Young Stellar Objects

An Observing Guide to Pre-Main Sequence Stars

Reiner Vogel 2010

Finder charts measure 20° (with 5° circle) and 5° (with 30' square) and were made with *Cartes du Ciel* by Patrick Chevalley (*www.stargazing.net/astropc/*)

DSS finder images have all the same scale of 30'x30' and are derived mostly from POSS II blue plates

Small images are close ups from POSS II blue and POSS IRB color composites

All images and charts are oriented with **north to the top**

Thanks to all the people that contributed by posting or sending information on these objects, in particular to Matthias Kronberger, Uwe Glahn, Friedl Lamprecht, Peter Surma, Daniel Restemeier, Steve Gottlieb and Paul Alsing.

Special thanks to Sakib Rasool (www.starsurfin.com) who got me started on this project and suggested a substantial number of the observing targets.

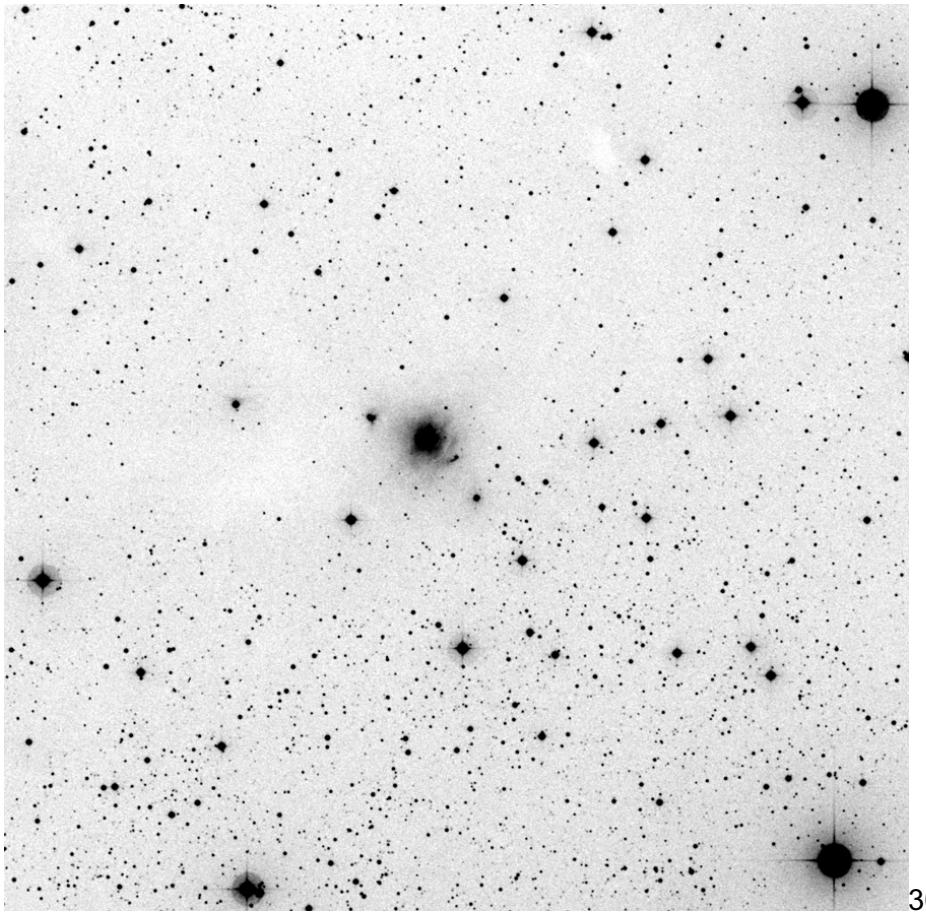
Object List

	const	RA	Dek	other designations	comments
HBC 324	Cas	00 07 30.69	+65 39 52.4	MC 1	emission line star
V633 Cas	Cas	00 11 25.97	+58 49 29.1	HBC 3, LkHa 198	
V376 Cas	Cas	00 11 26.09	+58 50 03.5	HBC 325	with HH162
HBC 327 **HBC 328**	Cas	00 16 54.82	+65 46 53.2	MC3 (HBC 327) and MC4 (HBC 328)	emission line stars
MC 2	Cas	00 36 00.00	+66 19 01.2		
RNO 1	Cas	00 36 46.30	+63 28 54.1	RNO 1/1B (=V710 Cas)/1C	FU Ori stars
HBC 334	Per	02 16 30.10	+55 22 57.0	RNO 6, GM 1-4	emission line star
HBC 336	Cam	03 17 26.68	+60 09 41.3	2MASS J03172668+6009412, HHL 6	
NGC1333	Per	03 29 02	+31 20 54		star forming region with several HHs
XY Per	Per	03 49 37.03	+38 58 57.6	HBC 349 / 350	Herbig Ae/Be
RY Tau	Tau	04 21 56.75	+28 26 33.9	HBC 34	
T Tauri	Tau	04 22 00.00	+19 36 00.0	NGC 1555, Hind's Variable Nebula	T Tauri prototype
FS Tau	Tau	04 22 02.18	+26 57 30.5		with HH276 nearby
DG Tau	Tau	04 27 04.70	+26 06 16.2	Ced 33	T Tauri type
Sh2-239	Tau	04 31 16.80	+18 07 12.0		includes several HHs and IR sources
EW Eri	Eri	04 35 02.29	-14 13 40.8	HBC 413, L 1642-1	
HP Tau	Tau	04 35 52.78	+22 54 23.1	HBC 66, LkHA 258	
AB Aur	Aur	04 55 45.70	+30 32 56.0	HBC 78, vdB 31	
SU Aur	Aur	04 55 59.38	+30 34 01.5	HD 282624, HBC 79	
HK Ori	Ori	05 31 28.05	+12 09 10.2	Ced 51, S 3-52	T Tauri type
Holoea	Aur	05 36 05.37	+34 06 11.6	IRAS 05327+3404	

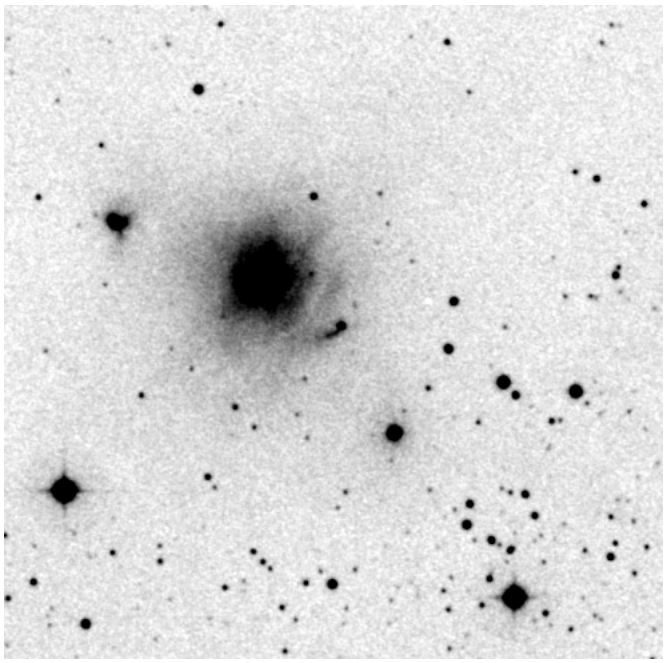
	const	RA	Dek	other designations	comments
V380 Ori	Ori	05 36 27	-06 43 18	NGC 1999, Keyhole Nebula	with HH 1and HH 2 nearby
V883 Ori	Ori	05 38 19.00	-07 02 12.0	IC 430	FU Ori type
RR Tau	Tau	05 39 30.53	+26 22 26.4	PP 38	
HBC 498	Ori	05 40 48.07	-08 05 58.7		
FU Ori	Ori	05 45 22.4	+09 04 11	Ced 59	FU Ori prototype
V1647 Ori	Ori	05h 47	+ 04 45	McNeil's Nebula	FU Ori type
V1793 Ori	Ori	05 54 02.43	+01 40 22.5	vdB 62, HBC 515	T Tauri type
V1307 Ori	Ori	06 01 59.99	+16 30 56.7		
Ced 62	Ori	06 07 49.49	+18 39 27.0	HBC 193, NGC 2163, LkHa 208	emission line star
R Mon	Mon	06 39 09.51	+08 44 39.6	NGC 2261, Hubble's Variable Nebula	T Tauri type
V900 Mon	Mon	06 57 22	-08 23 22	Thommes' Nebula	FU Ori type
V565 Mon	Mon	06 58 02.80	-07 56 42.0	NGC 2313, Parsamian 17	
HBC 547	Mon	06 59 41.56	-07 46 28.8	HBC 537 / NGC 2316	
Z CMa	CMa	07 03 43.16	-11 33 06.2		FU Ori type with HH 160
RNO 109	Aql	19 20 24.00	+11 22 58.8		ISM
V1352 Aql	Aql	19 20 30.99	+11 01 54.5	HBC 292, AS353	associated with HH32
Parsamian 21	Aql	19 28 59	+09 38 15	NS 18, HBC 687	FU Ori type
GM 2-39	Cyg	20 17 08.05	+38 59 29.4		emission line star
GM 1-27	Cyg	20 20 12.7	+37 10 09	GN 20.18.3	includes HH214
V1318 Cyg	Cyg	20 20 30.46	+41 21 26.8		emission line star
V1515 Cyg	Cyg	20 23 48.01	+42 12 25.9		FU Ori type
RNO 124	Cep	20 36 19.78	+67 56 31.2	2MASS J20361986+6756316, GM 3-12, HBC 695	
PV Cep	Cep	20 45 54	67 57 51	GM 1-29, Gyulbudaghian's Nebula	FU Ori type

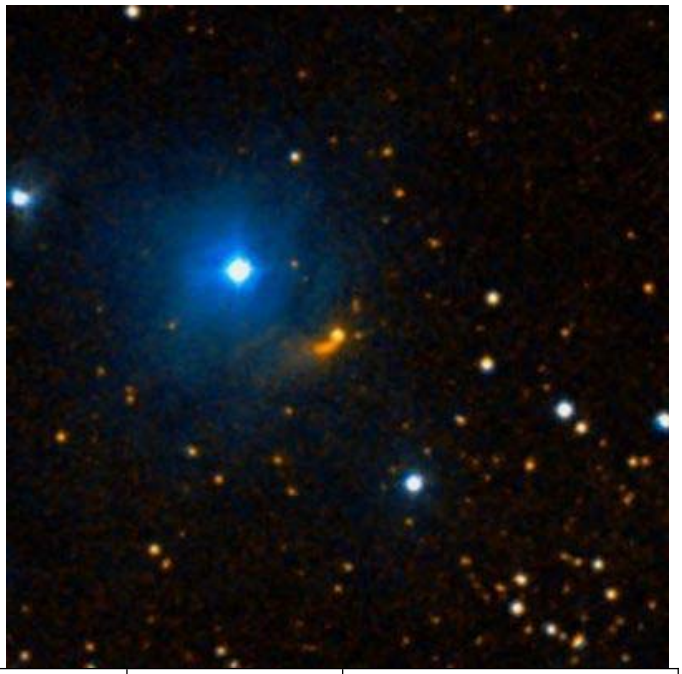
	const	RA	Dek	other designations	comments
IRAS 20568+5217	Cyg	20 58 21.41	+52 29 26.9		FU Ori Type
RNO 129	Cep	20 59 14.09	+78 23 04.0	2MASS J20591408+7823040	
V1331 Cyg	Cyg	21 01 09.21	+50 21 44.8		FU Ori, questionable
V1982 Cygni	Cyg	21 03 55.92	+50 14 24.0	LkHa 324, HBC 305, Gyul 98-171 (ISM)	emission line star
V645 Cyg	Cyg	21 39 58.24	+50 14 21.2	HH218	
V 375 Lac	Lac	22 34 41.04	+40 40 03.6	LkHa 233, HBC 313	Herbig Ae/Be star, includes HH398
V628 Cas	Cas	23 17 25.57	+60 50 43.3	MWC 1080	with HH 170
LkHa 259	Cep	23 58 41.54	+66 26 12.9	2MASS J23584164+6626126, PP 106, HBC 321	

HBC 1 in Cassiopeia



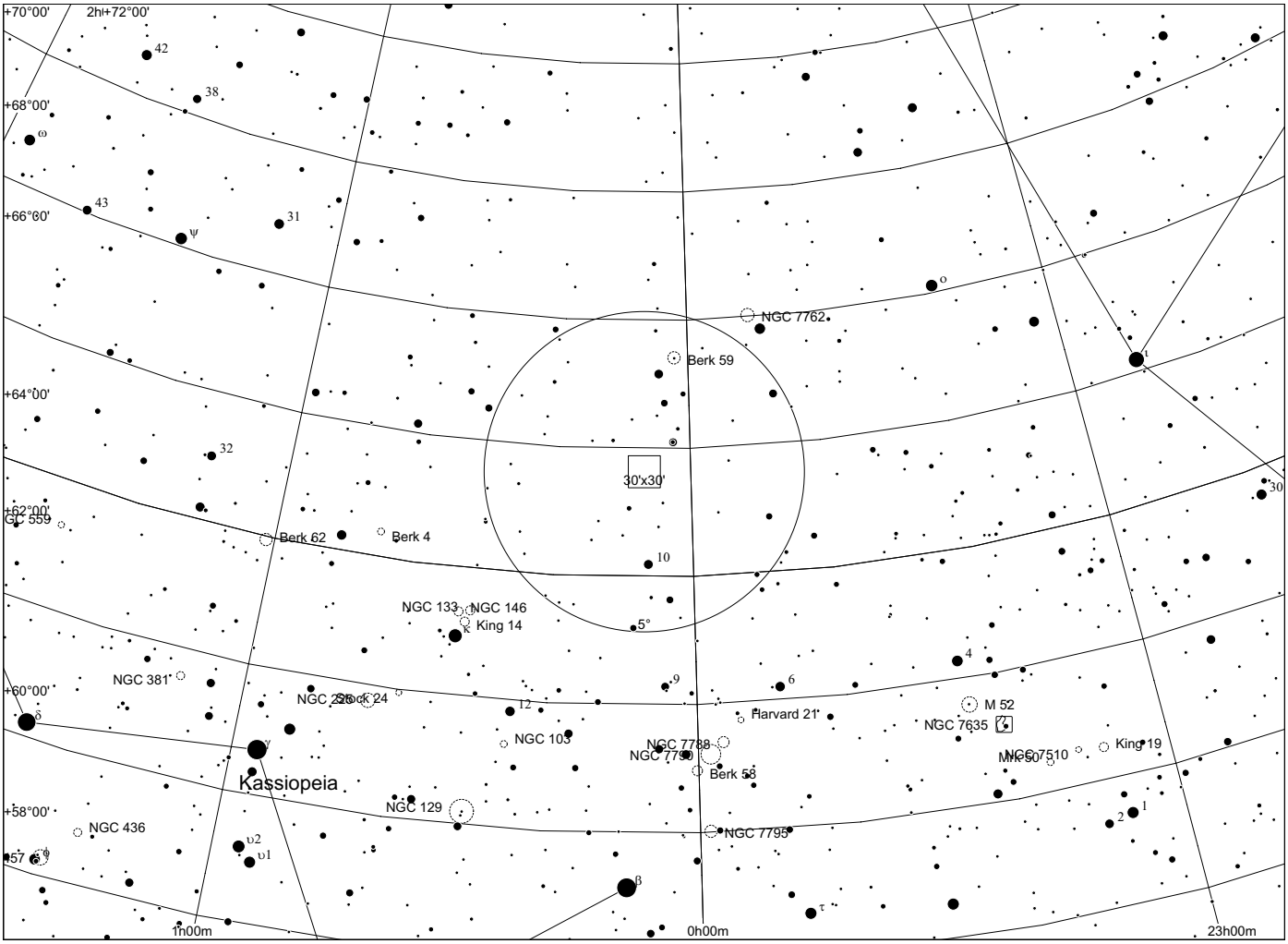
30x30 blue

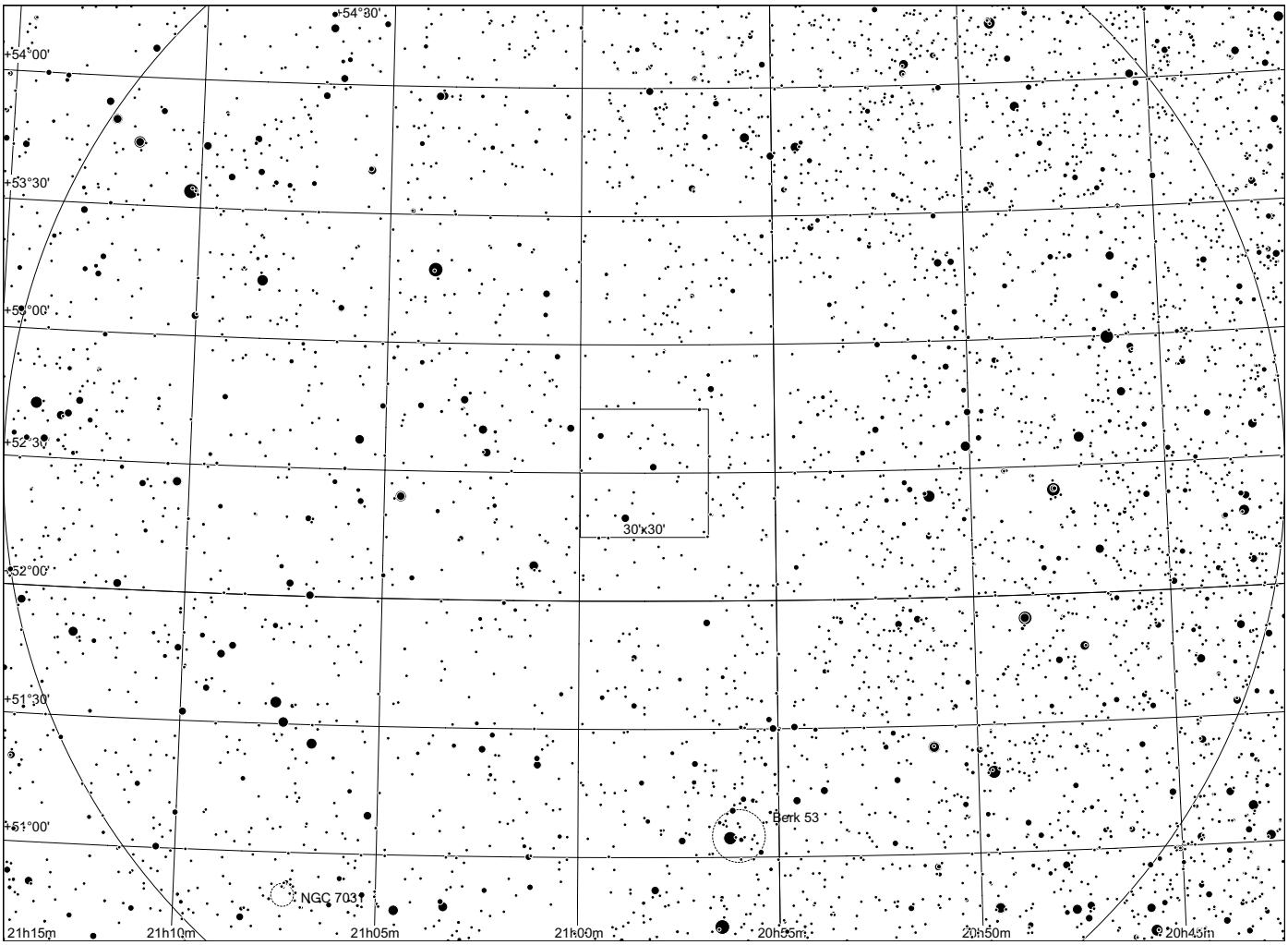




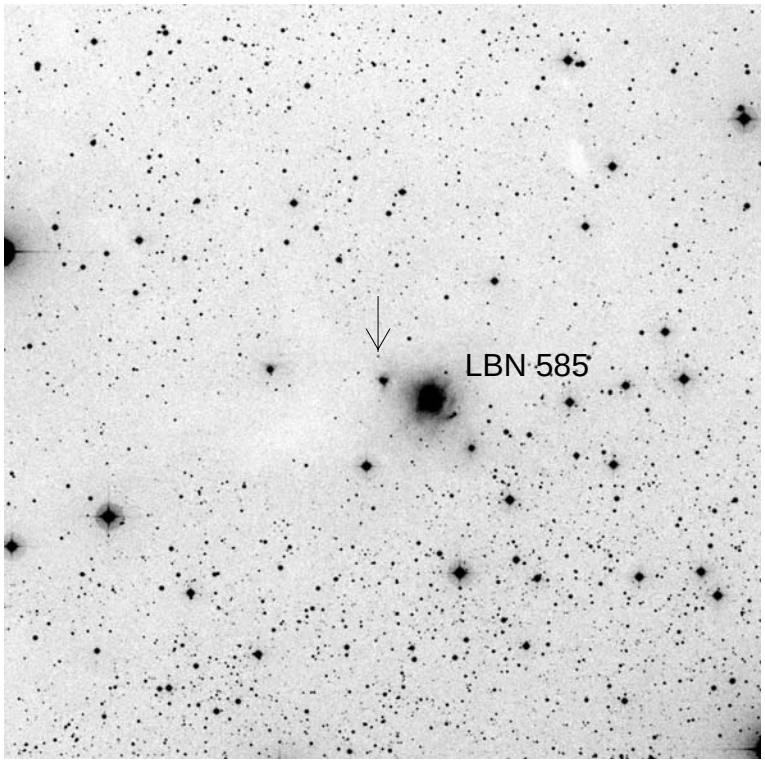
	other	RA	Dek	comments
HBC 1	GN 00.04.4	00 07 02.60	+65 38 38.2	

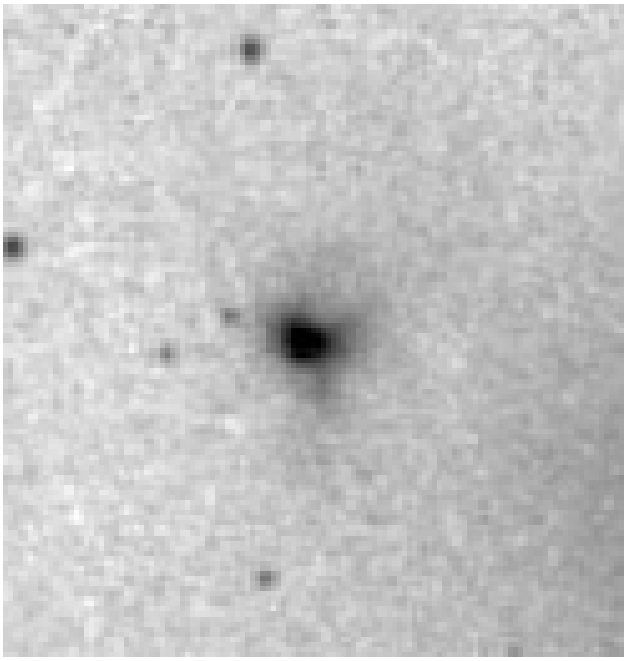
Observing notes:


+70°00'
2h+72°00'
42
38
+68°00'
ω
43
+66°00'
31
ψ
o
NGC 7762
Berk 59
+64°00'
32
30'x30'
30
+62°00'
GC 559
Berk 62
Berk 4
10
NGC 133
NGC 146
King 14
5°
4
NGC 381
9
6
+60°00'
12
NGC 7788
Harvard 21
M 52
NGC 7635
NGC 103
NGC 7790
NGC 7510
King 19
Berk 58
Kassiopeia
+58°00'
NGC 129
2
1
NGC 436
NGC 7795
υ2
υ1
57 6
β
τ
1h00m
0h00m
23h00m


54°30'
+54°00'
+53°30'
+53°00'
52°30'
30'x30'
52°00'
+51°30'
+51°00'
Berk 53
NGC 7031
21h15m
21h10m
21h05m
21h00m
20h55m
20h50m
20h45m

HBC 324 in Cassiopeia





POSS blue

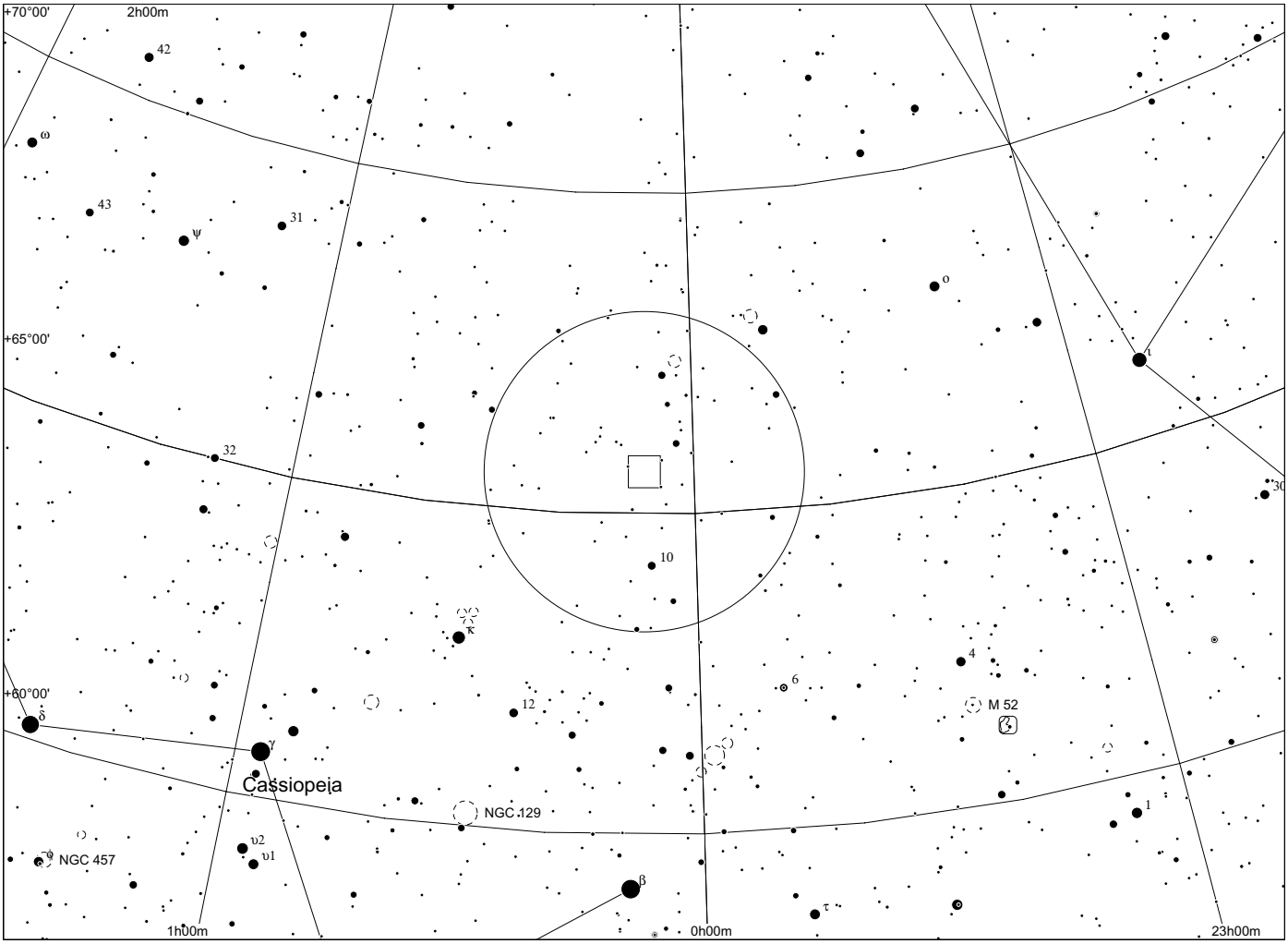
POSS composite

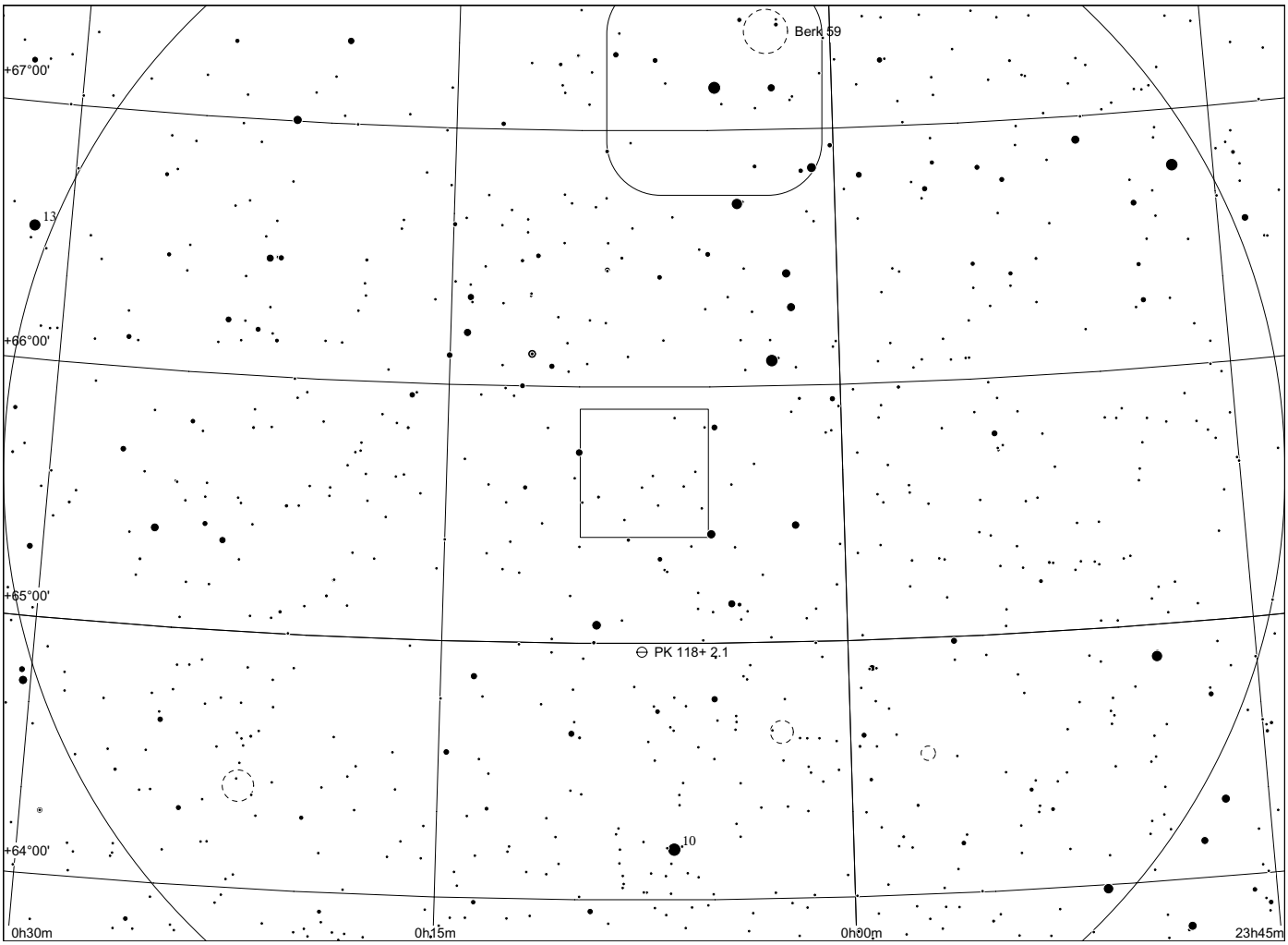
	other	RA	Dek	comments
HBC 324	MC 1	00 07 30.69	+65 39 52.4	emission line star

Observing notes:

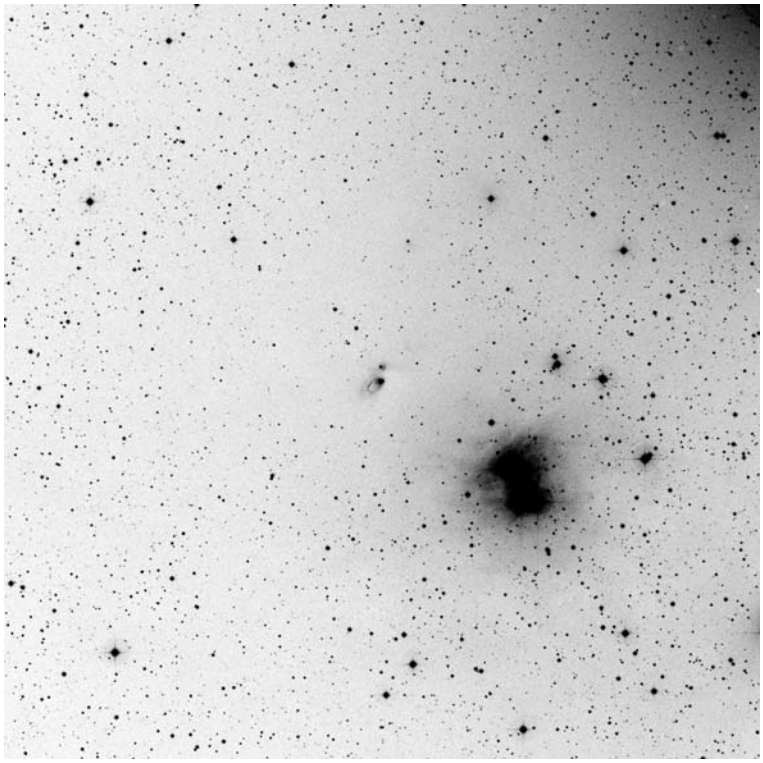
22" f/4.5

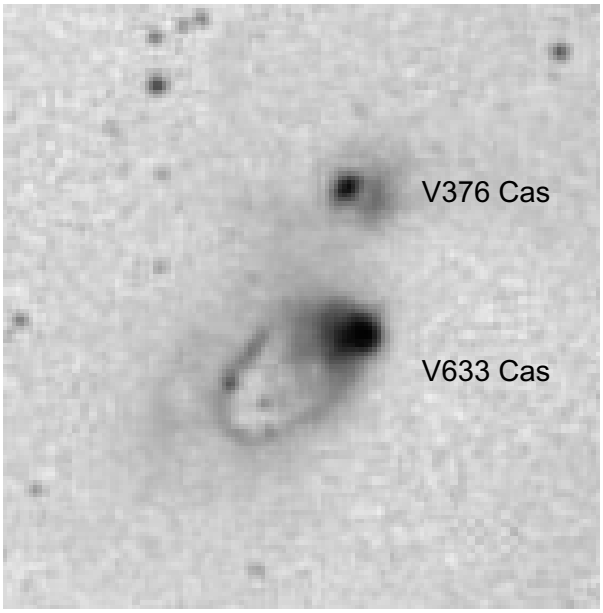
The bright reflection nebula is LBN 585 and is an obvious, but faint glow around a relatively bright star. HBC 324 or MC 1 (MC stands for Martin Cohen) is NE of it. It appears stellar and can be held permanently with indirect vision.


+70°00'
2h00m
42
ω
43
31
ψ
+65°00'
o
1
32
30
10
κ
4
6
+60°00'
12
M 52
δ
γ
Cassiopeia
NGC 129
1
υ2
υ1
NGC 457
β
τ
1h00m
0h00m
23h00m


Berk 59
+67°00'
13
+66°00'
+65°00'
⊖ PK 118+ 2.1
10
+64°00'
0h30m
0h15m
0h00m
23h45m

V633 Cas/LkHa 198 und V376 Cas in Cassiopeia





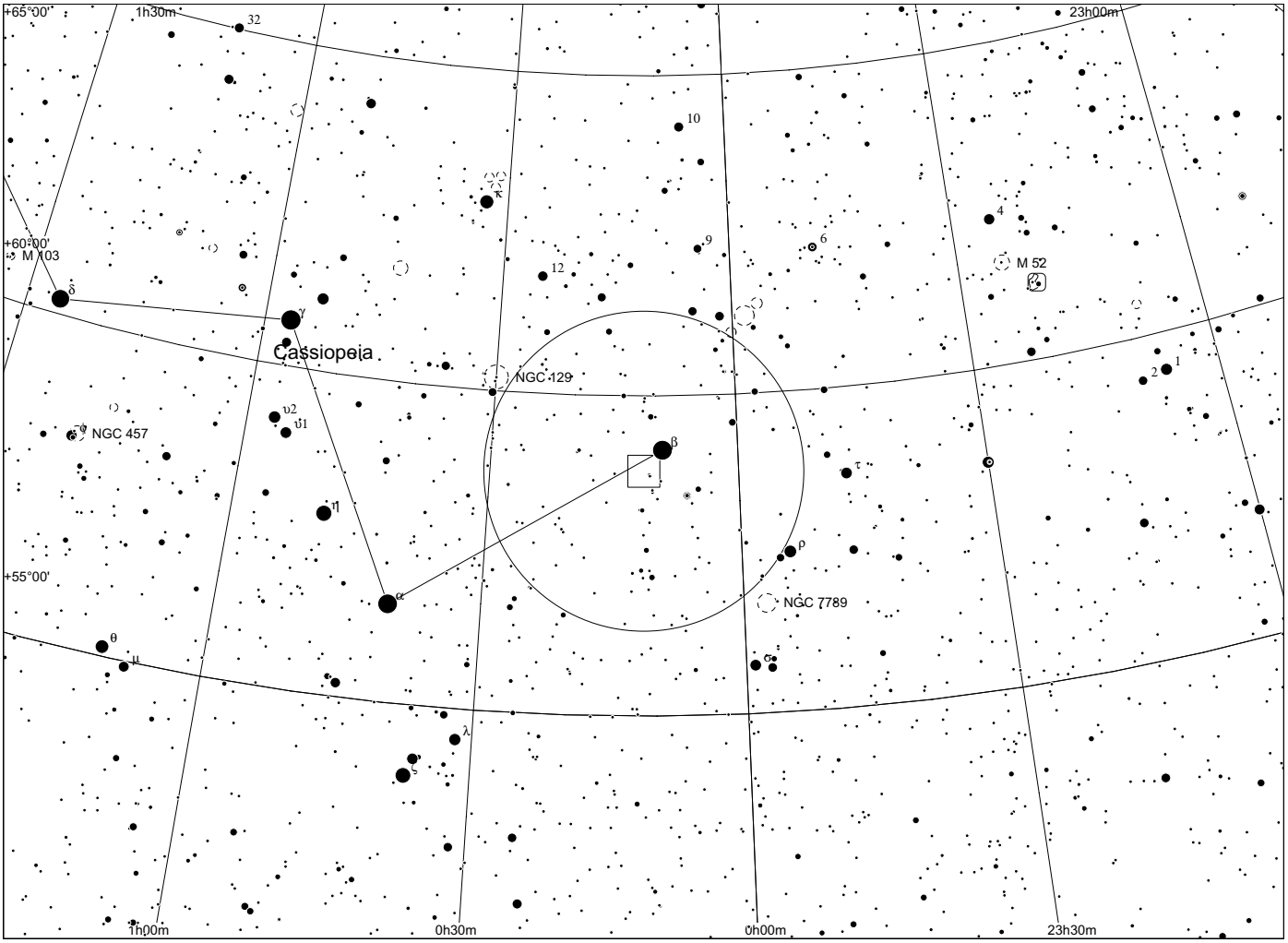
POSS blue

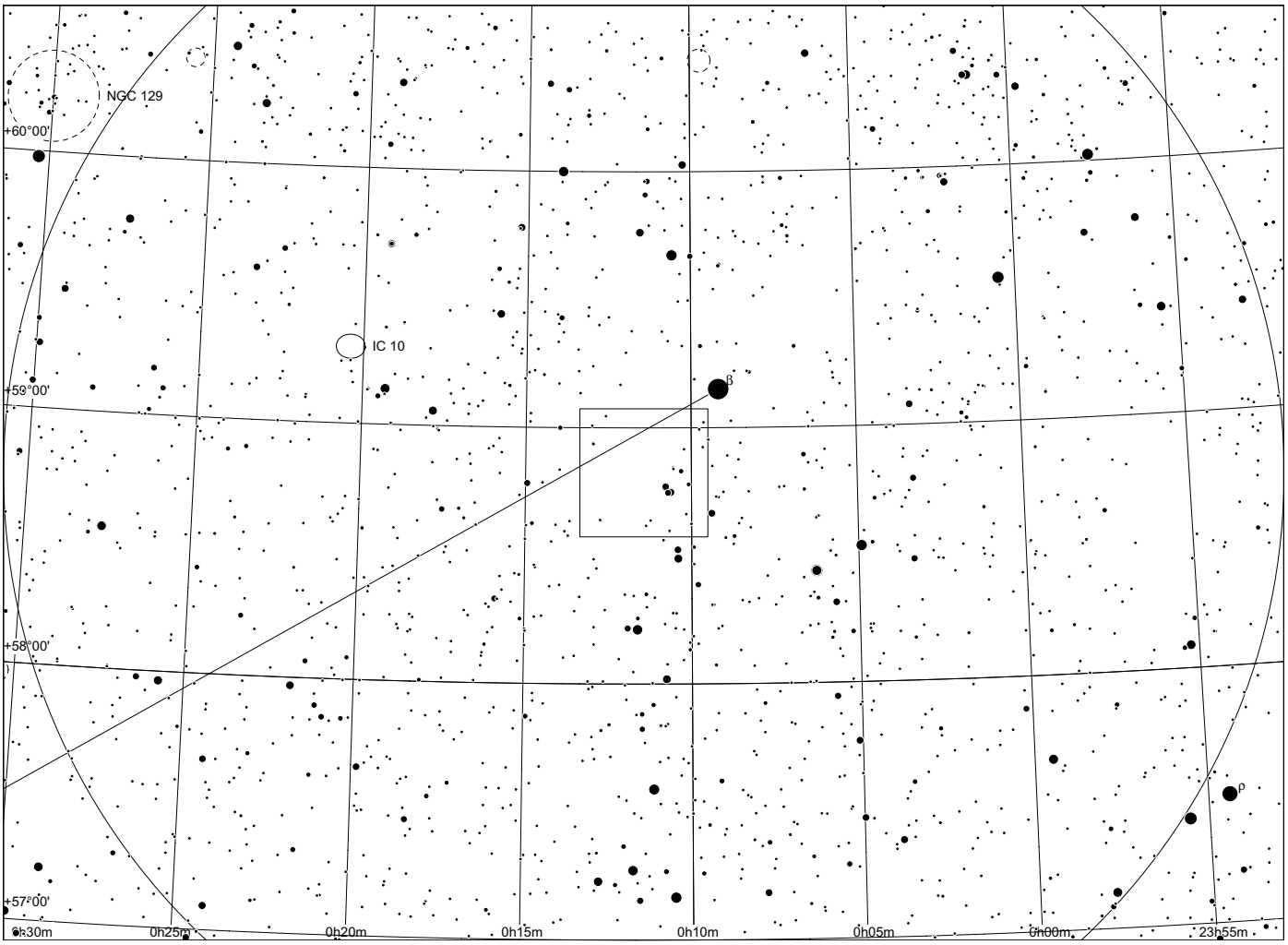
POSS composite

	other	RA	Dek	comments
V633 Cas	HBC 3	00 11 25.97	+58 49 29.1	
V376 Cas	HBC 325	00 11 26.09	+58 50 03.5	with HH162

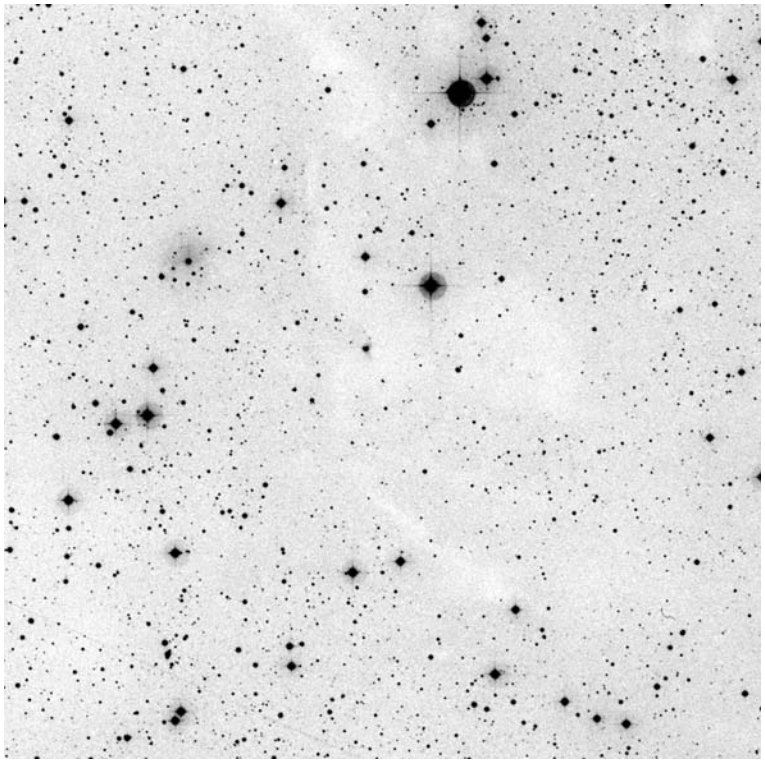
Observing notes:

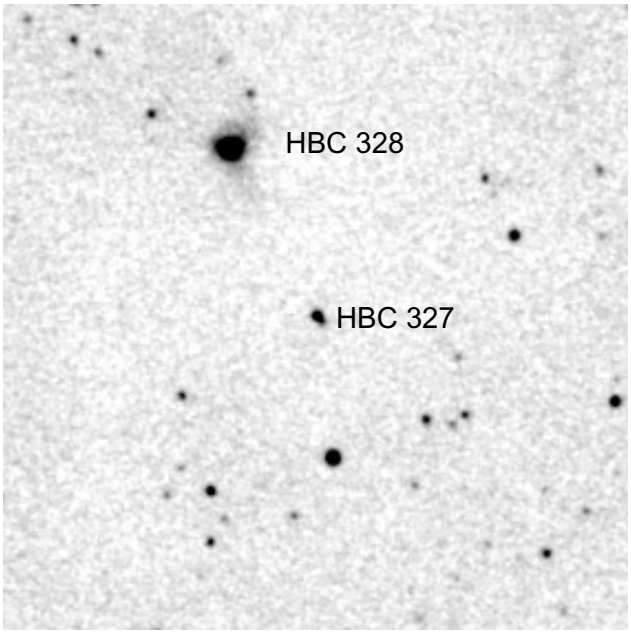
22" f/4.5
The bright reflection nebula in the POSS image is VdB 1, which is obvious and appears somewhat structured.
V633 (PP2) appears stellar within a diffuse halo that is extended toward SE. The ring structure could not be seen.
V376 (PP3) is much more difficult and could be seen intermittently with averted vision with 350x.
LkHa or LHa stands for Lick H alpha survey.


