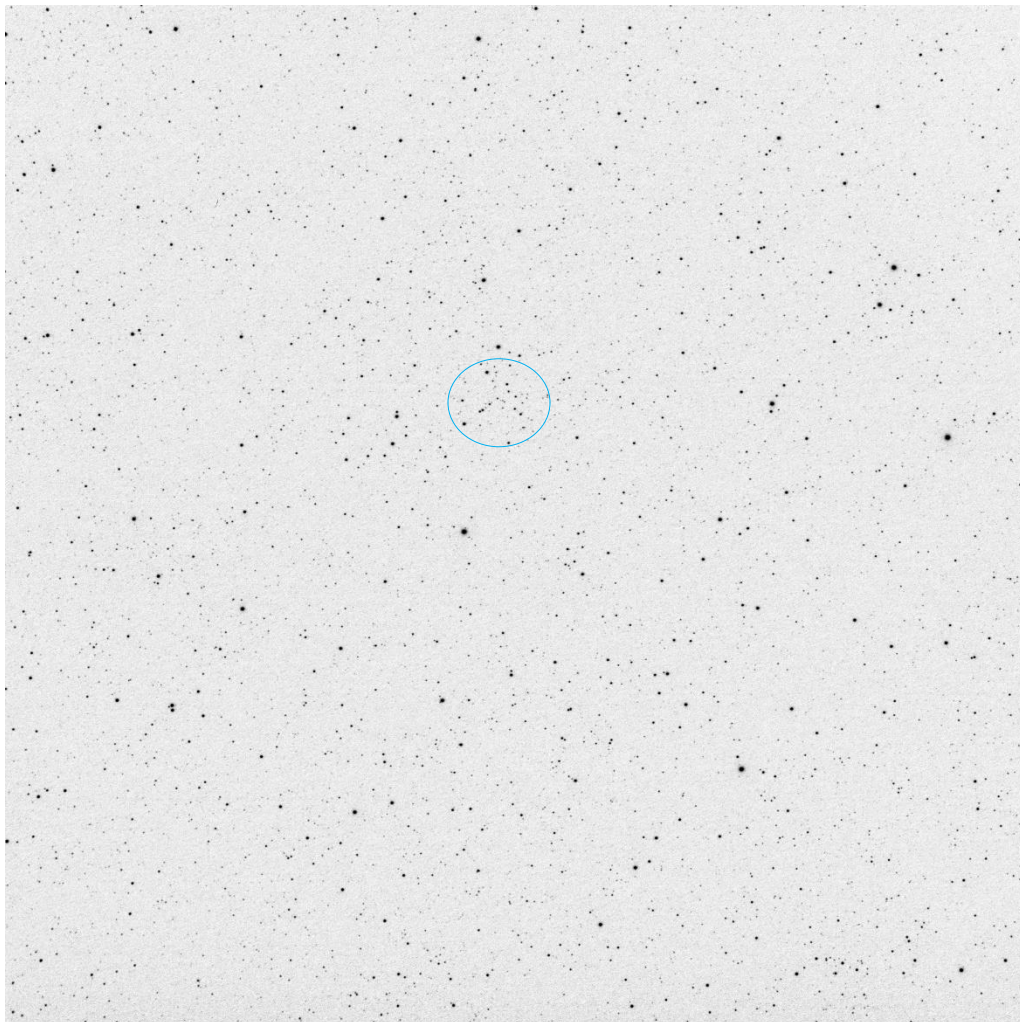
Observation Log Sheet

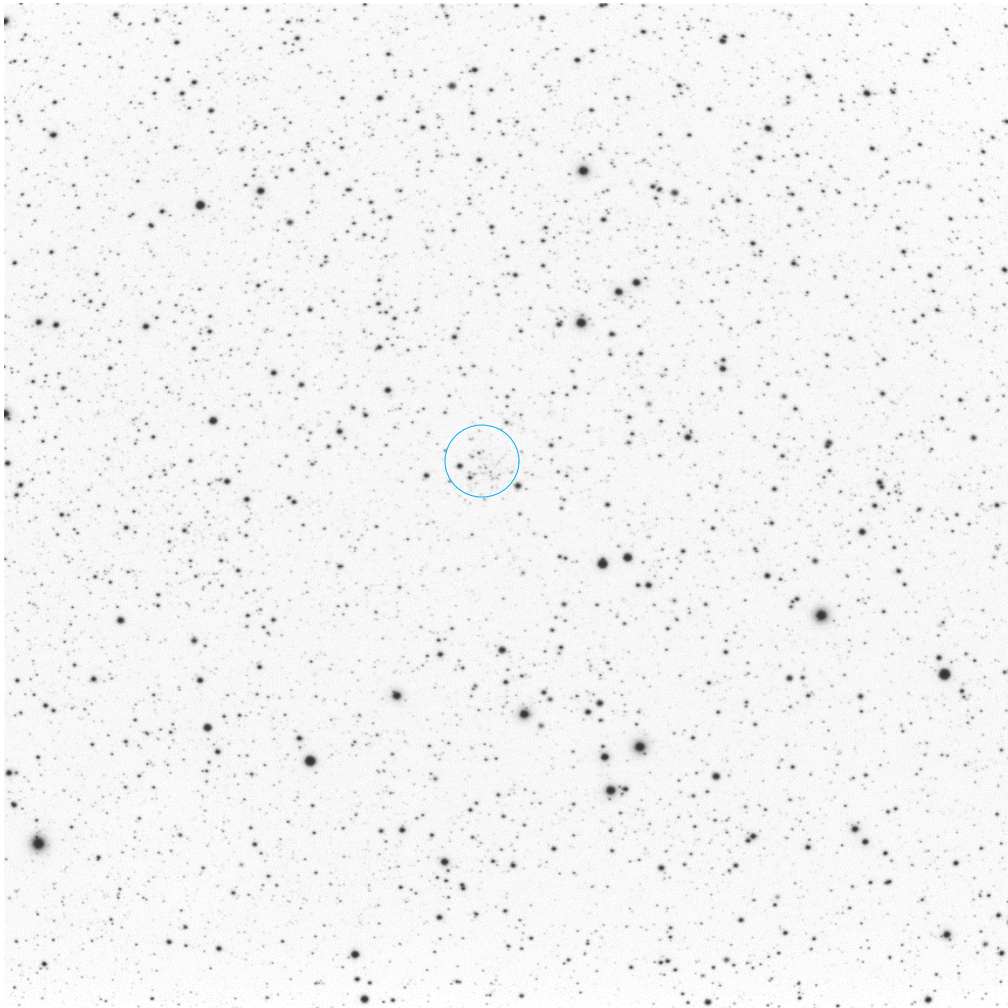|			
Object	**King 10**	Date	10/12/23
Right Ascension (2000)	22h54m54s	Time	22:27
Declination (2000)	+59°10'00"	Sky: Transparency	Average
Constellation	Cepheus	Seeing	Average
Magnitude	10.7	Location	West Columbia TX
Angular Diameter (')	4.0	Instrument	Astro Tech AT80ED
Concentration Class	II-1-p	Camera	ZWO ASI183MC
Distance (ly)	11000	Sub Exposure (sec)	15
Diameter (ly)	13	Total Exposure (min)	6.25
		Image Software	SharpCap 4.0