+65°00'
1h30m
32
23h00m
10
+60°00'
M 103
δ
γ
Cassiopeia
NGC 129
12
9
6
4
M 52
2
1
υ2
υ1
NGC 457
φ
β
τ
η
ρ
+55°00'
α
NGC 7789
θ
μ
λ
ξ
1h00m
0h30m
0h00m
23h30m


NGC 129
+60°00'
IC 10
β
+59°00'
+58°00'
ρ
+57°00'
0h30m
0h25m
0h20m
0h15m
0h10m
0h05m
0h00m
23h55m

HBC 327 and 328 in Cassiopeia





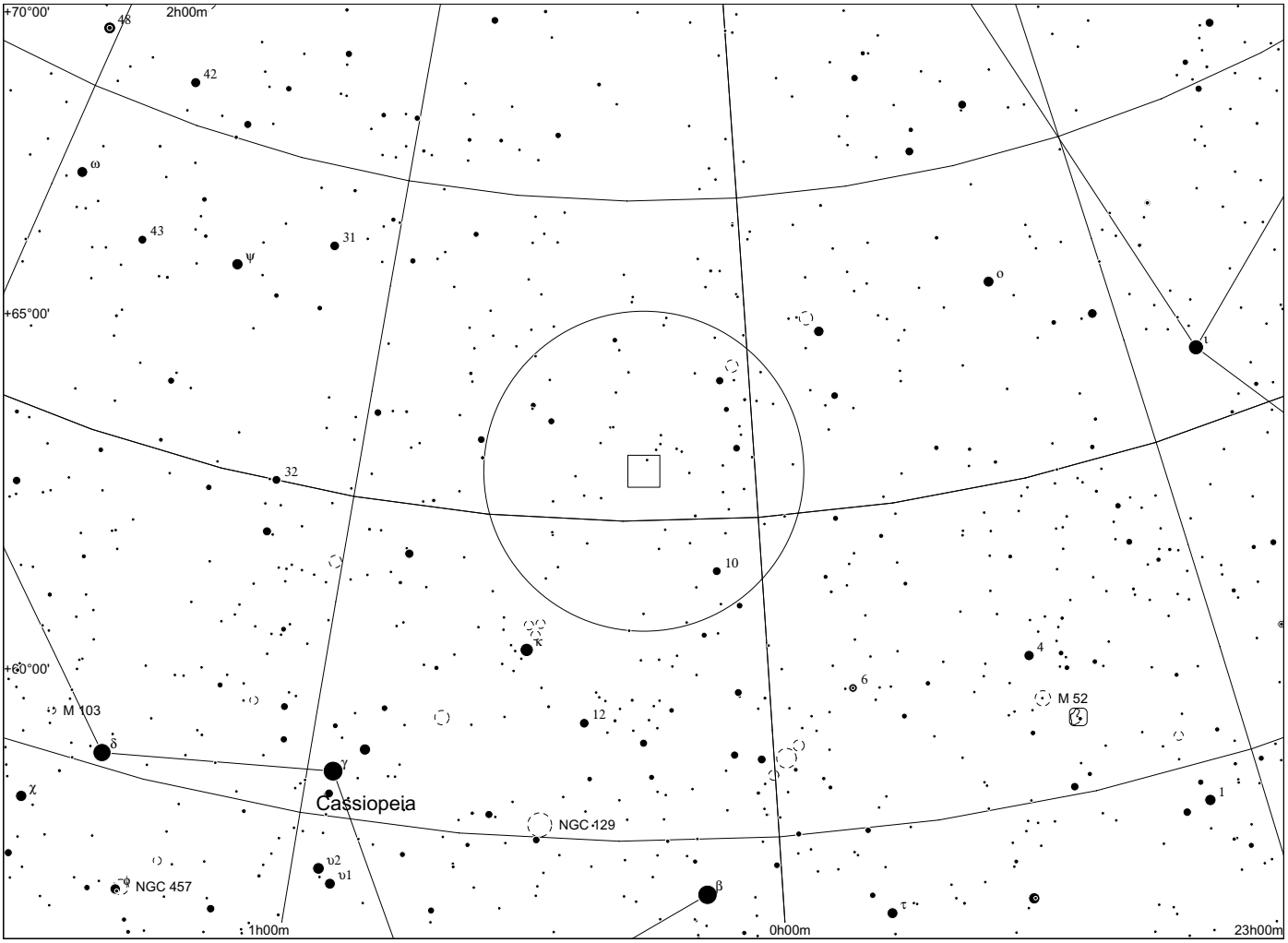
POSS blue

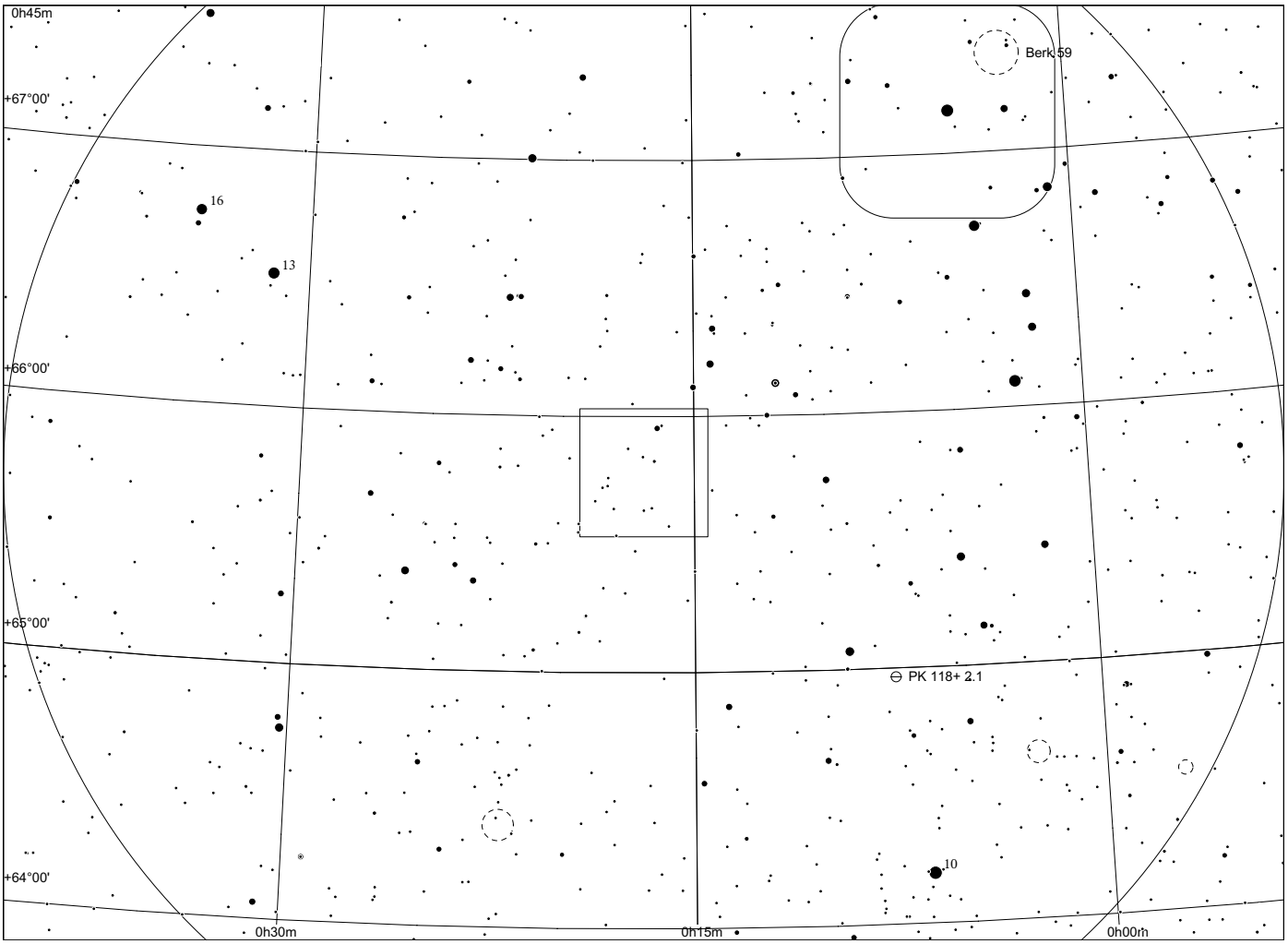
POSS composite

	other	RA	Dek	comments
HBC 327 HBC 328	MC3 (HBC 327) and MC4 (HBC 328)	00 16 54.82	+65 46 53.2	emission line stars

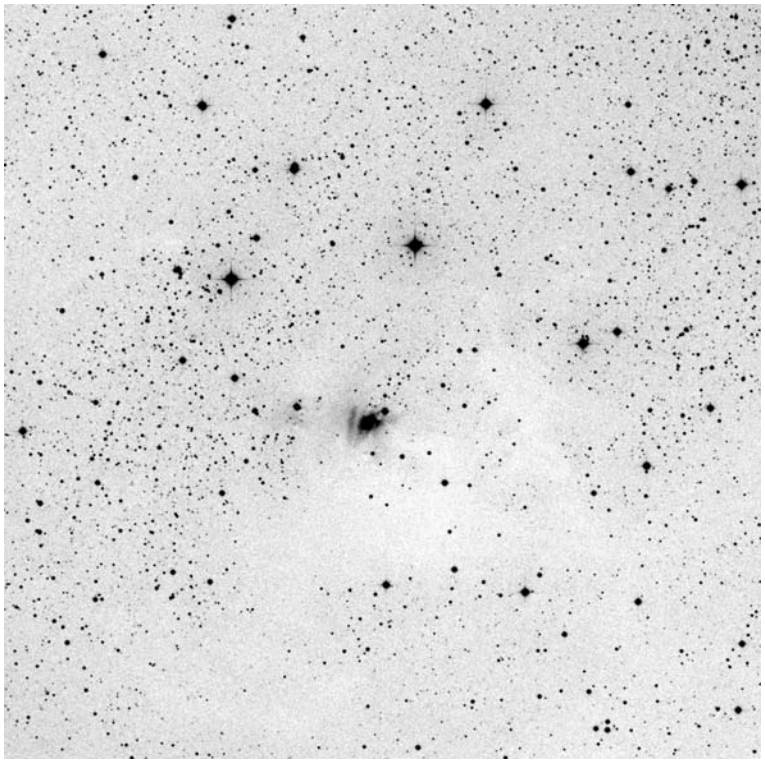
Observing notes:

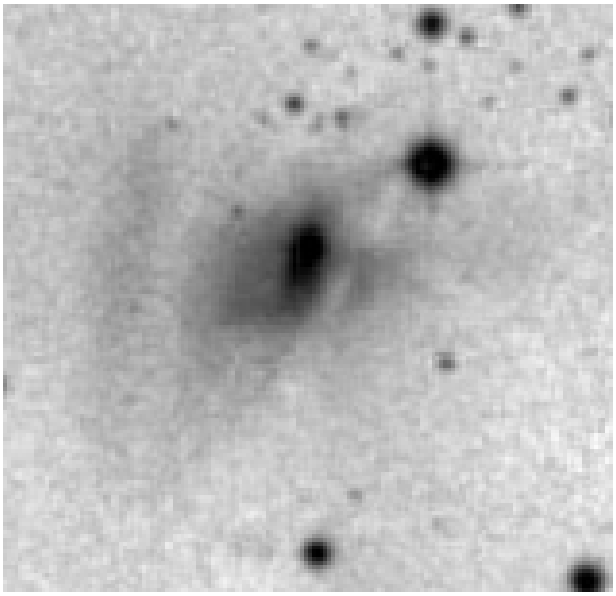
22" f/4.5
At 350x, HBC327 is bright and stellar and can be seen directly.
HBC328 is much weaker and appears stellar as well with indirect vision.


+70°00'
2h00m
48
42
ω
43
31
ψ
o
ι
+65°00'
32
10
κ
4
+60°00'
6
M 52
M 103
12
δ
γ
χ
Cassiopeia
1
NGC 129
υ2
υ1
φ
NGC 457
β
τ
1h00m
0h00m
23h00m


0h45m
Berk 59
+67°00'
16
13
+66°00'
+65°00'
PK 118+ 2.1
10
+64°00'
0h30m
0h15m
0h00m

MC2 in Cassiopeia





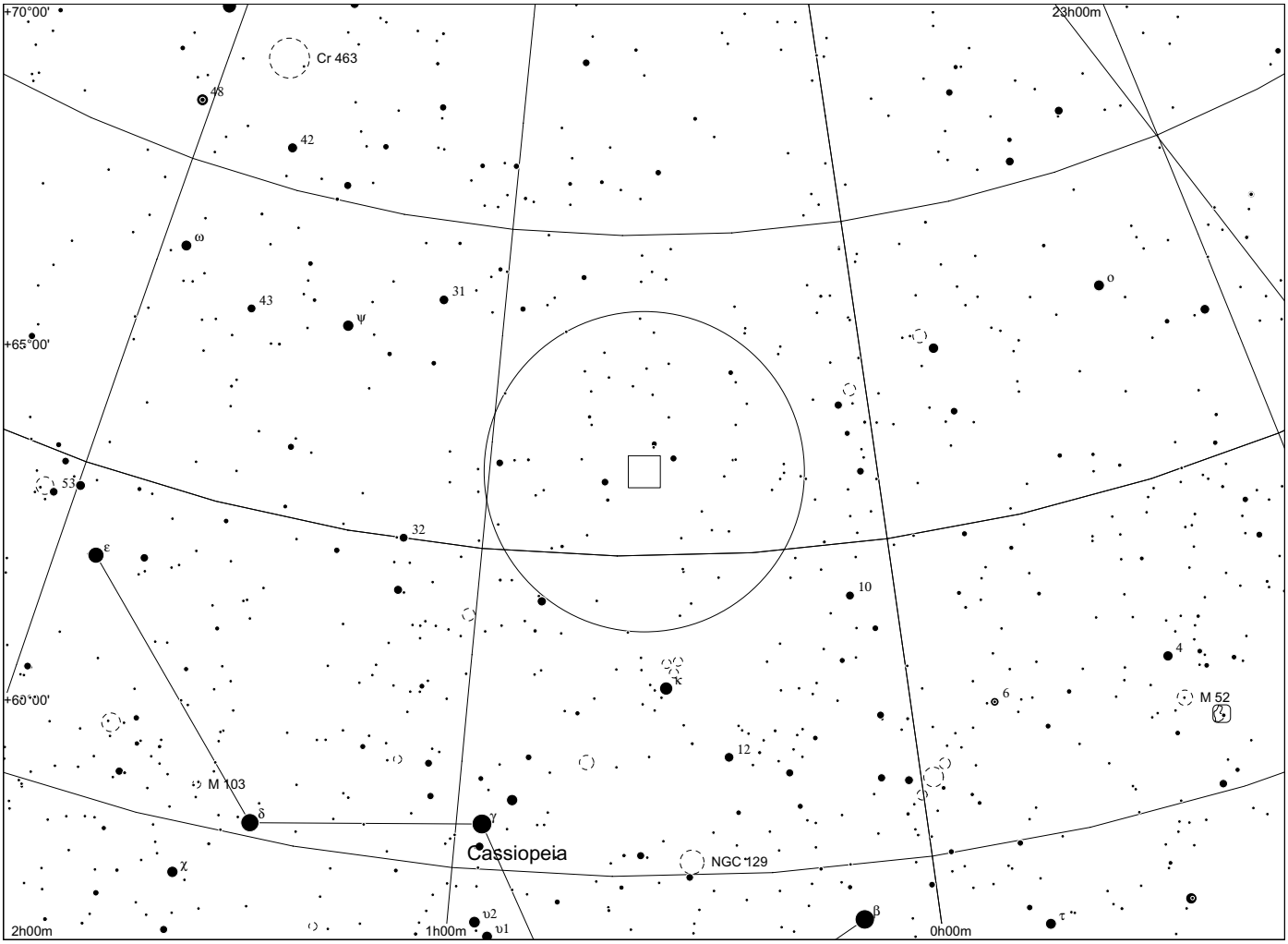
POSS blue

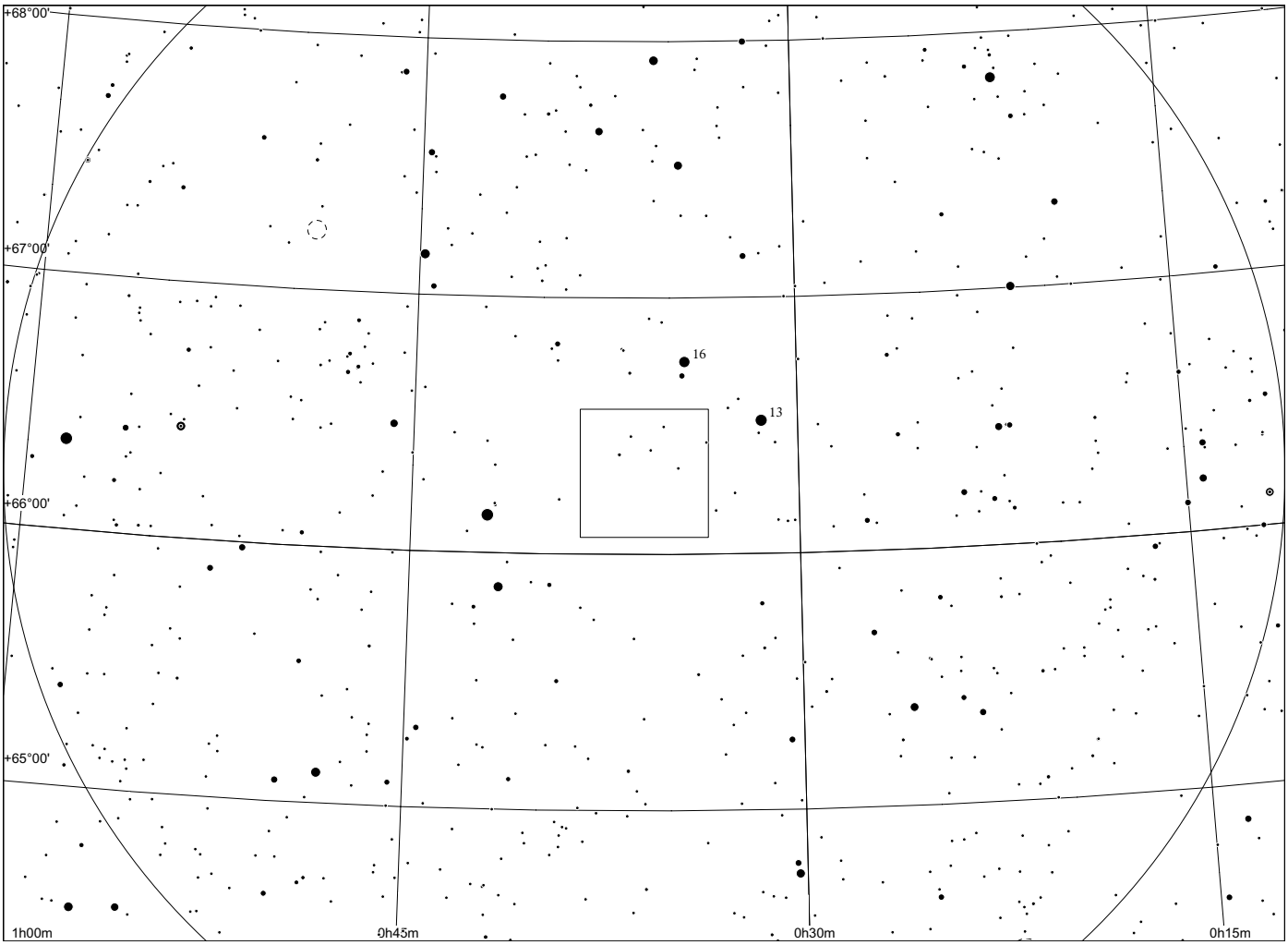
POSS composite

	other	RA	Dek	comments
MC 2		00 36 00.00	+66 19 01.2	

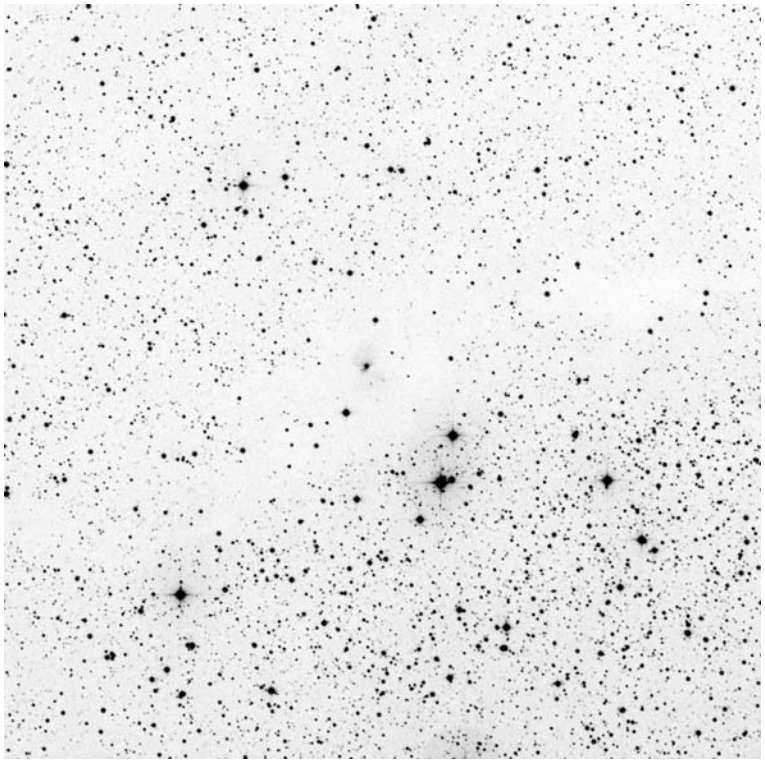
Observing notes:

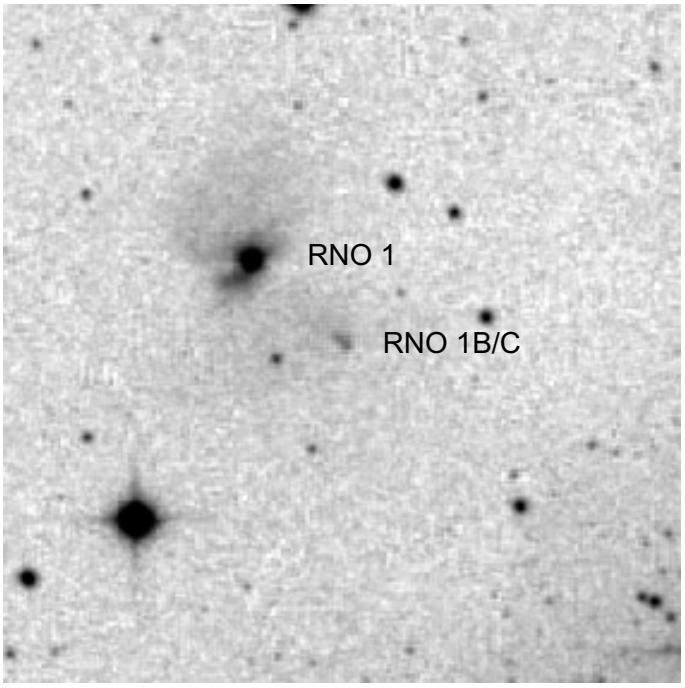
22" f/4.5
Though the coordinates point not to the reflection nebula, MC 2 can be identified with it according to the original paper by Martin Cohen. At 350x, MC 2 is immediately visible E of a star. With direct vision, it appears stellar. Indirect vision reveals a clearly non-stellar envelope, extending E to NE of the star.


+70°00'
23h00m
Cr 463
48
42
ω
43
31
ψ
o
+65°00'
53
32
ε
10
4
κ
+60°00'
6
M 52
12
M 103
δ
γ
Cassiopeia
NGC 129
χ
υ2
υ1
β
τ
2h00m
1h00m
0h00m


+68°00'
+67°00'
16
13
+66°00'
+65°00'
1h00m
0h45m
0h30m
0h15m

RNO 1/V710 Cas in Cassiopeia





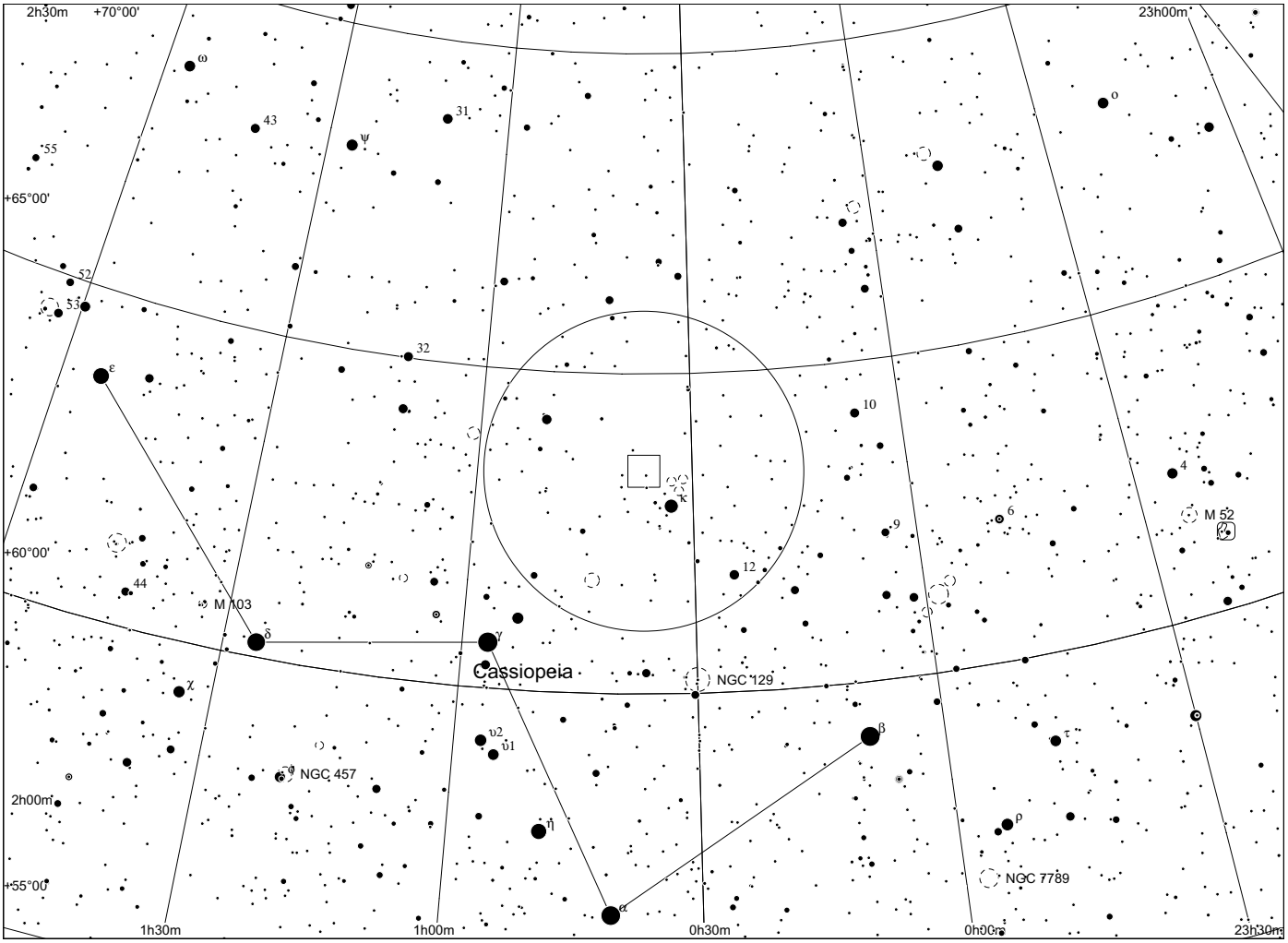
POSS blue

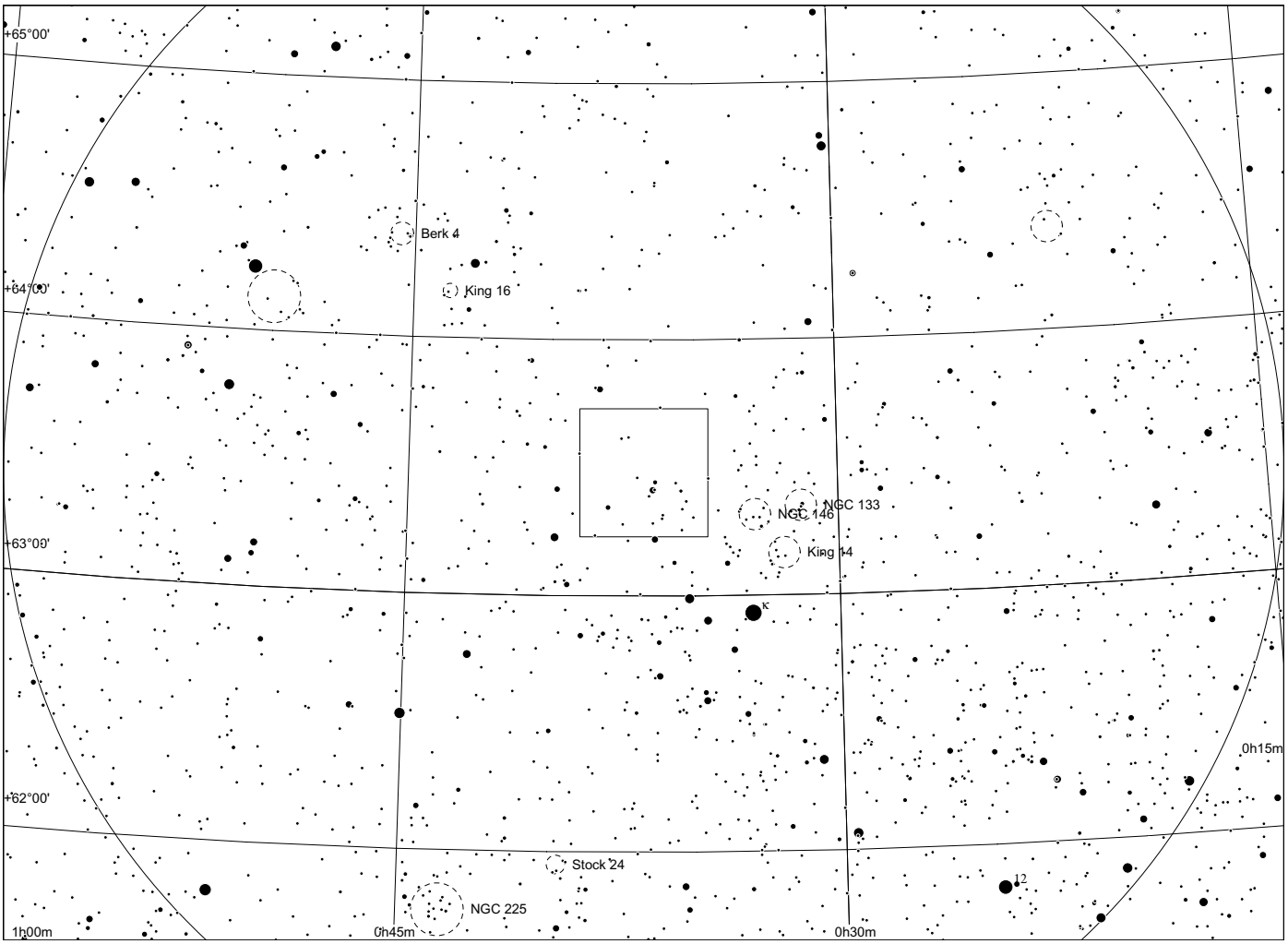
POSS composite

	other	RA	Dek	comments
RNO 1	RNO 1/1B (=V710)/1C	00 36 46.30	+63 28 54.1	FU Ori stars

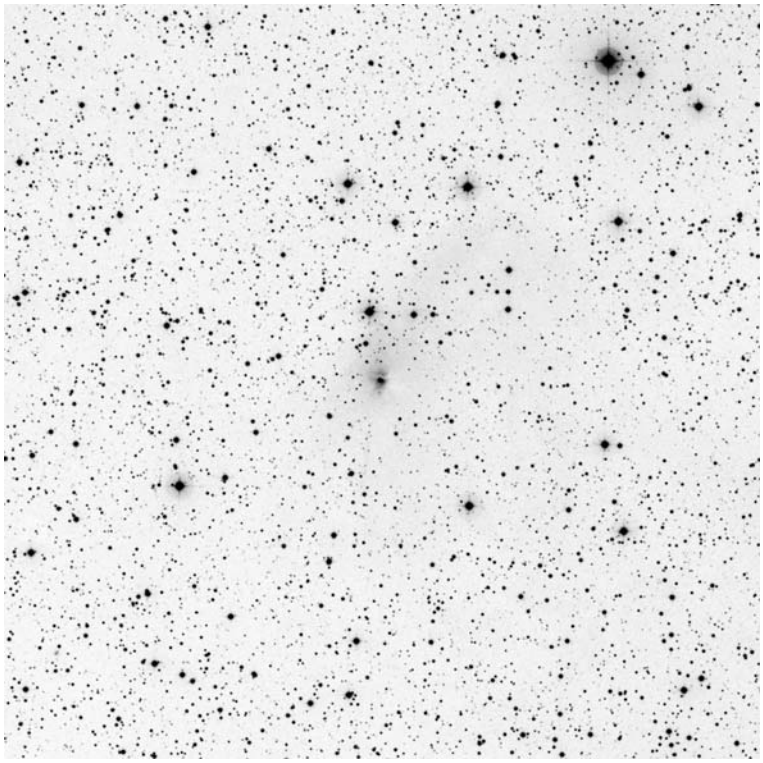
Observing notes:

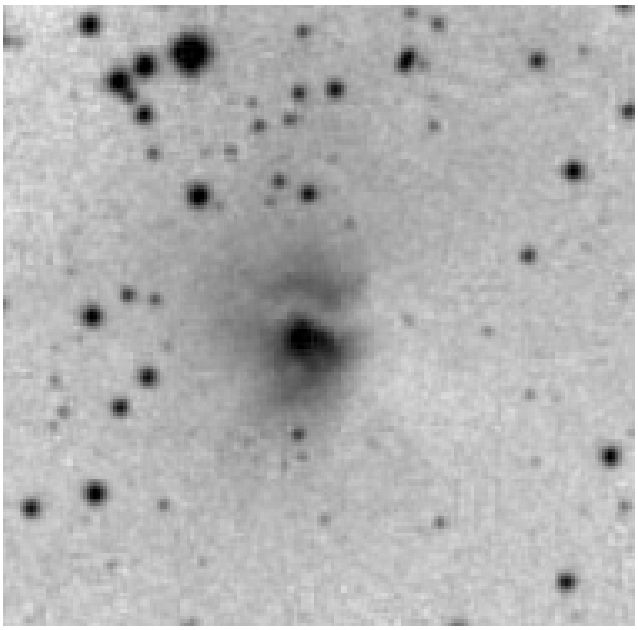
22" f/4.5
The white object RNO 1 is directly visible at 350x and appears stellar. The red object SW, consisting of RNO 1B (= V710 Cas) and RNO1C) is not visible.


2h30m
+70°00'
23h00m
ω
43
31
ψ
55
o
+65°00'
52
53
32
ε
10
κ
4
6
M 52
9
+60°00'
44
12
M 103
δ
γ
Cassiopeia
NGC 129
χ
β
τ
υ2
υ1
φ
NGC 457
2h00m
η
ρ
+55°00'
NGC 7789
α
1h30m
1h00m
0h30m
0h00m
23h30m


+65°00'
Berk 4
+64°00'
King 16
NGC 146
NGC 133
+63°09'
King 14
κ
0h15m
+62°00'
Stock 24
12
NGC 225
1h00m
0h45m
0h30m

HBC 334 in Perseus





POSS blue

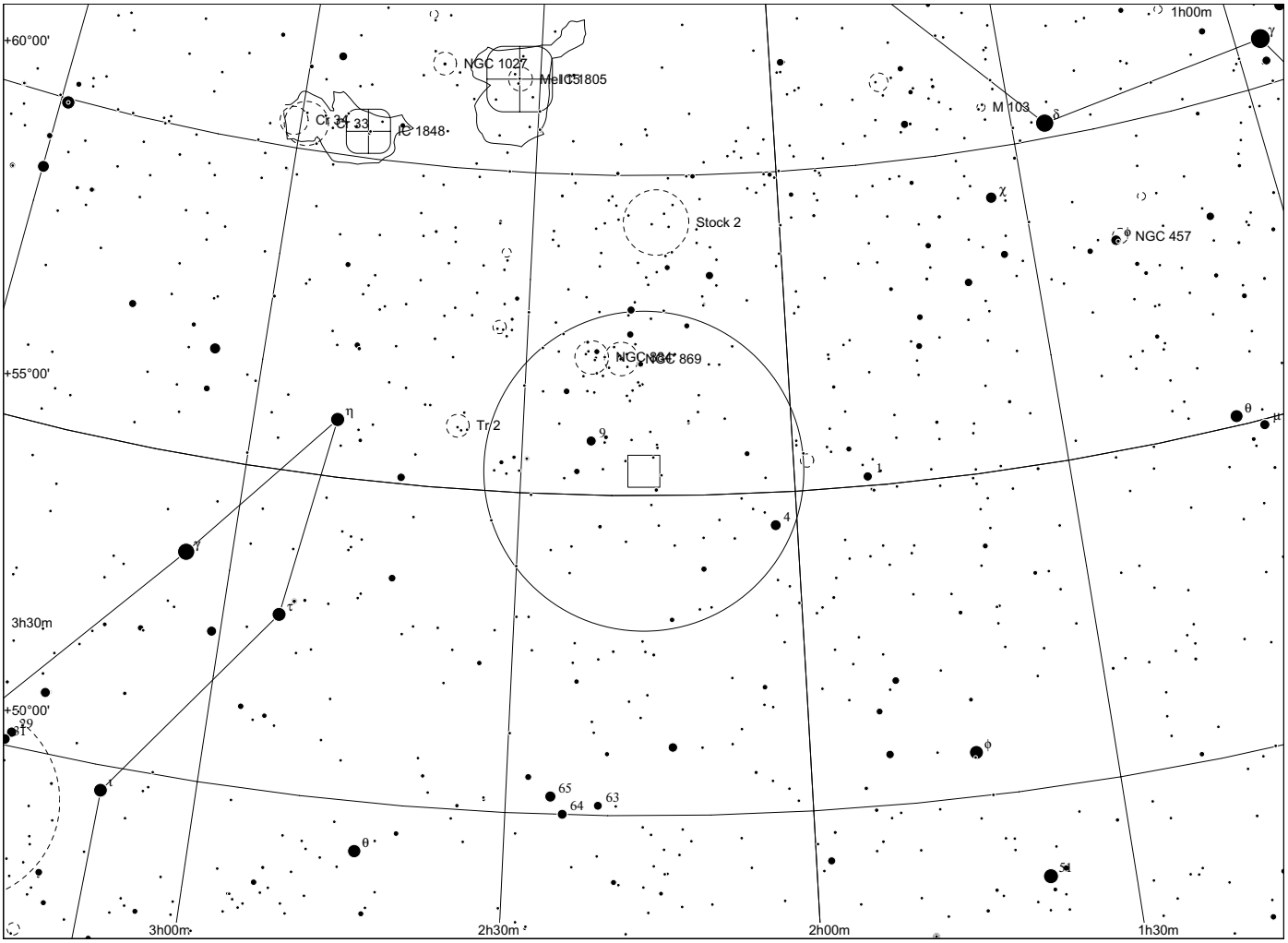
POSS composite

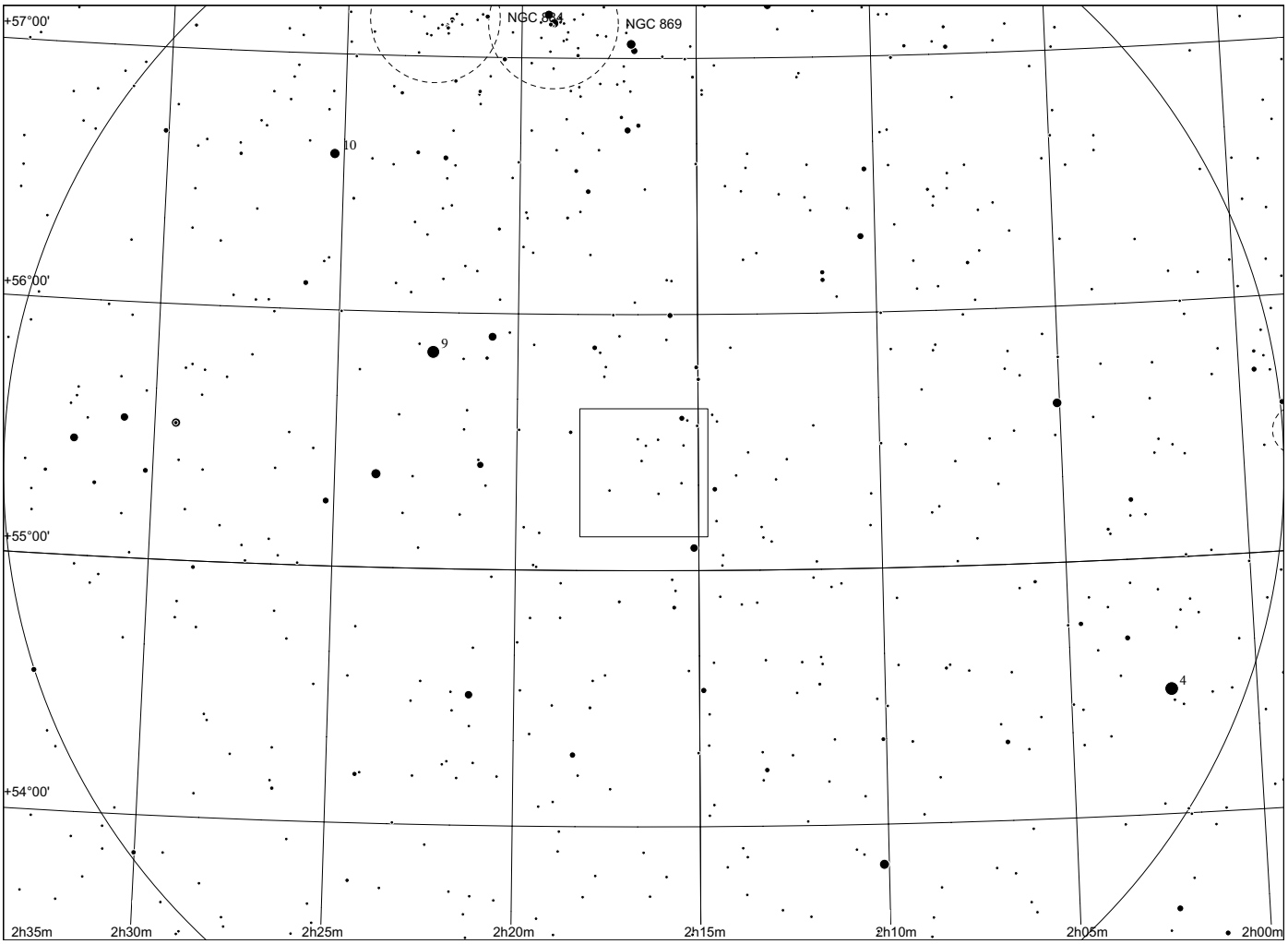
	other	RA	Dek	comments
HBC 334	RNO 6, GM 1-4	02 16 30.10	+55 22 57.0	emission line star

Observing notes:

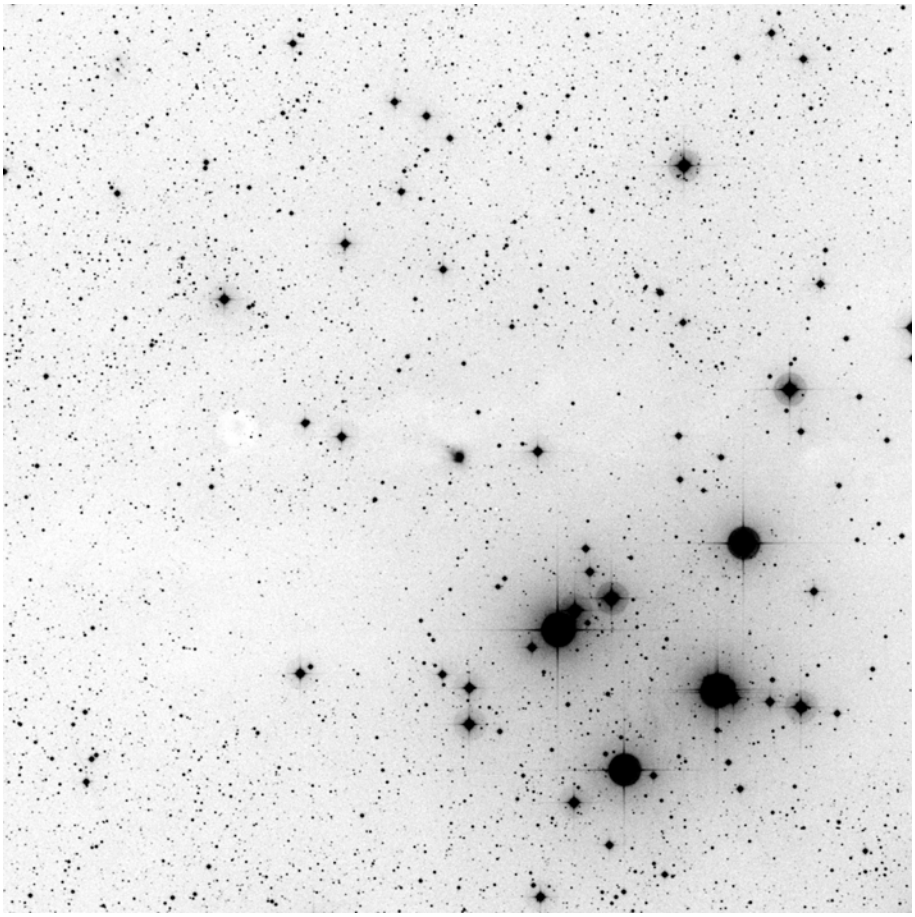
22" f/4.5

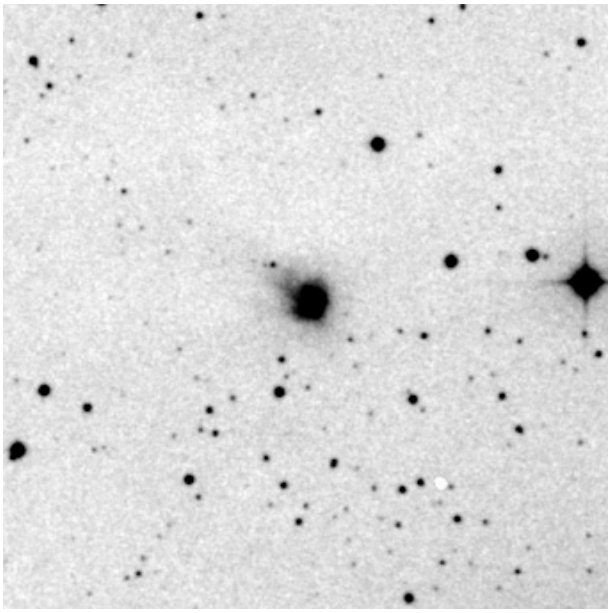
HBC 334 appears at 350x as a relatively bright and stellar object. With indirect vision, a diffuse halo is suspected.


+60°00'
+55°00'
+50°00'
1h00m
3h30m
3h00m
2h30m
2h00m
1h30m
NGC 1027
Mel 15
IC 1805
Cr 34
33
IC 1848
M 103
Stock 2
NGC 457
NGC 869
Tr 2
65
64
63


+57°00'
+56°00'
+55°00'
+54°00'
NGC 869
2h35m
2h30m
2h25m
2h20m
2h15m
2h10m
2h05m
2h00m

HBC 336 in Camelopardalis





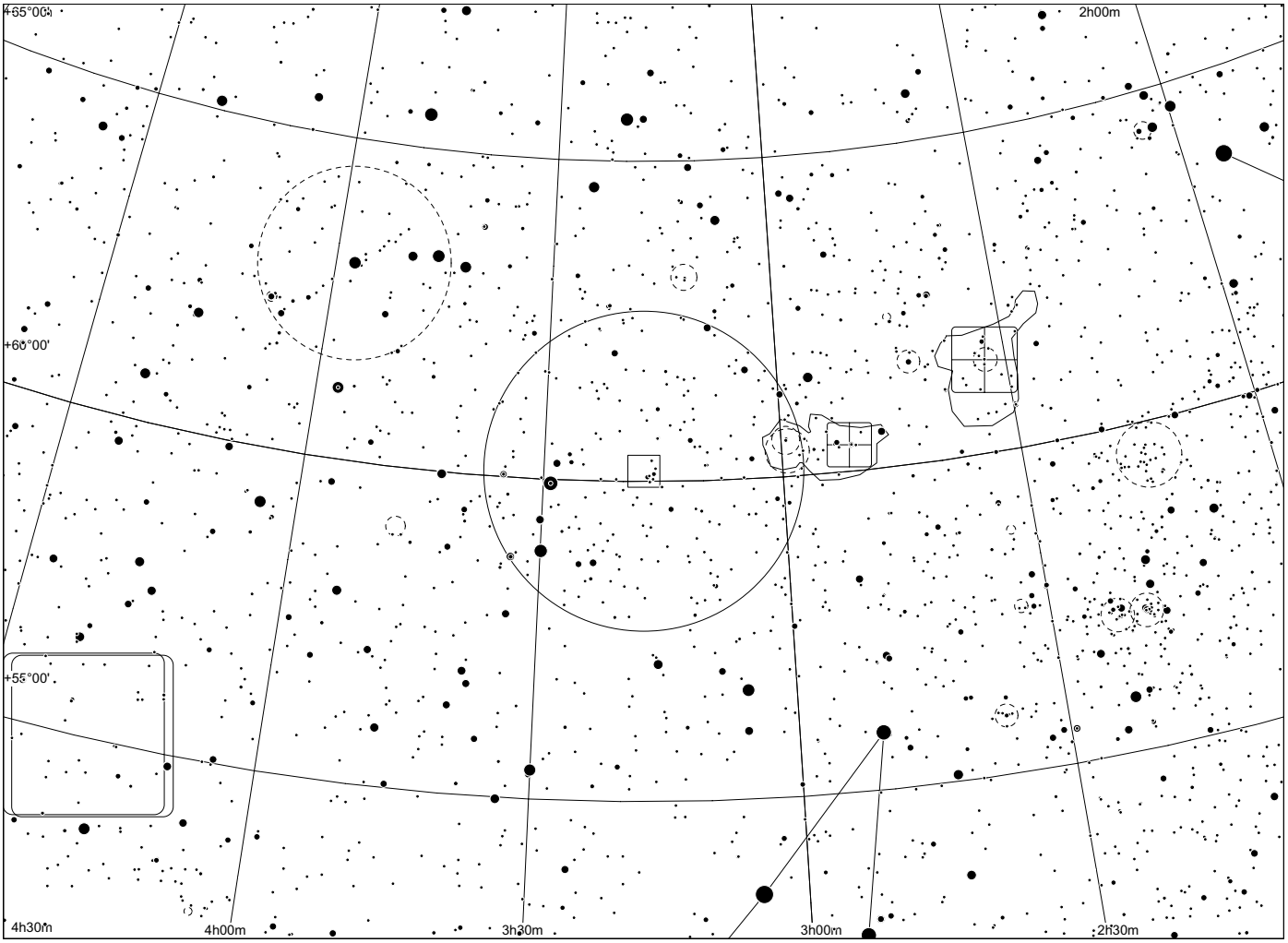
POSS blue

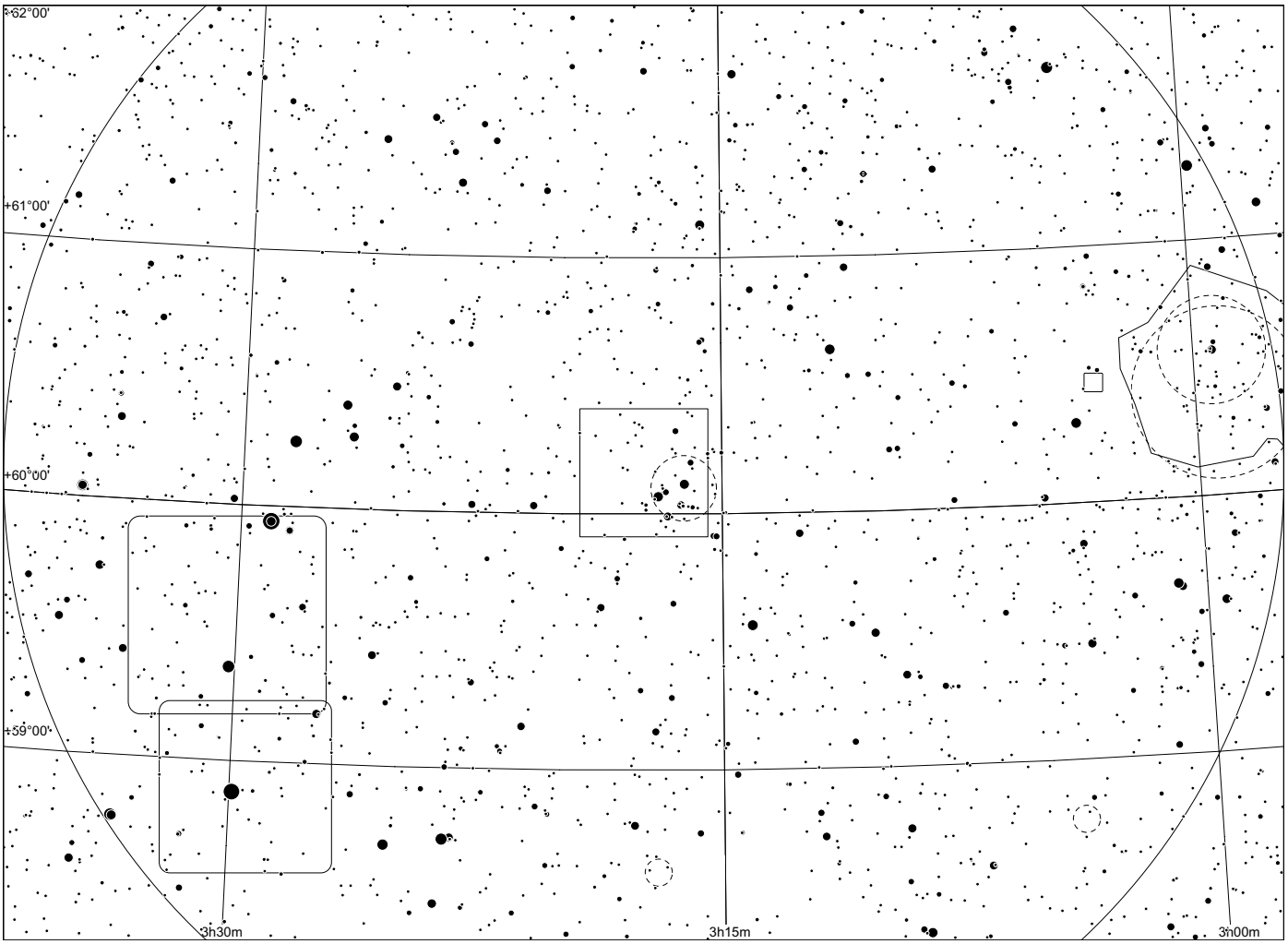
POSS composite

	other	RA	Dek	comments
2MASS J03172668+6009412	HHL 6	03 17 26.68	+60 09 41.3	

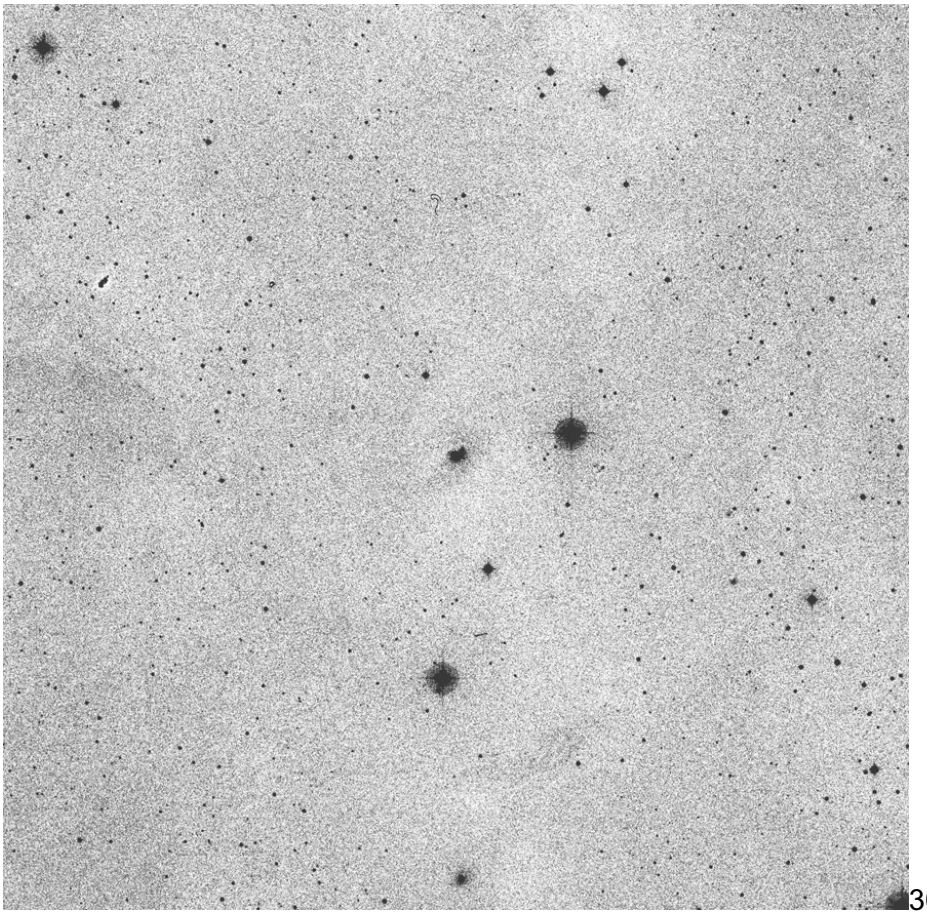
Observing notes:

22" f/4.5
HBC 336 is easily visible directly as a stellar object. At 350x, no further structure can be observed.