Visual Description   Detached with little concentration. Cluster is located just below three brighter stars and is arrow shaped.
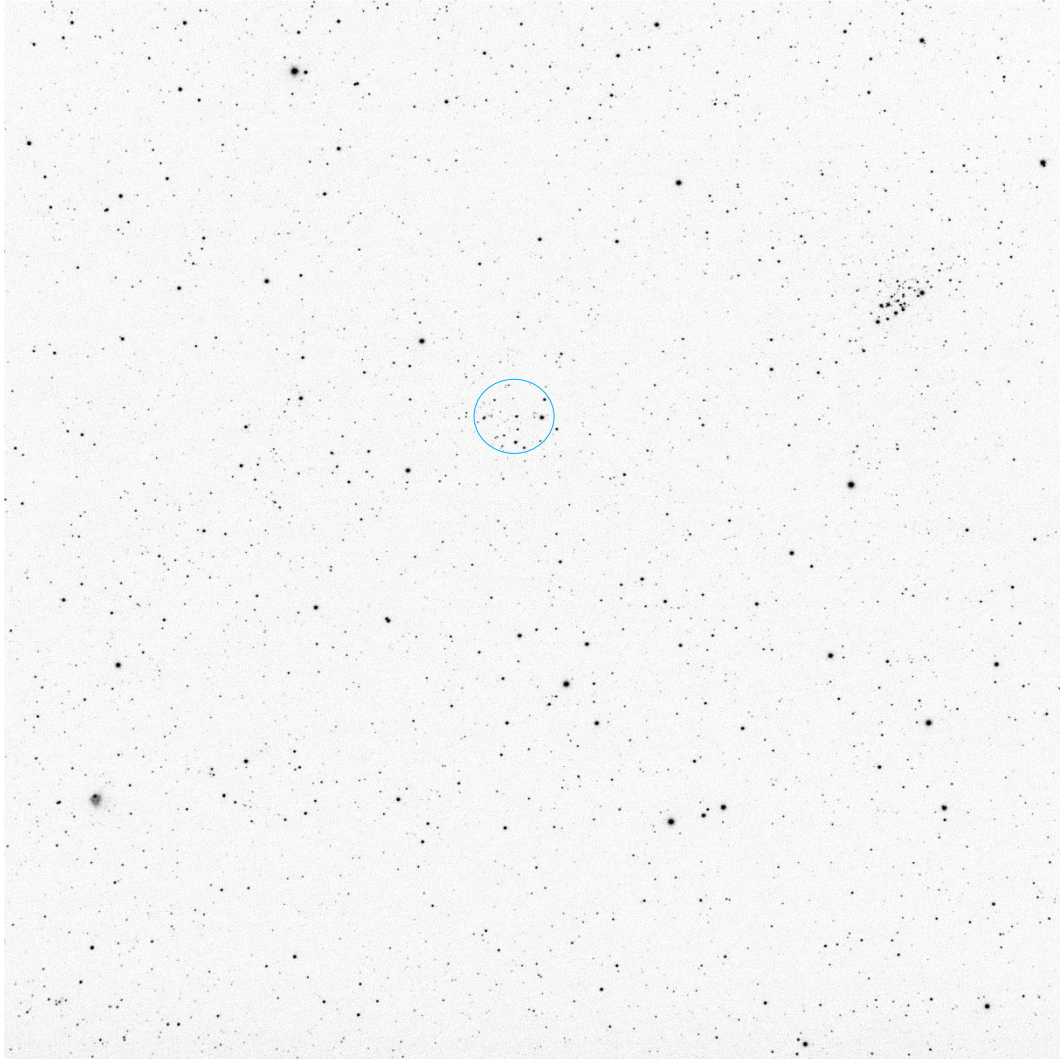
Observation Log Sheet

Object	**NGC 7423**	Date	10/12/23
Right Ascension (2000)	22h55m08s	Time	20:19
Declination (2000)	+57°05'48"	Sky: Transparency	Average
Constellation	Cepheus	Seeing	Average
Magnitude	10.3	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	IV-3-p	Camera	ZWO ASI183MC
Distance (ly)		Sub Exposure (sec)	15
Diameter (ly)		Total Exposure (min)	6.25
		Image Software	SharpCap 4.0