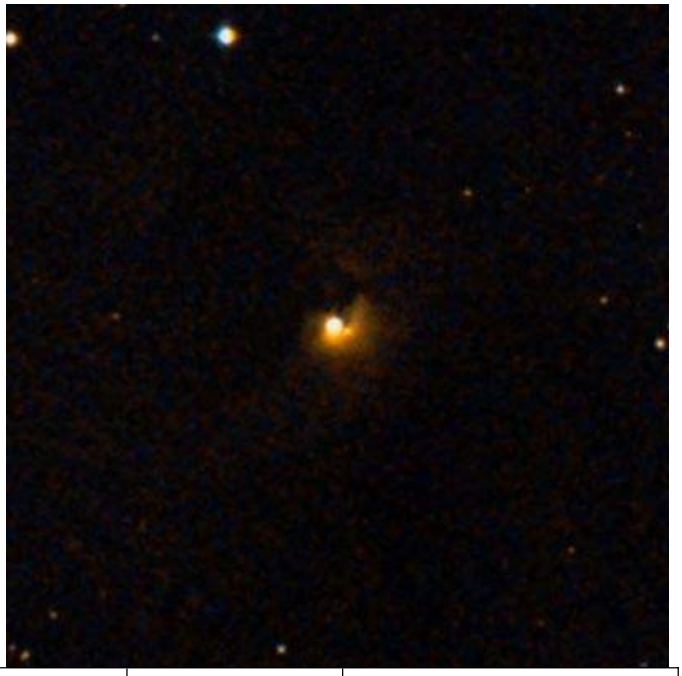

+65°00'
2h00m
+60°00'
+55°00'
4h30m
4h00m
3h30m
3h00m
2h30m


+62°00'
+61°00'
+60°00'
+59°00'
3h30m
3h15m
3h00m

GN 03.25.8.02 in Aries

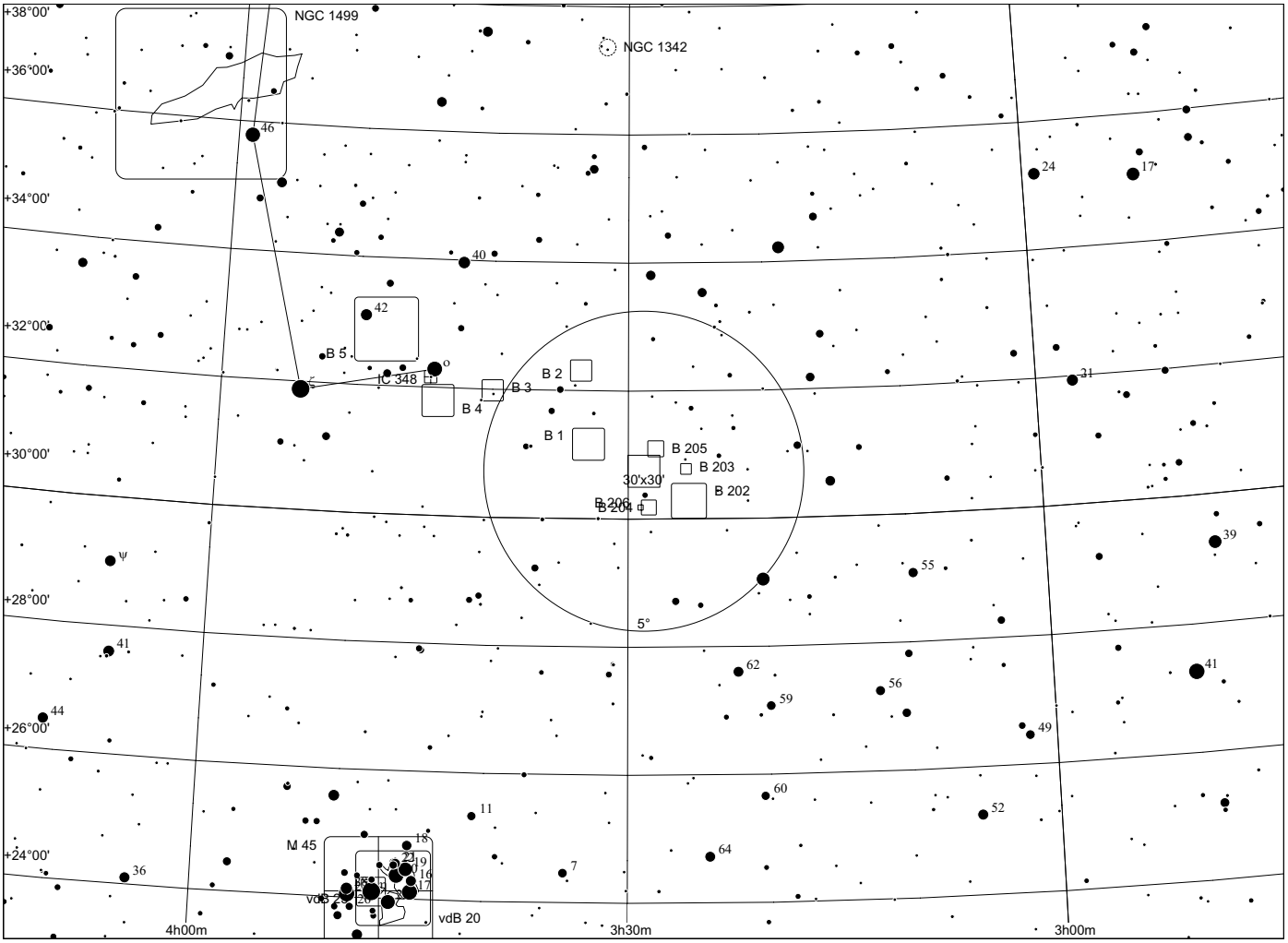


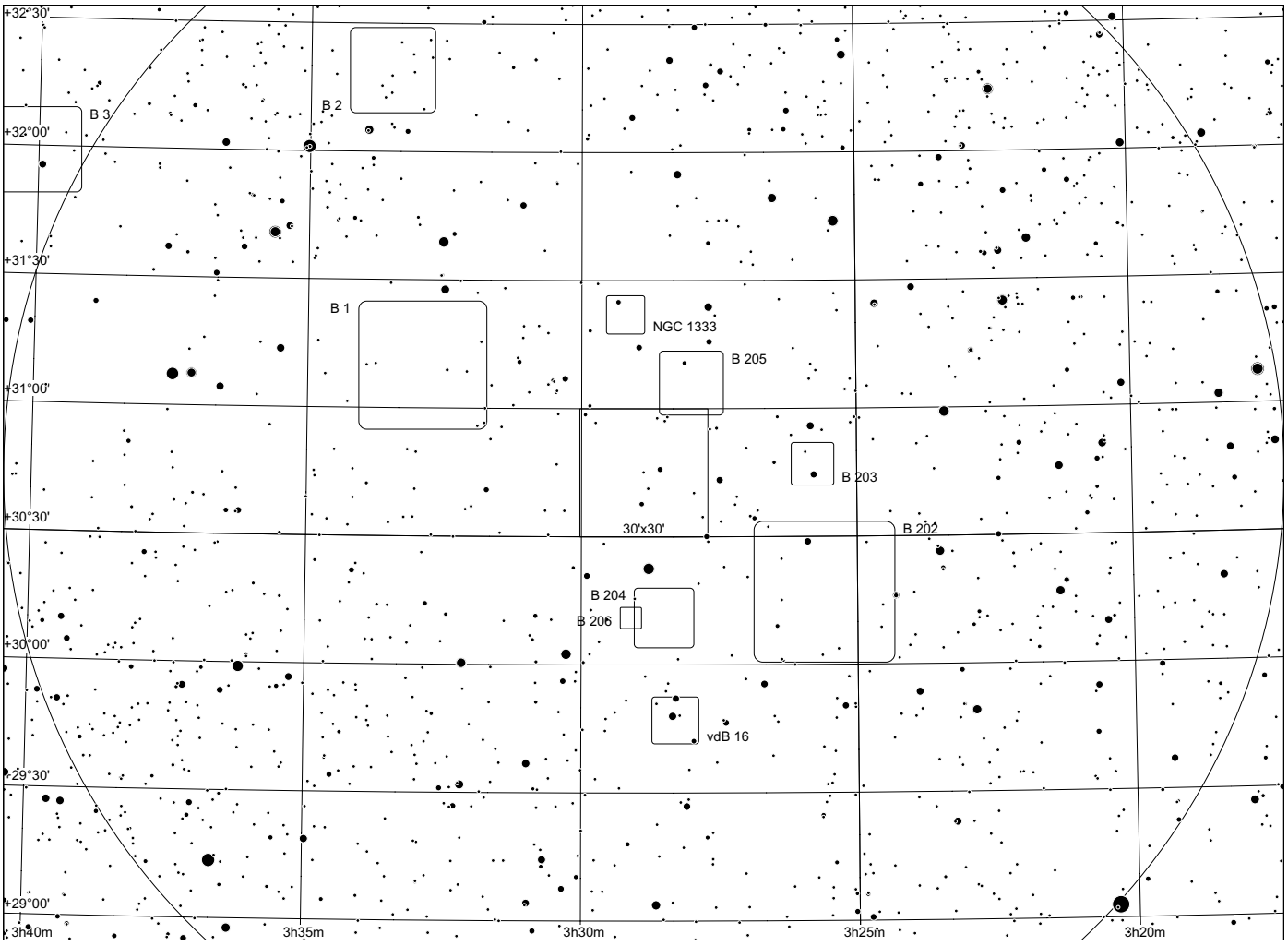
30x30 blue



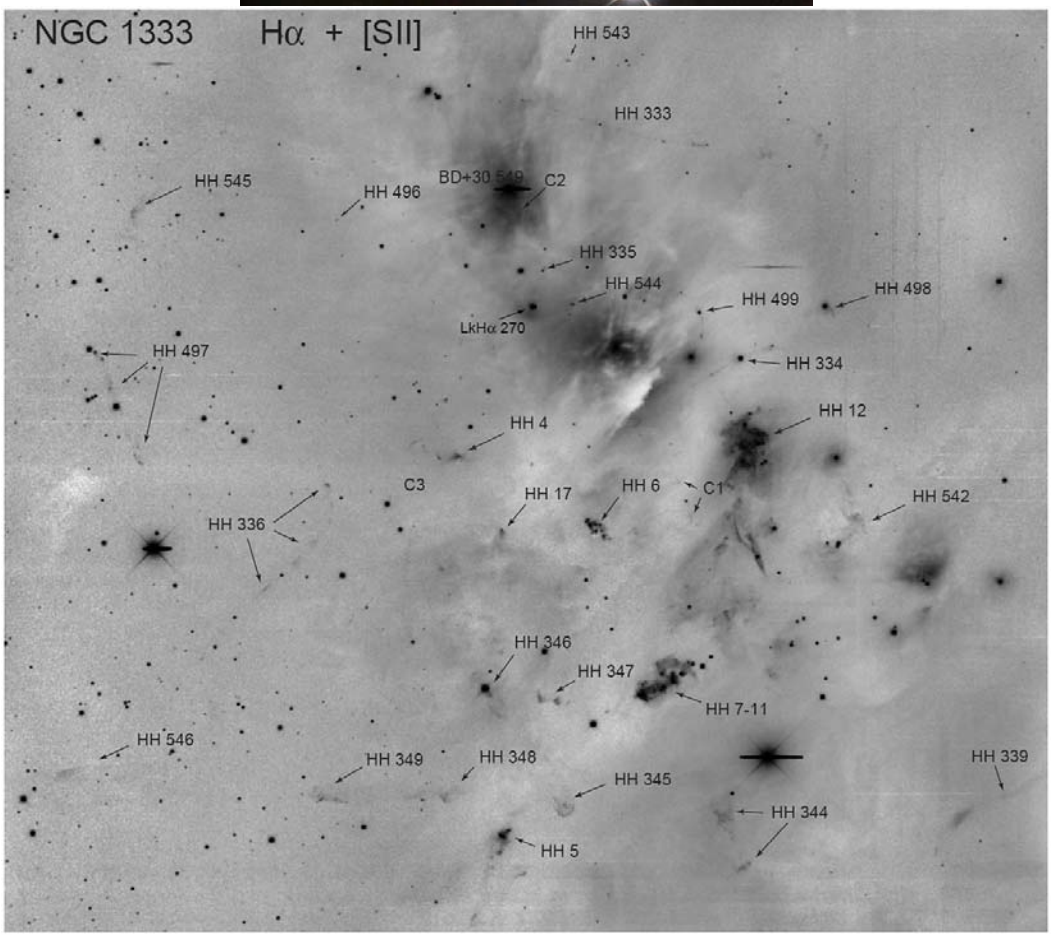
	other	RA	Dek	comments
GN 03.25.8.02		03 28 52.08	+30 45 00.0	T Tauri star

Observing notes:


NGC 1499
NGC 1342
B 5
IC 348
B 2
B 3
B 4
B 1
B 205
B 203
30'x30'
B 202
B 206
B 204
5°
M 45
vdB 20
+38°00'
+36°00'
+34°00'
+32°00'
+30°00'
+28°00'
+26°00'
+24°00'
4h00m
3h30m
3h00m


B 3
B 2
B 1
NGC 1333
B 205
B 203
30'x30'
B 202
B 204
B 206
vdB 16
+32°30'
+32°00'
+31°30'
+31°00'
+30°30'
+30°00'
+29°30'
+29°00'
3h40m
3h35m
3h30m
3h25m
3h20m

HHs in NGC1333 in Perseus

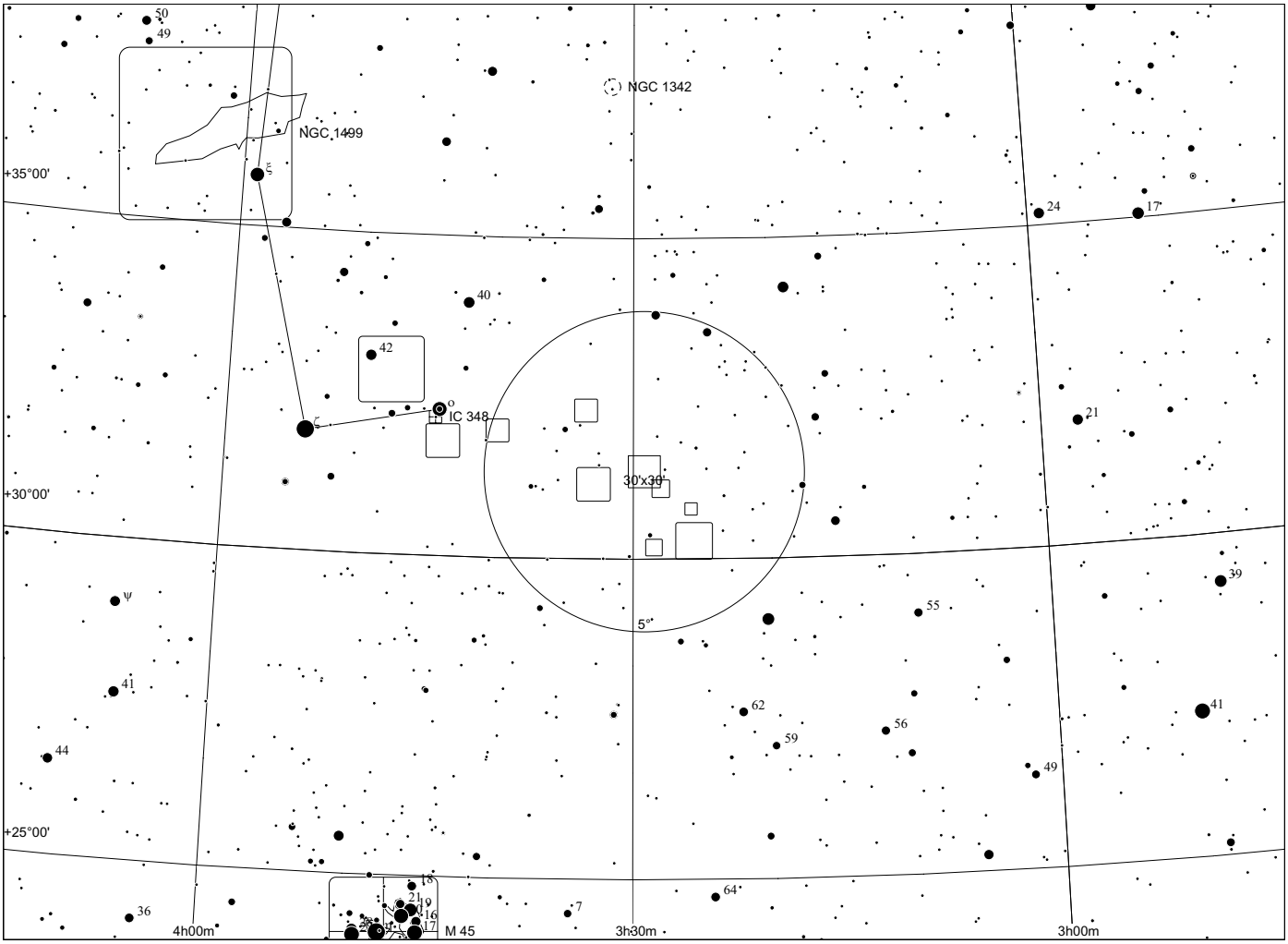


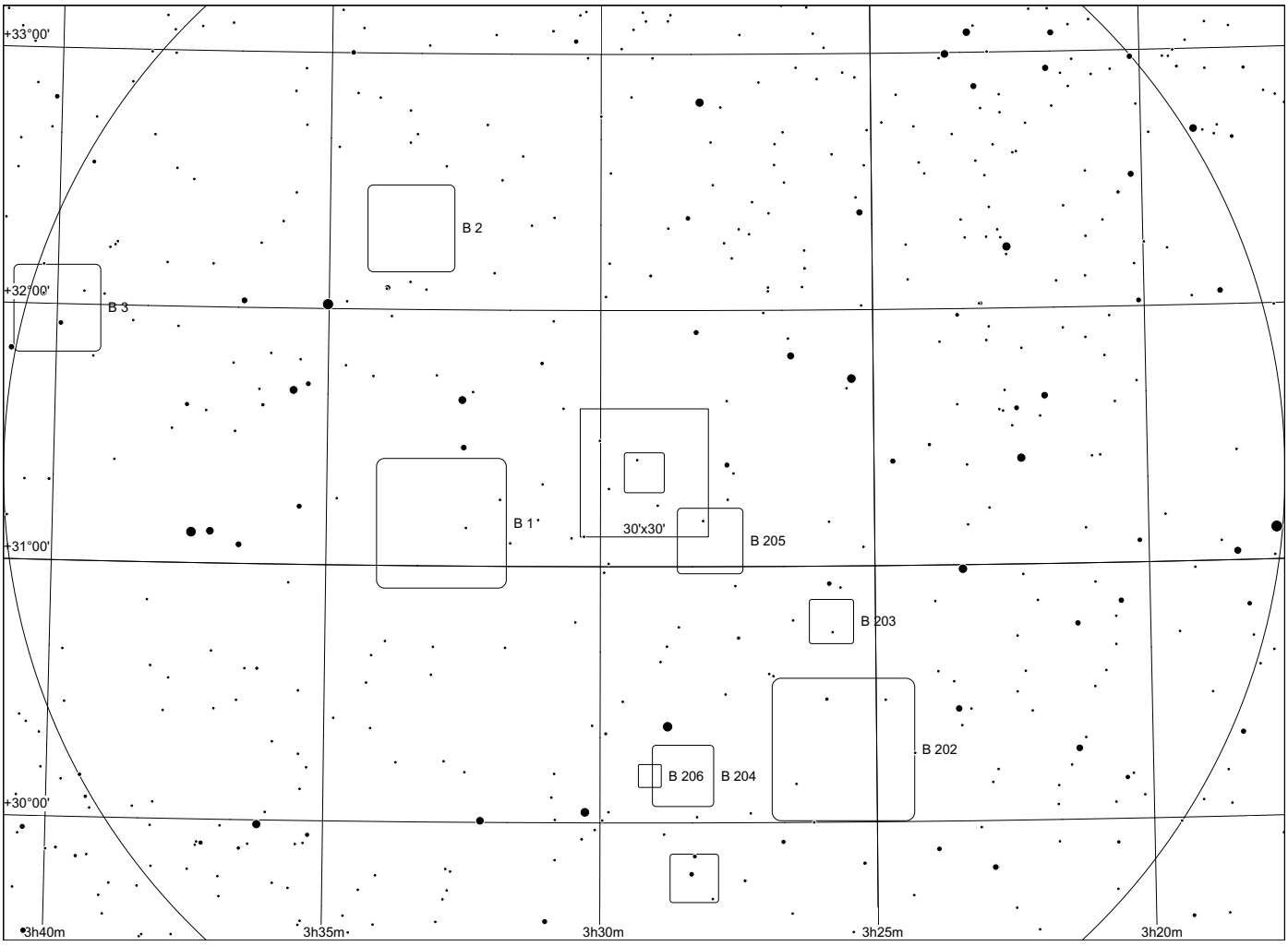
Getman et al. (2002) ApJ 575:354

	other	RA	Dek	comments
NGC1333 region		03 29 02	+31 20 54	

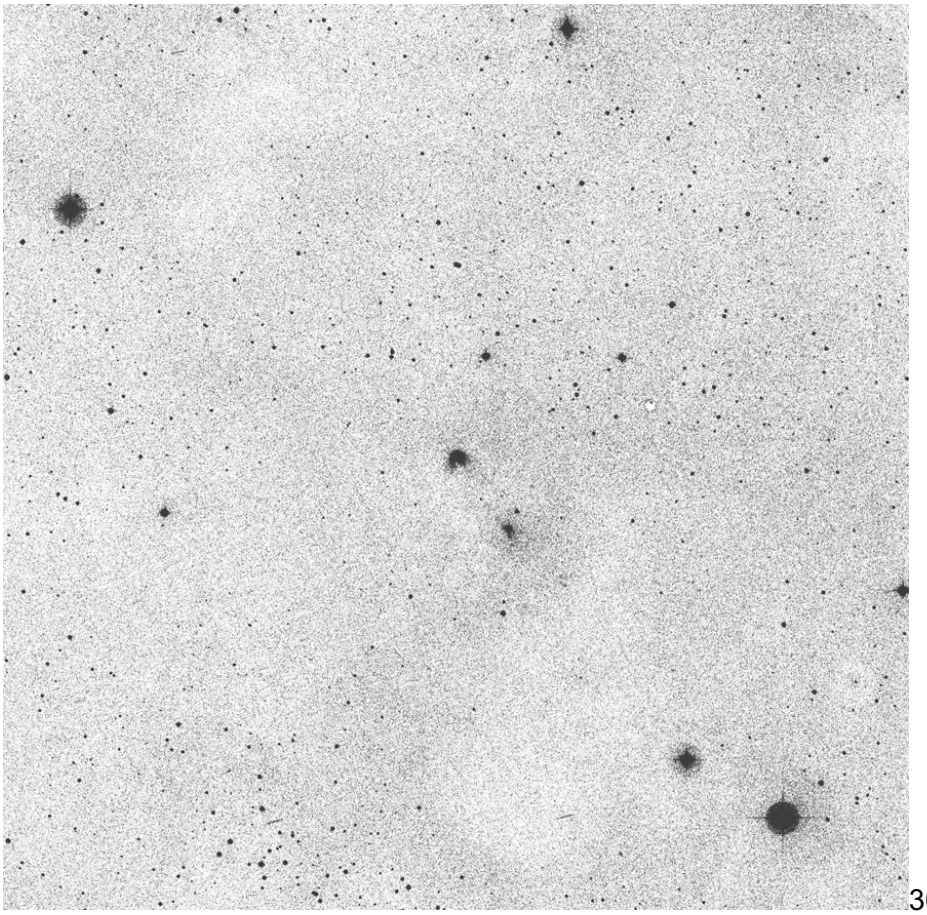
Observing notes:

22" f/4.5
At 350x, the region can be decomposed into several regions. A northern RN around the bright star. In the middle part a large RN that is divided by a dark rift. SW of it is an extremely faint diffuse object (HH12). S of it is another extremely faint patch with several HH-objects (HH7-11).


NGC 1342
NGC 1499
IC 348
30'x30'
5°
M 45
+35°00'
+30°00'
+25°00'
4h00m
3h30m
3h00m


B 2
B 3
B 1
30'x30'
B 205
B 203
B 202
B 206
B 204
+33°00'
+32°00'
+31°00'
+30°00'
3h40m
3h35m
3h30m
3h25m
3h20m

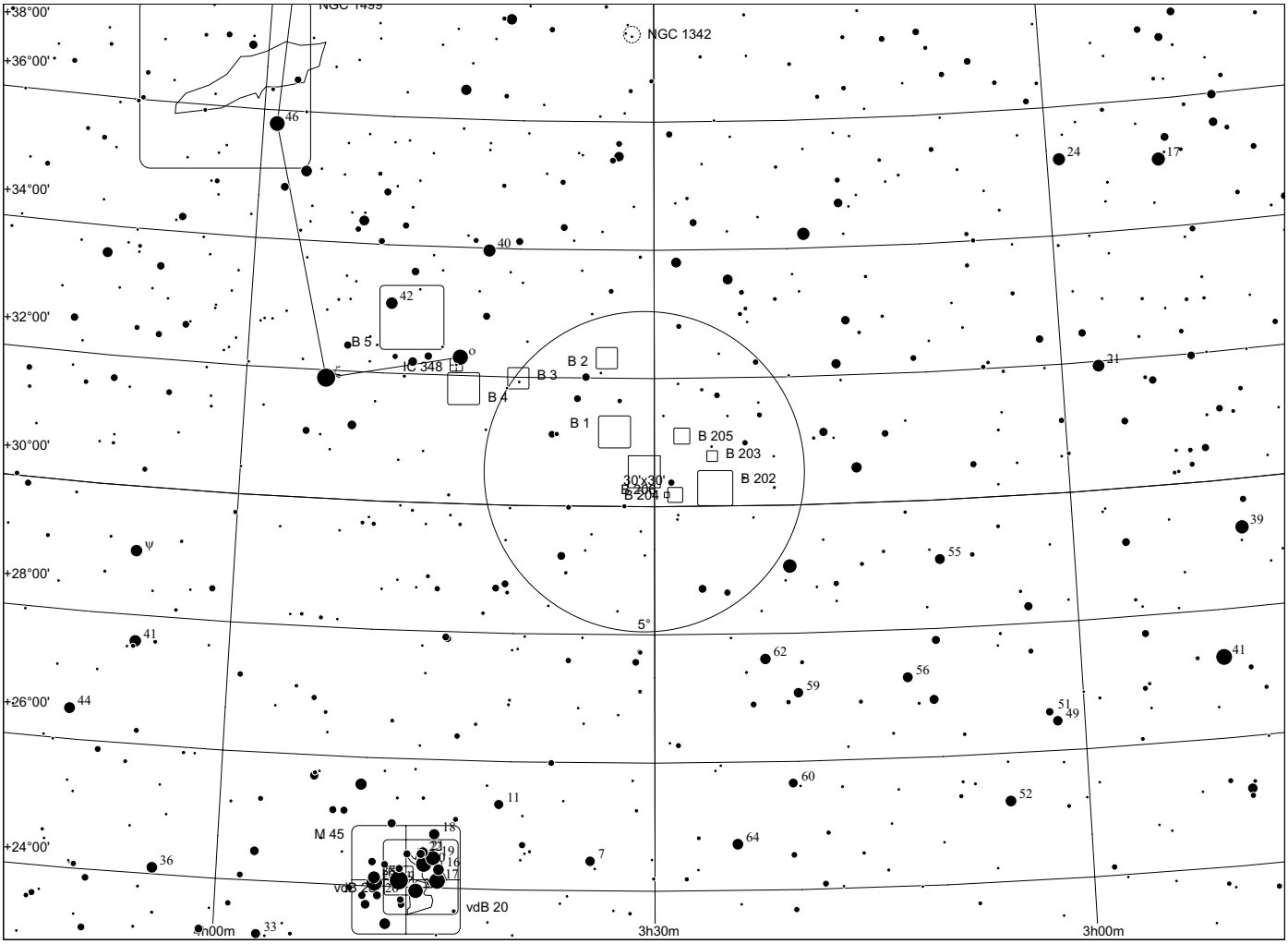
EM* LkHA 326 in Aries

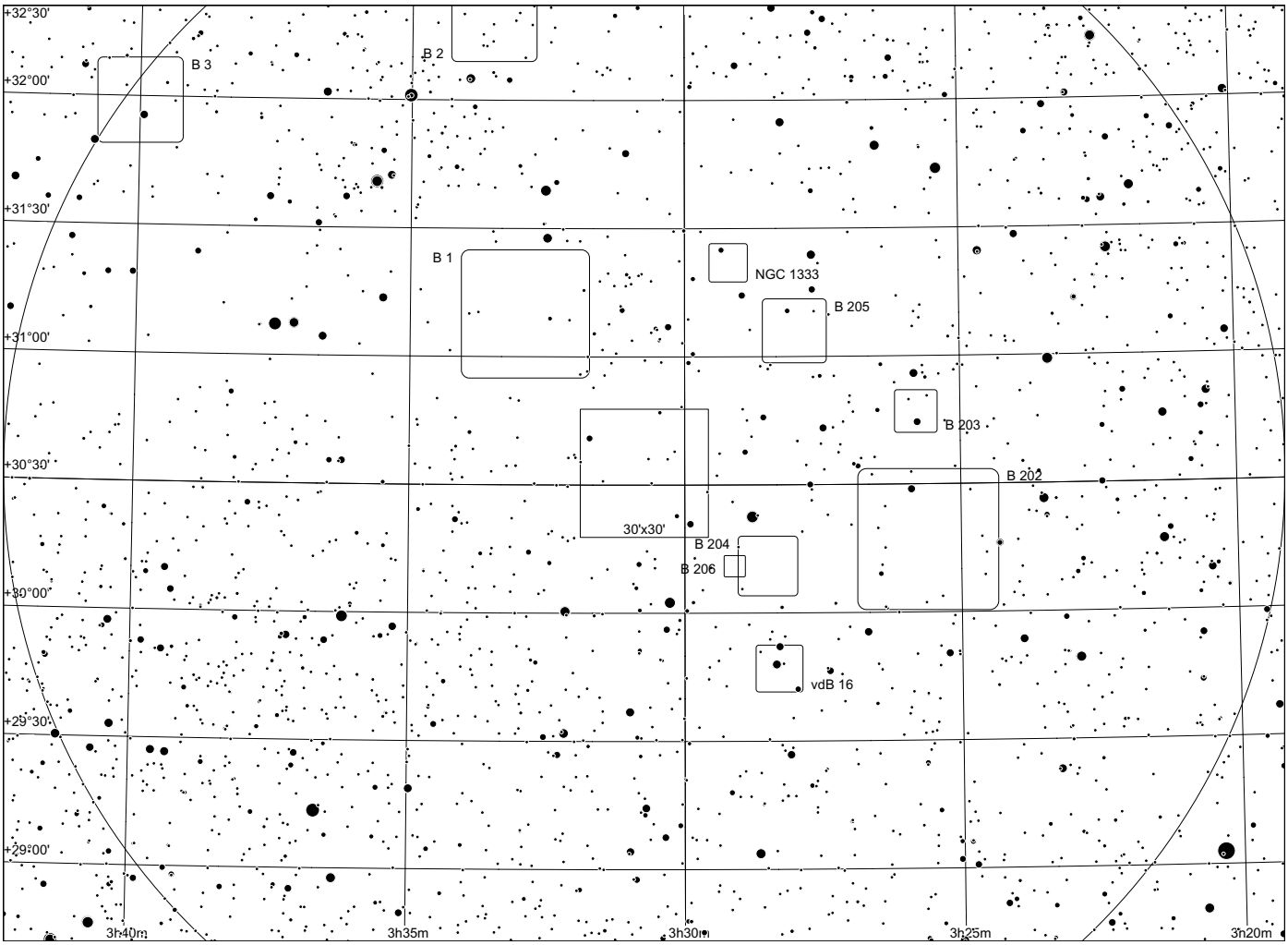


30x30 blue

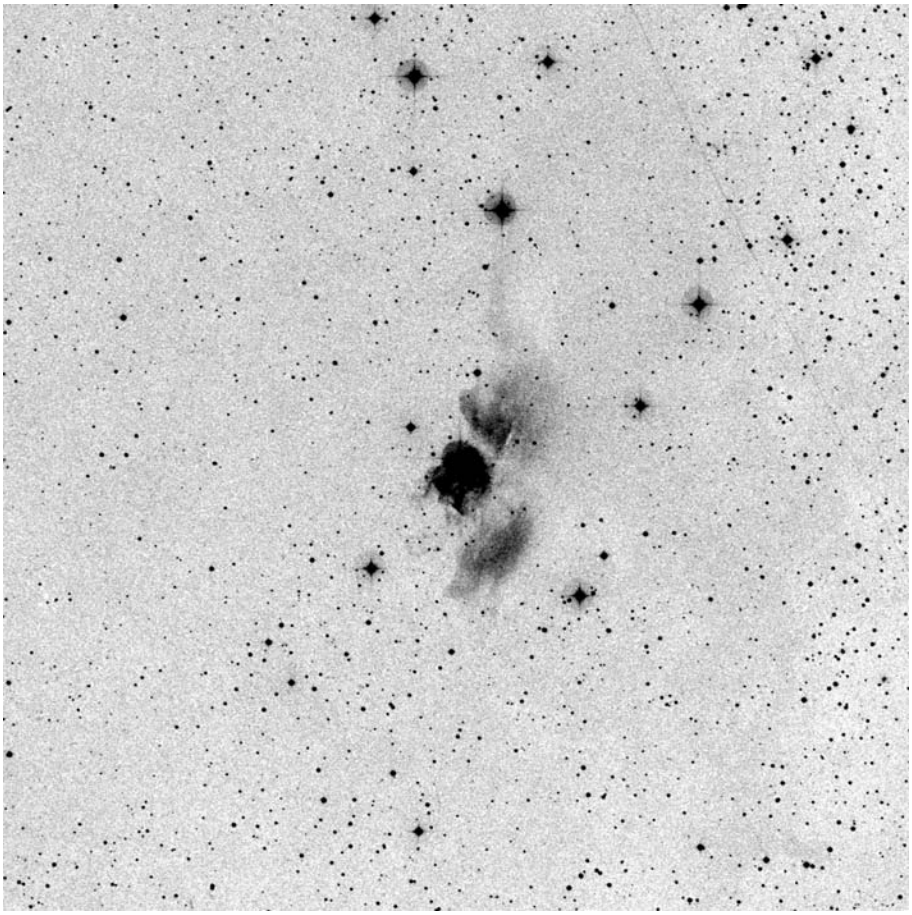
	other	RA	Dek	comments
EM* LkHA 326	HBC 14	03 30 44.06	+30 32 47.0	

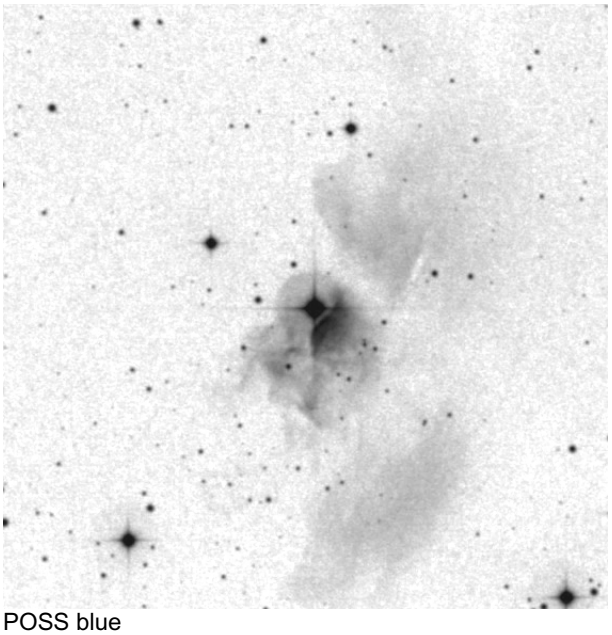
Observing notes:


NGC 1342
B 5
IC 348
B 4
B 3
B 2
B 1
B 205
B 203
B 202
B 204
30'x30'
M 45
vdB 20
+38°00'
+36°00'
+34°00'
+32°00'
+30°00'
+28°00'
+26°00'
+24°00'
4h00m
3h30m
3h00m

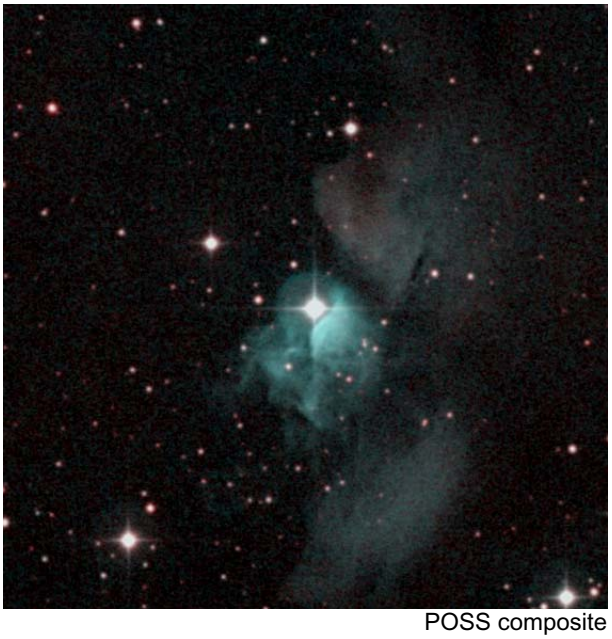

B 3
B 2
B 1
NGC 1333
B 205
B 203
B 202
30'x30'
B 204
B 206
vdB 16
+32°30'
+32°00'
+31°30'
+31°00'
+30°30'
+30°00'
+29°30'
+29°00'
3h40m
3h35m
3h30m
3h25m
3h20m

XY Persei





POSS blue

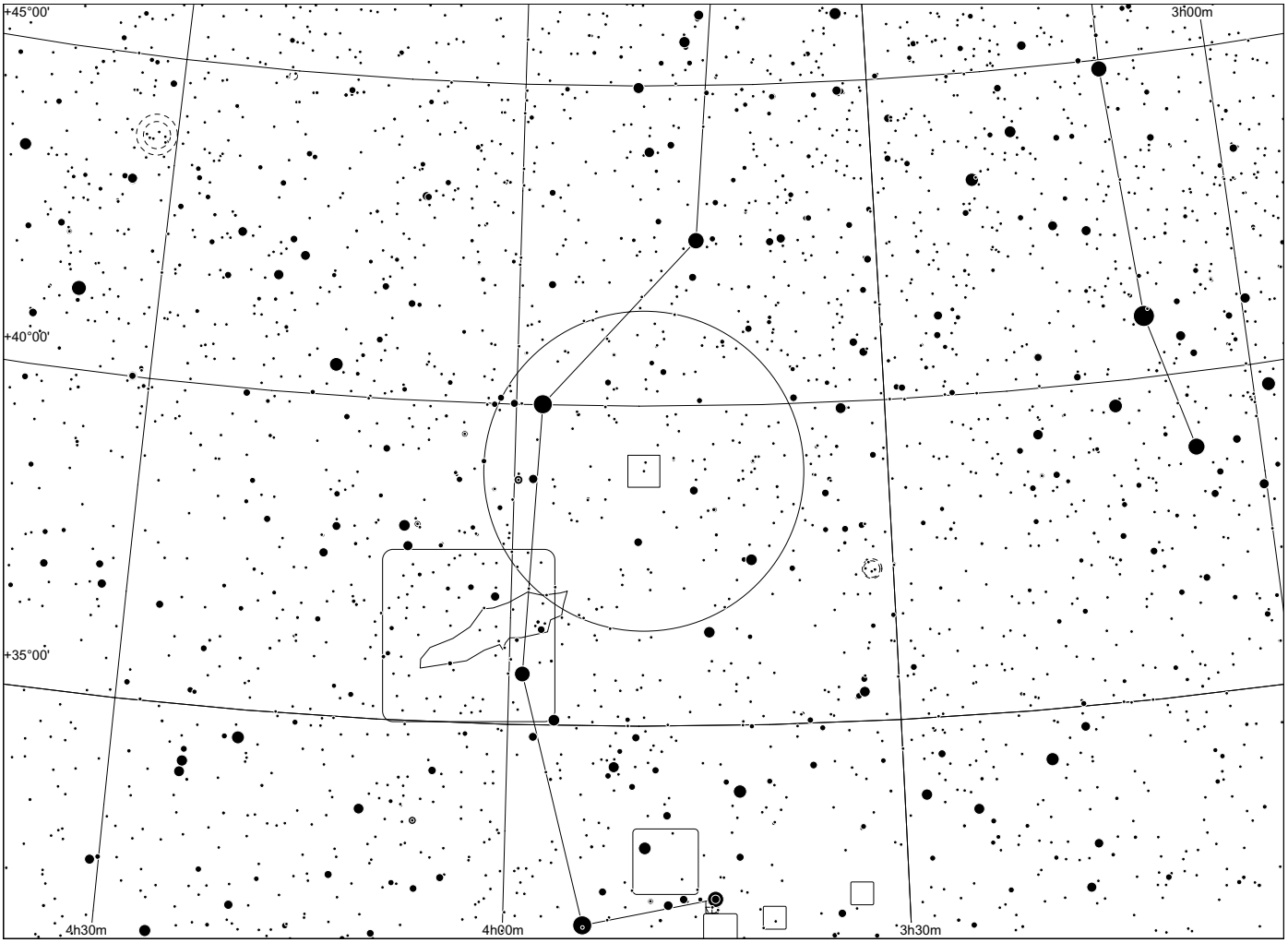


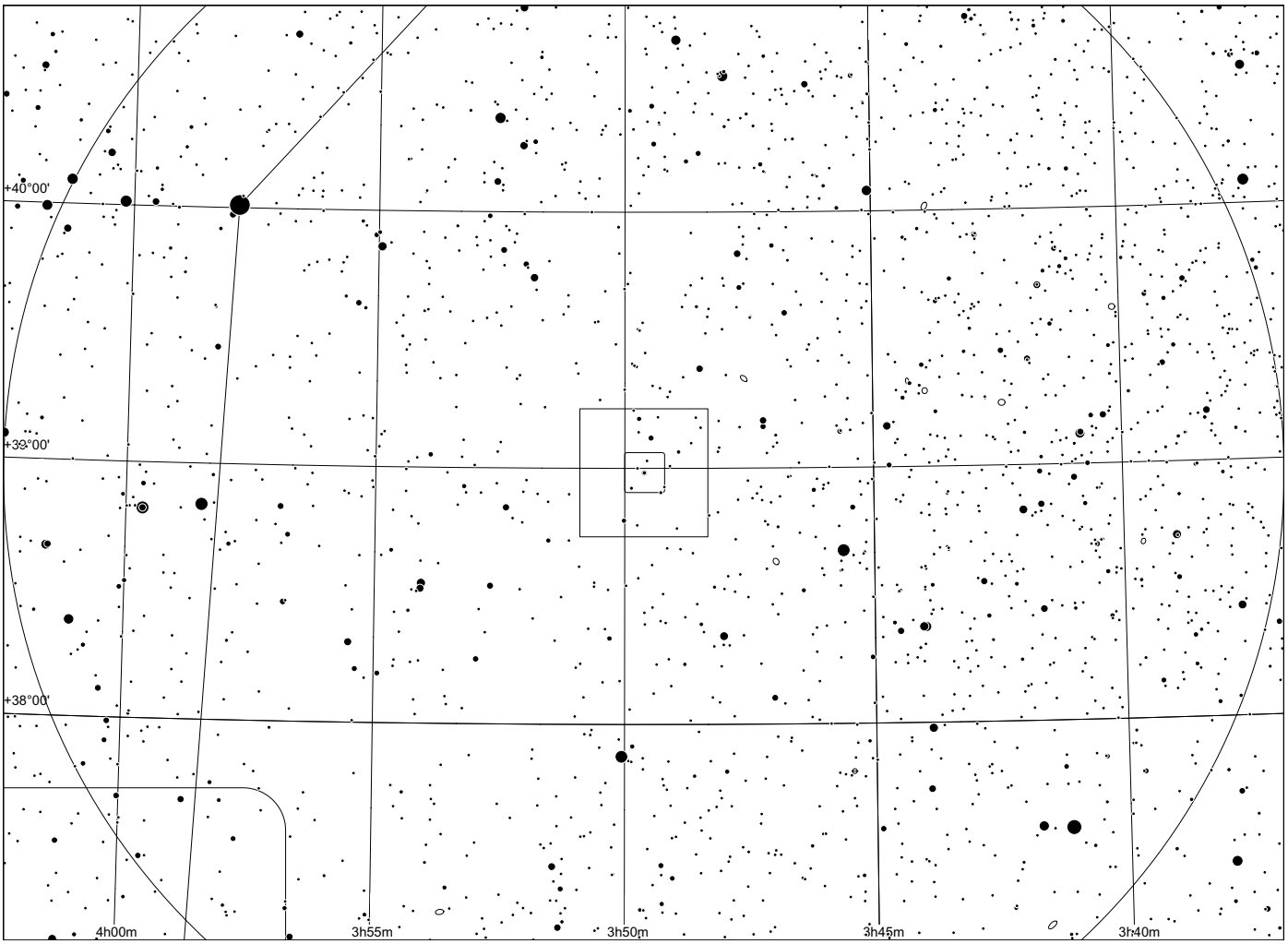
POSS composite

	other	RA	Dek	comments
XY Per	HBC 349 / 350, VdB 24	3 49 37.03	+38 58 57.6	Herbig Ae/Be

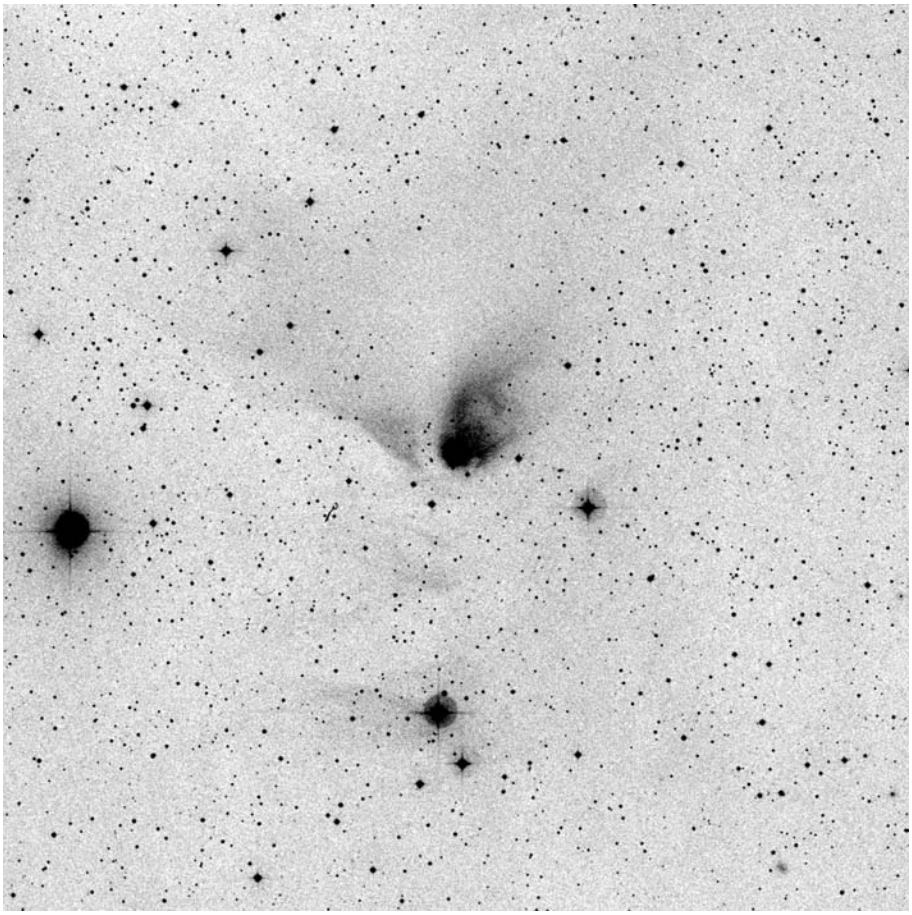
Observing notes:

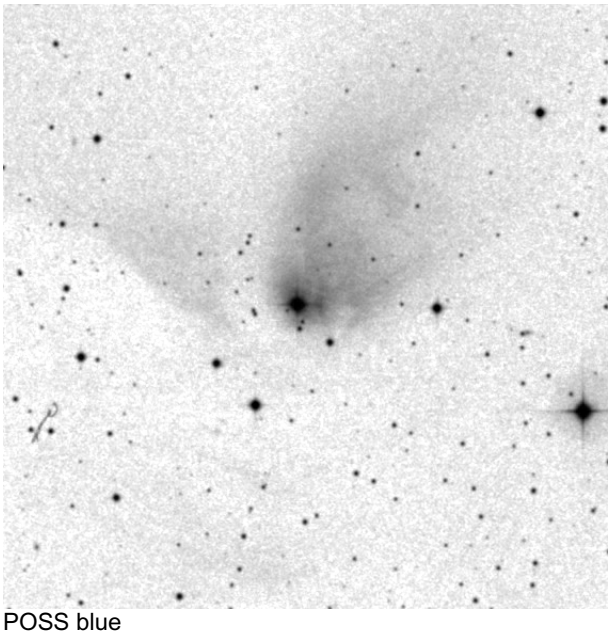
22" f/4.5
At 200x, RN is quite obvious around star, extending in particular toward SW. No crescent shape could be discerned. The RN is terminated toward NW by a distinct dark band. Northern edge of band appeared defined, therefore additional nebulosity N of it is suspected.


+45°00'
3h00m
+40°00'
+35°00'
4h30m
4h00m
3h30m

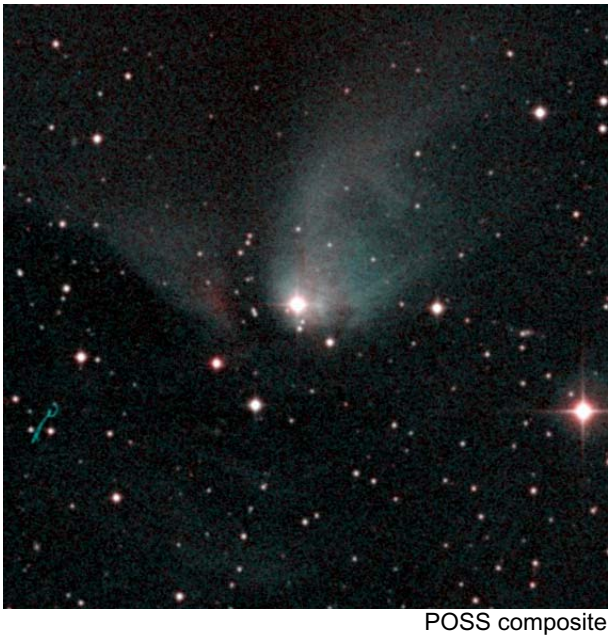

+40°00'
+38°00'
4h00m
3h55m
3h50m
3h45m
3h40m

RY Tauri





POSS blue

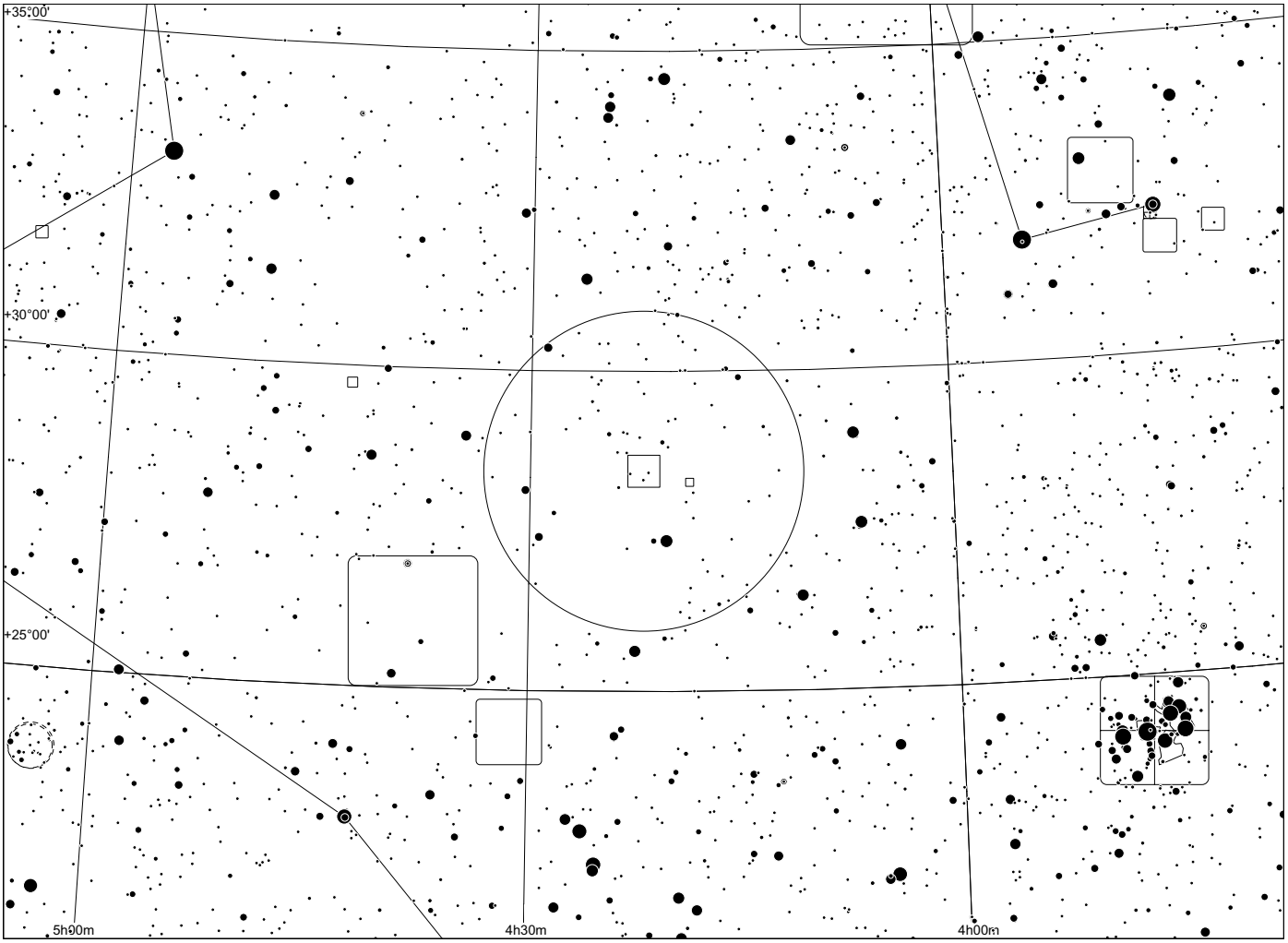


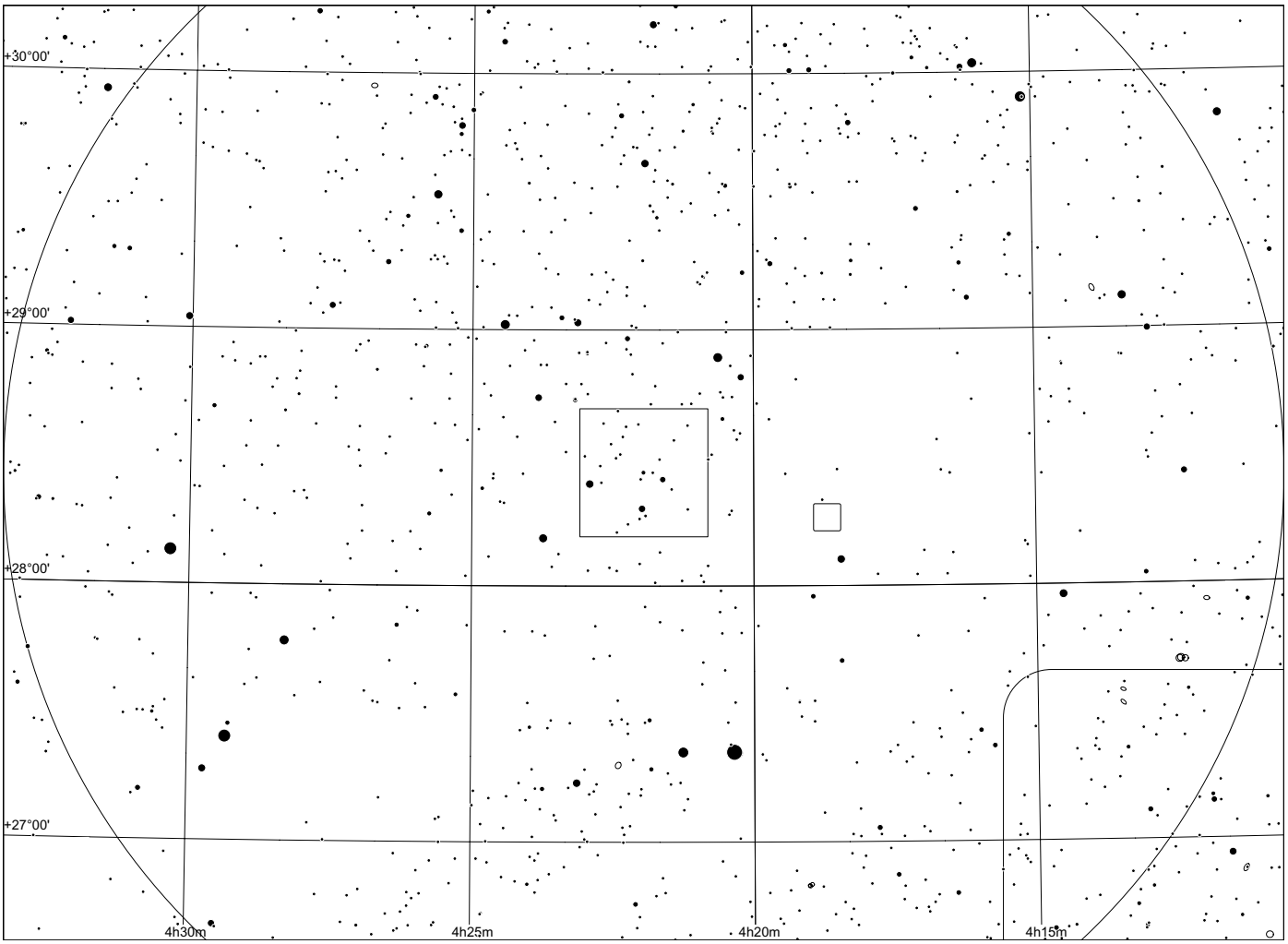
POSS composite

	other	RA	Dek	comments
RY Tau	HBC 34	04 21 56.75	+28 26 33.9	

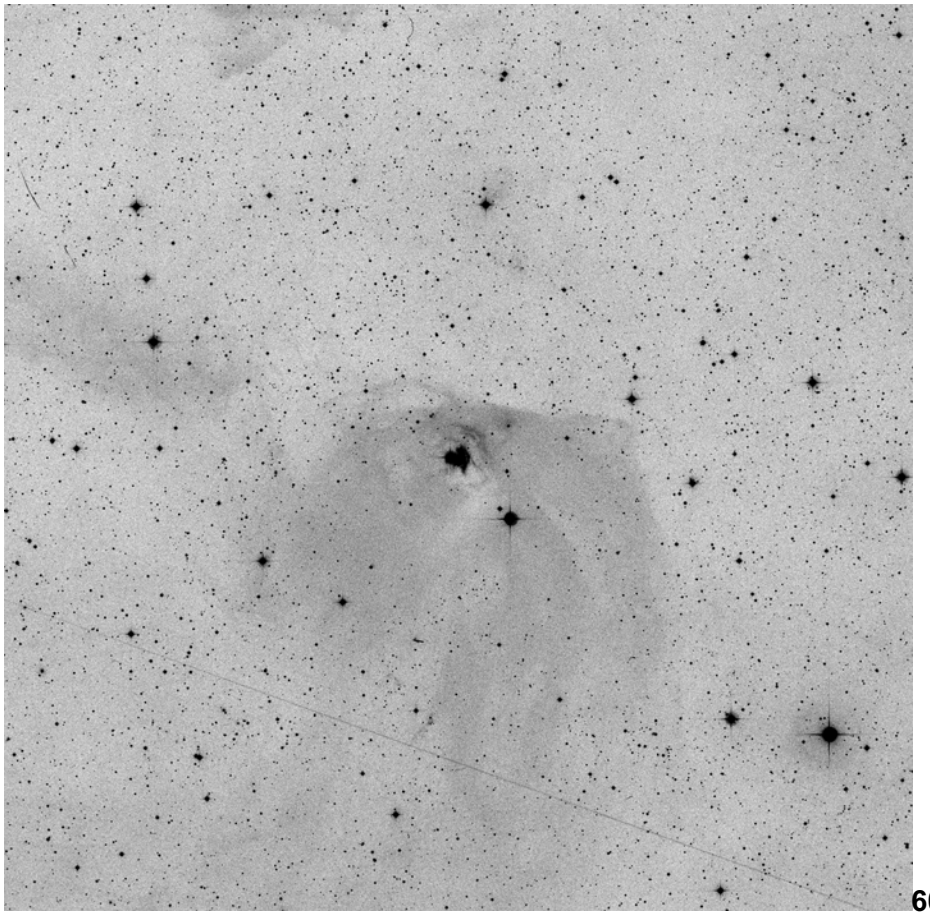
Observing notes:

22" f/4.5
At 200x, RY Tau has a distinct reflection nebula that is fan-shaped extending from star to NW. The edge of the nebula is sharply defined toward S and E.

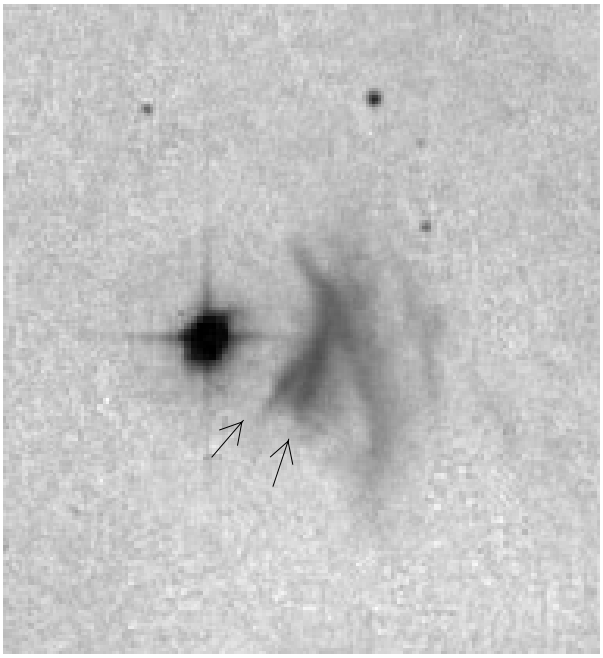

+35°00'
+30°00'
+25°00'
5h00m
4h30m
4h00m


+30°00'
+29°00'
+28°00'
+27°00'
4h30m
4h25m
4h20m
4h15m

Hind's Variable Nebula / T Tauri



60x60



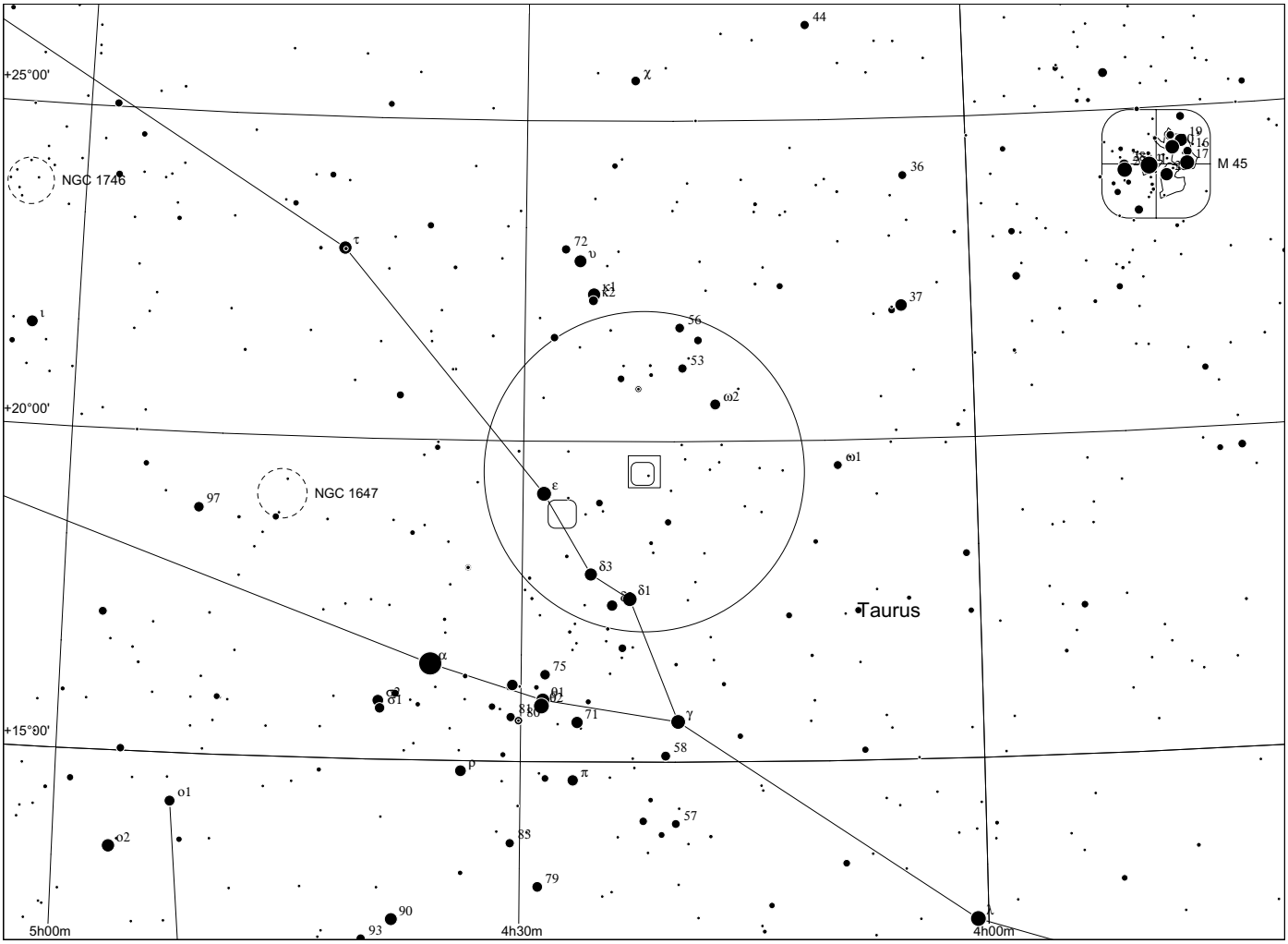
POSS blue

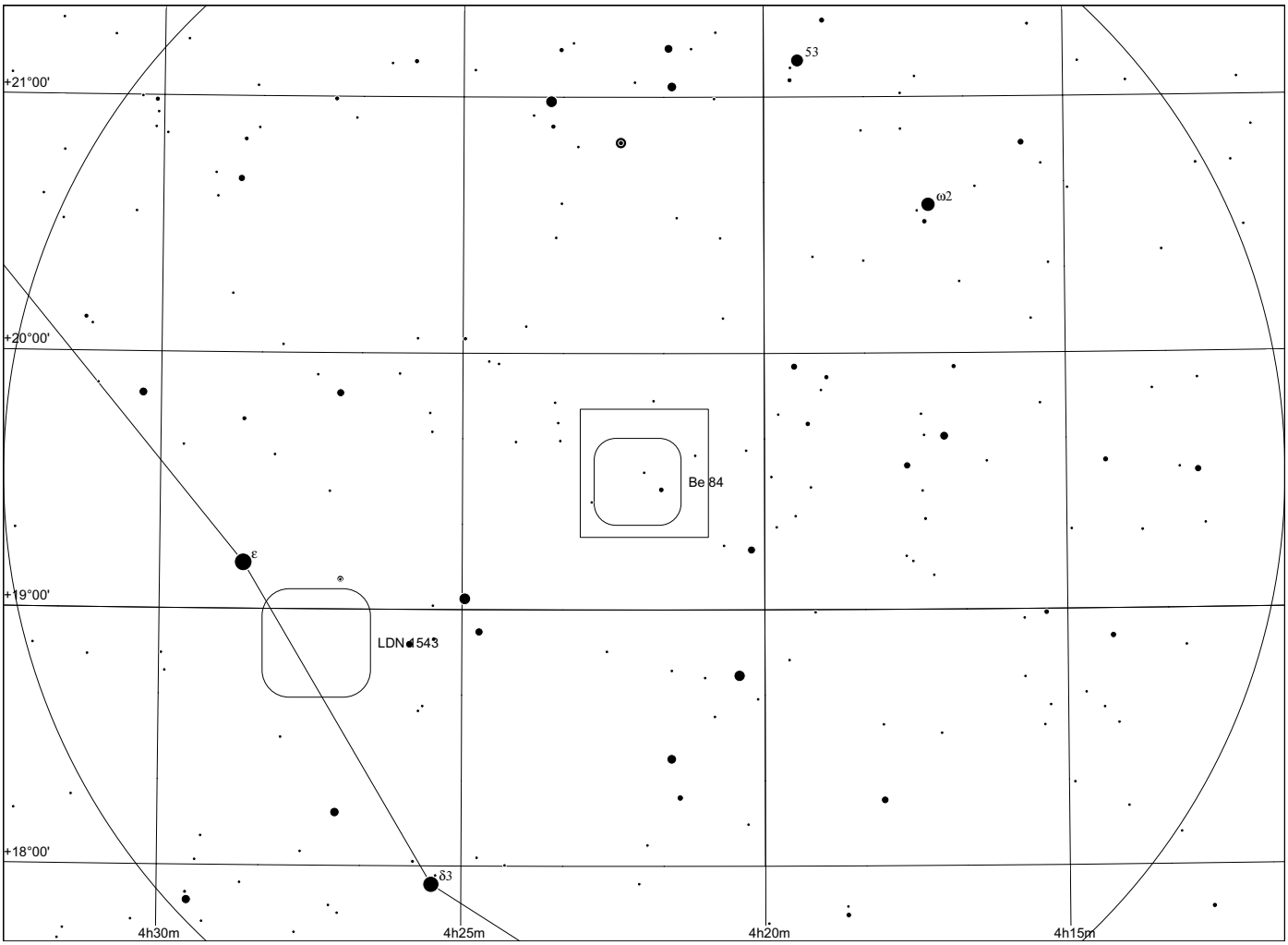
POSS composite

	other	RA	Dek	comments
NGC 1555	NGC 1555	04 22 00.00	+19 36 00.0	T Tauri prototype

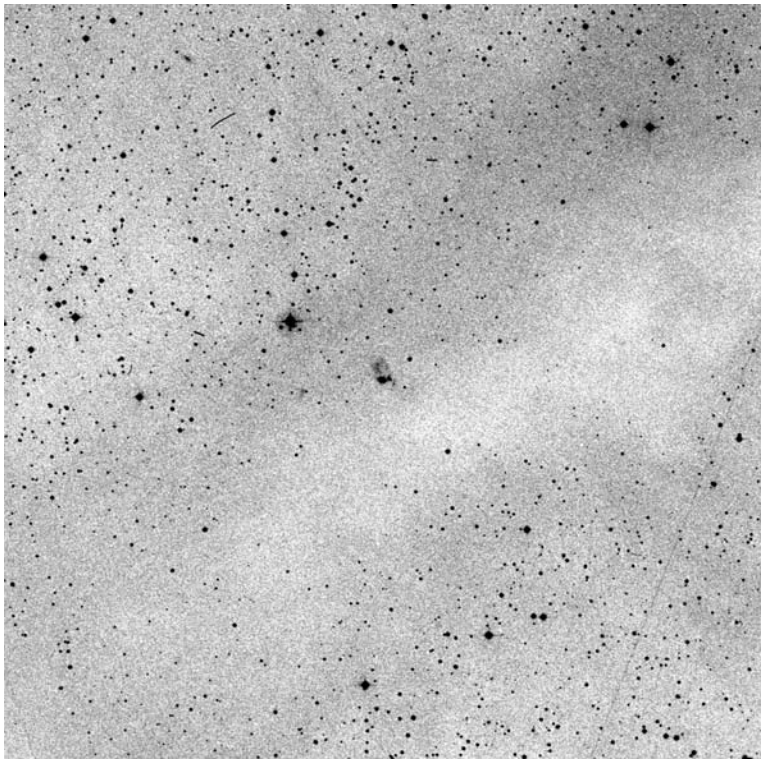
Observing notes:

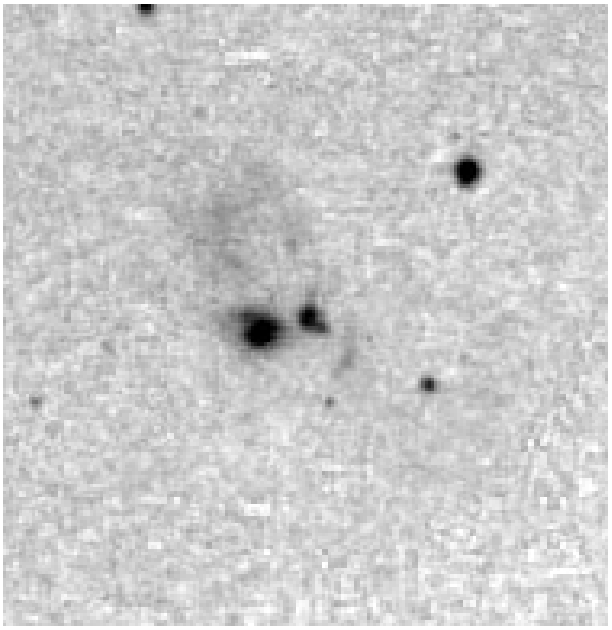
22" f/4.5
Hind's variable nebula around the T Tauri prototype. With indirect vision, it is crescent shaped and W of T Tauri, winding around the star. The S end of the RN appears clearly divided. This is probably the structure marked with an arrow.


+25°00'
+20°00'
+15°00'
5h00m
4h30m
4h00m
NGC 1746
NGC 1647
M 45
Taurus
44
χ
36
τ
72
υ
37
56
53
ω2
ω1
97
ε
δ3
δ1
α
75
γ
71
58
ρ
π
ο1
ο2
57
85
79
90
93
λ


+21°00'
+20°00'
+19°00'
+18°00'
4h30m
4h25m
4h20m
4h15m
53
ω2
Be 84
ε
LDN 1543
δ3

FS Tauri in Taurus





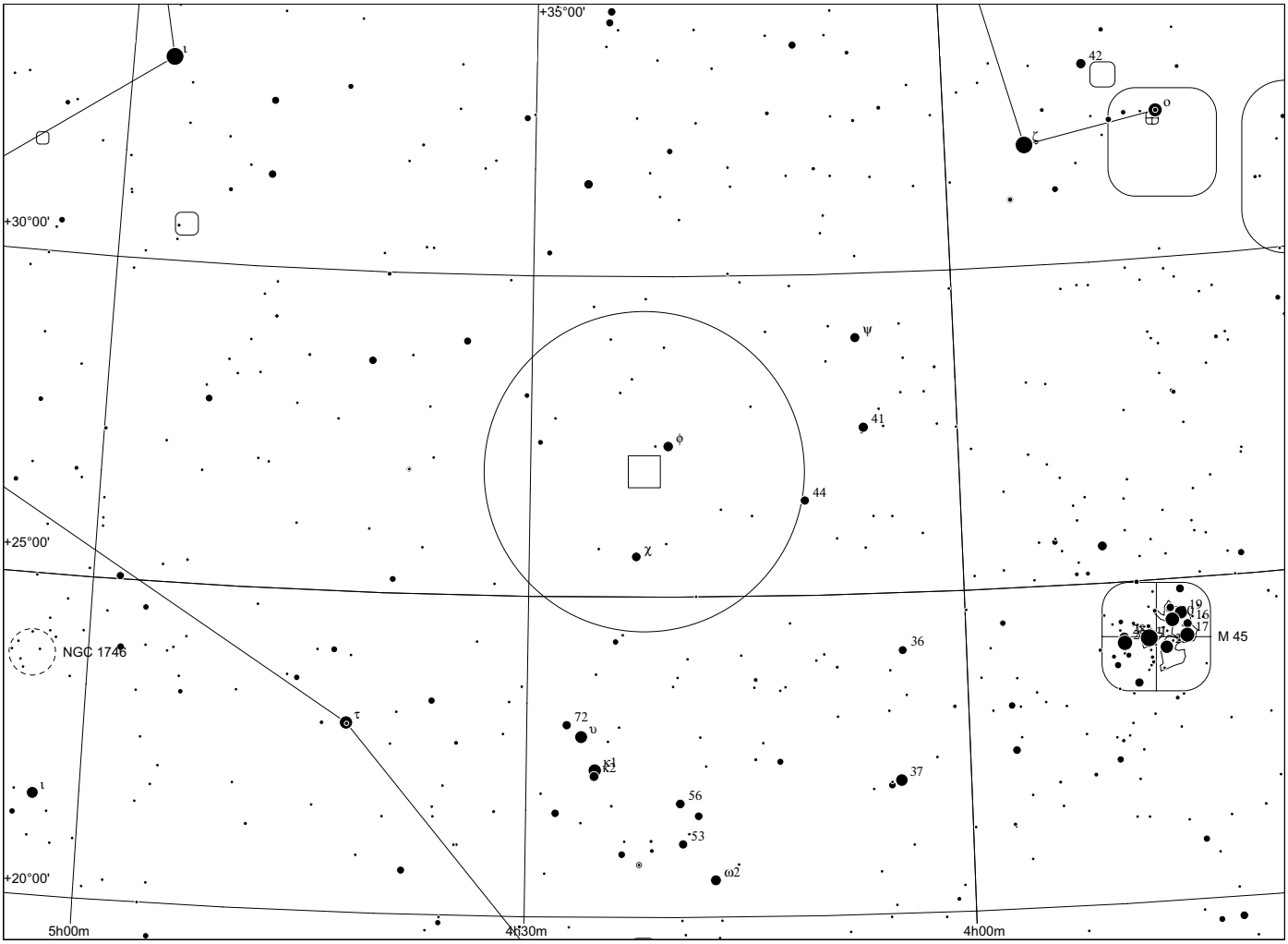
POSS blue

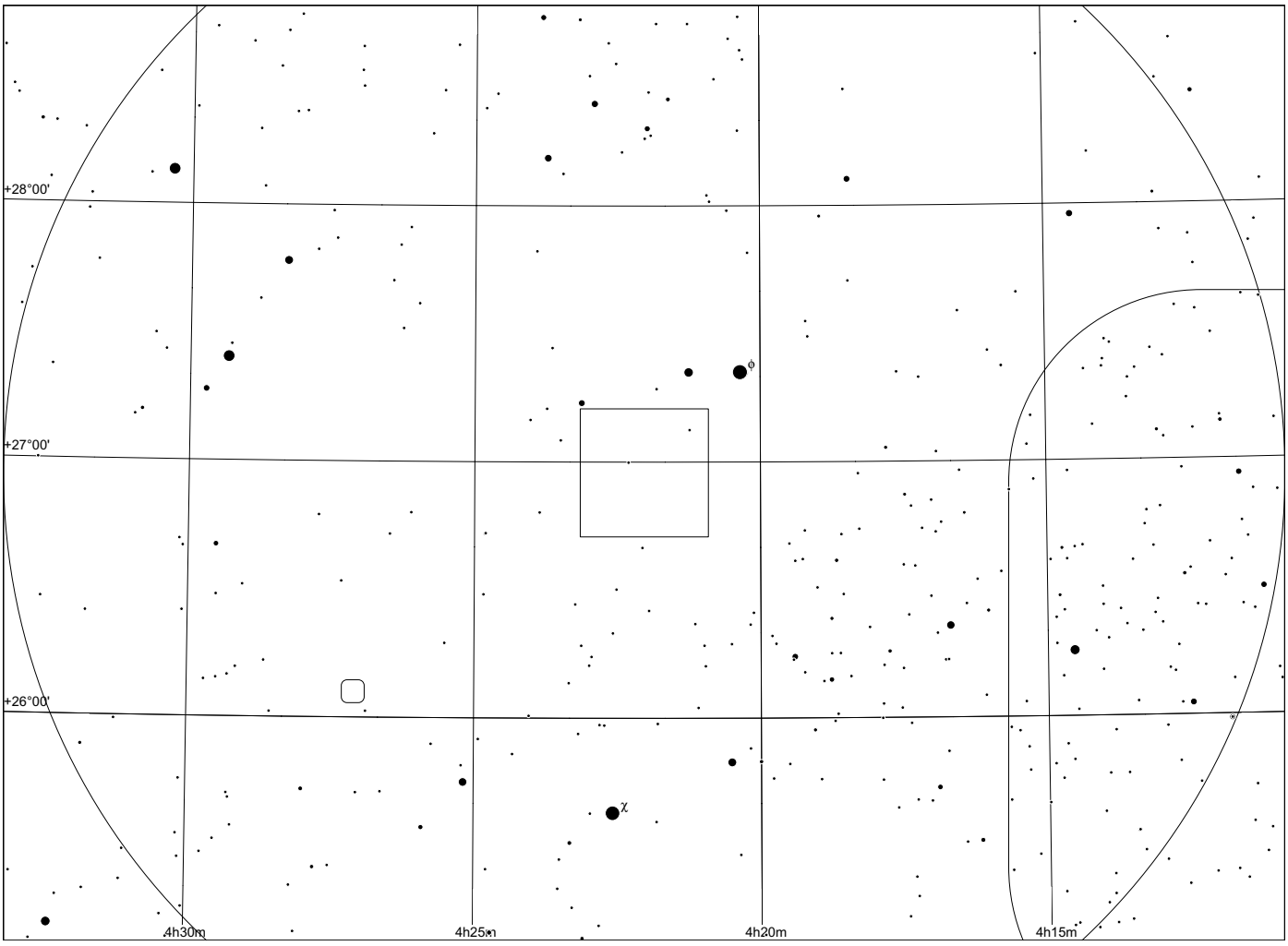
POSS composite

	other	RA	Dek	comments
V* FS Tau		04 22 02.18	+26 57 30.5	with HH276 nearby

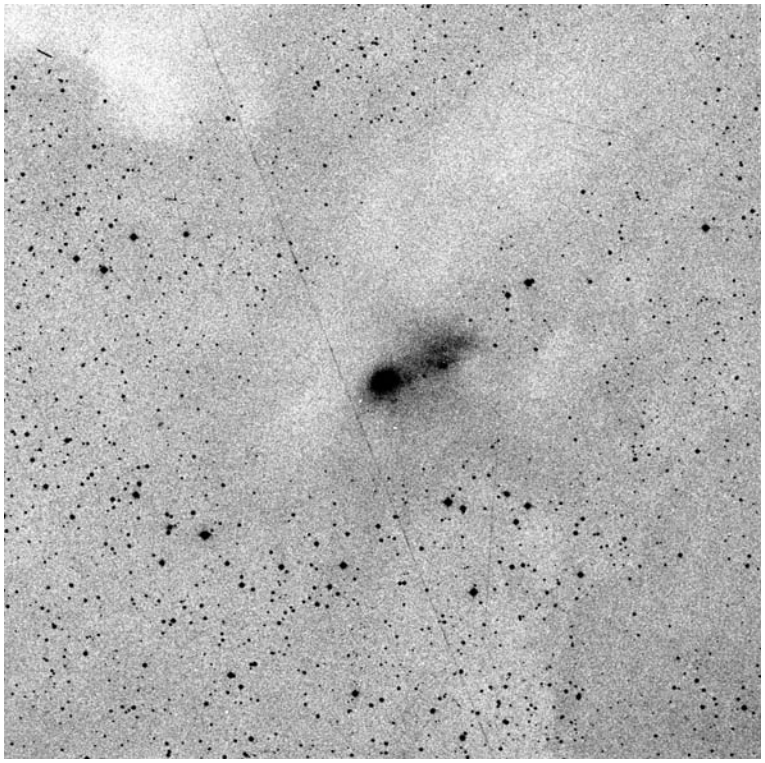
Observing notes:

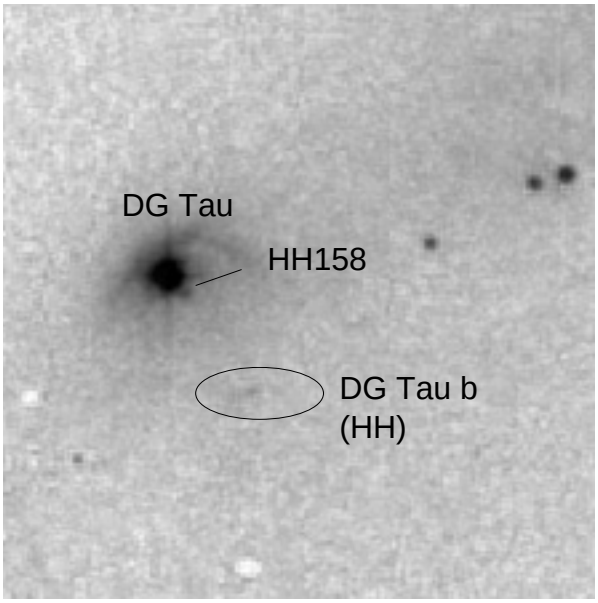
22" f/4.5
At 350x, FS Tauri could be held with indirect vision and appeared stellar. The Northern extension and the right lobe could not be seen.


+35°00'
+30°00'
+25°00'
+20°00'
5h00m
4h30m
4h00m
42
ο
ψ
41
φ
44
χ
NGC 1746
τ
72
υ
κ1
κ2
36
37
56
53
ω2
M 45
19
16
17


+28°00'
+27°00'
+26°00'
4h30m
4h25m
4h20m
4h15m
φ
χ

DG Tauri in Taurus





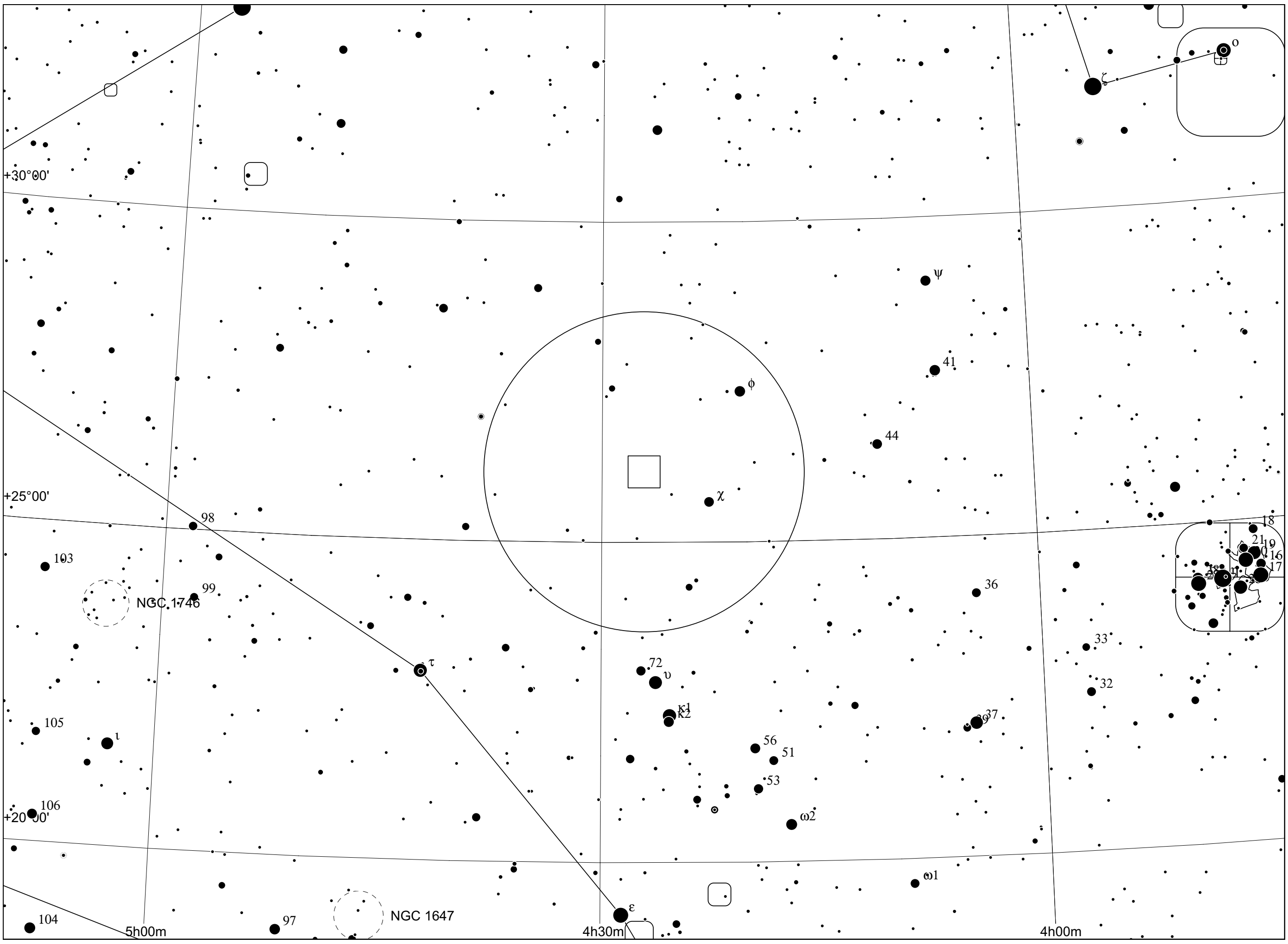
POSS blue

POSS composite

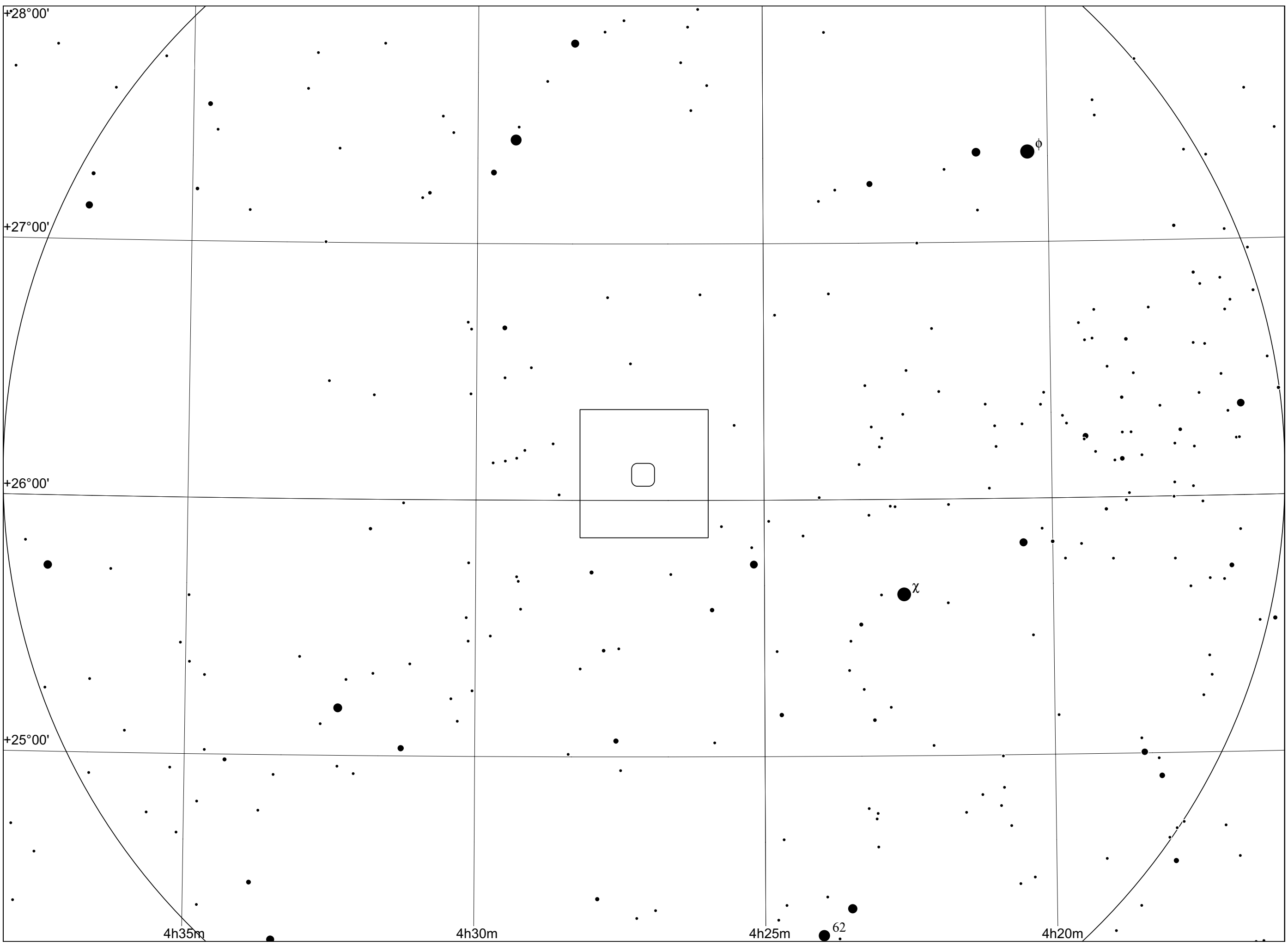
	other	RA	Dek	comments
V* DG Tau	Ced 33	04 27 04.70	+26 06 16.2	T Tauri type

Observing notes:

22" f/4.5
DG Tauri is bright and appears stellar. Around the star, a very faint and NW-SE elongated haze is visible. Faint stars WNW could be seen at times indirectly.

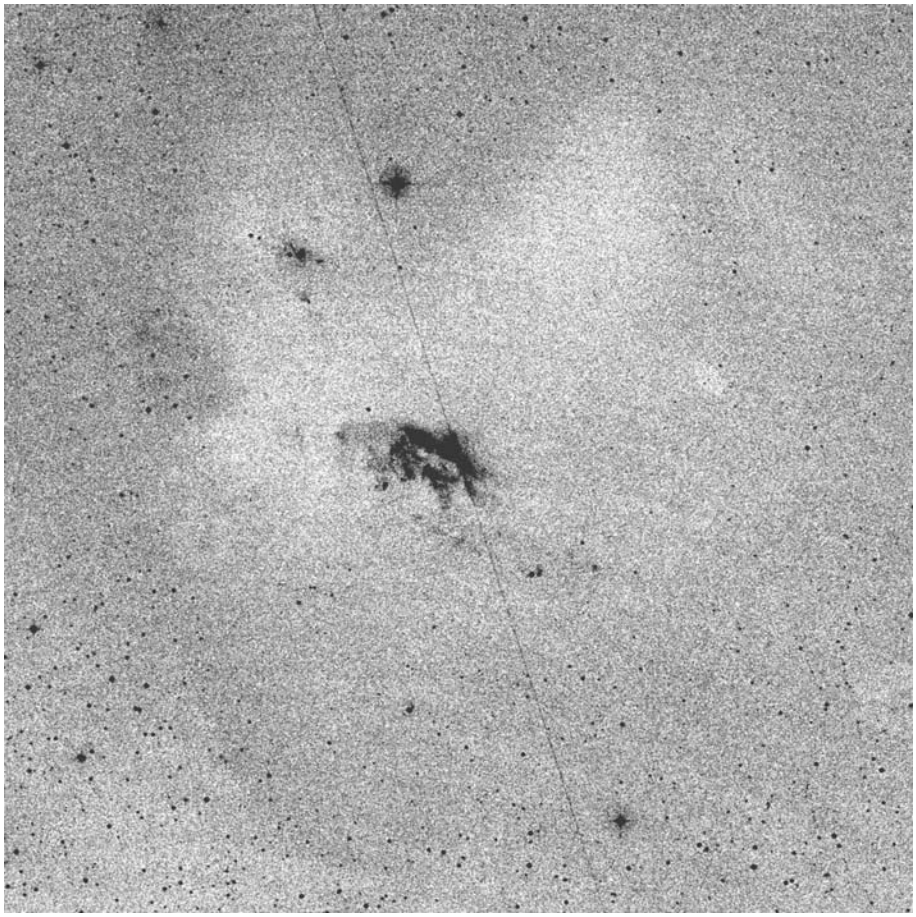


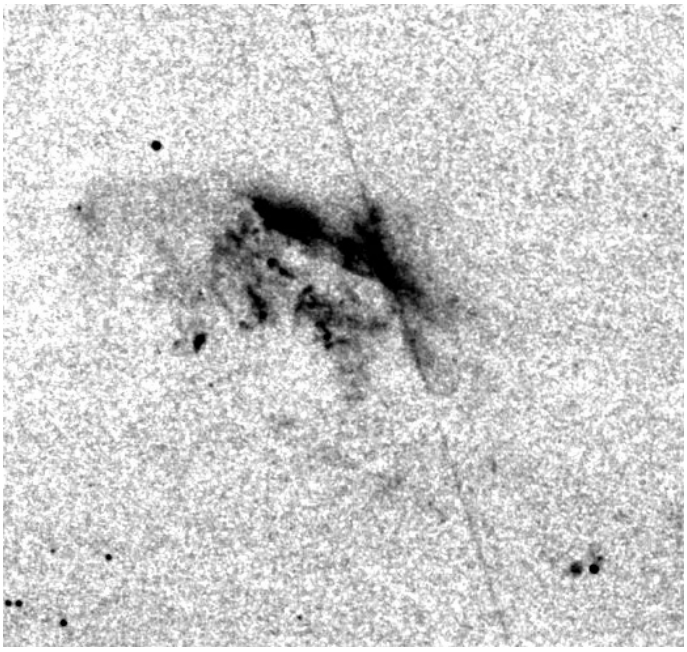
+30°00'
+25°00'
+20°00'
5h00m
4h30m
4h00m
NGC 1746
NGC 1647
ψ
41
φ
44
χ
98
103
99
36
33
32
72
υ
κ1
κ2
105
ι
56
51
53
37
106
ω2
ω1
104
97
ε
τ
ζ
ο
18
21
19
16
17



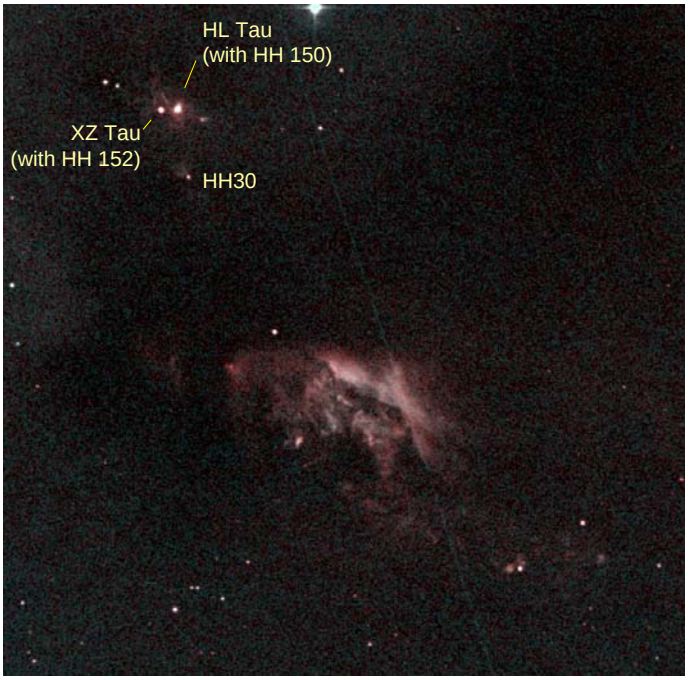
+28°00'
+27°00'
+26°00'
+25°00'
4h35m
4h30m
4h25m
4h20m
φ
χ
62