Visual Description — Very small cluster, not well detached. Only a dozen visible members dominated by teo brighter ones.
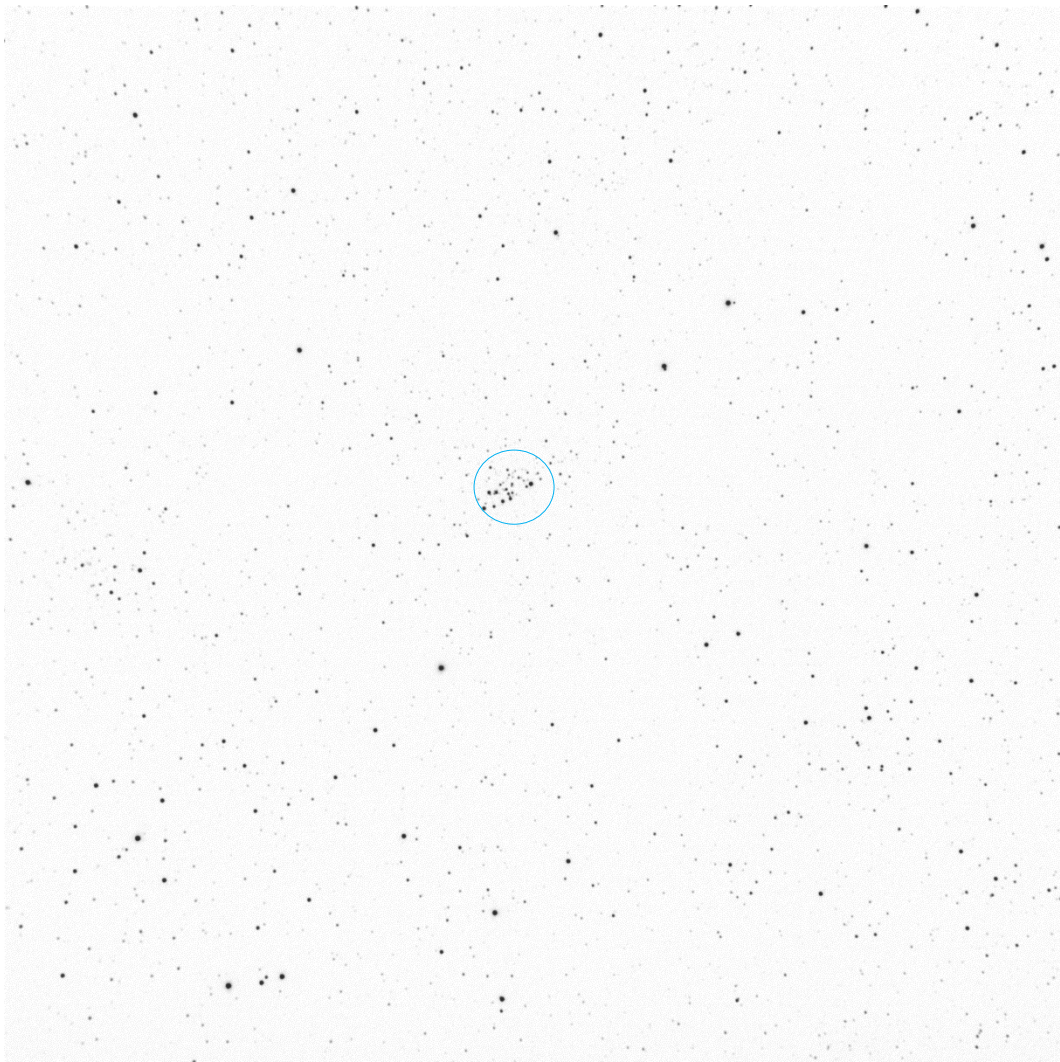
Observation Log Sheet

Object	**Basel 2**	Date	10/21/23
Right Ascension (2000)	23h08m18s	Time	21:40
Declination (2000)	+60°31'00"	Sky: Transparency	Average
Constellation	Cephus	Seeing	Average
Magnitude	9.7	Location	West Columbia TX
Angular Diameter (')	5.0	Instrument	Astro Tech AT80ED
Concentration Class	II-3-p	Camera	ZWO ASI183MC
Distance (ly)	6400	Sub Exposure (sec)	15
Diameter (ly)	9.0	Total Exposure (min)	6.0
		Image Software	SharpCap 4.0