Sh2-239 in Taurus





POSS blue

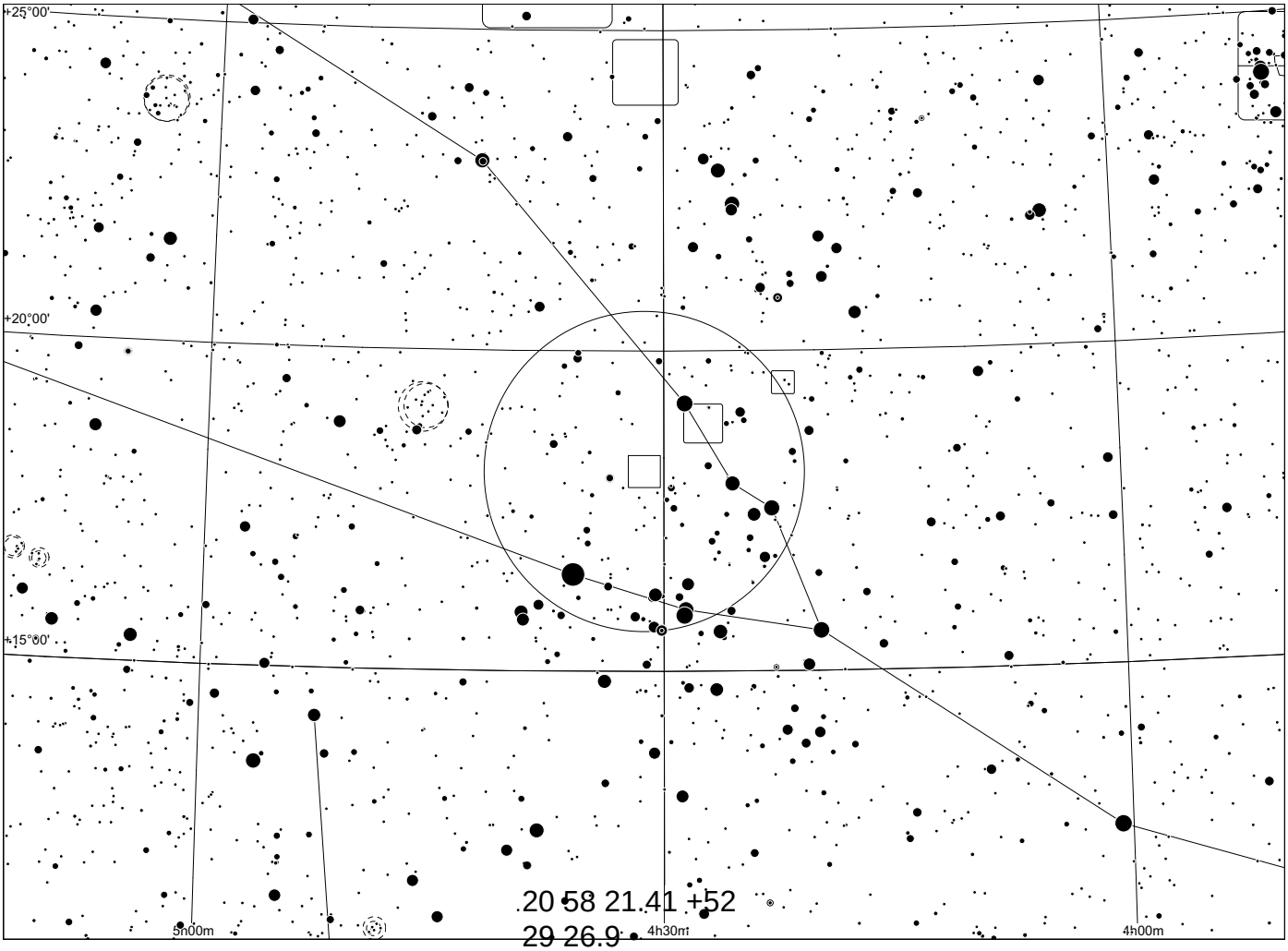


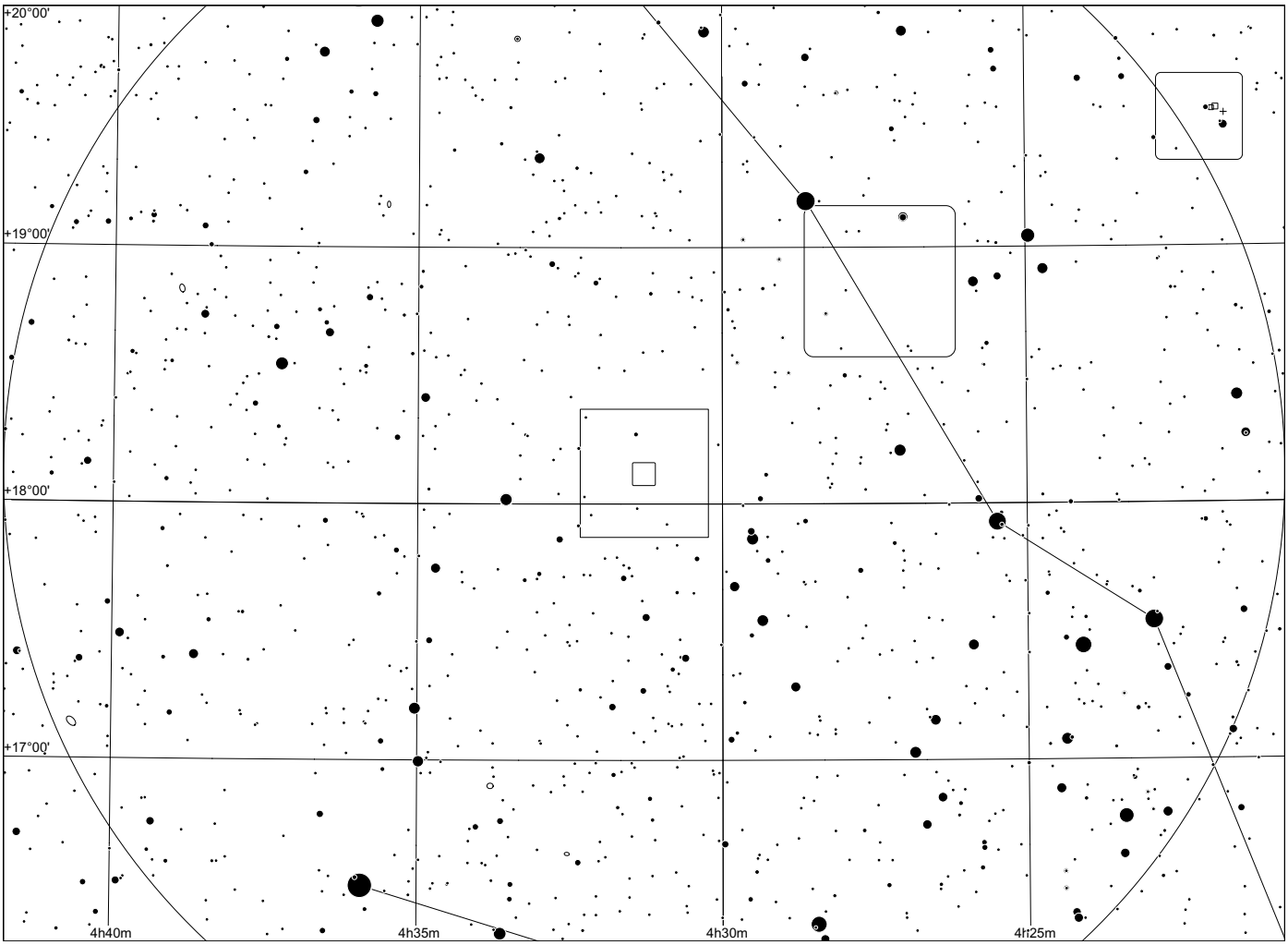
POSS composite

	other	RA	Dek	comments
	HH102	04 31 16.80	+18 07 12.0	includes several HHs and IR sources

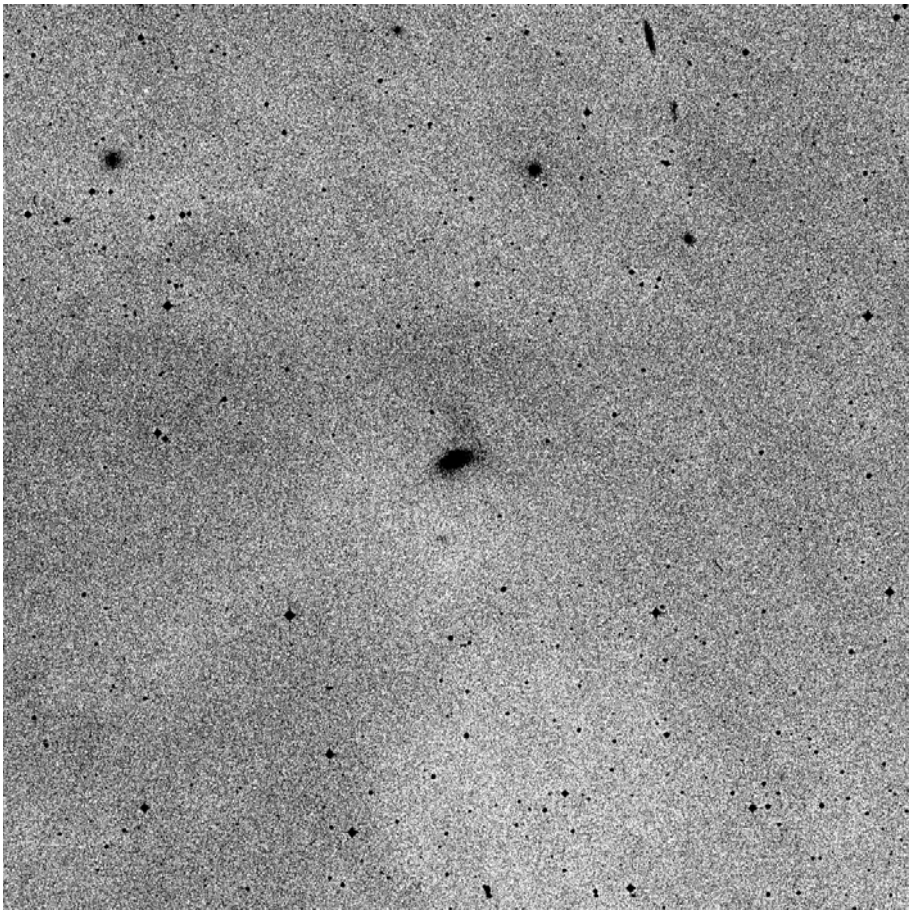
Observing notes:

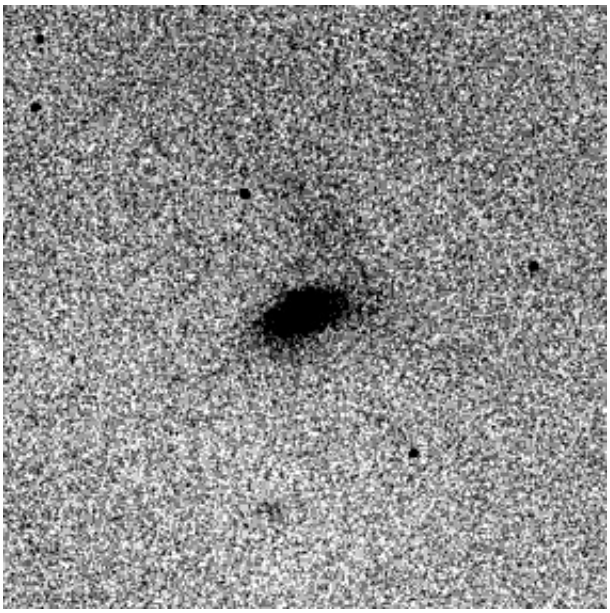
22" f/4.5
At 100x, the few field stars outside Sharpless 239 can be held steadily. With field sweeping and without filter, the nebula can be seen as a very weak, extended glow without internal structure, size and position matching the DSS print.


+25°00'
+20°00'
+15°00'
5h00m
4h30m
4h00m
20 58 21.41 +52 29 26.9


+20°00'
+19°00'
+18°00'
+17°00'
4h40m
4h35m
4h30m
4h25m

EW Eridani



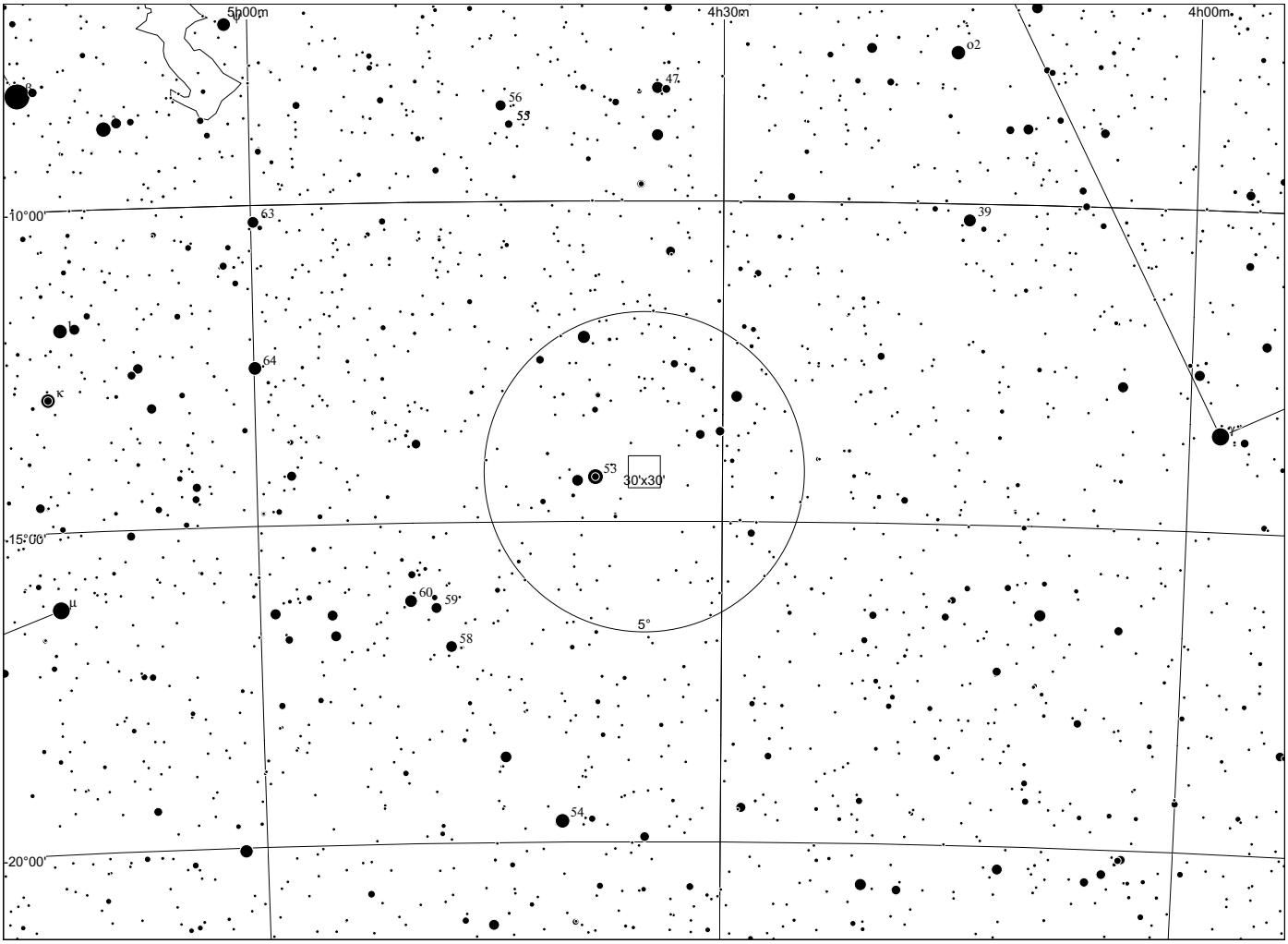


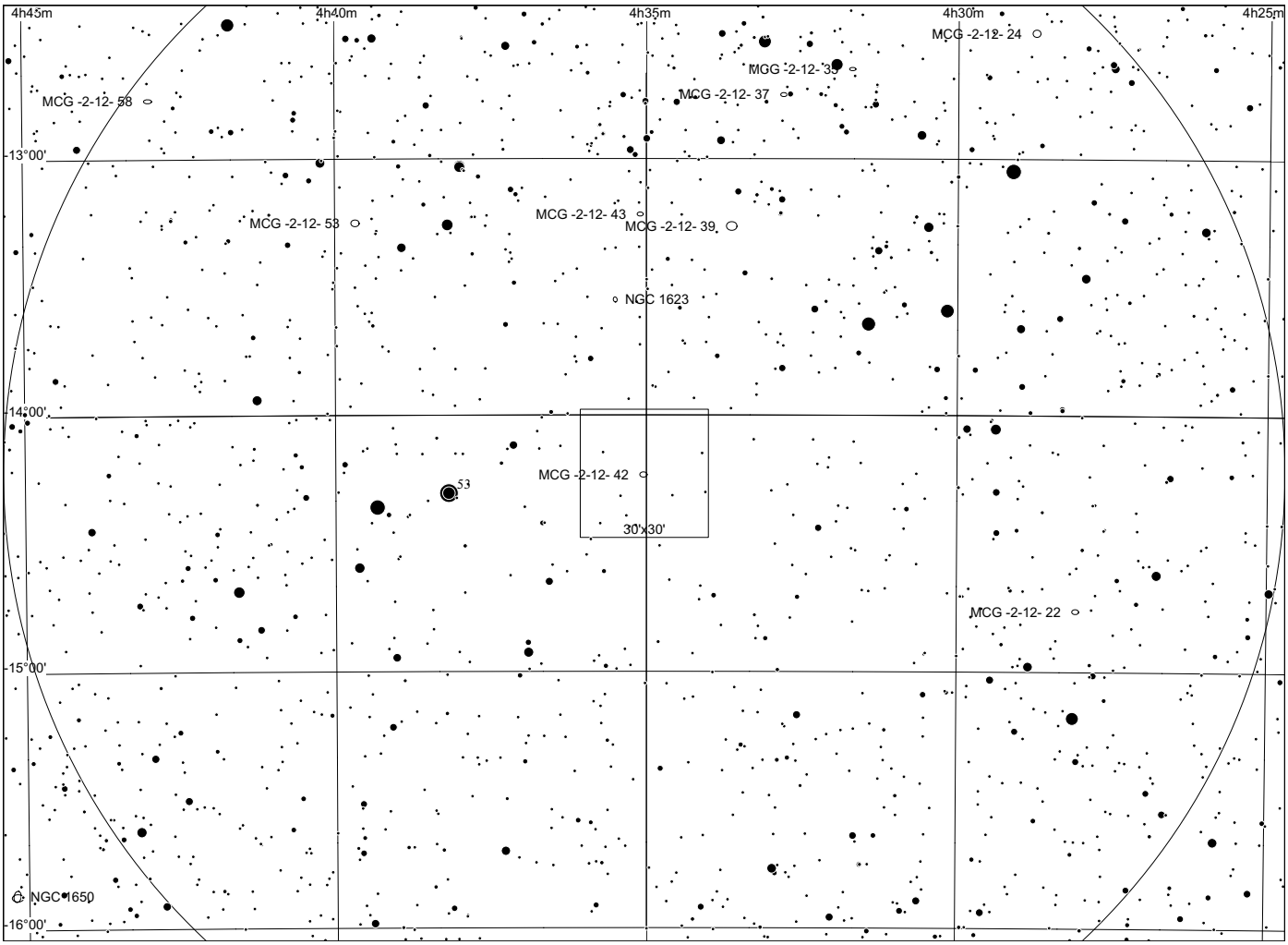
POSS blue

POSS composite

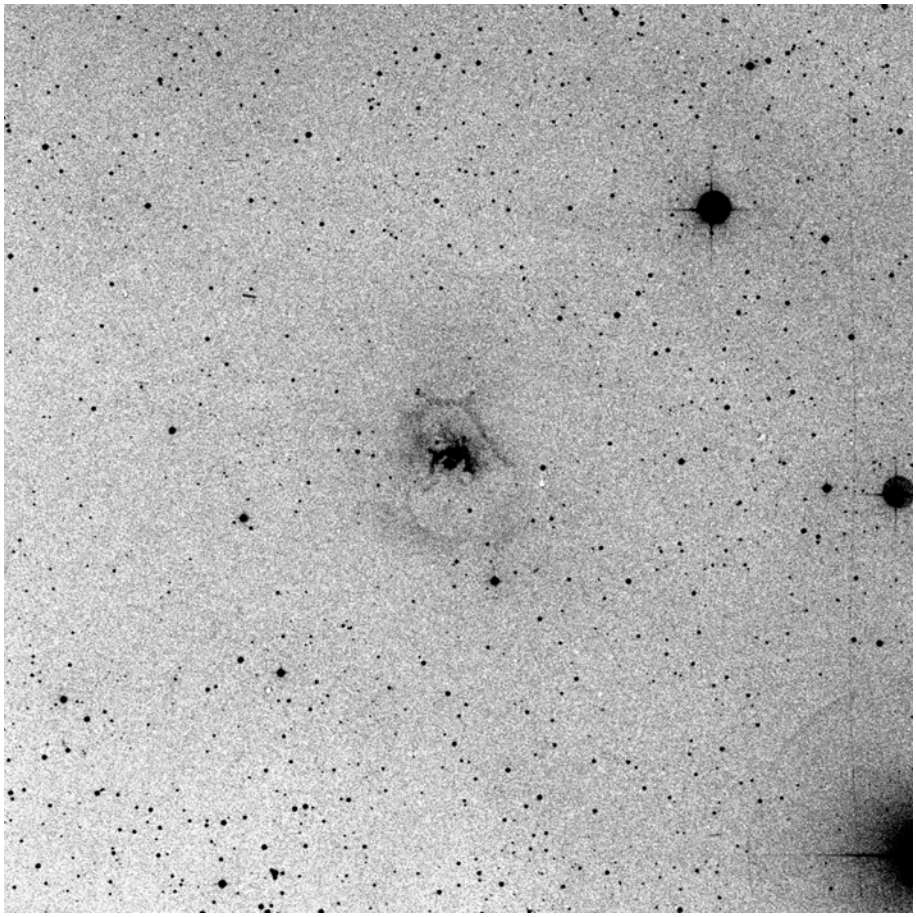
	other	RA	Dek	comments
L 1642-1	HBC 413	04 35 02.29	-14 13 40.8	

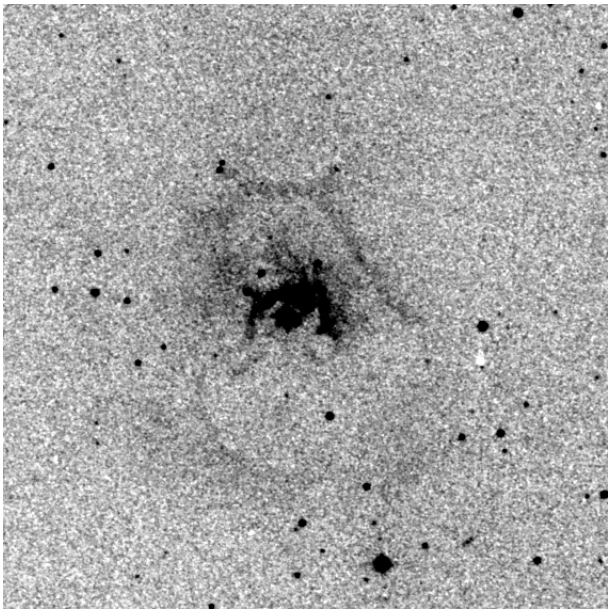
Observing notes:


5h00m
4h30m
4h00m
10°00'
15°00'
20°00'
63
64
56
55
47
02
39
53
30'x30'
60
59
58
54
5°

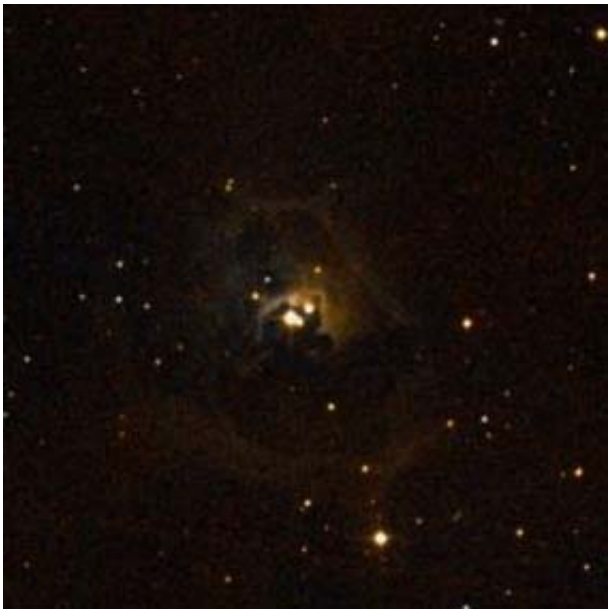

4h45m
4h40m
4h35m
4h30m
4h25m
MCG -2-12- 24
MGG -2-12- 35
MCG -2-12- 37
MCG -2-12- 38
13°00'
MCG -2-12- 43
MCG -2-12- 39
MCG -2-12- 53
NGC 1623
14°00'
MCG -2-12- 42
53
30'x30'
MCG -2-12- 22
15°00'
NGC 1650
16°00'

HP Tauri





POSS blue

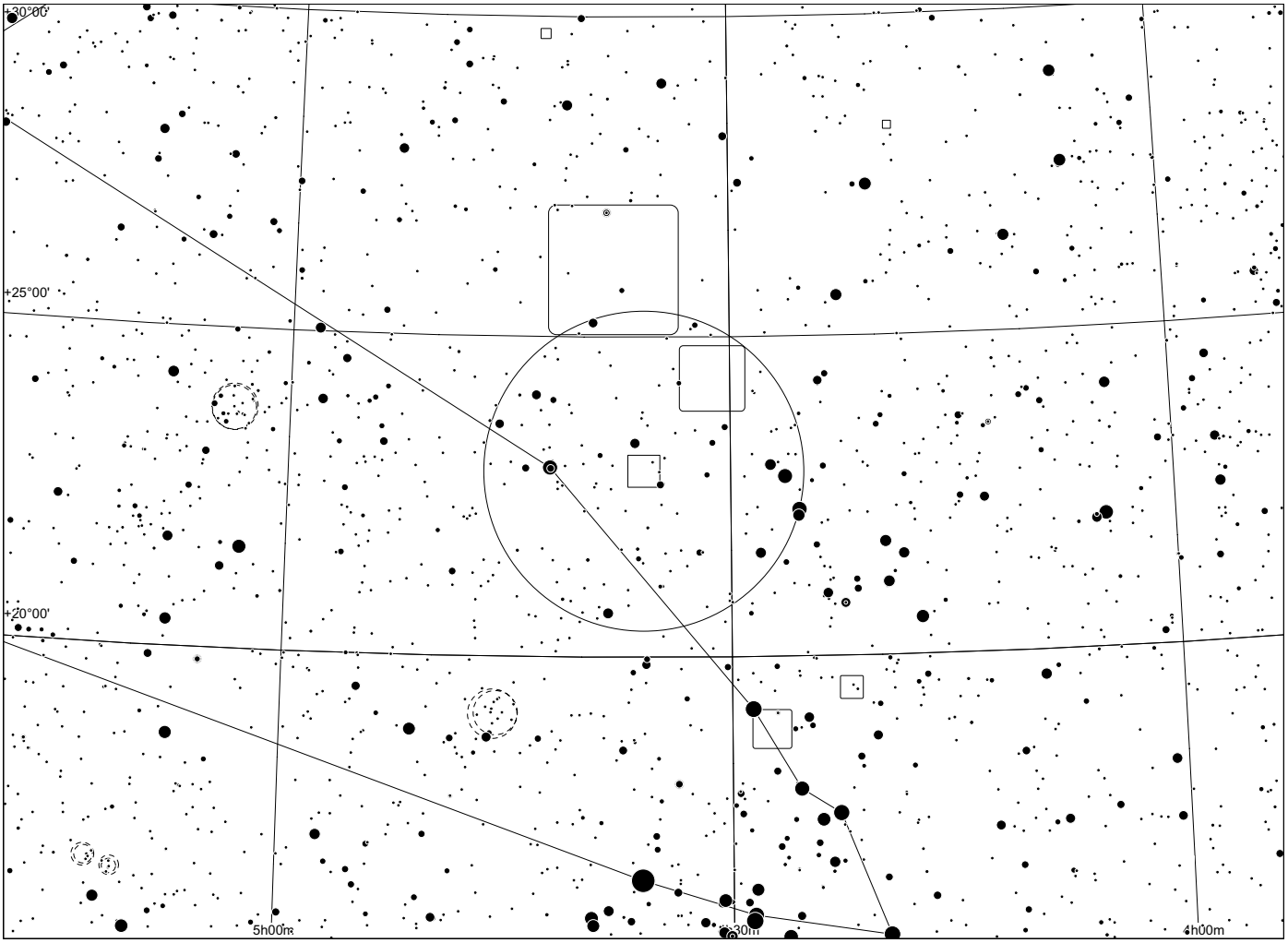


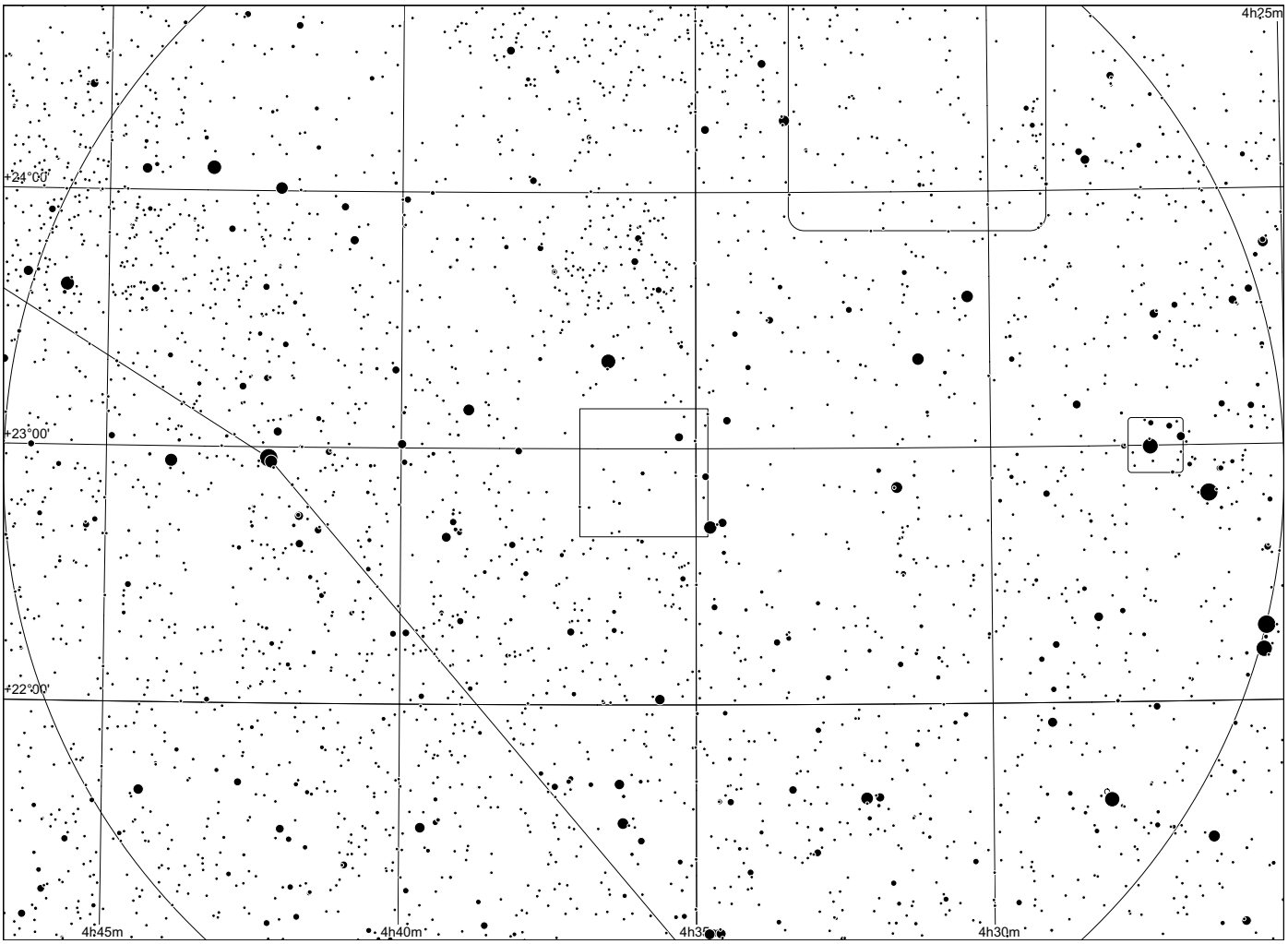
POSS composite

	other	RA	Dek	comments
V* HP Tau	HBC 66, LkHA 258	04 35 52.78	+22 54 23.1	

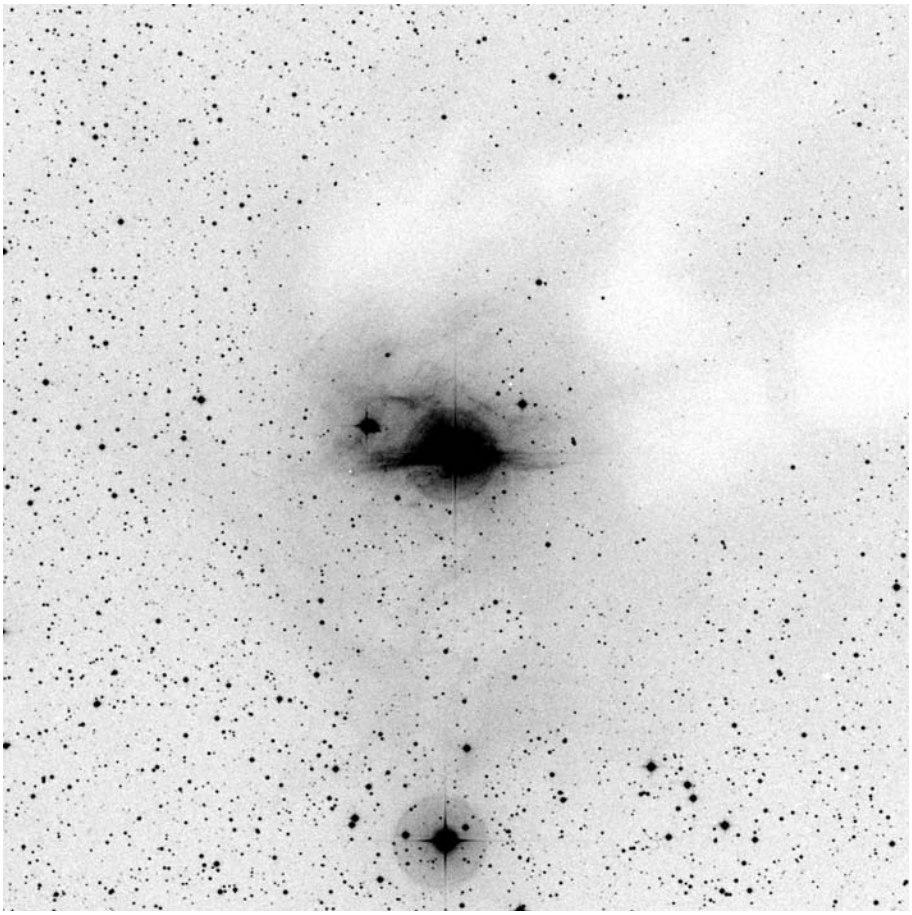
Observing notes:

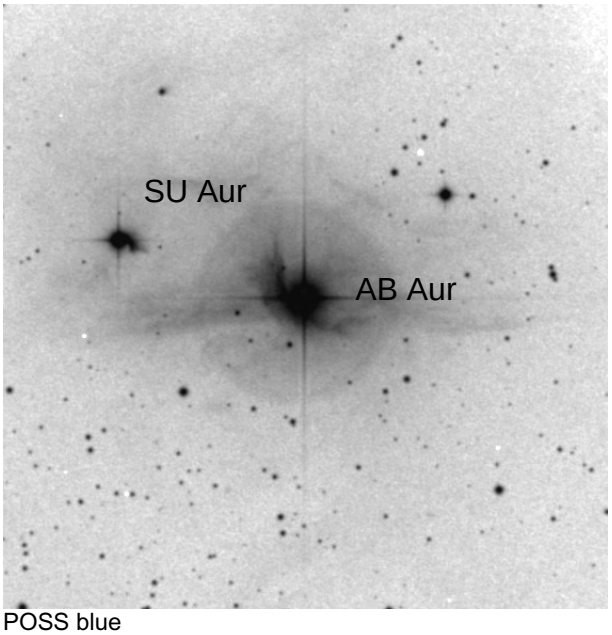
22" f/4.5
At 350x, two stars are visible with direct vision, a brighter star to the SE and a weaker star to the NW, which is HP Tauri. With indirect vision, some nebulosity was suspected at times around the NW object, HP Tau, which is, however, doubtful.


+30°00'
+25°00'
+20°00'
5h00m
4h30m
4h00m


4h25m
+24°00'
+23°00'
+22°00'
4h45m
4h40m
4h35m
4h30m

AB and SU Aurigae / vdB 31





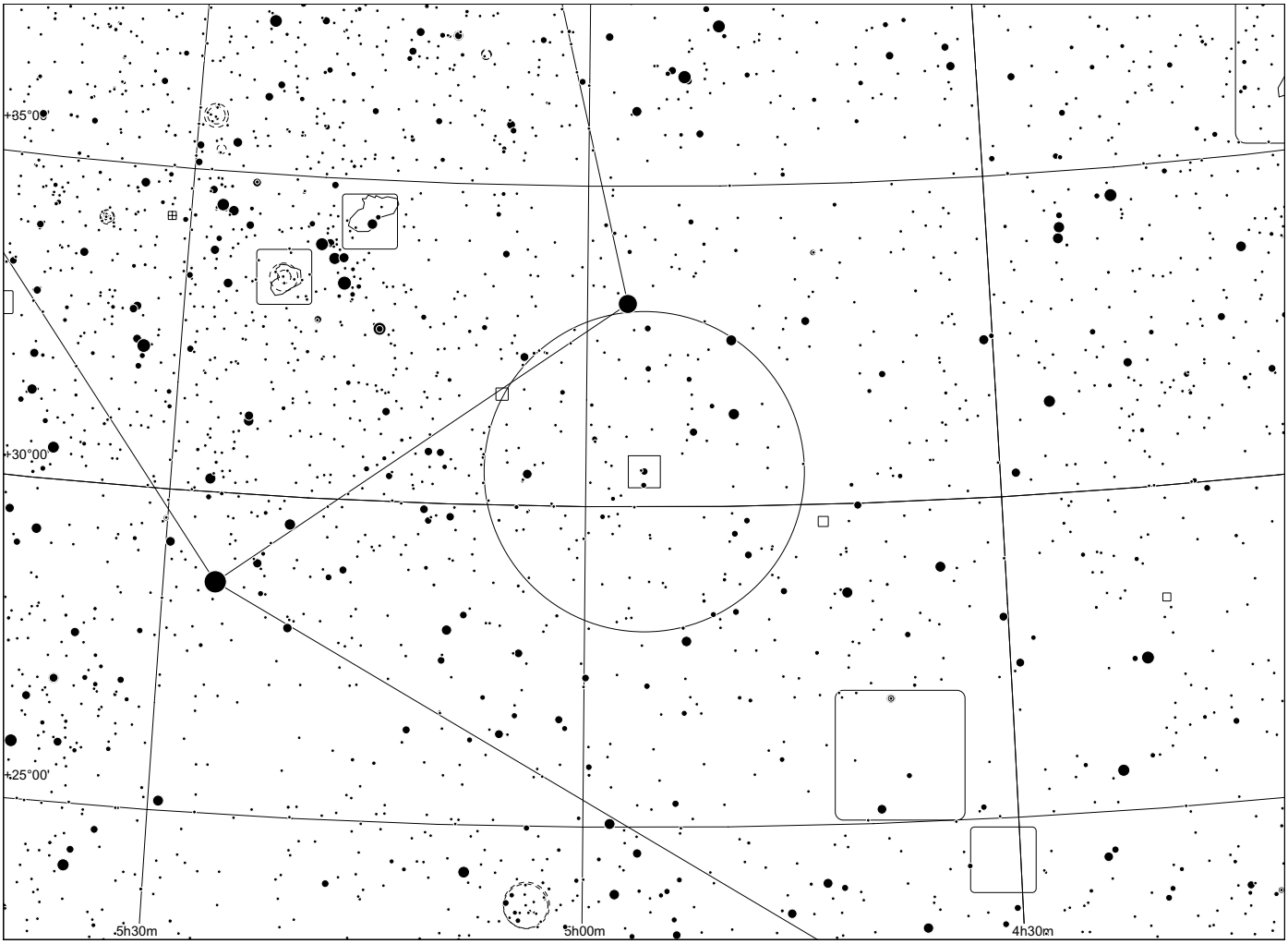
POSS blue

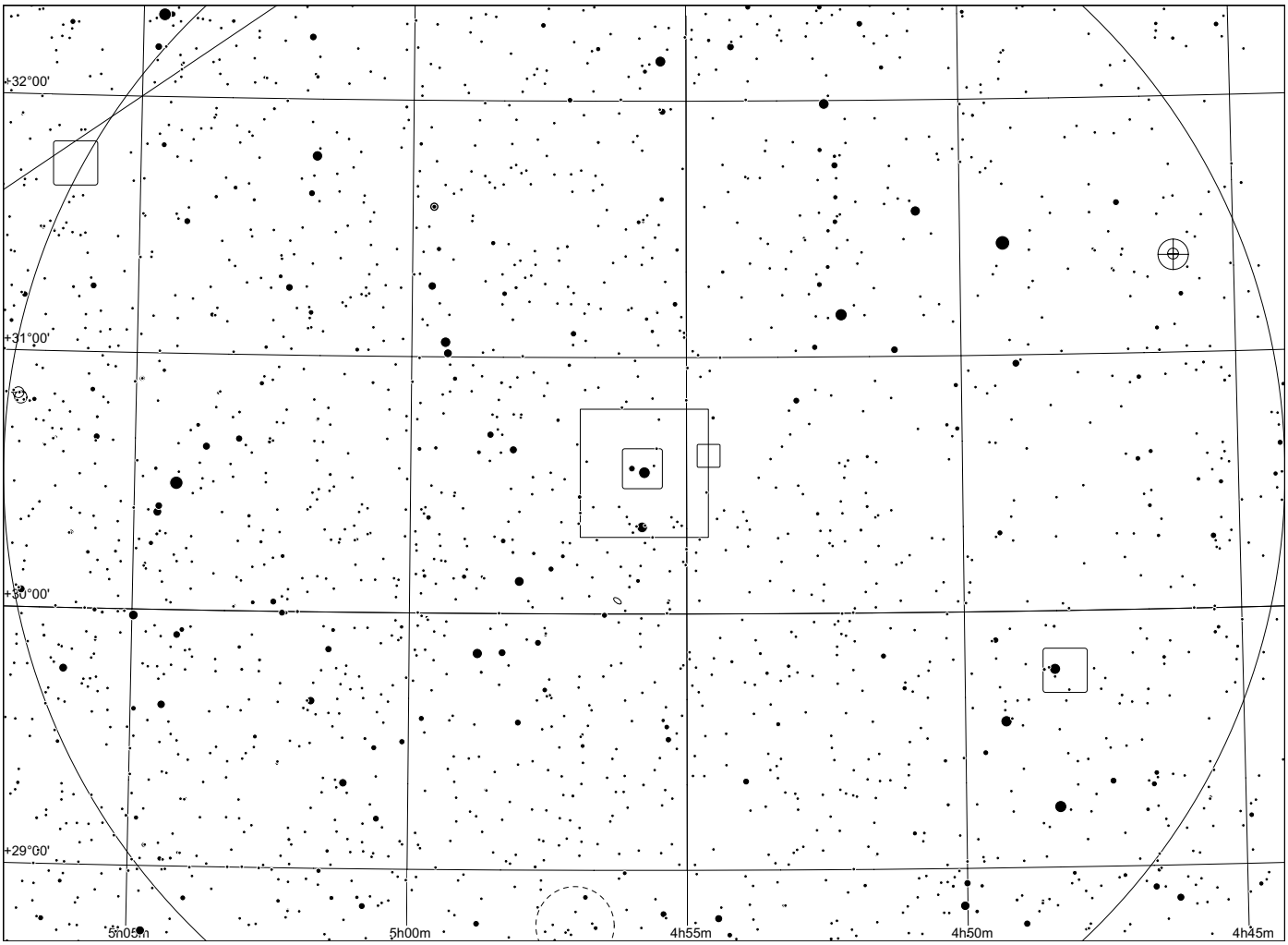
POSS composite

	other	RA	Dek	comments
AB Aur	HBC 78, vdB 31	04 55 45.70	+30 32 56.0	
SU Aur	HBC 79	04 55 59.38	+30 34 01.5	

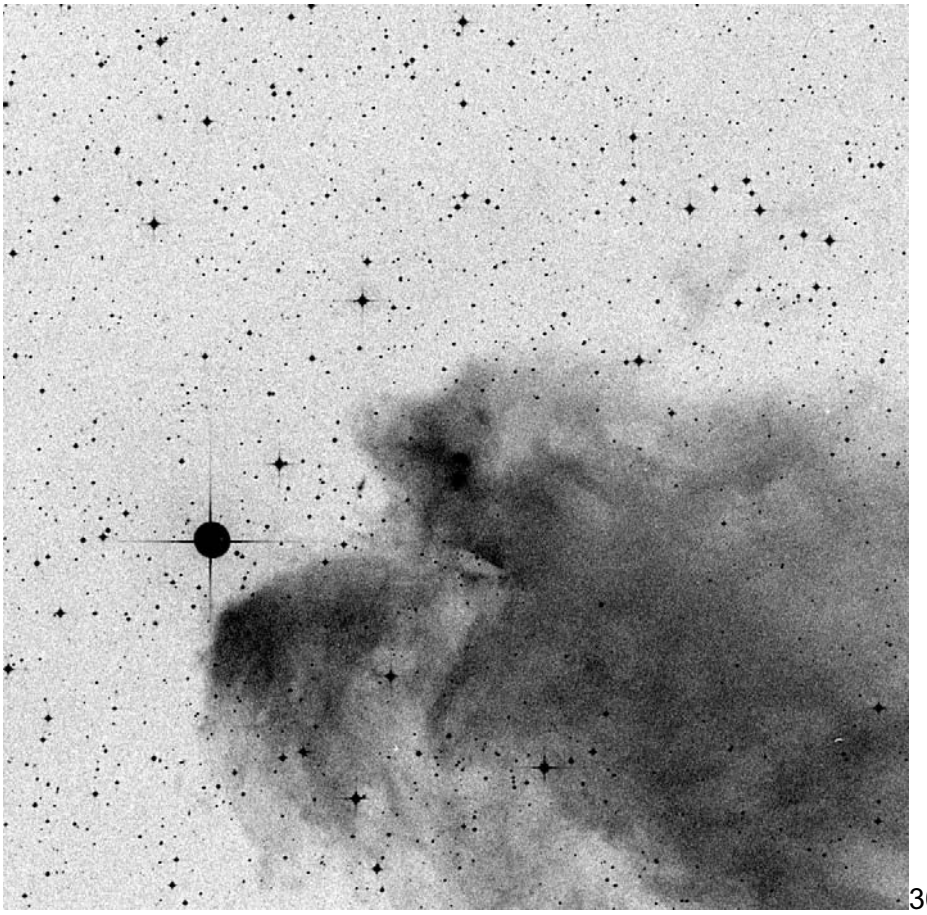
Observing notes:

22" f/4.5
Both SU and in particula AB Aur are bright stars. The RN of SU Aur was suspected with 350x as a very faint brightening extending from the star to W. The RN of AB Aur very difficult to confirm, as the star is very bright. With this caveat, a brightening around the star was suspected, but no crescent shaped nebulosity as in the images.