Visual Description — Small cluster in same f.o.v as the Arrowhead Cluster. 15 brighter stars and another 15 fainter ones. Detached but not concentrated.
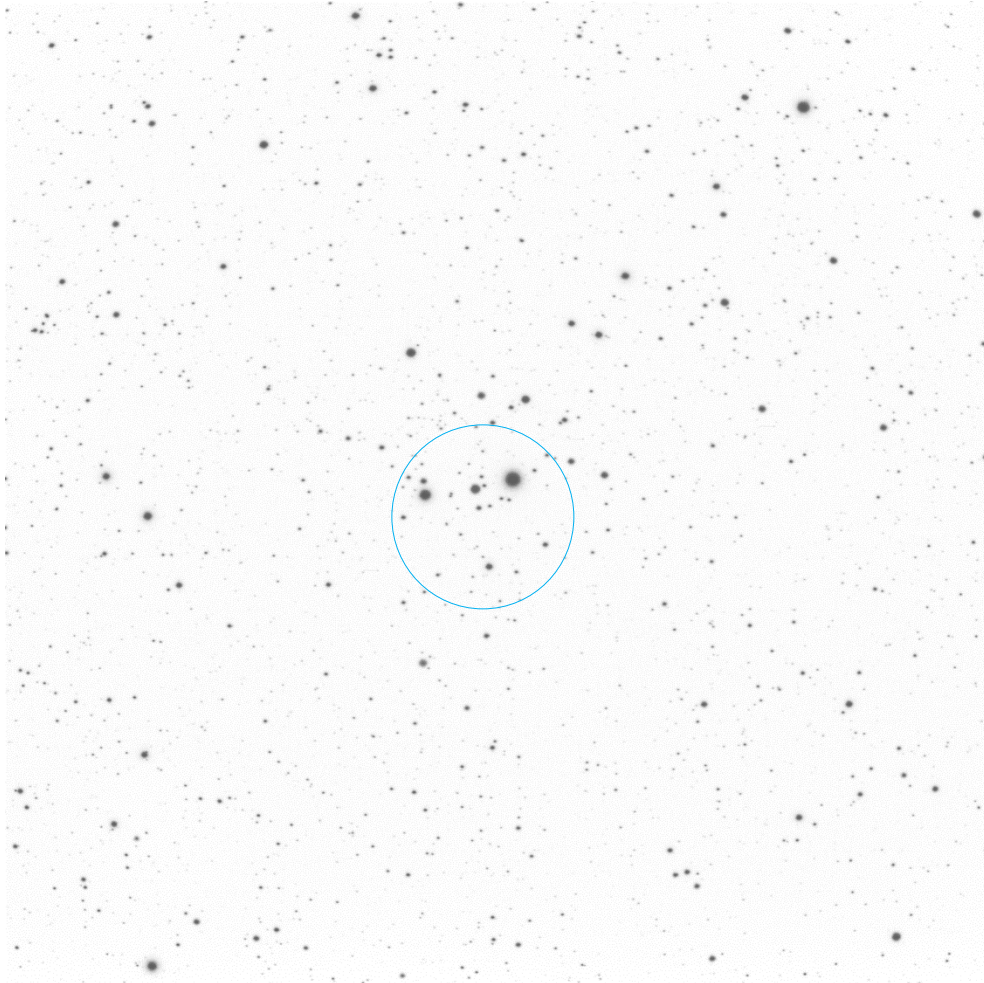
Observation Log Sheet

Object	**NGC 7510**	Date	10/16/23
Right Ascension (2000)	23h11m03s	Time	21:40
Declination (2000)	+60°34'12"	Sky: Transparency	Average
Constellation	Cephus	Seeing	Average
Magnitude	8.1	Location	West Columbia TX
Angular Diameter (')	6.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-m (II-2-m-n)	Camera	ZWO ASI183MC
Distance (ly)	6800	Sub Exposure (sec)	15
Diameter (ly)	12	Total Exposure (min)	4.0
		Image Software	SharpCap 4.0

Visual Description   Arrowhead cluster. Comprising of 50 or more stars of varying brightness. Well detached from field stars

Observation Log Sheet

|			
Object	**NGC 7686**	Date	10/12/23
Right Ascension (2000)	23h30m07s	Time	22:06
Declination (2000)	+49°08'00"	Sky: Transparency	Average
Constellation	Andromeda	Seeing	Average
Magnitude	5.8	Location	West Columbia TX
Angular Diameter (')	14.0	Instrument	Astro Tech AT80ED
Concentration Class	II-2-p (IV-1-p)	Camera	ZWO ASI183MC
Distance (ly)	3300	Sub Exposure (sec)	15
Diameter (ly)	13	Total Exposure (min)	4.75
		Image Software	SharpCap 4.0

Visual Description   Cluster is noticeable by 3 brighter stars in a line. The center star is not shown as bright as the other two on my SkyTools. Possible variable in outburst? Cluster is detached with some centralization.