+35°00'
+30°00'
+25°00'
5h30m
5h00m
4h30m


+32°00'
+31°00'
+30°00'
+29°00'
5h05m
5h00m
4h55m
4h50m
4h45m

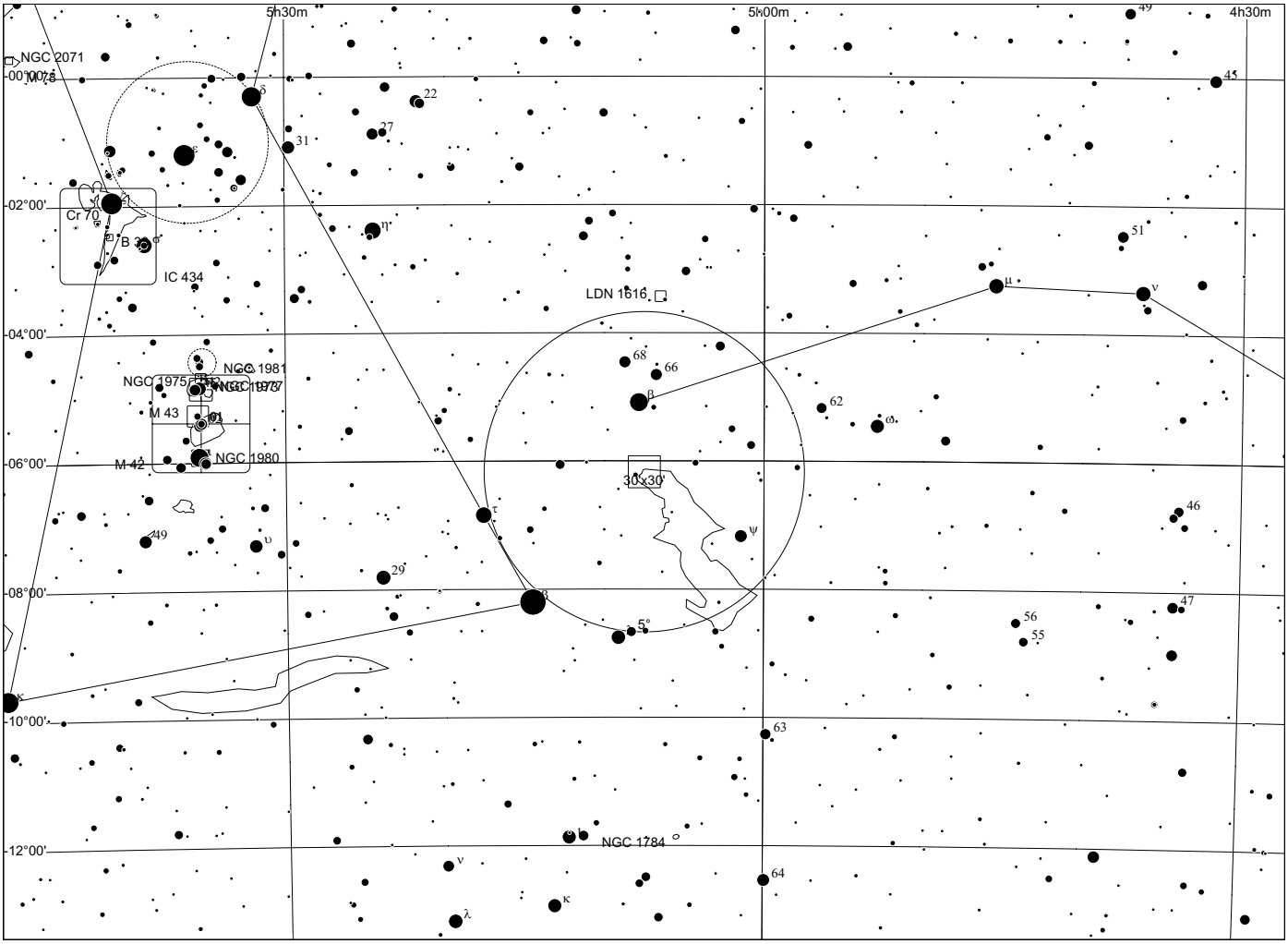
GN 05.05.1 in Orion

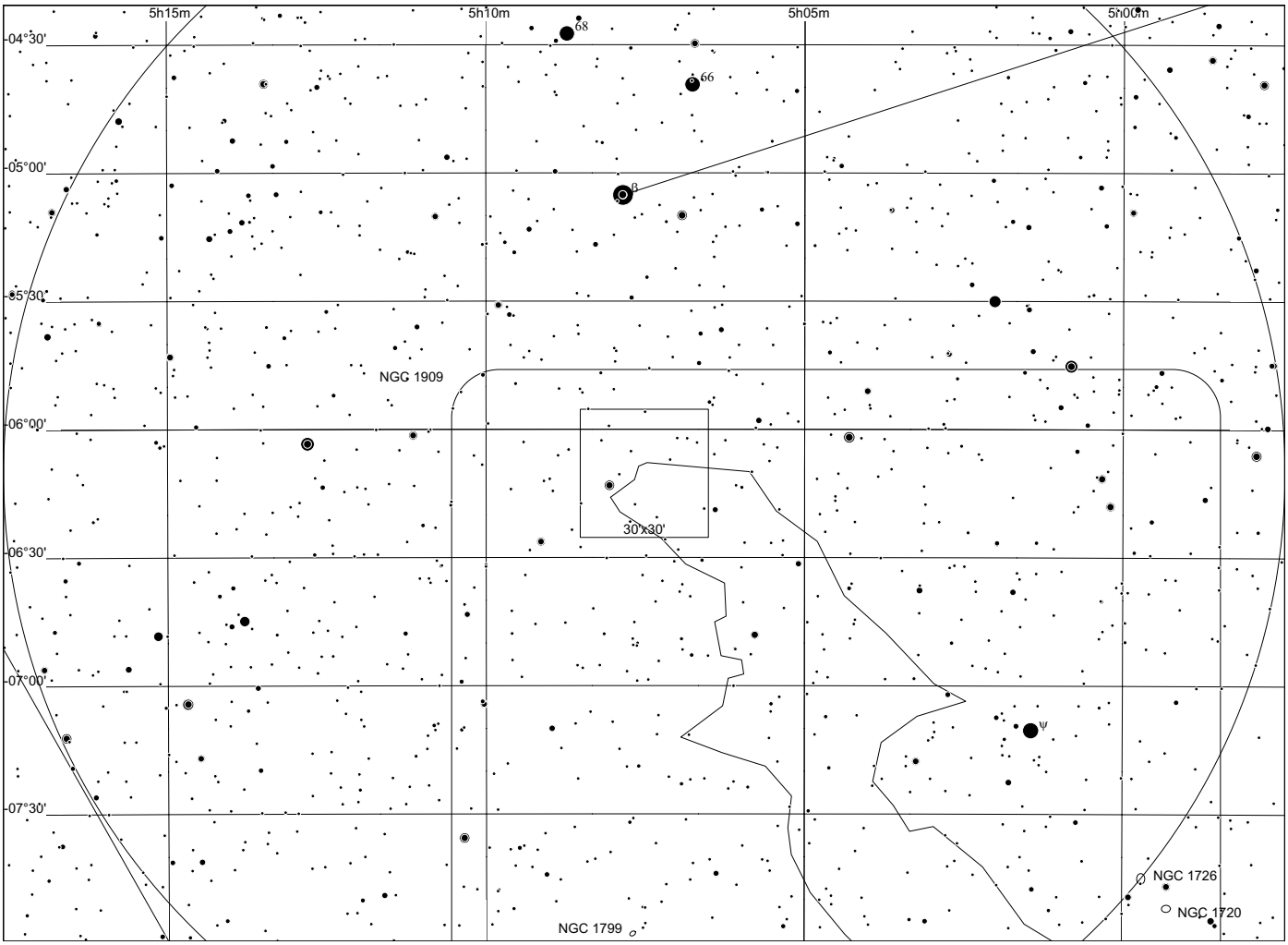


30x30 blue

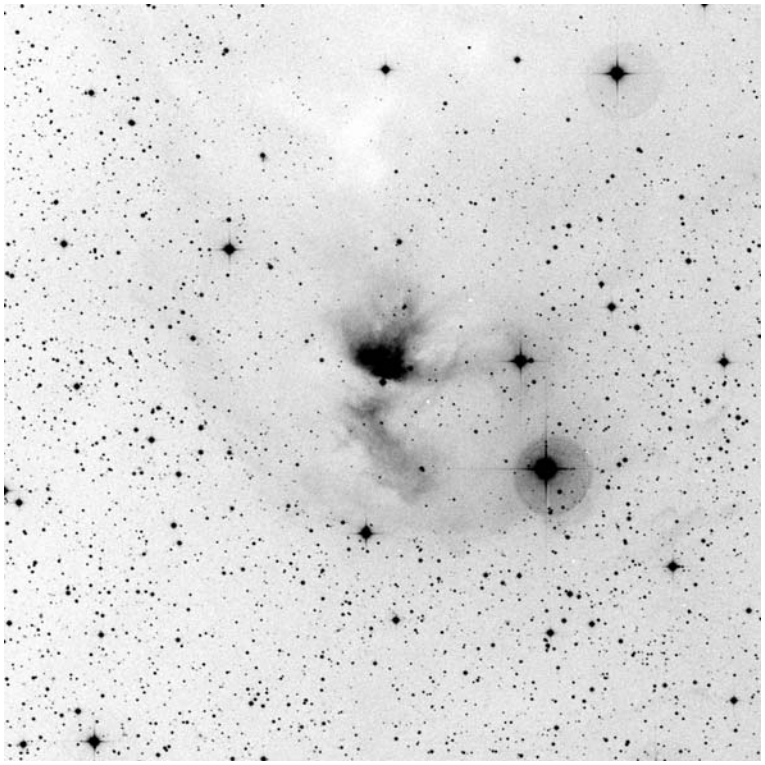
	other	RA	Dek	comments
GN 05.05.1		05 07 30.96	-06 10 19.2	two T Tauri stars, in Witch's Head Nebula

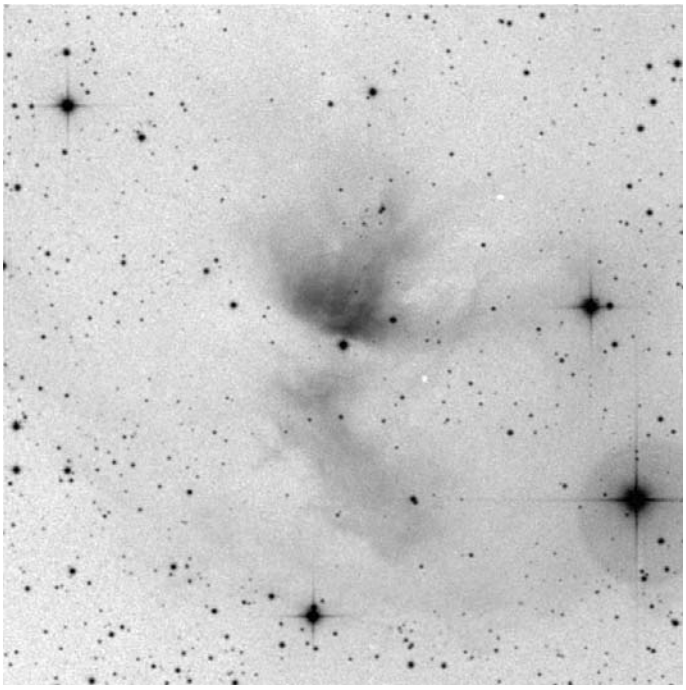
Observing notes:


5h30m
5h00m
4h30m
NGC 2071
00°00'
02°00'
04°00'
06°00'
08°00'
10°00'
12°00'
Cr 70
B 30
IC 434
LDN 1616
NGC 1981
NGC 1975
NGC 1977
M 43
M 42
NGC 1980
30'x30'
5°
NGC 1784


5h15m
5h10m
5h05m
5h00m
04°30'
05°00'
05°30'
06°00'
06°30'
07°00'
07°30'
NGG 1909
30'x30'
NGC 1726
NGC 1720
NGC 1799

HK Orionis





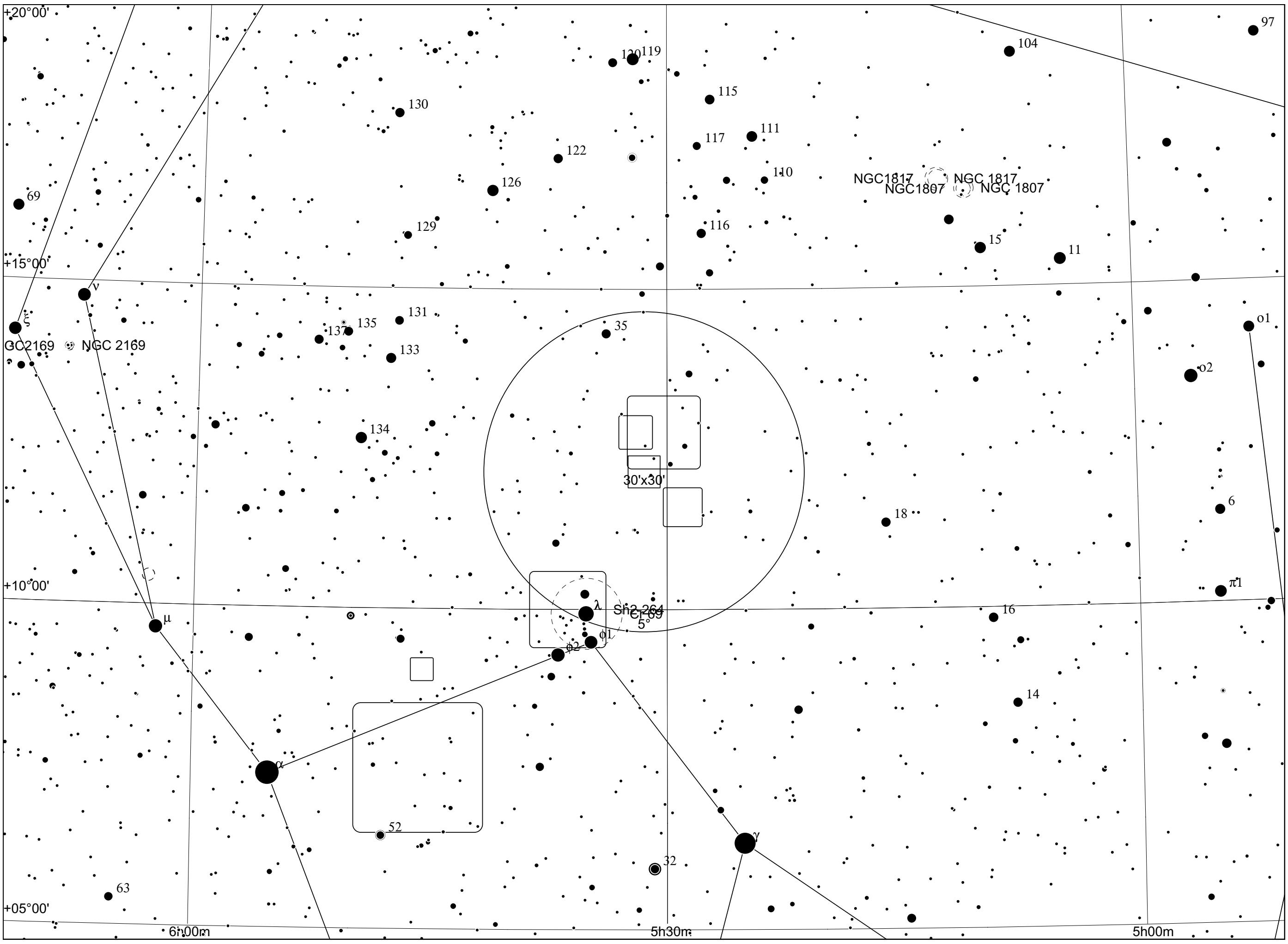
POSS blue

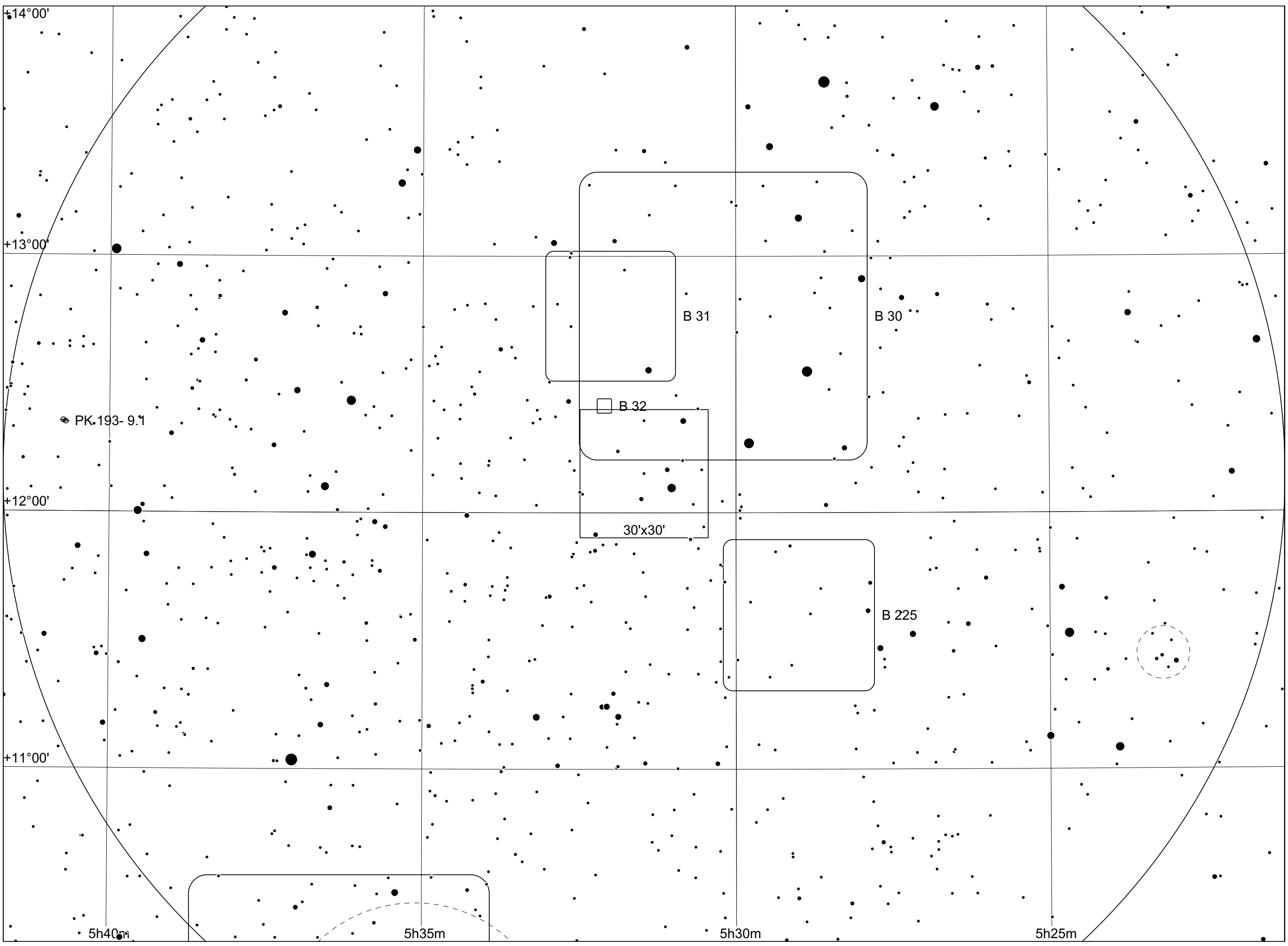
POSS composite

	other	RA	Dek	comments
V* HK Ori	Ced 51, S 3-52	05 31 28.05	+12 09 10.2	T Tauri type

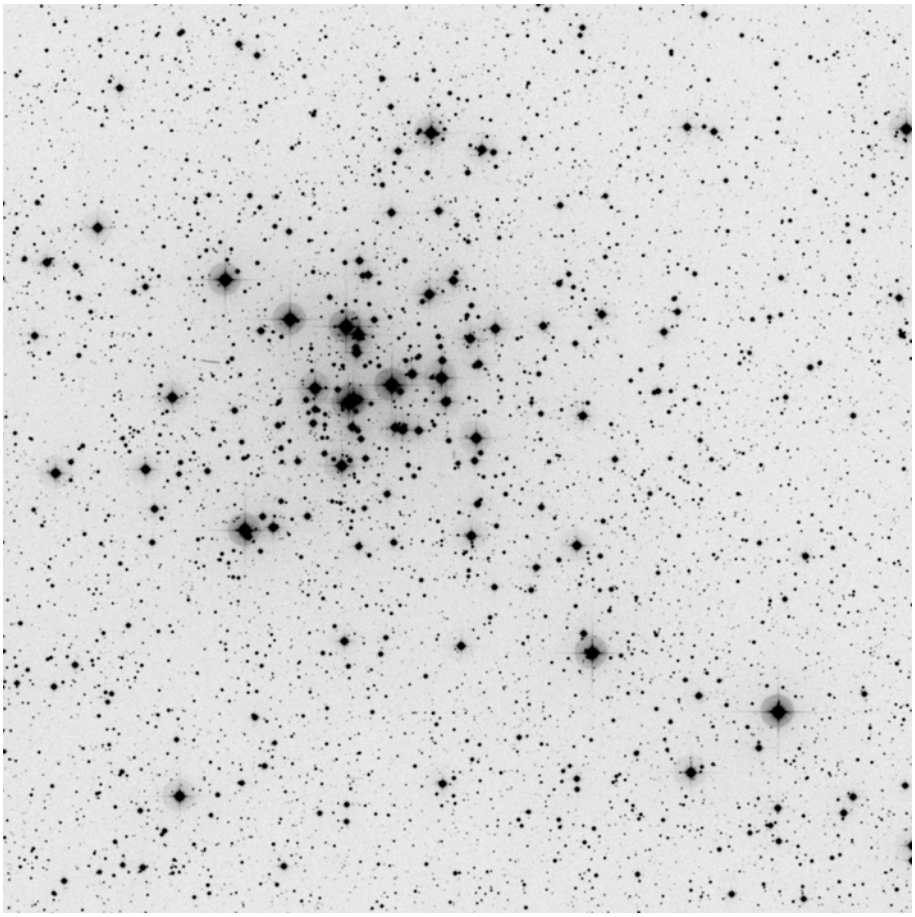
Observing notes:

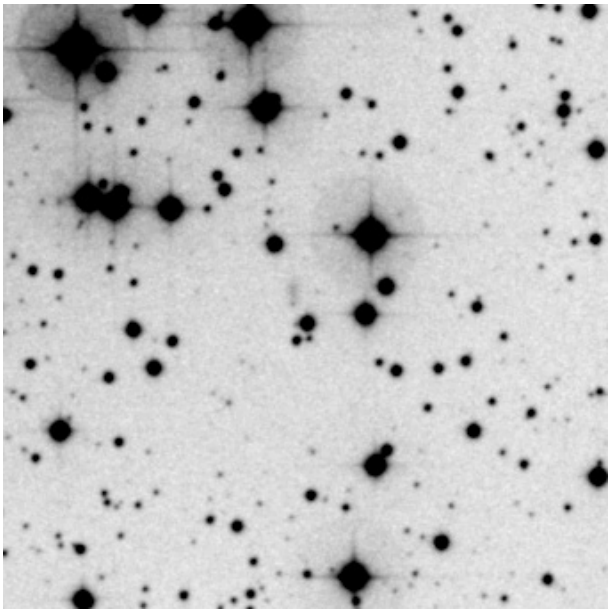
22" f/4.5
With 200x, HK Ori as easily seen as a relatively bright star. A weak brightening was observed w/o filter NW of the star, extending somewhat in the direction of the nearby weaker star. The RN could be observed also with UHC filter, though the filter did not increase its visibility.


+20°00'
+15°00'
+10°00'
+05°00'
6h00m
5h30m
5h00m
97
104
120
119
115
130
117
111
122
126
110
NGC1817
NGC 1817
NGC1807
NGC 1807
69
129
116
15
11
ν
ξ
131
135
137
133
35
GC2169
NGC 2169
o1
o2
134
30'x30'
18
6
π1
μ
λ
Sh2-264
Cr 69
5°
16
φ1
φ2
14
α
52
γ
32
63


+14°00'
+13°00'
+12°00'
+11°00'
B 31
B 30
B 32
PK 193- 9.1
30'x30'
B 225
5h40m
5h35m
5h30m
5h25m

Holoea in Auriga





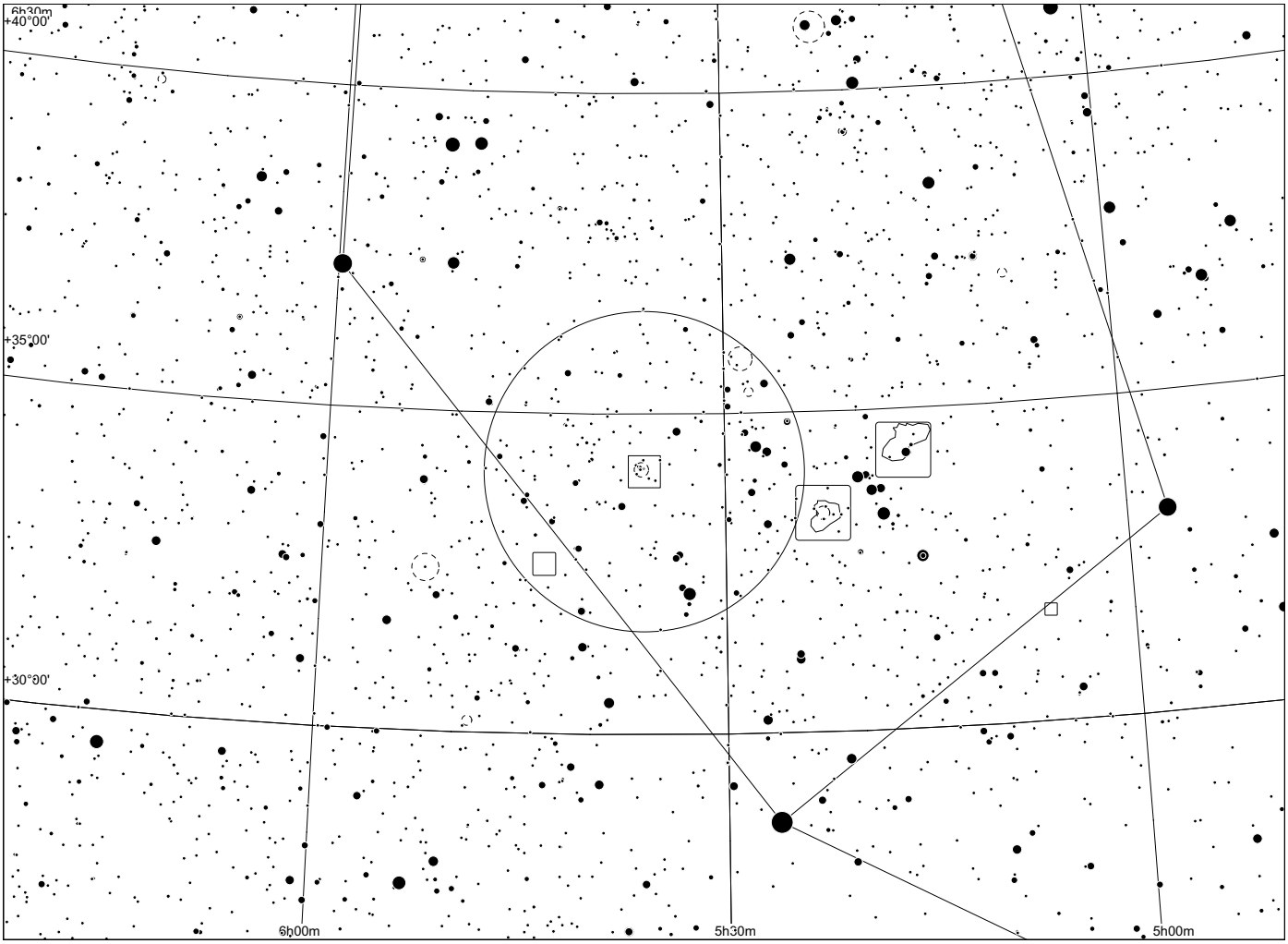
POSS blue

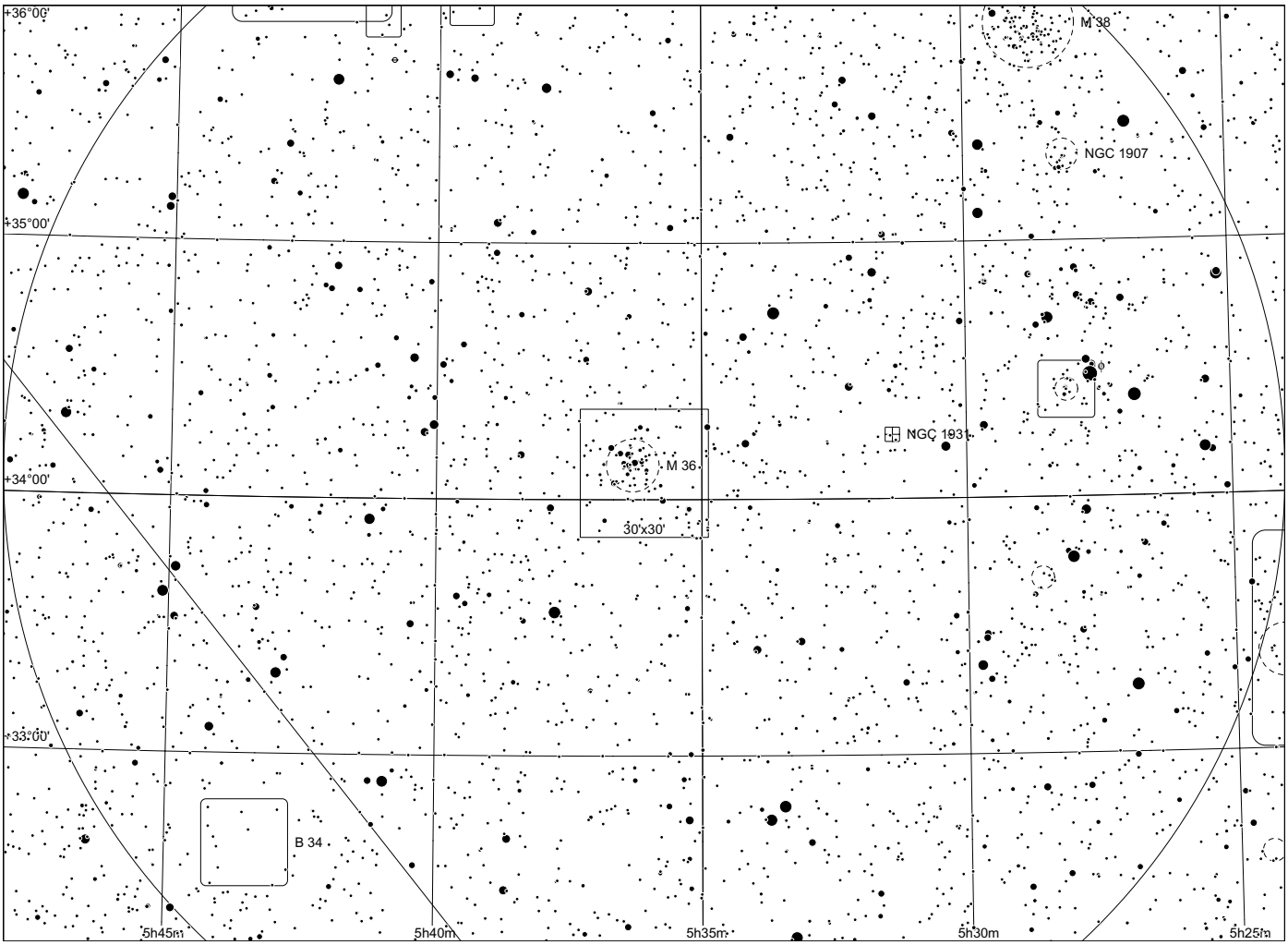
POSS composite

	other	RA	Dek	comments
IRAS 05327+3404		05 36 05.37	+34 06 11.6	

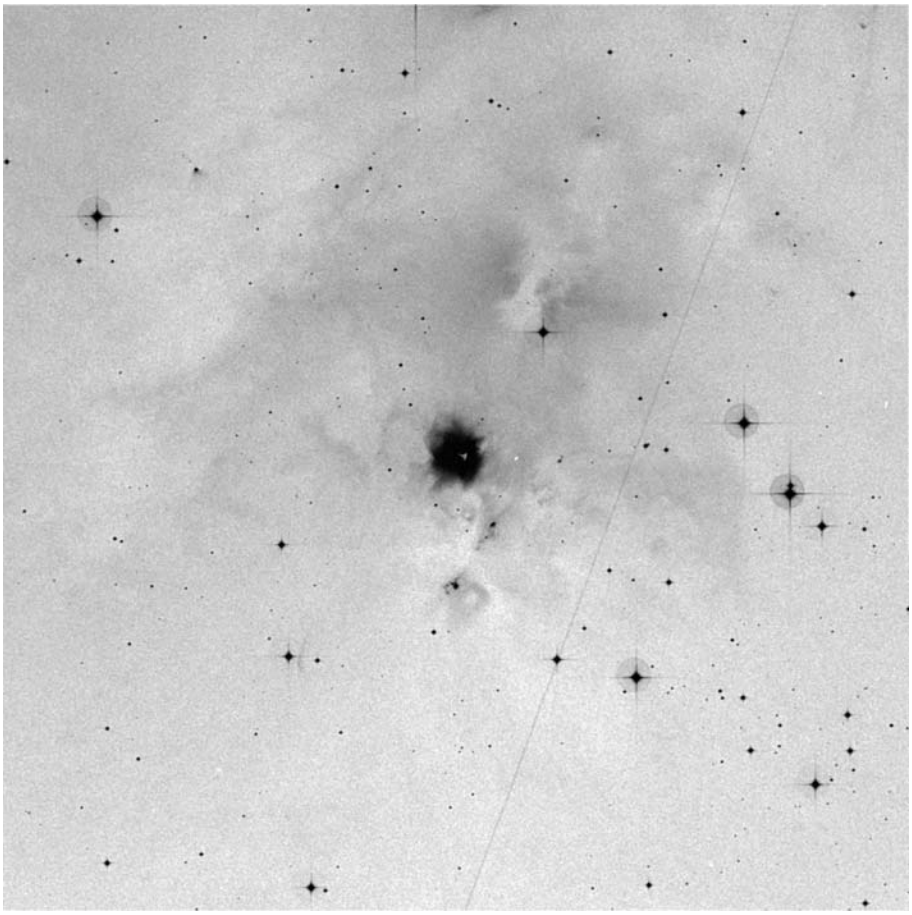
Observing notes:

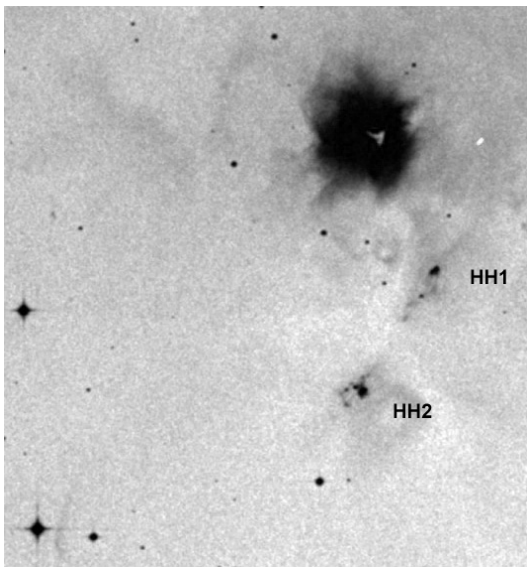
Very likely not a target for visual observation except for in the largest telescopes.


6h30m
+40°00'
+35°00'
+30°00'
6h00m
5h30m
5h00m


+36°00'
+35°00'
+34°00'
+33°00'
M 38
NGC 1907
NGC 1931
M 36
30'x30'
B 34
5h45m
5h40m
5h35m
5h30m
5h25m

V380 Ori/NGC 1999 in Orion



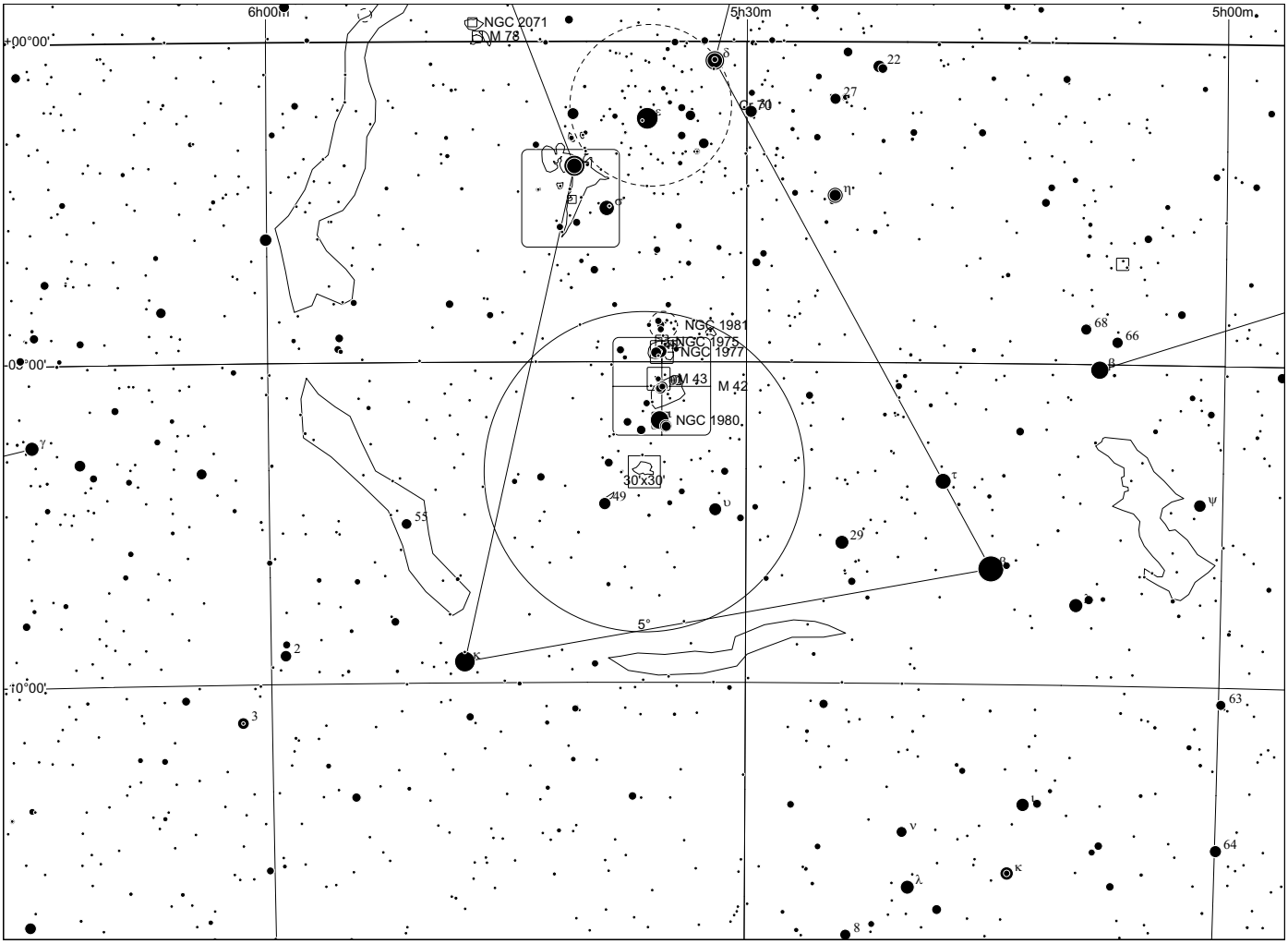


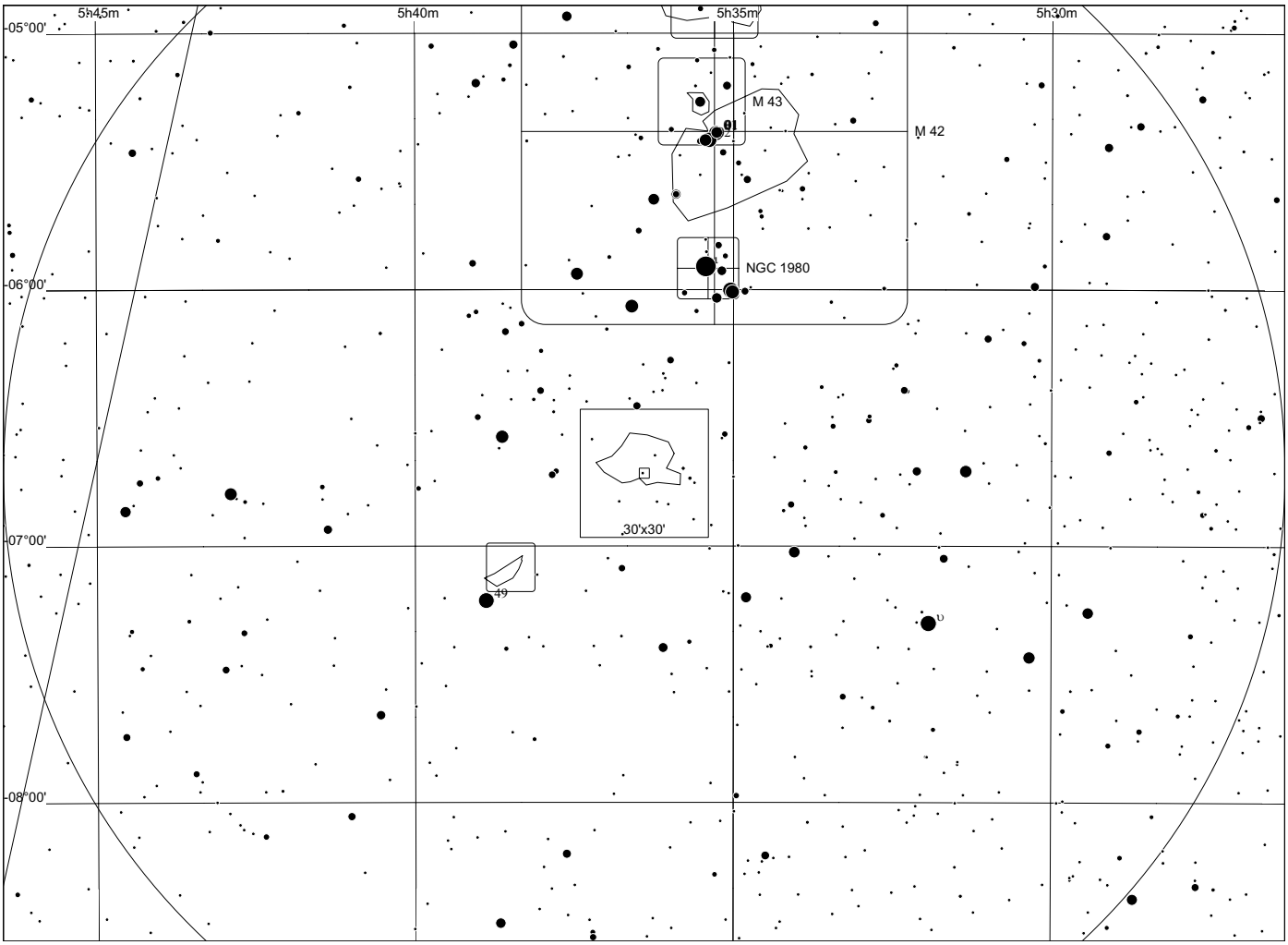
HH1 and HH2 in the vicinity of NGC 1999

	other	RA	Dek	comments
NGC 1999	V380 Ori	05 36 27	-06 43 18	with HH 1and HH 2

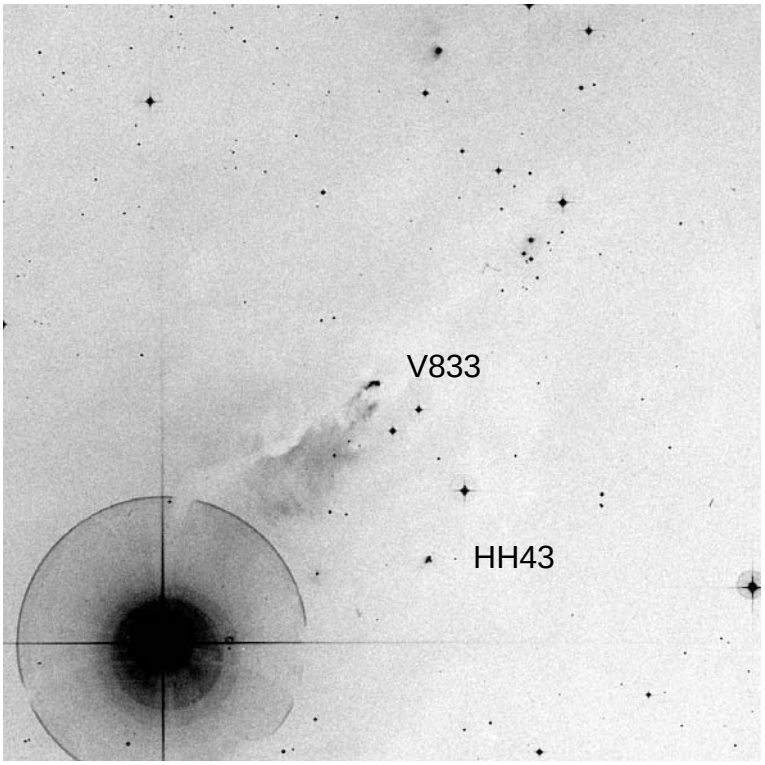
Observing notes:

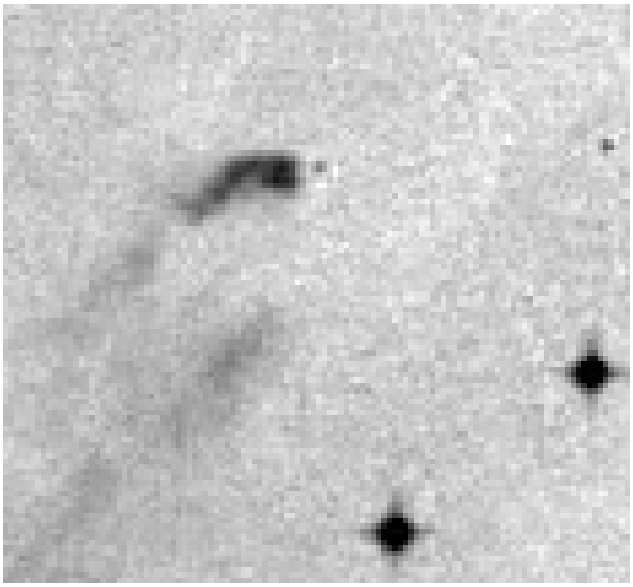
22" f/4.5
NGC 1999 is an easy object already in smaller telescopes. The nebulosity is small. The star sits within the nebulosity at the edge of the keyhole shaped obscuration to the W. HH1 and HH2 are to the S of NGC 1999. HH2 could be held indirectly, while HH1 required indirect vision.


6h00m
5h30m
5h00m
+00°00'
-05°00'
-10°00'
NGC 2071
M 78
NGC 1981
NGC 1975
NGC 1977
M 43
M 42
NGC 1980
30'x30'
5°


5h45m
5h40m
5h35m
5h30m
-05°00'
-06°00'
-07°00'
-08°00'
M 43
M 42
NGC 1980
30'x30'

V883 Orionis in Orion





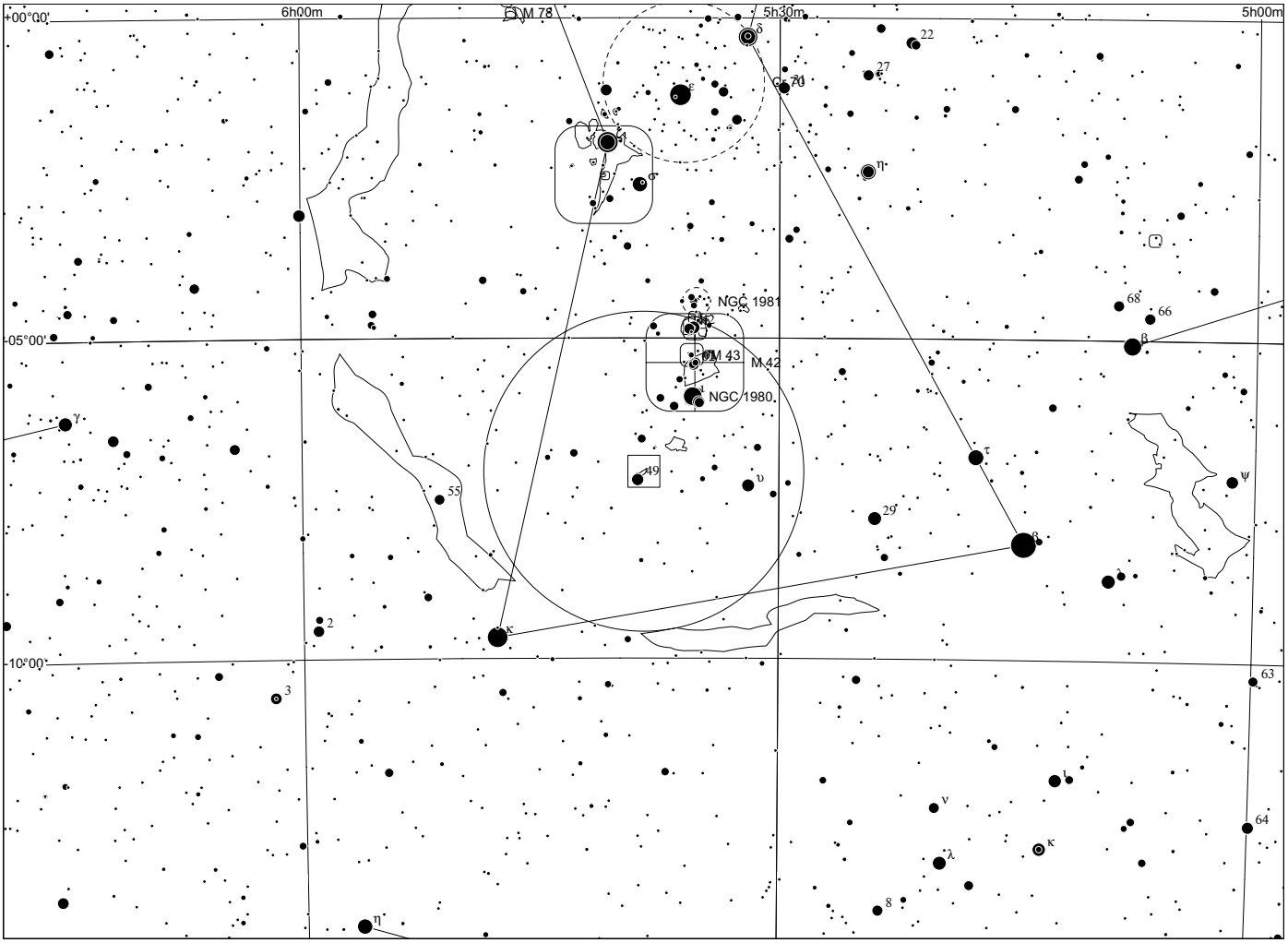
POSS blue

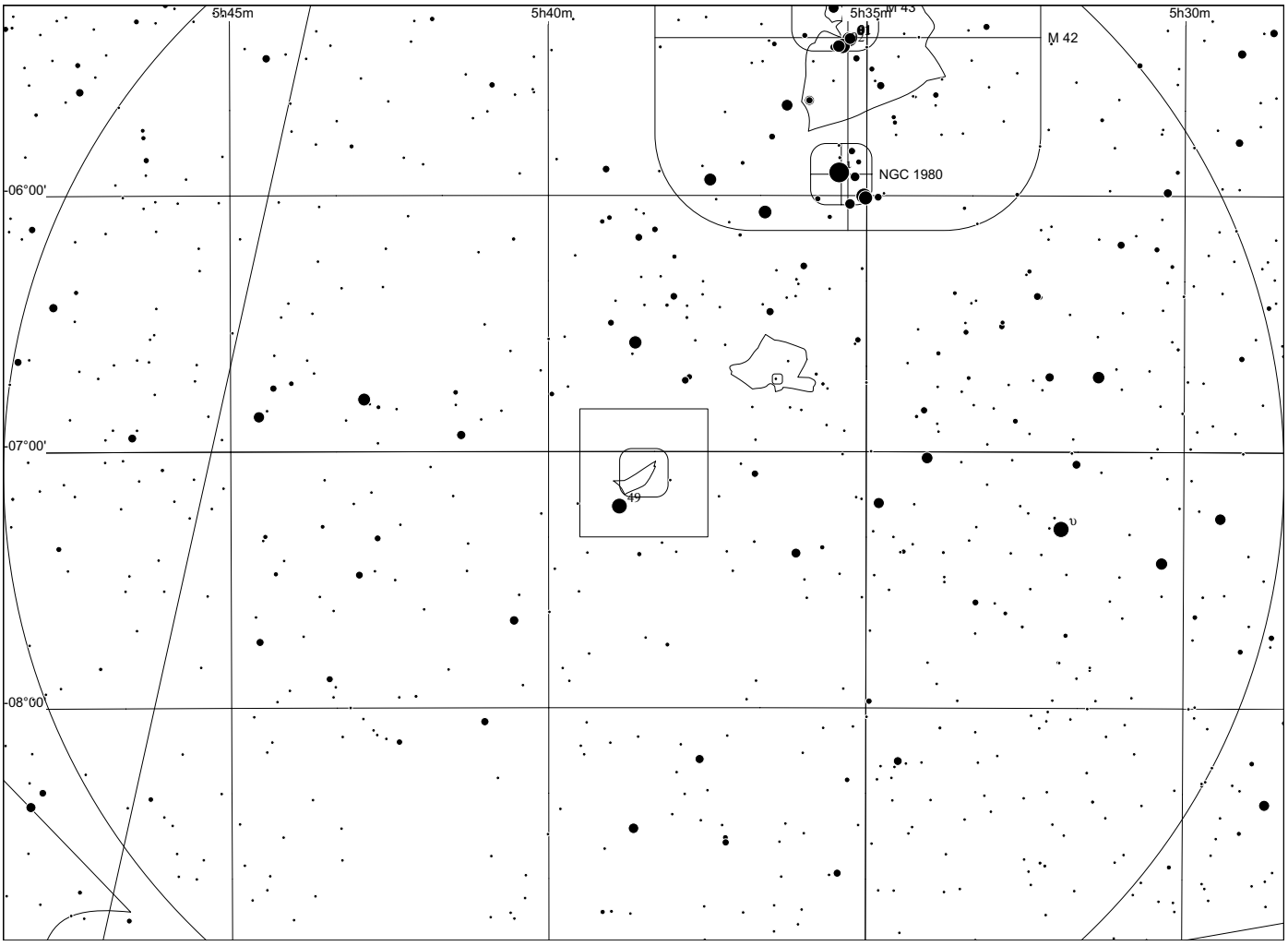
POSS composite

	other	RA	Dek	comments
V* V883 Ori	HH183 next to IC 430	5 38 19.00	07 02 12.0	FU Ori type

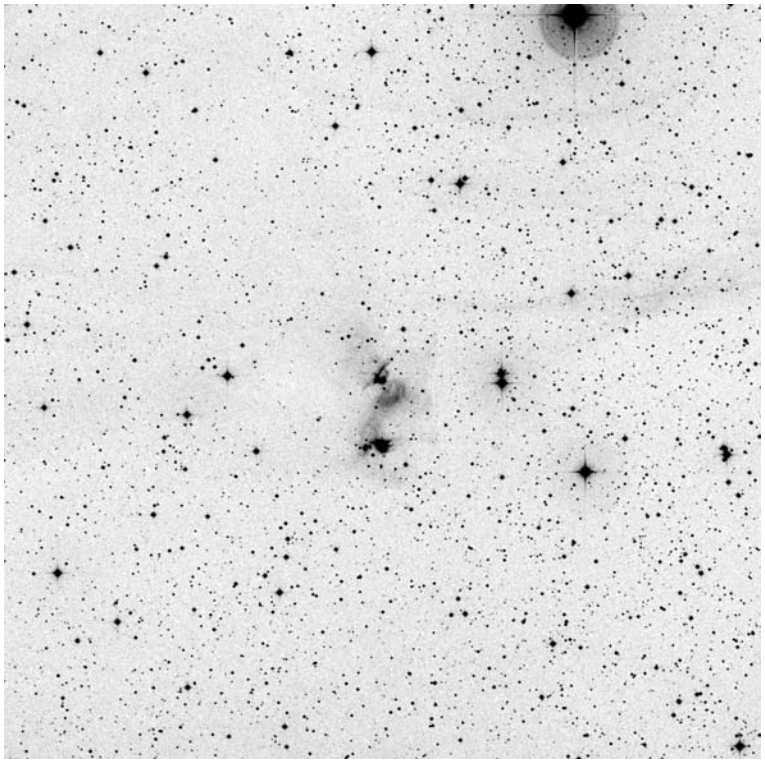
Observing notes:

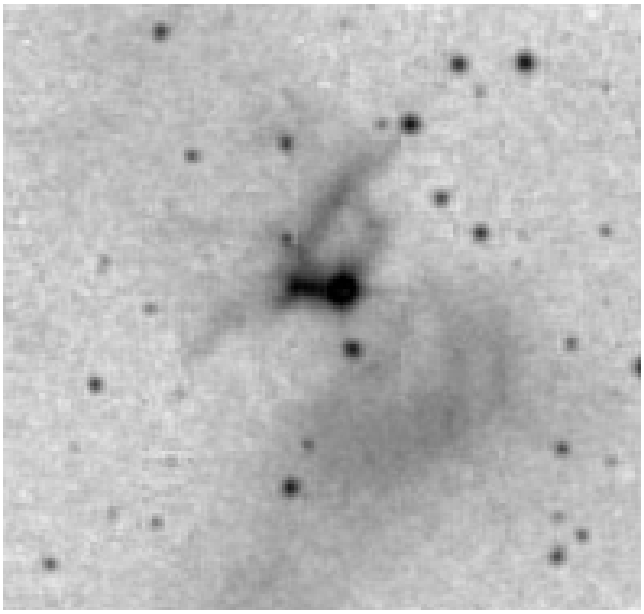
22" f/4.5
V883 Ori was not visible. The larger RN extending SE of V883 is IC 430. It was visible at 350x as an extremely faint patch, that could not be held steadily. HH 34 was suspected at times at a threshold object.