Observation Log Sheet

Object	**King 21**	Date	10/21/23
Right Ascension (2000)	23h49m54s	Time	20:33
Declination (2000)	+62˚43'00"	Sky: Transparency	Average
Constellation	Cassiopia	Seeing	Average
Magnitude	10.6	Location	West Columbia TX
Angular Diameter (')	4.0	Instrument	Astro Tech AT80ED
Concentration Class	III-3-p	Camera	ZWO ASI183MC
Distance (ly)	6900	Sub Exposure (sec)	15
Diameter (ly)	8	Total Exposure (min)	4.5
		Image Software	SharpCap 4.0

Visual Description   Tiny cluster with two brighter stars and another half dozen fainter ones.
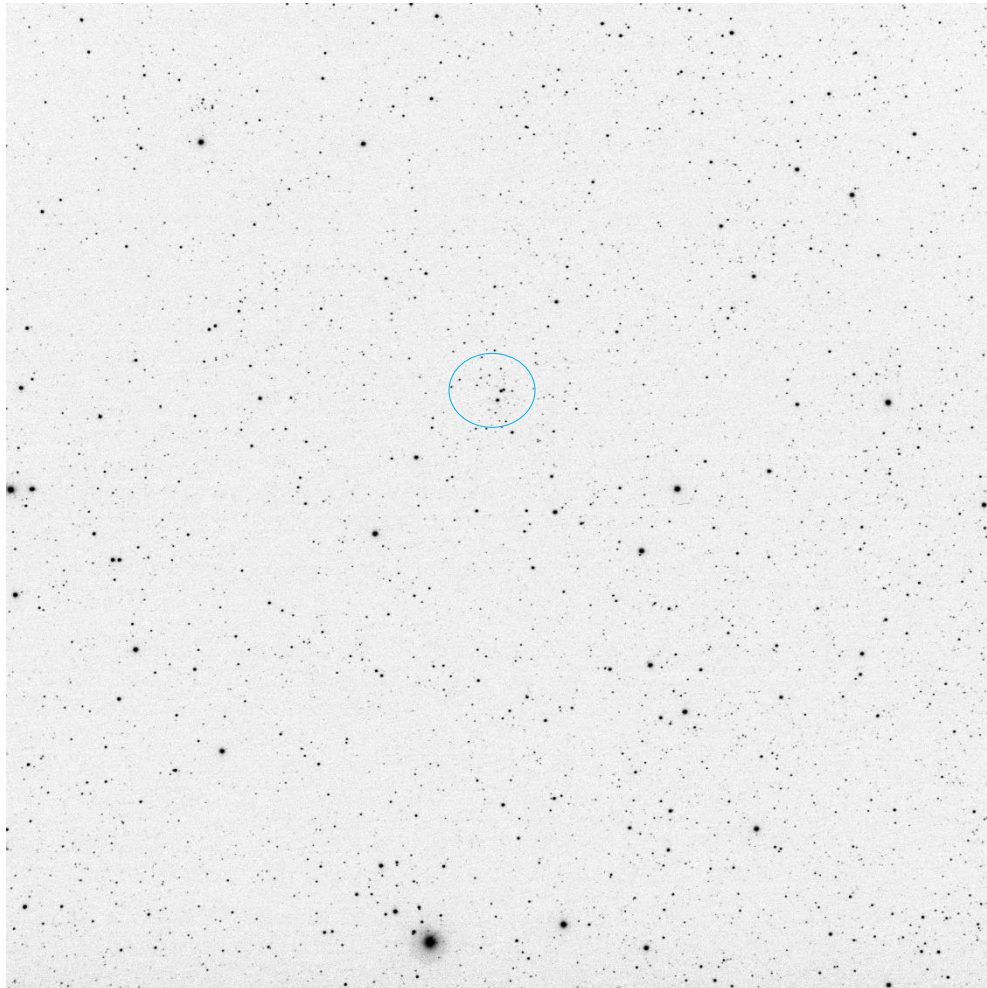
Observation Log Sheet

Object	**King 12**	Date	10/21/23
Right Ascension (2000)	23h53m03s	Time	20:46
Declination (2000)	+61˚57'28"	Sky: Transparency	Average
Constellation	Cassiopia	Seeing	Average
Magnitude	9.7	Location	West Columbia TX
Angular Diameter (')	3.0	Instrument	Astro Tech AT80ED
Concentration Class	L-1-p	Camera	ZWO ASI183MC
Distance (ly)	7800	Sub Exposure (sec)	15
Diameter (ly)	7	Total Exposure (min)	4.5
		Image Software	SharpCap 4.0

Visual Description   About 20 stars all similar in magnitude. Some concentration