+00°00'
6h00m
M 78
5h30m
5h00m
δ
22
27
70
ε
η
NGC 1981
68
66
-05°00'
β
M 43
M 42
NGC 1980
γ
τ
ψ
49
υ
55
29
β
2
κ
-10°00'
3
63
ν
64
λ
κ
8
η


5h45m
5h40m
5h35m
M 43
01
M 42
5h30m
NGC 1980
-06°00'
-07°00'
49
υ
-08°00'

RR Tauri in Taurus





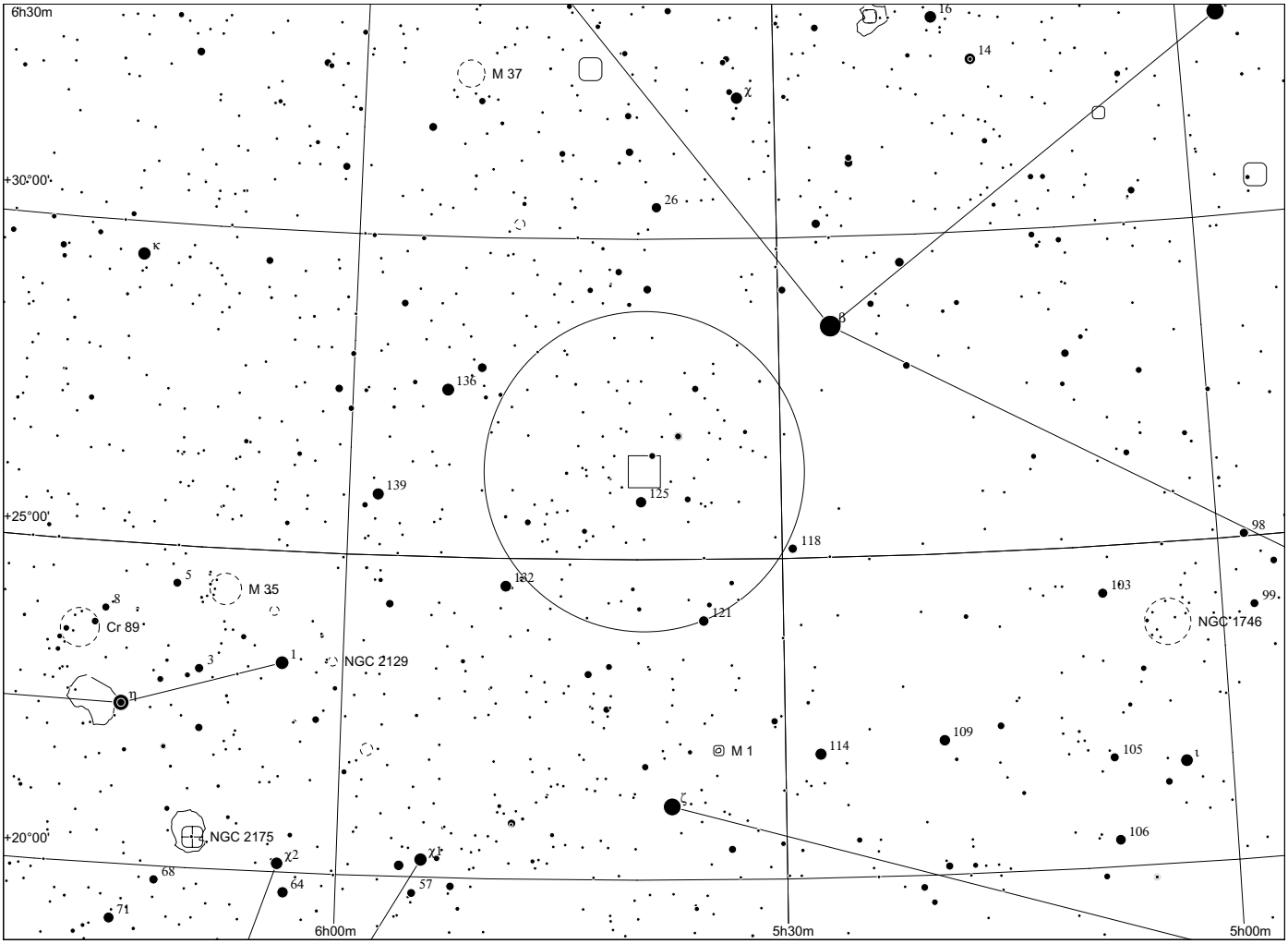
POSS blue

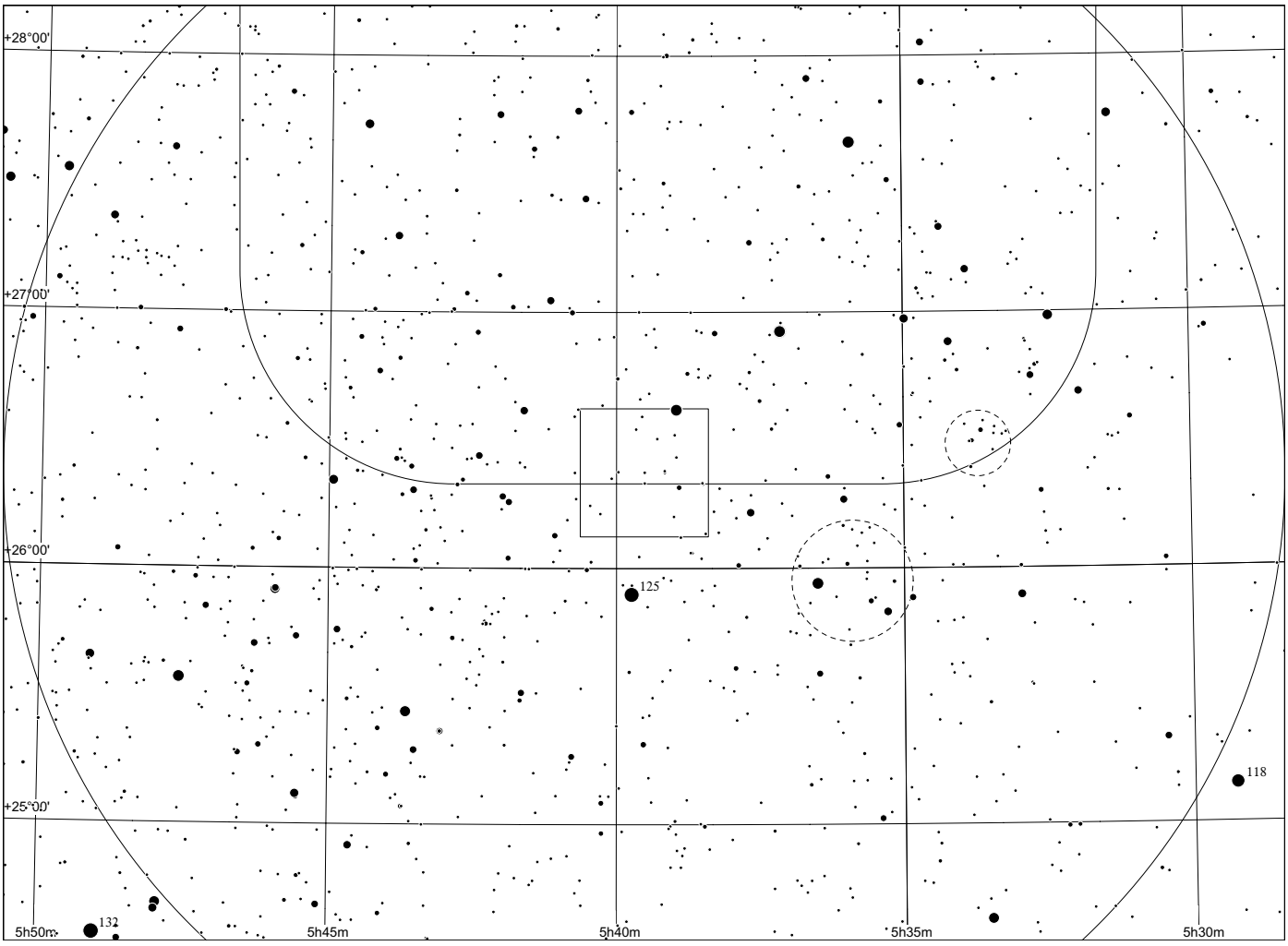
POSS composite

	other	RA	Dek	comments
V* RR Tau	PP 38	05 39 30.53	+26 22 26.4	

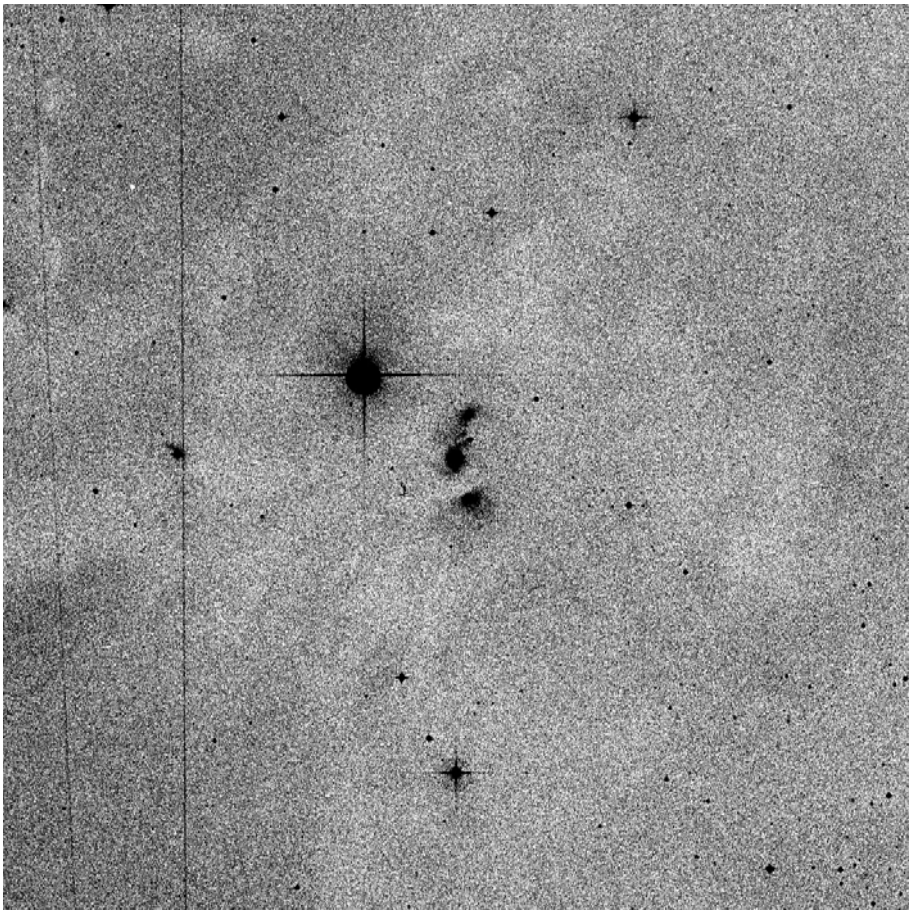
Observing notes:

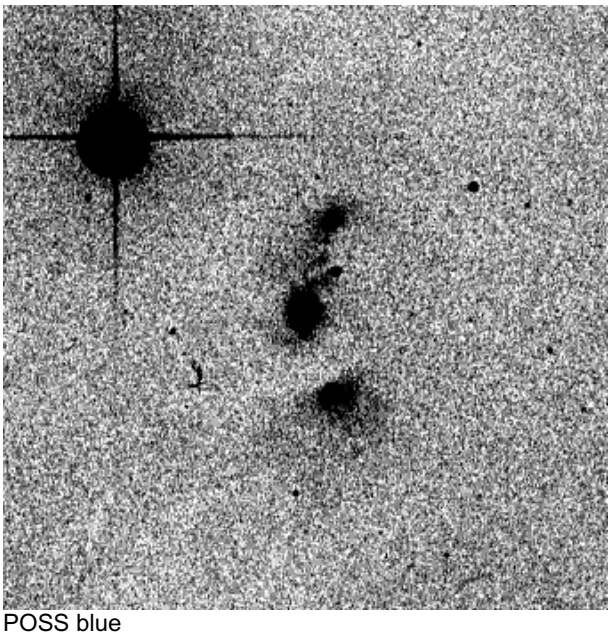
22" f/4.5
RR Tauri is relatively bright and appears stellar. Neither the faint nebulosity to the SW nor the extension to the E could be seen.
3' south of RR Tauri are LkHa 206 and HD 245906 emission line stars


6h30m
+30°00'
+25°00'
+20°00'
M 37
χ
16
14
26
κ
β
136
139
125
118
98
M 35
5
8
Cr 89
3
1
η
NGC 2129
132
121
103
99
NGC 1746
M 1
114
109
105
106
ζ
NGC 2175
χ2
χ1
68
64
57
71
6h00m
5h30m
5h00m


+28°00'
+27°00'
+26°00'
+25°00'
125
118
132
5h50m
5h45m
5h40m
5h35m
5h30m

HBC 498 in Orion





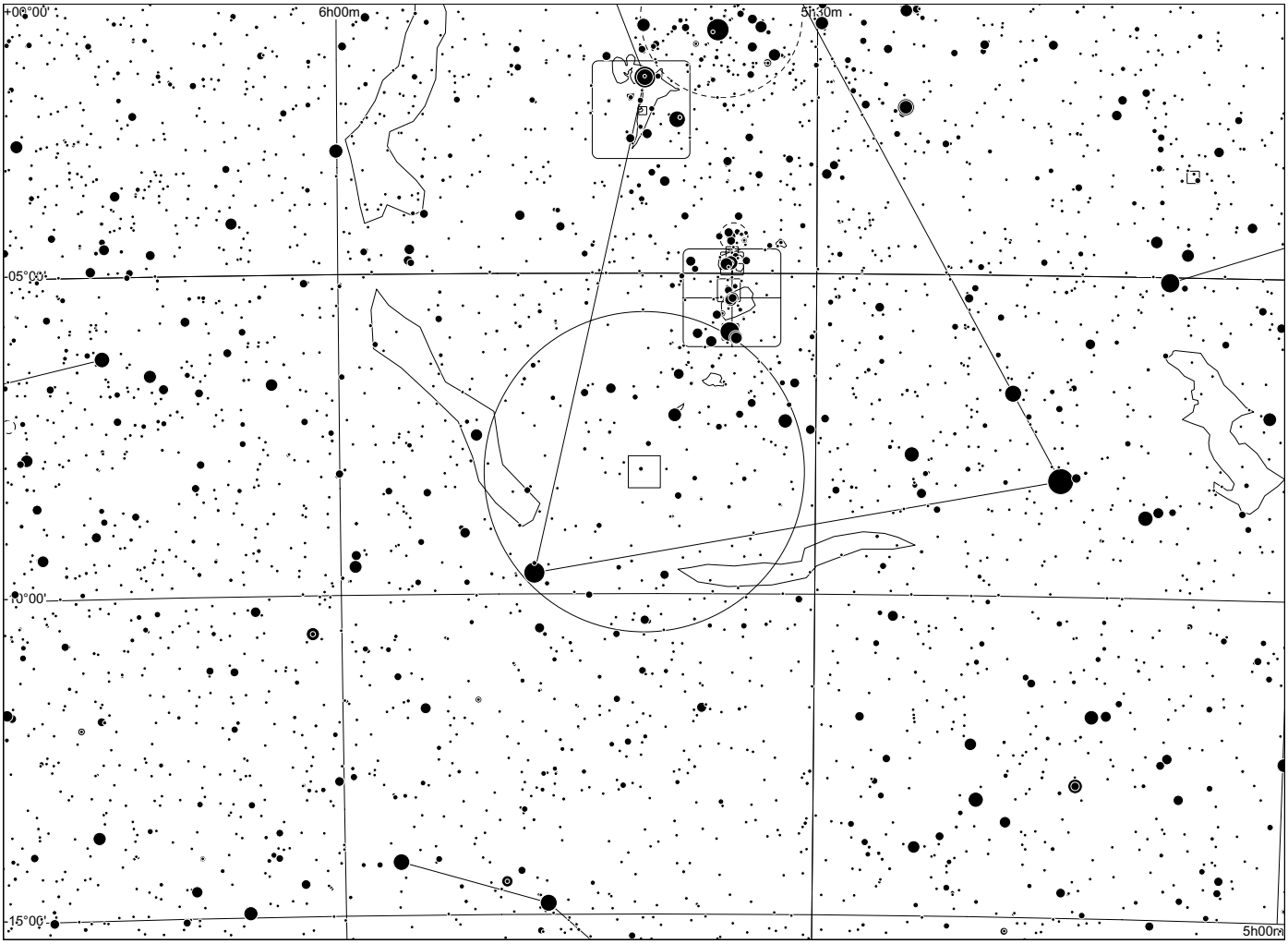
POSS blue

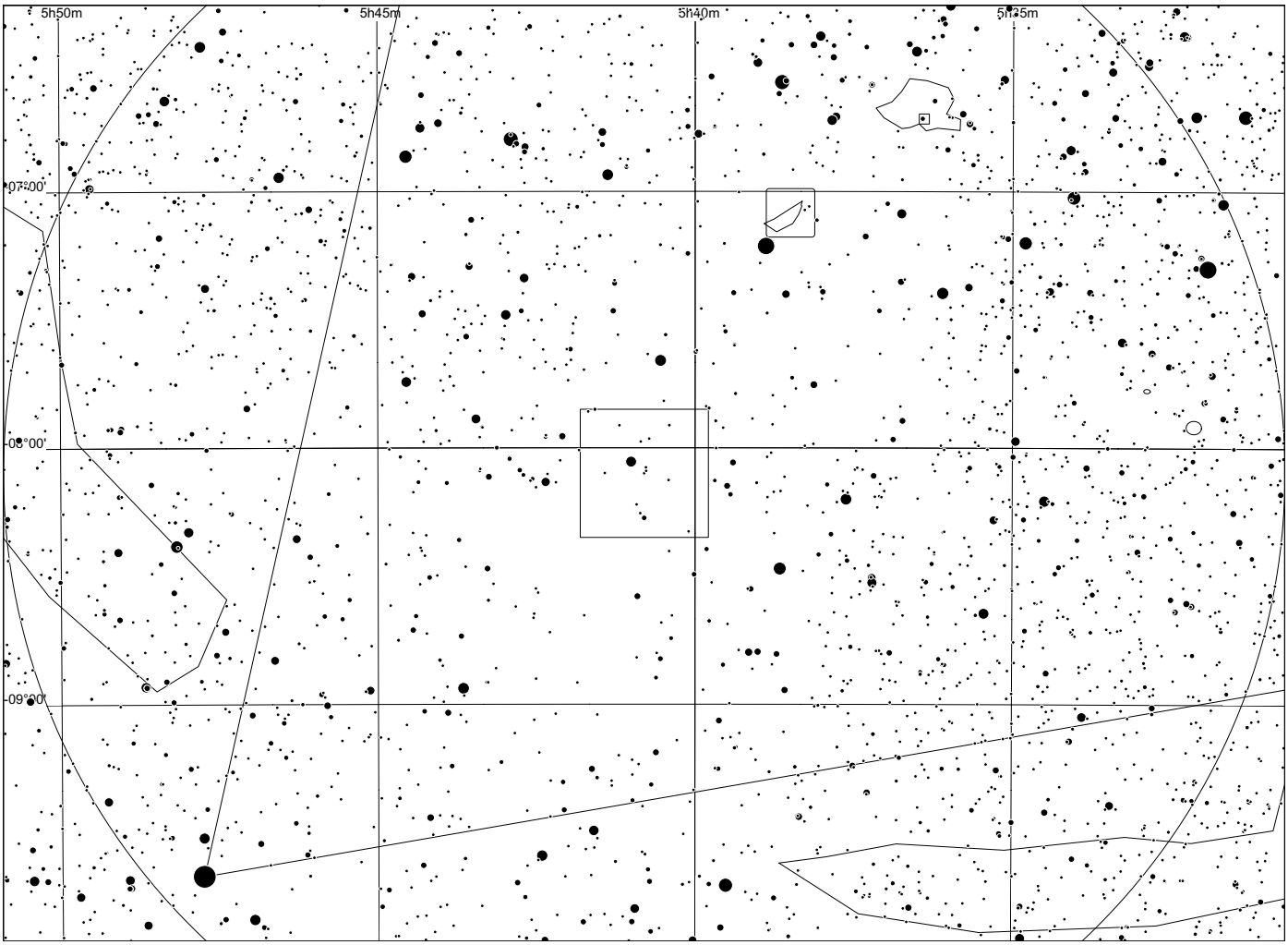
POSS composite

	other	RA	Dek	comments
HBC 498		05 40 48.07	-08 05 58.7	

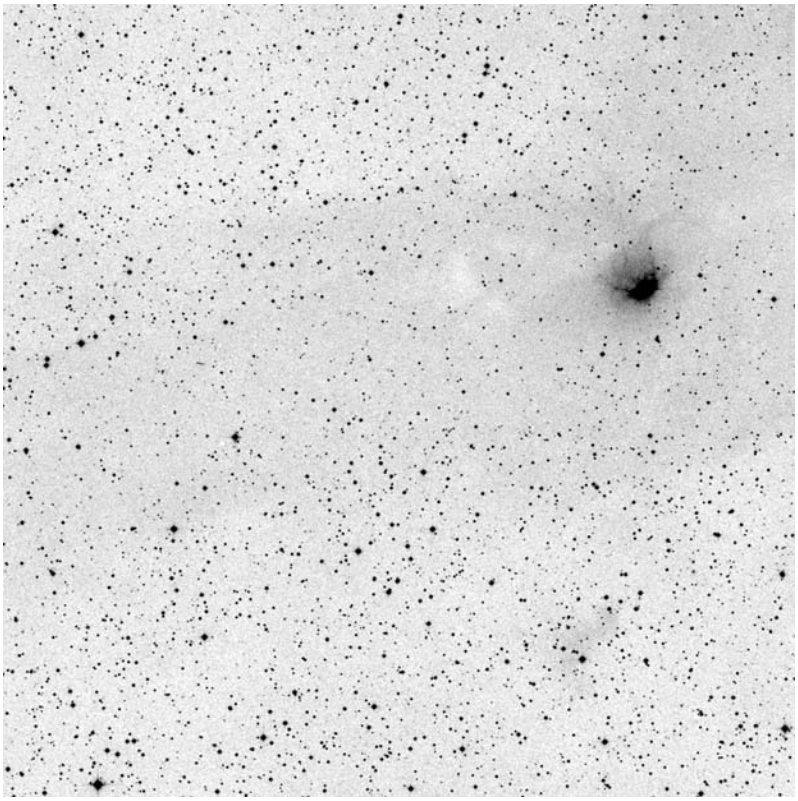
Observing notes:

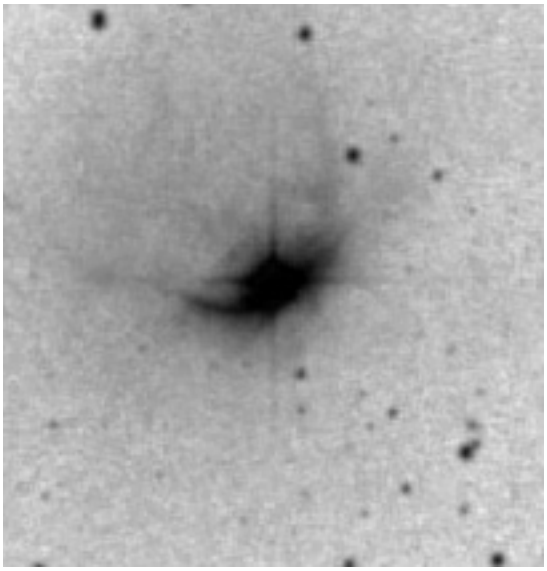
22" f/4.5
At 350x, the YSO appears stellar.


+00°00'
6h00m
5h30m
-05°00'
-10°00'
-15°00'
5h00m


5h50m
5h45m
5h40m
5h35m
-07°00'
-08°00'
-09°00'

Ced 59 (FU Ori) in Orion





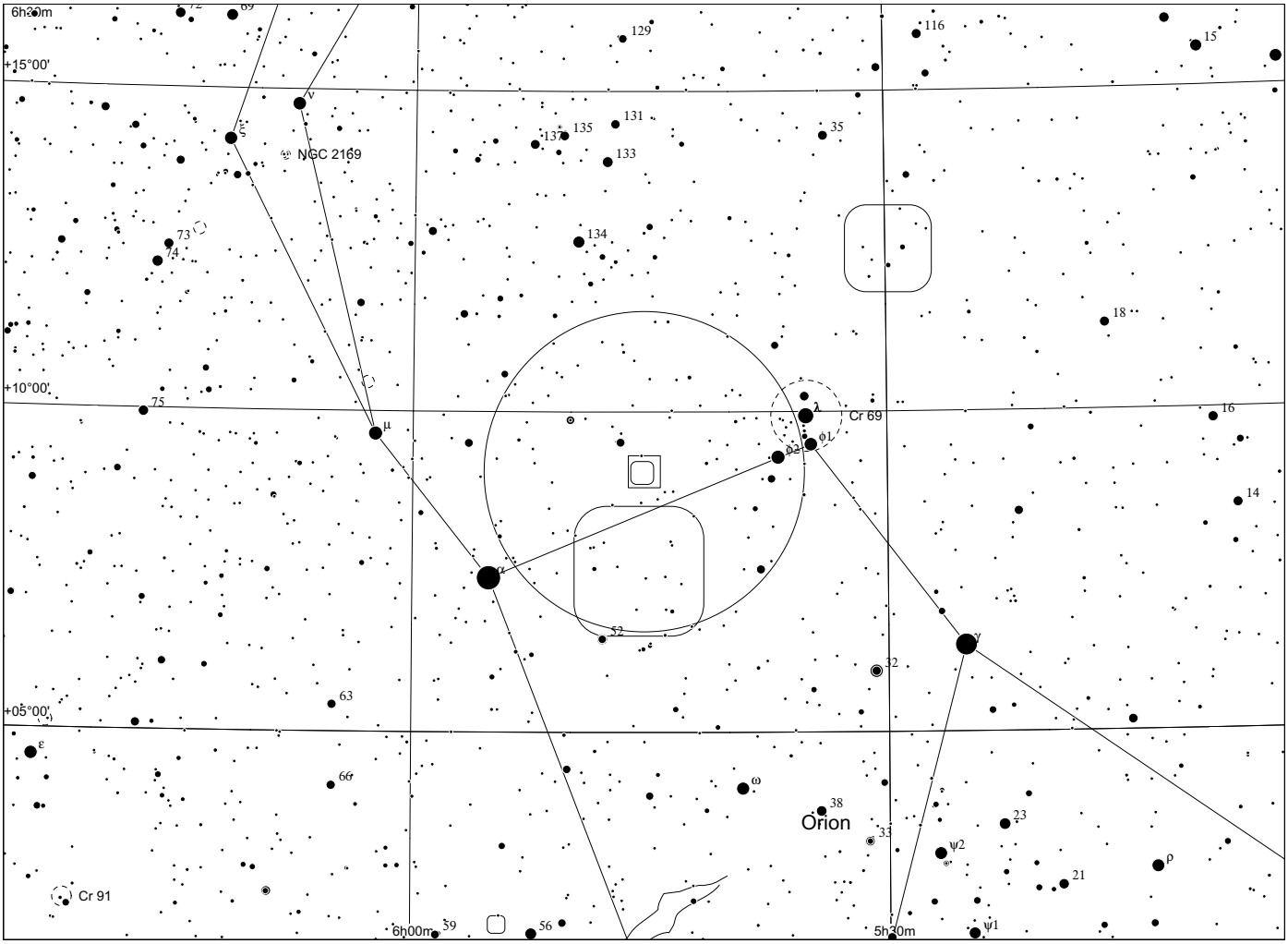
POSS blue

POSS composite

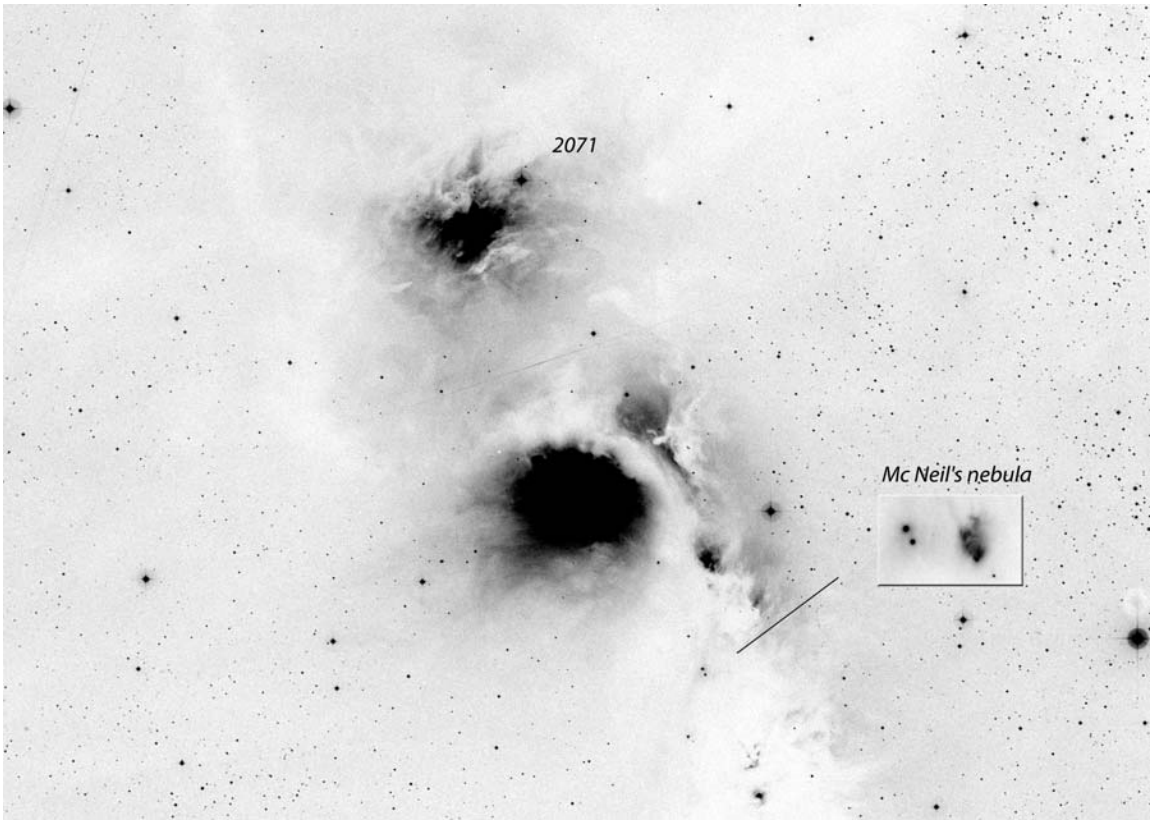
	other	RA	Dek	comments
FU Ori		05 45 22.4	+09 04 11	**Ced 59**

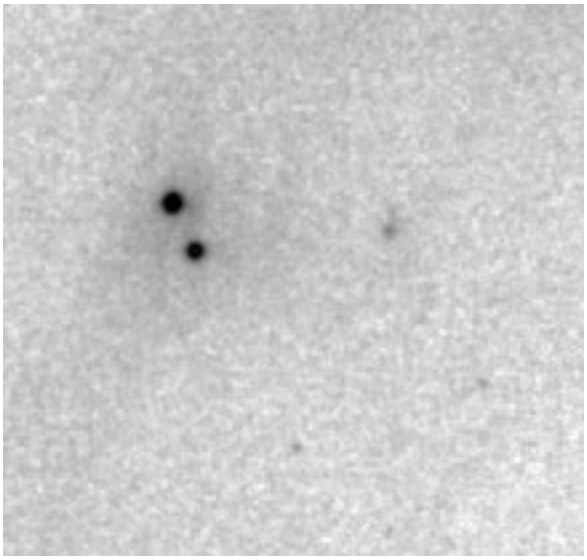
Observing notes:

22" f/4.5
FU Ori is a relatively bright star. With 500x, an extremely faint nebulosity was detected surrounding the star, extending somewhat more towards SW.


6h20m
+15°00'
+10°00'
+05°00'
NGC 2169
Cr 69
Cr 91
Orion
B 35
B 36
Cr 74
6h00m
5h30m
5h55m
5h50m
5h45m
5h40m
+11°00'
+09°00'
+08°00'

V1647 Ori/Mc Neil's Nebula in M78 in Orion





POSS red

POSS composite

	other	RA	Dek	comments
V* V1647 Ori		05 46 13.14	-00 06 04.8	FU Ori type

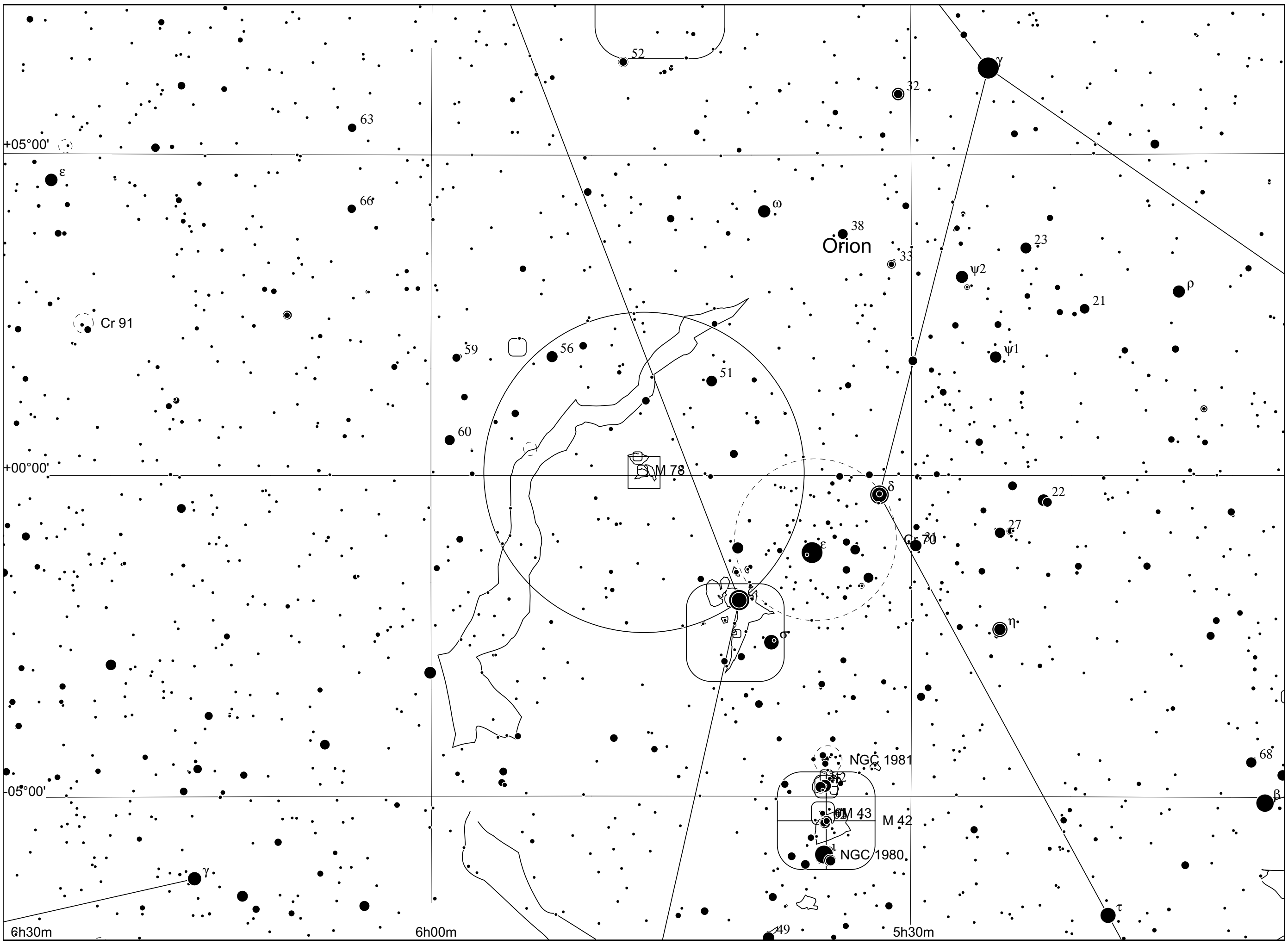
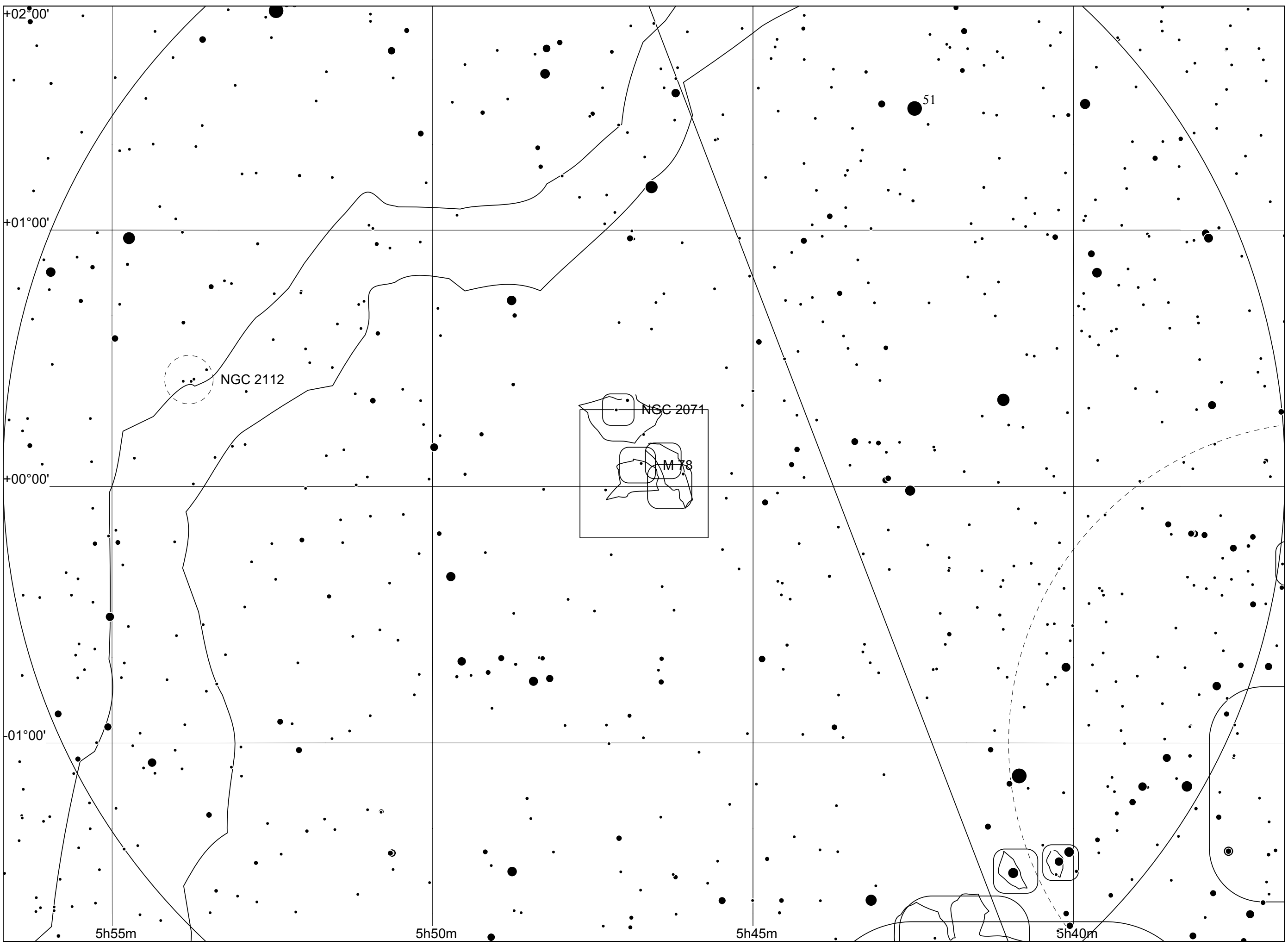
Observing notes:

22" f/4.5

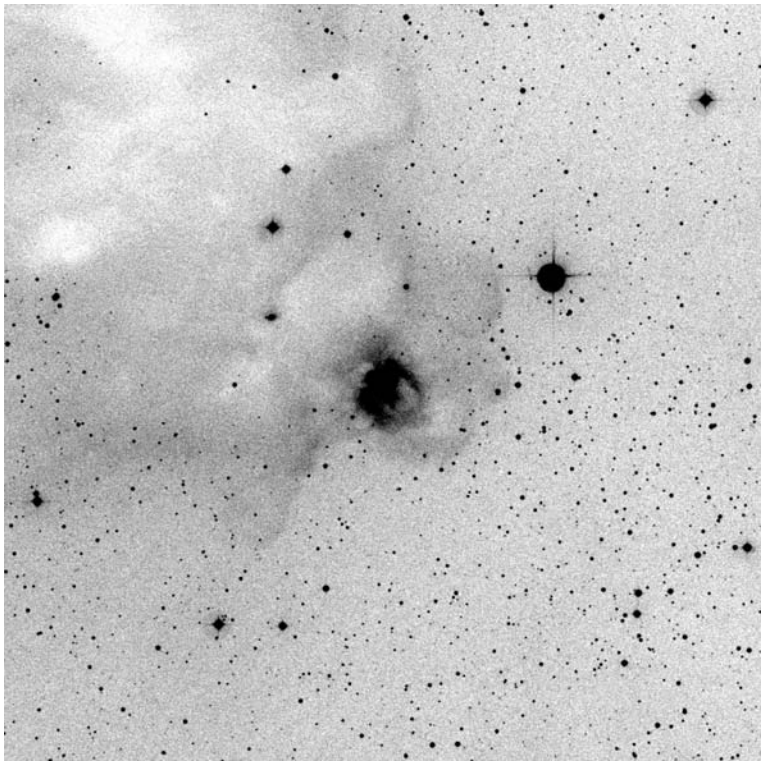
McNeil's Nebula was discovered photographically as a new object in the dusty landscape around M78 in 2004 by amateur observer Jay McNeil. At that time, it was accessible to visual observation. The object dimmed again and an attempt to observe the nebula in 2006 with my 22" Dob failed. In the end of 2008 it appeared to brighten again and was observable in my 22" Dob.

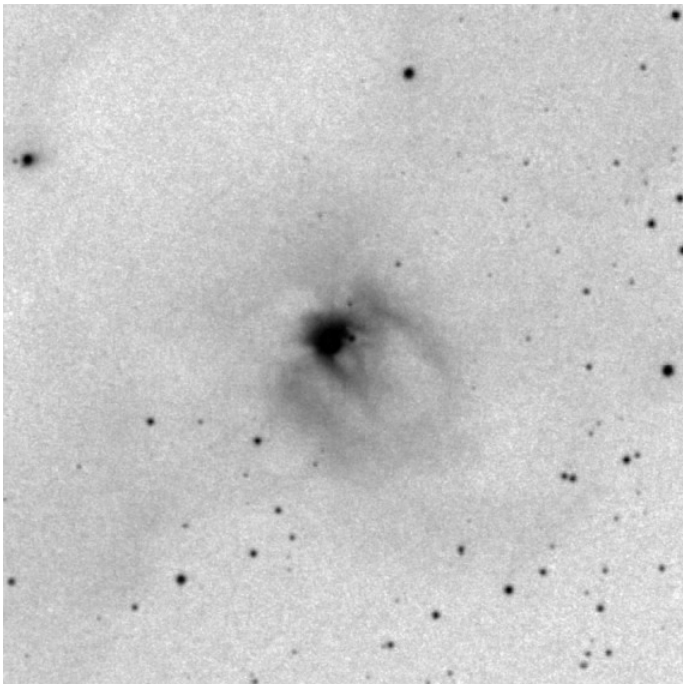
Due to the obscuring dark clouds, the environment of M78 lacks stars and star patterns suitable for star hopping, and the few remaining stars are considerably dimmed. It takes time to locate the precise position and to permanently hold the faint field stars. Close to the position of McNeil's Nebula is a close pair of stars, which are difficult to split visually due to their faintness. This double star forms an equilateral triangle with two other stars to the south and to the west. Mc Neil's nebula is next to the double star. I estimated the nebula's brightness to be somewhat lower than that of the combined double star, but it could be seen steadily with averted vision (in 2008).

There are further YSOs toward S (not observed). Re-observed in January 2011 with similar result, much fainter in 12/2011.

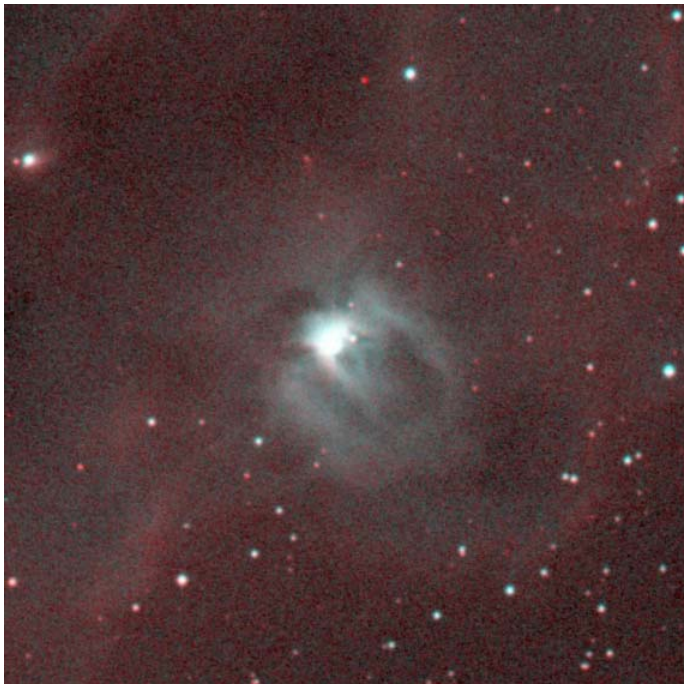

+05°00'
+00°00'
-05°00'
6h30m
6h00m
5h30m
Orion
Cr 91
M 78
Cr 70
NGC 1981
M 43
M 42
NGC 1980
ε
ω
γ
δ
ψ2
ψ1
ρ
η
σ
β
τ
63
66
56
51
59
60
52
32
38
33
23
21
22
27
68
49

+02°00'
+01°00'
+00°00'
-01°00'
5h55m
5h50m
5h45m
5h40m
NGC 2112
NGC 2071
M 78
51

V1793 Ori / vdB 62 in Orion





POSS blue

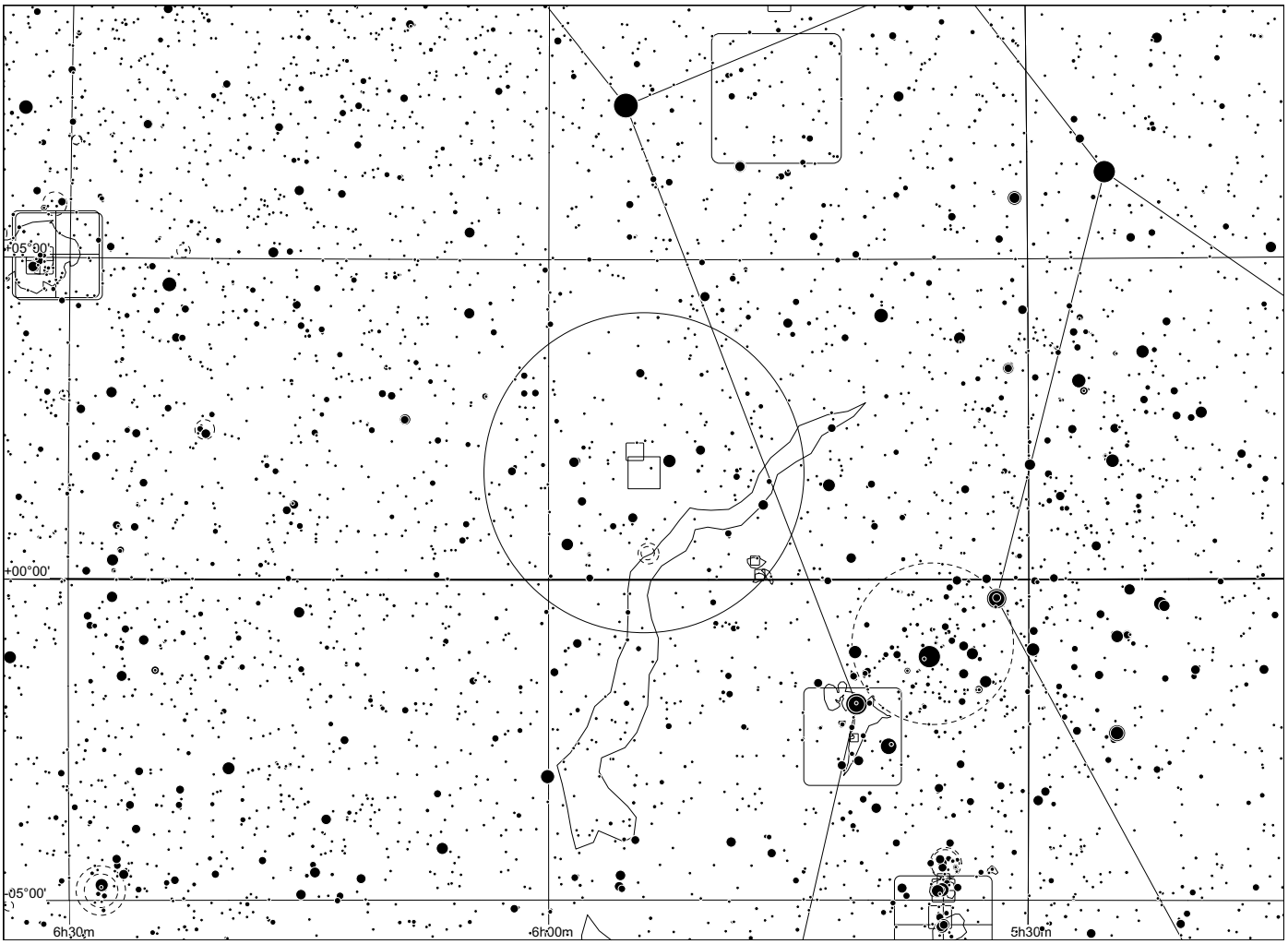


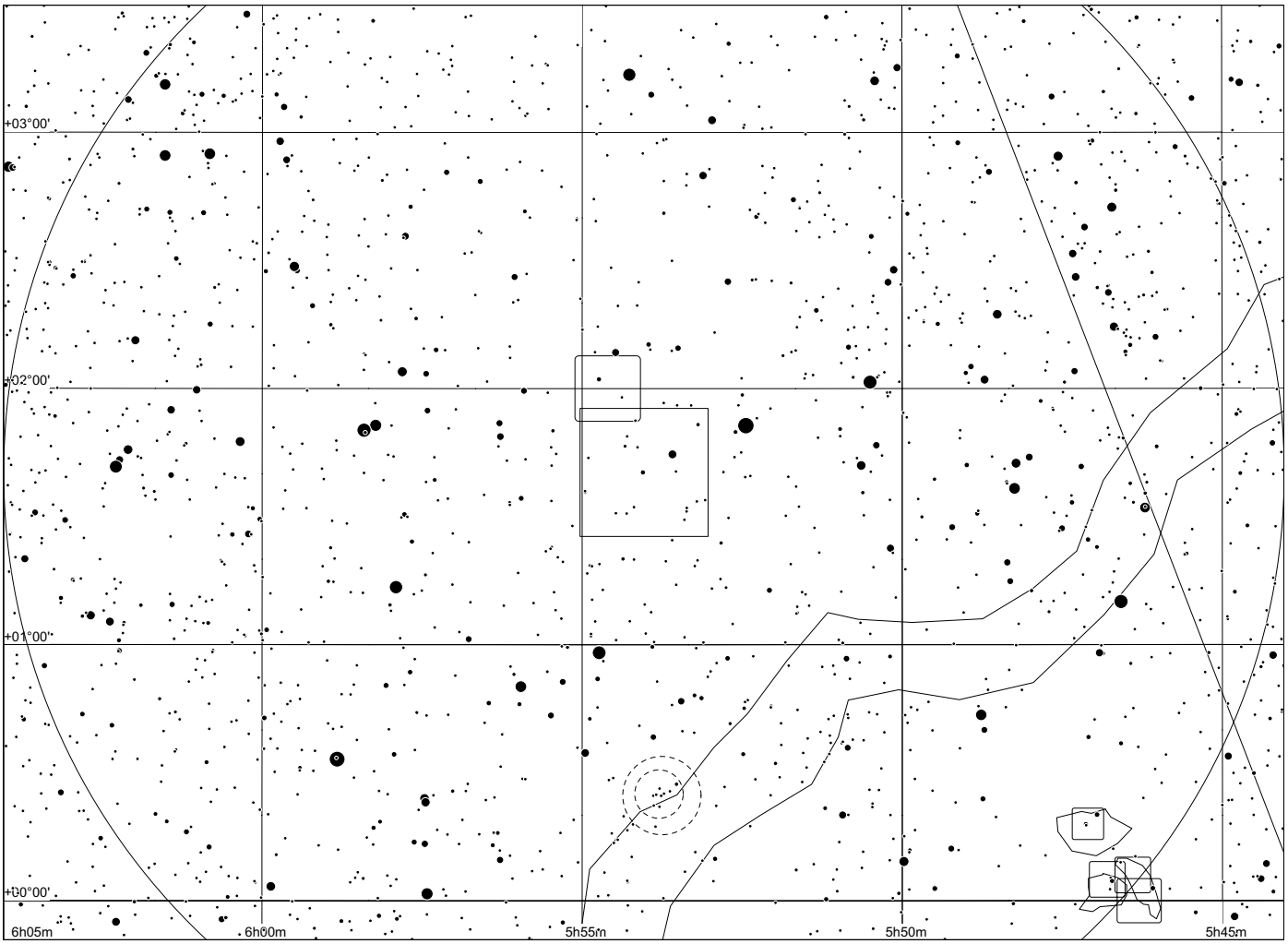
POSS composite

	other	RA	Dek	comments
V1793 Ori	vdB 62, HBC 515	05 54 02.43	+01 40 22.5	T Tauri type

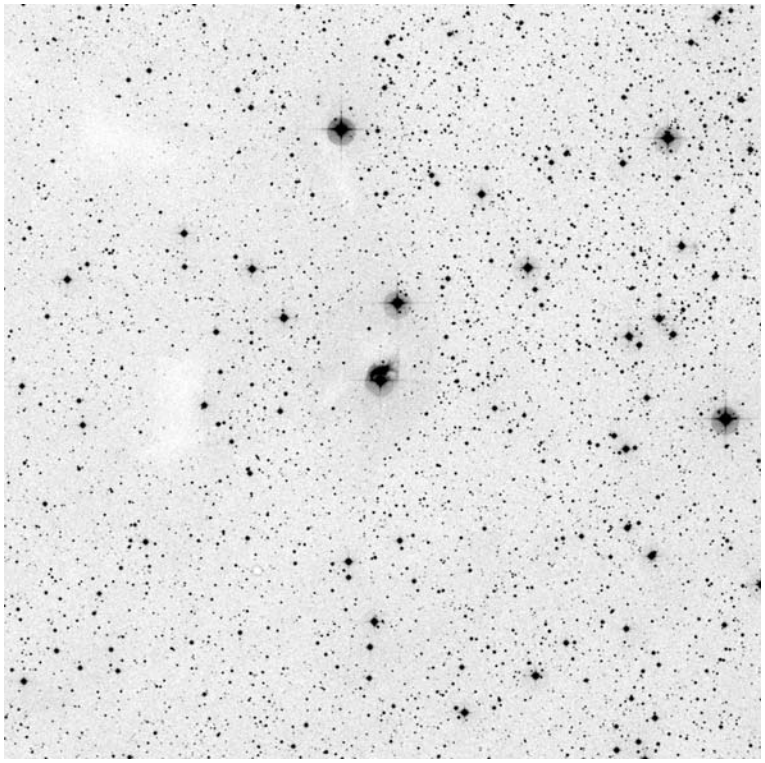
Observing notes:

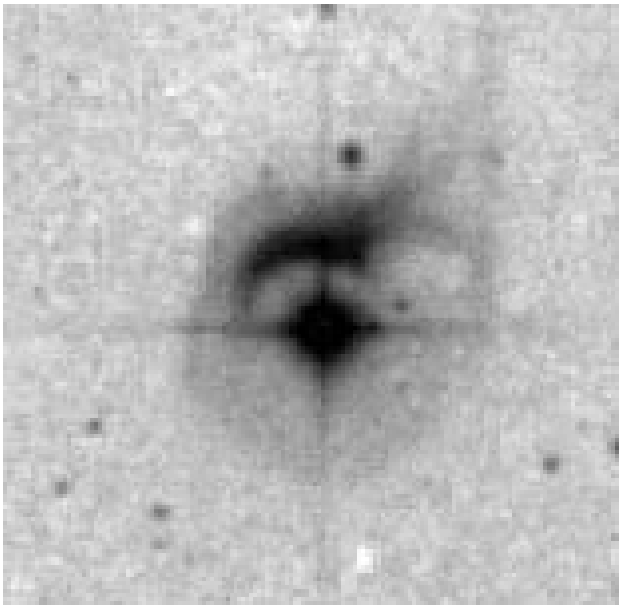
22" f/4.5
The star is relatively bright and easy. With 350x a very faint and small nebulosity was observed extending to the E of the star.


+05°00'
+00°00'
-05°00'
6h30m
6h00m
5h30m


+03°00'
+02°00'
+01°00'
+00°00'
6h05m
6h00m
5h55m
5h50m
5h45m

V1307 Orionis in Orion





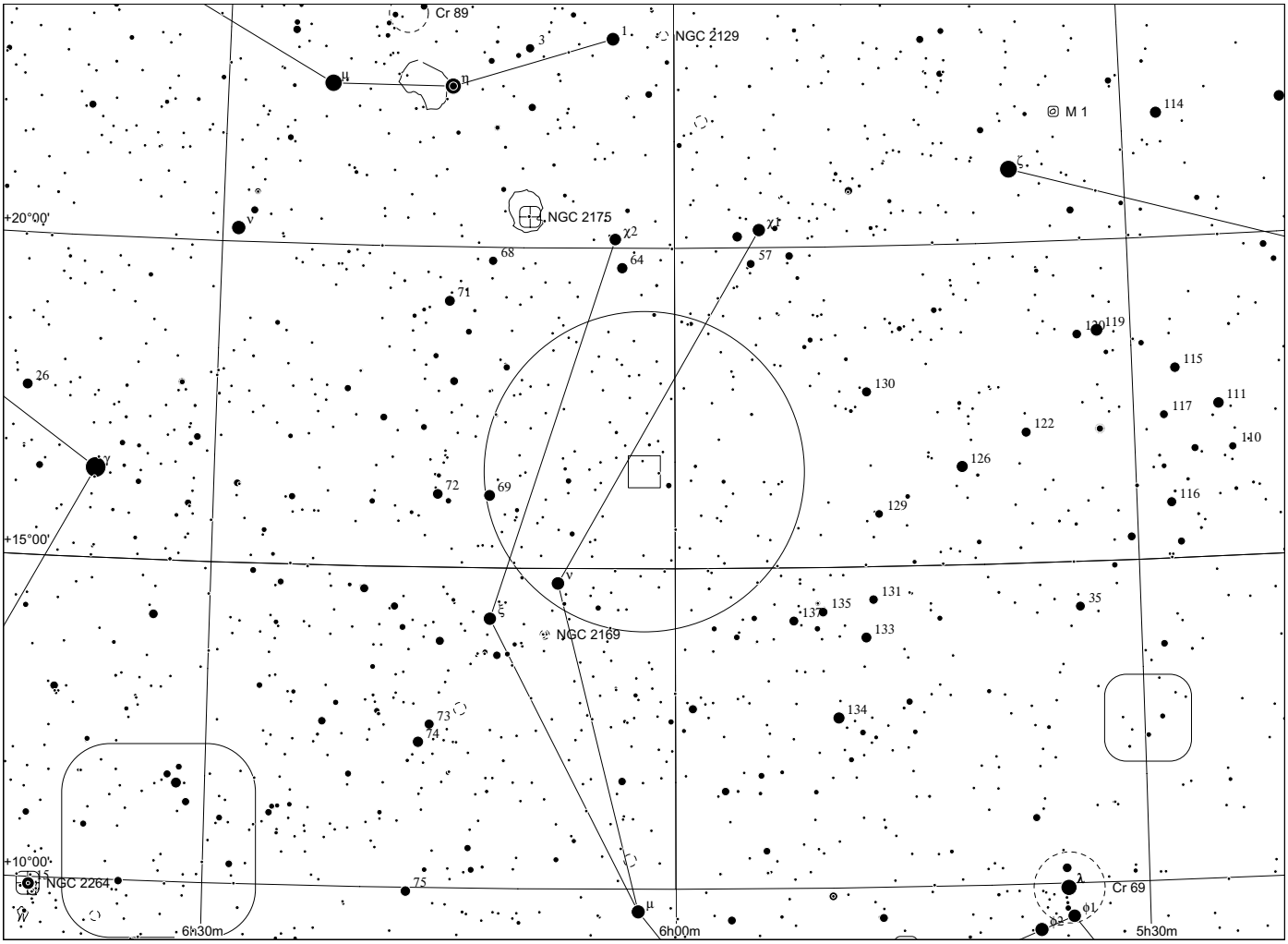
POSS blue

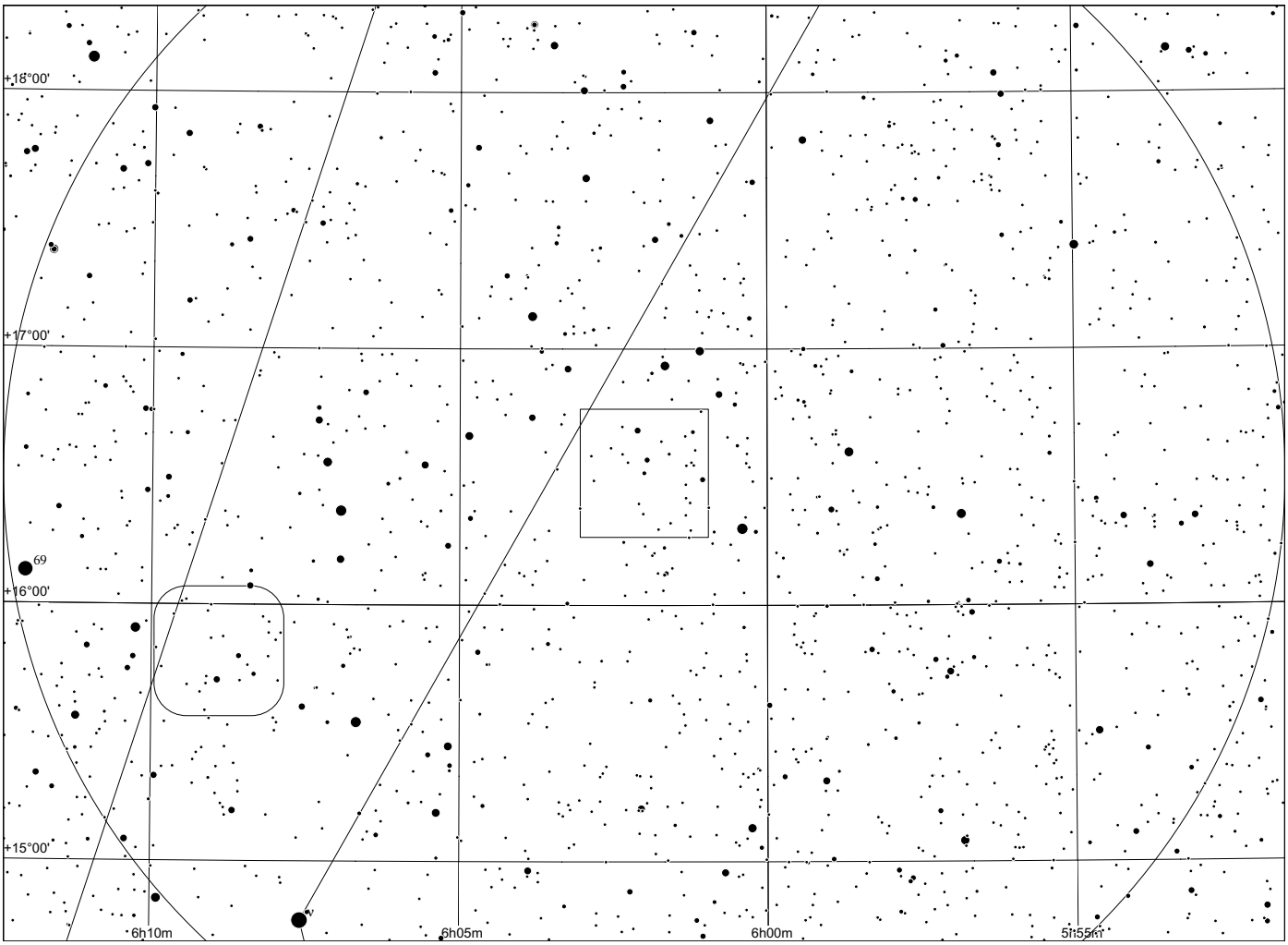
POSS composite

	other	RA	Dek	comments
V1307 Ori		06 01 59.99	+16 30 56.7	

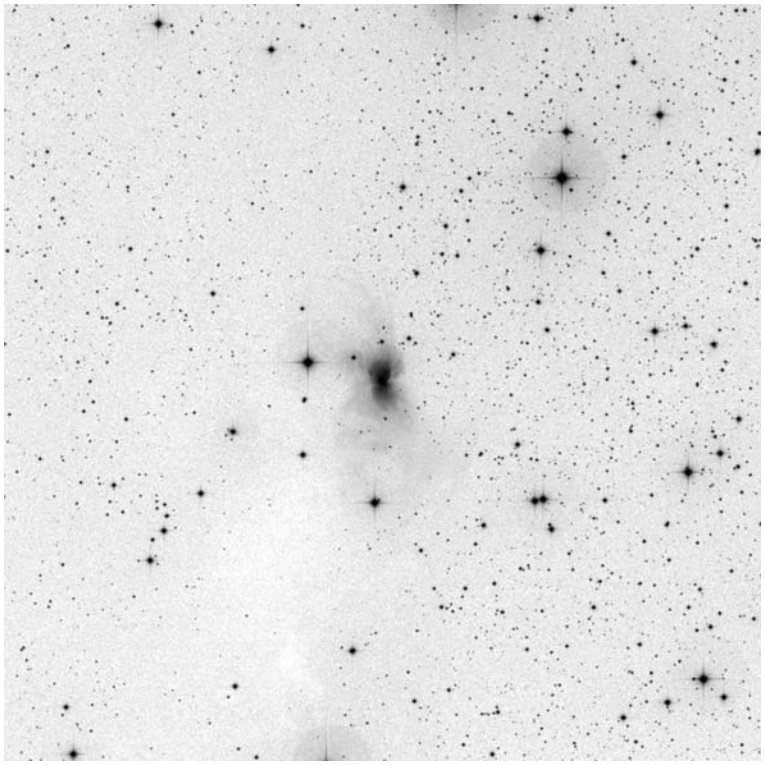
Observing notes:

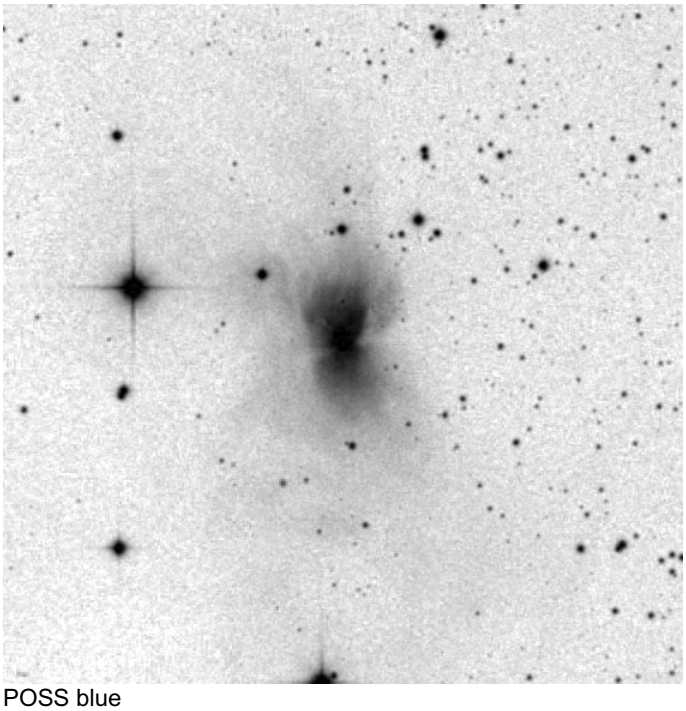
22" f/4.5
V1307 Ori is a bright star with other bright stars in the same field. With 350x, a very faint elongated nebulosity was detected at the N side of the star. The nebulosity was better defined on its N side and relatively large. Quite similar to Hind's Variable Nebula.


Cr 89
NGC 2129
M 1
NGC 2175
NGC 2169
NGC 2264
Cr 69
+20°00'
+15°00'
+10°00'
6h30m
6h00m
5h30m


+18°00'
+17°00'
+16°00'
+15°00'
6h10m
6h05m
6h00m
5h55m

Ced 62 in Orion





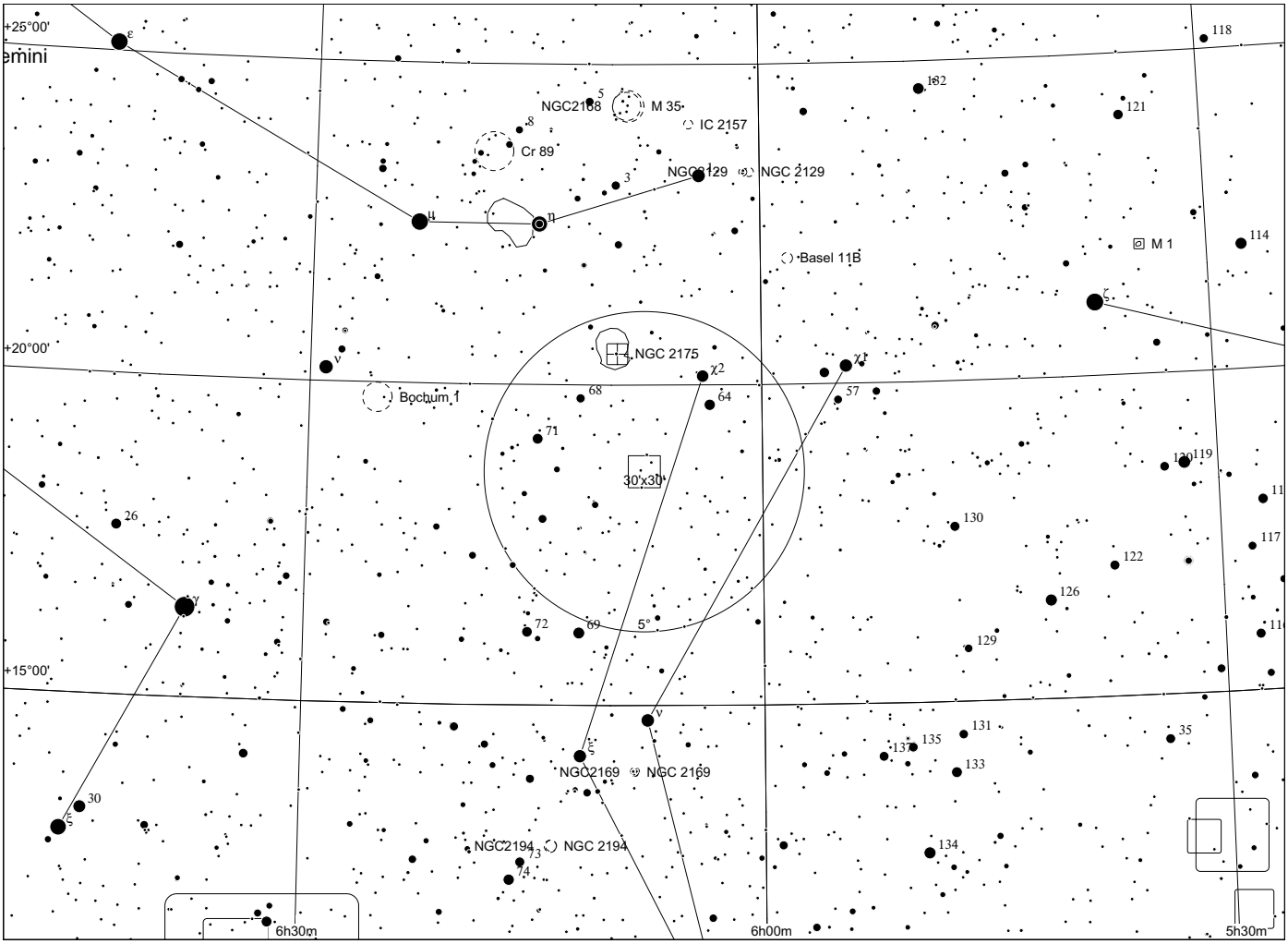
POSS blue

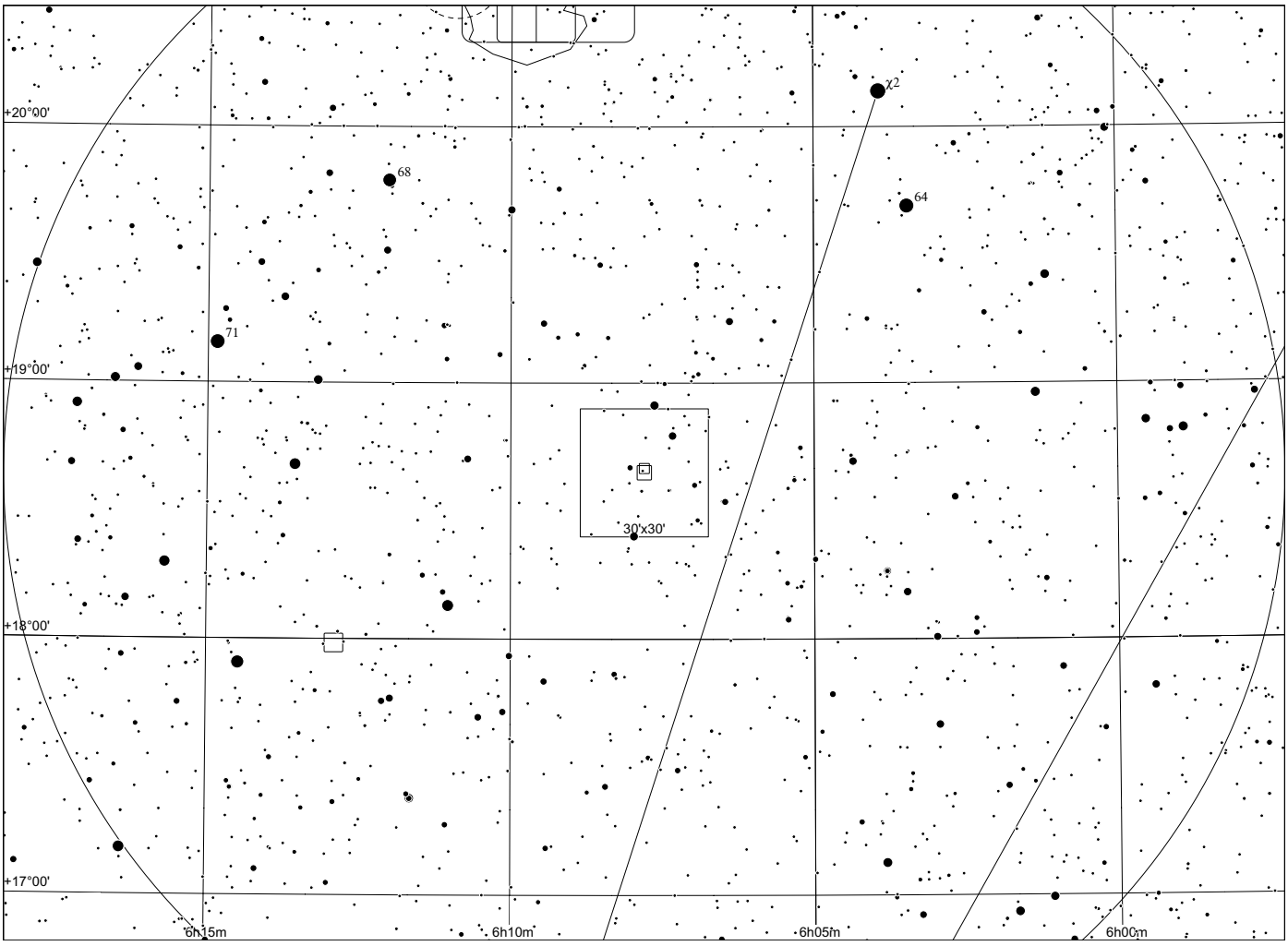
POSS composite

	other	RA	Dek	comments
HBC 193, LkHA 208	NGC 2163	06 07 49.49	+18 39 27.0	emission line star

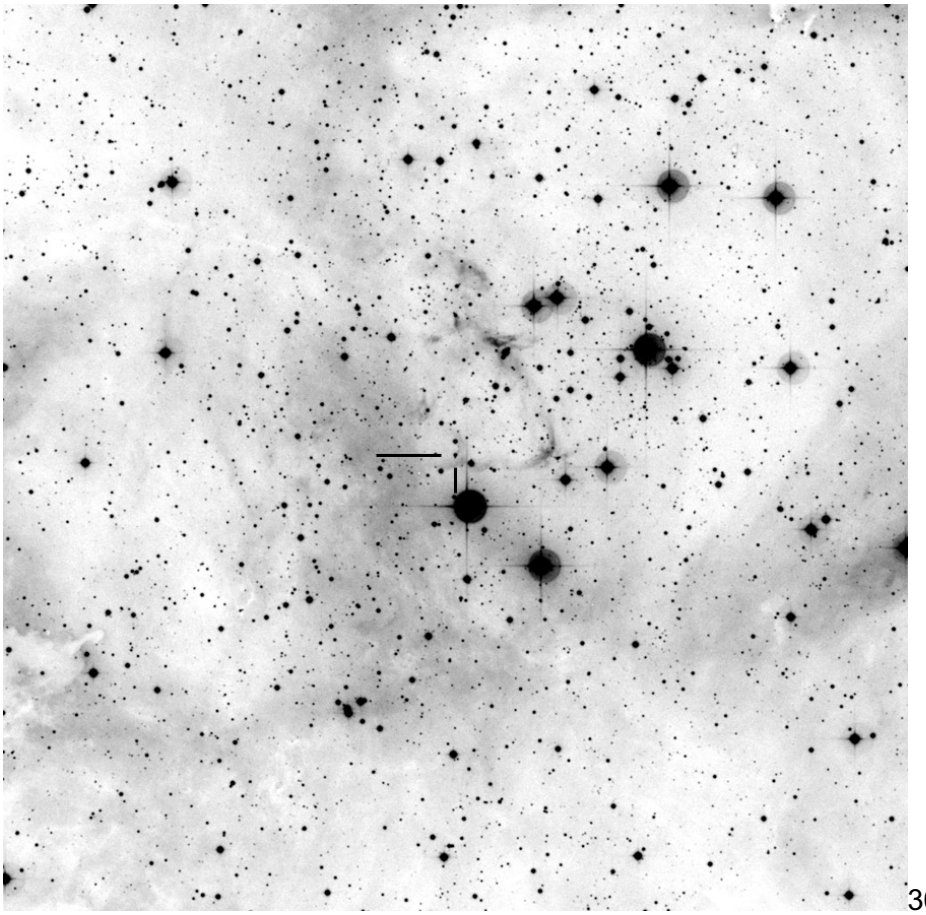
Observing notes:

22" f/4.5
Ced 62 is a bright bilobal nebula around HBC 193 that is visible already in medium sized telescopes. Not precisely like an hourglas, the nebulosity is not fully constricted at the position of the star. W side is better defined. N fan is brighter and larger with a brighter streak at its W border. S fan is weaker and appears a bit separated from the star.

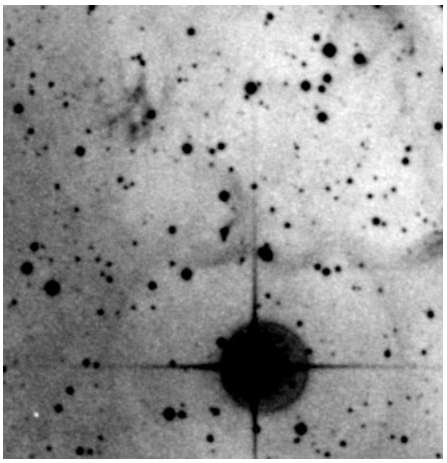

+25°00'
emini
NGC2168
M 35
IC 2157
Cr 89
NGC2129
NGC 2129
Basel 11B
M 1
NGC 2175
Bochum 1
30'x30'
NGC2169
NGC 2169
NGC2194
NGC 2194
+20°00'
+15°00'
6h30m
6h00m
5h30m


+20°00'
+19°00'
+18°00'
+17°00'
30'x30'
6h15m
6h10m
6h05m
6h00m

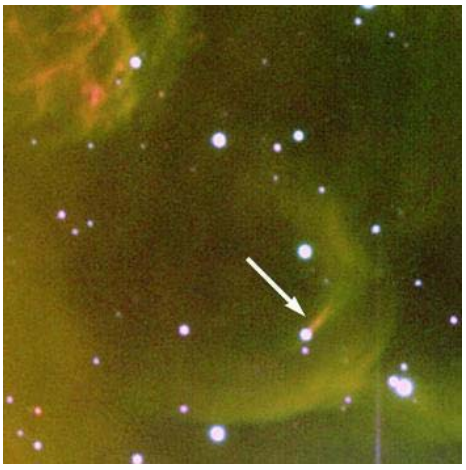
Rosette HH1 in Monoceros



30'x30'



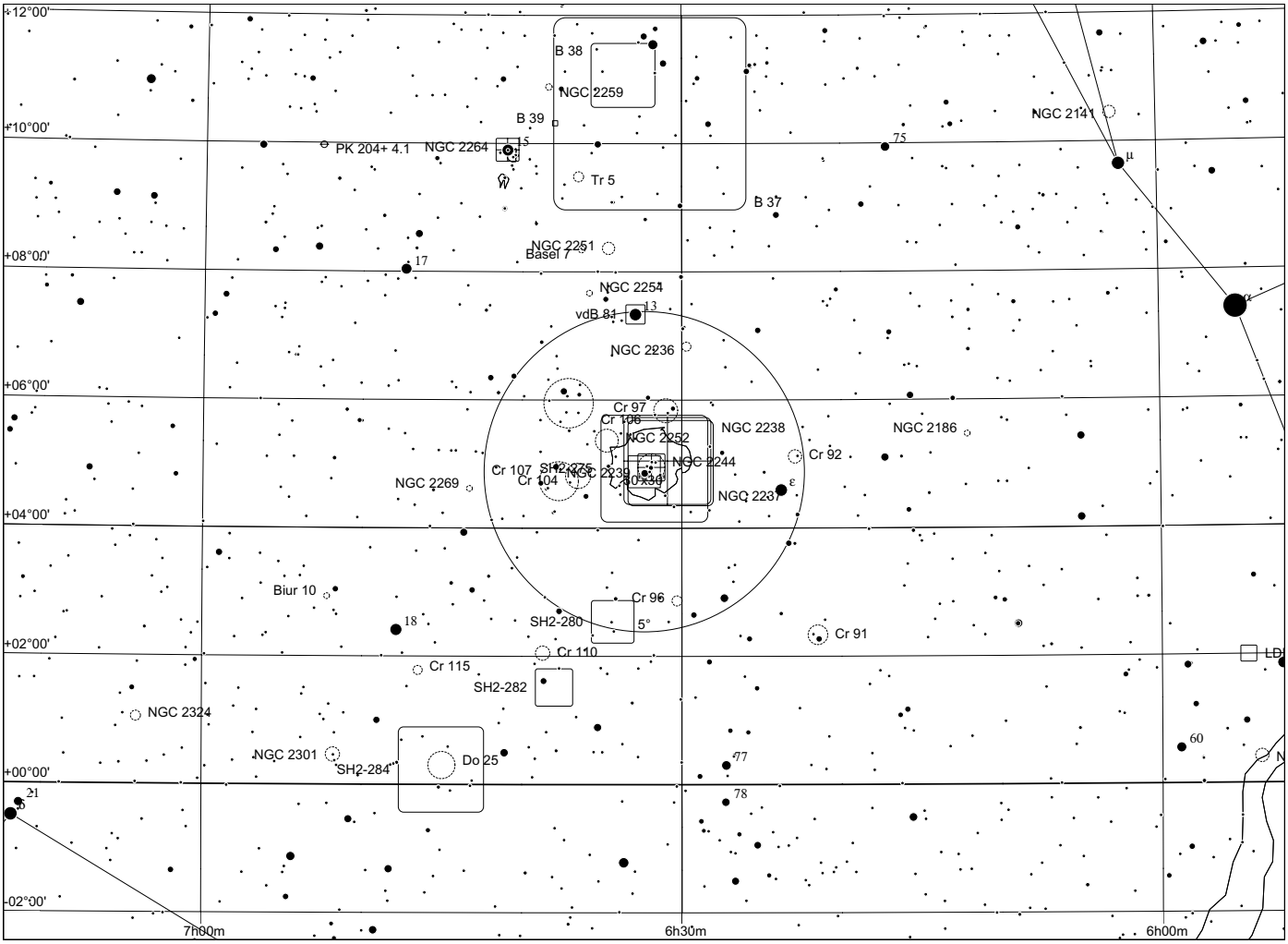
red

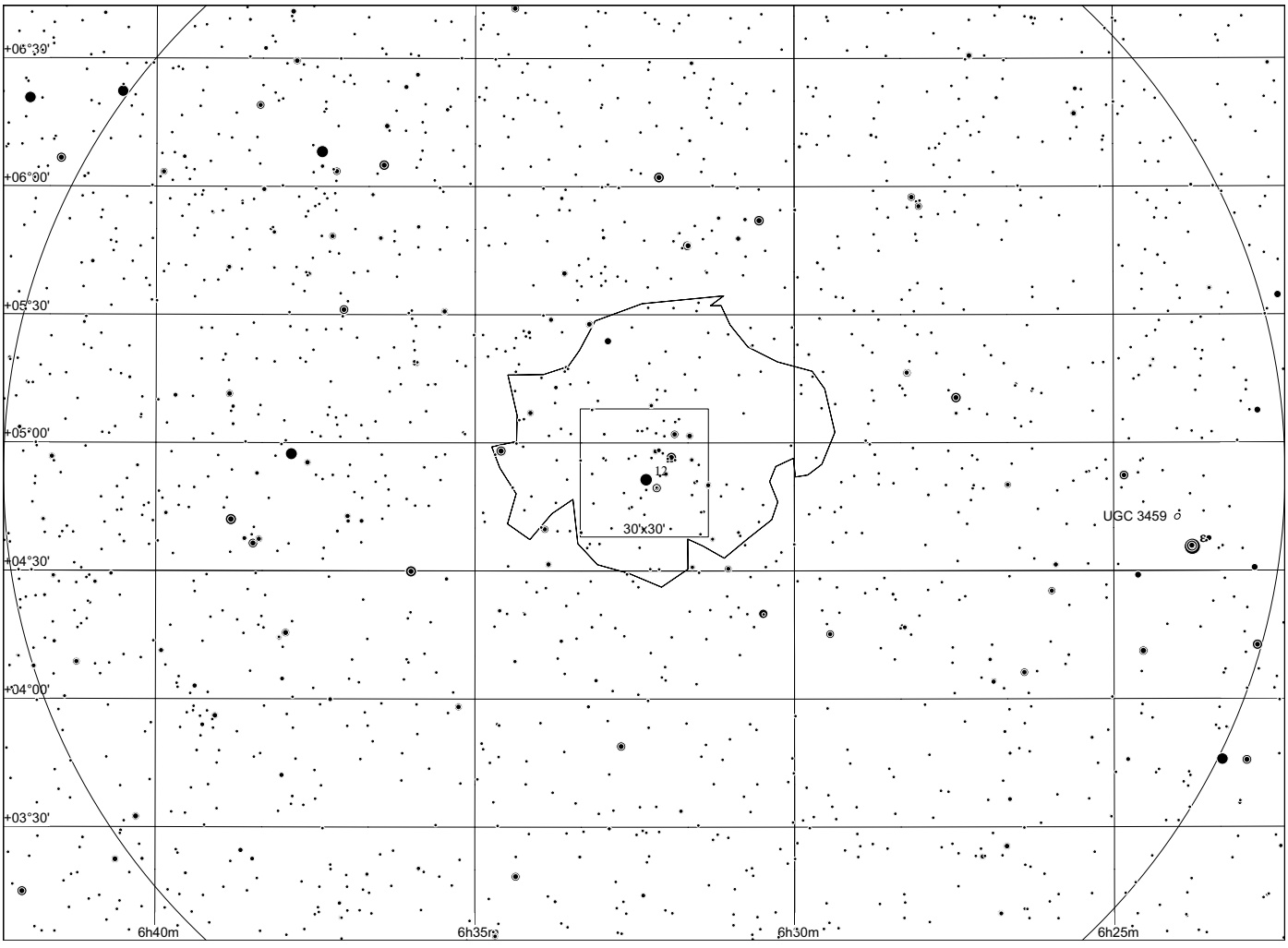


T. Rector/University of Alaska Anchorage, WIYN and NOAO/AURA/NSF

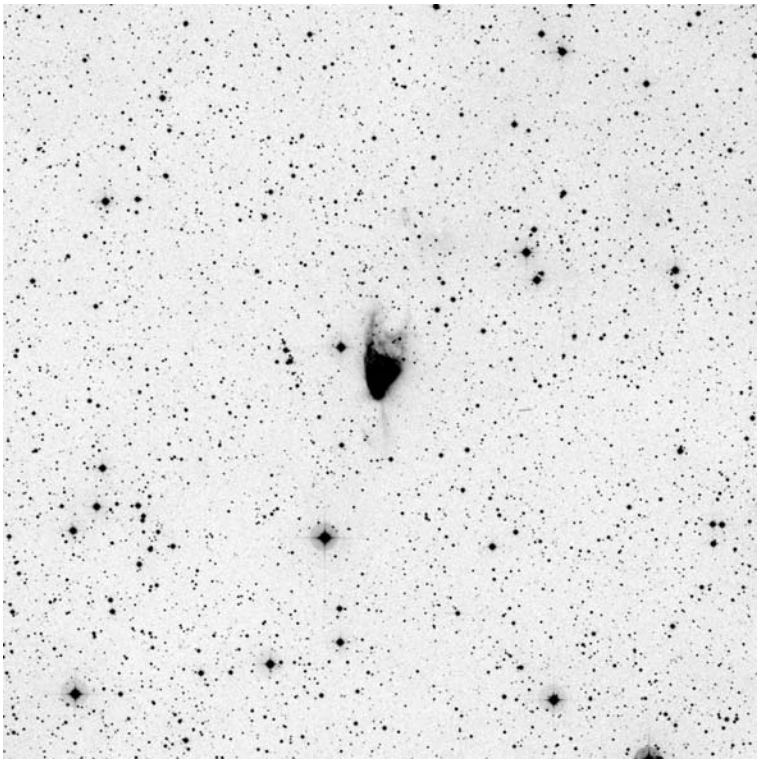
	other	RA	Dek	comments
Rosette HH1		06 32 20.79	+04 52 58.2	T Tauri star with jet

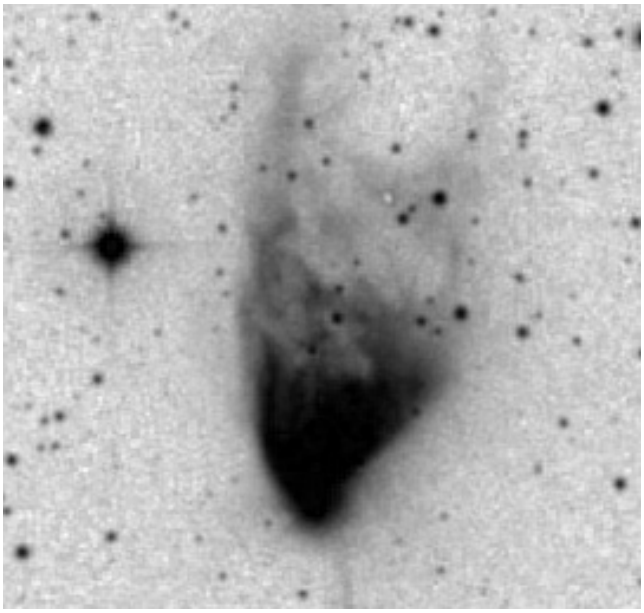
Observing notes:


+12°00'
+10°00'
+08°00'
+06°00'
+04°00'
+02°00'
+00°00'
-02°00'
7h00m
6h30m
6h00m
B 38
NGC 2259
B 39
PK 204+ 4.1
NGC 2264
Tr 5
B 37
NGC 2141
NGC 2251
Basel 7
NGC 2254
vdB 81
NGC 2236
Cr 97
Cr 106
NGC 2238
NGC 2252
NGC 2186
Cr 92
Cr 107
SH2-275
NGC 2239
NGC 2244
Cr 104
NGC 2269
NGC 2237
Biur 10
Cr 96
SH2-280
Cr 91
Cr 110
Cr 115
SH2-282
NGC 2324
NGC 2301
SH2-284
Do 25
LDN


+06°30'
+06°00'
+05°30'
+05°00'
+04°30'
+04°00'
+03°30'
6h40m
6h35m
6h30m
6h25m
30'x30'
UGC 3459

Hubble's Variable Nebula/ R Mon in Monoceros





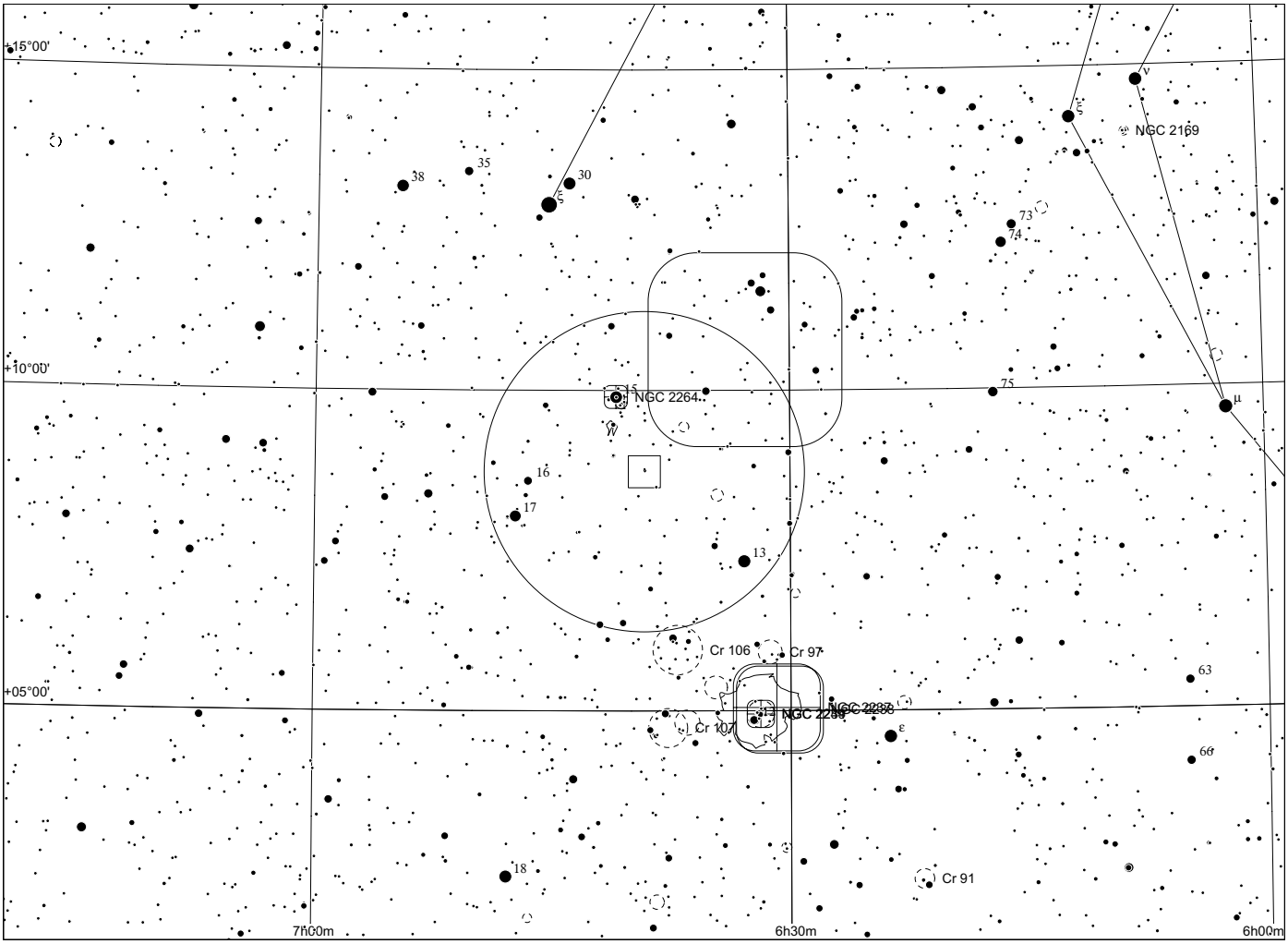
POSS blue

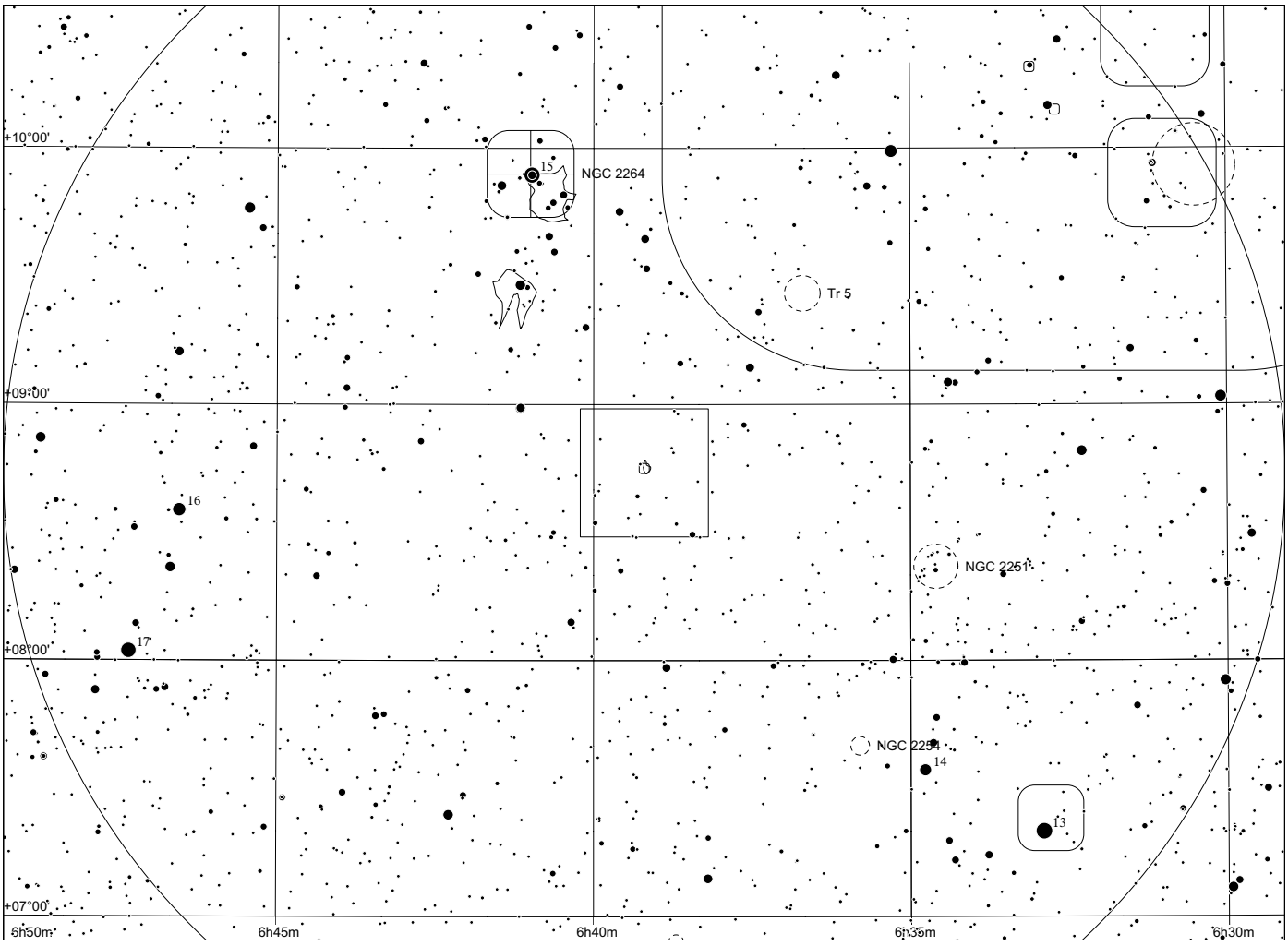
POSS composite

	other	RA	Dek	comments
NGC 2261		06 39 09.51	+08 44 39.6	V* R Mon T Tauri type

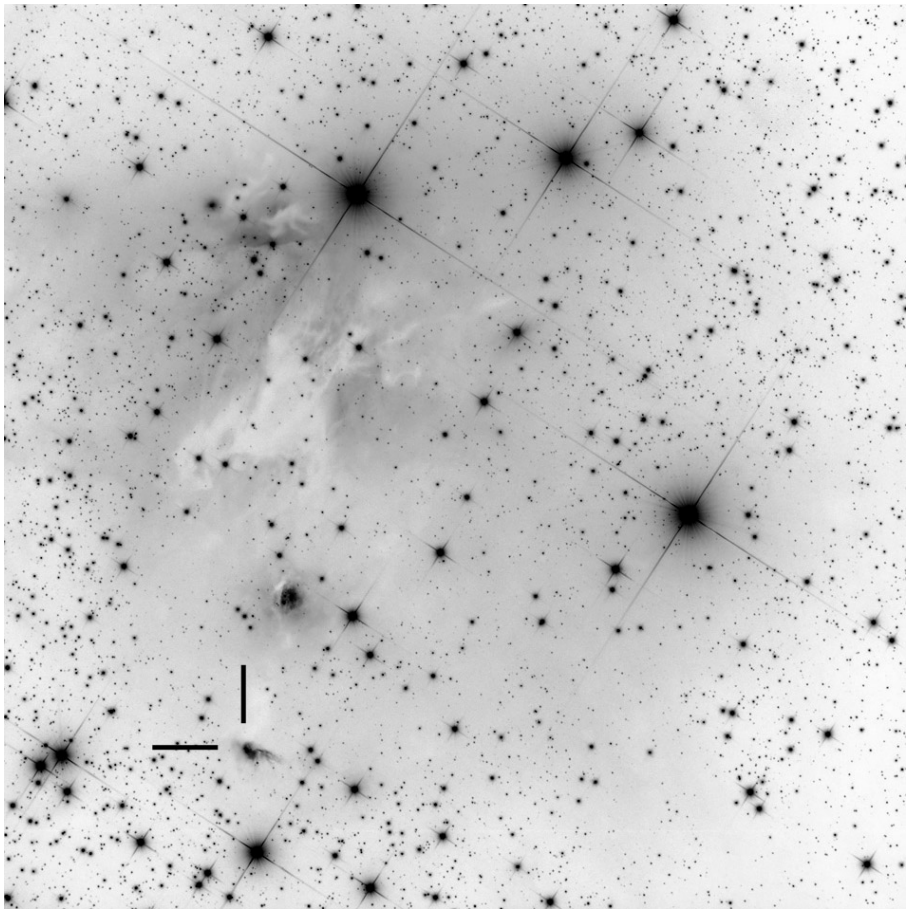
Observing notes:

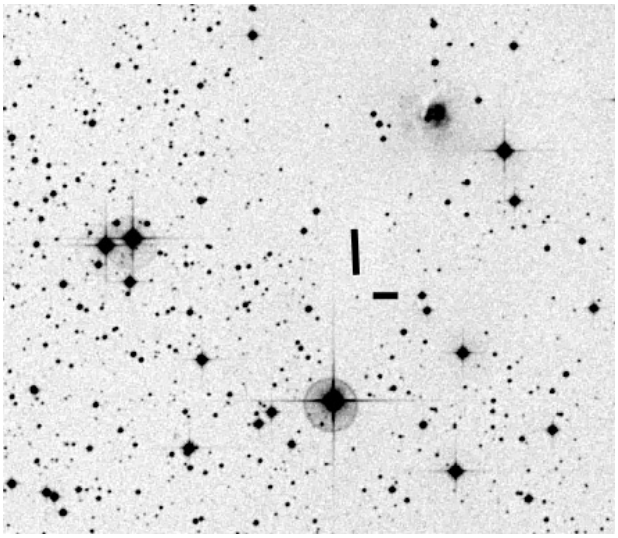
22" f/4.5
With 350x, the nebula is very bright and quite evenly illuminated. It appears fan shaped, extending to the NE from the star, which is somewhat offset from the tip of the nebula. The fan is curved to the W, with its W side being longer than its E side.

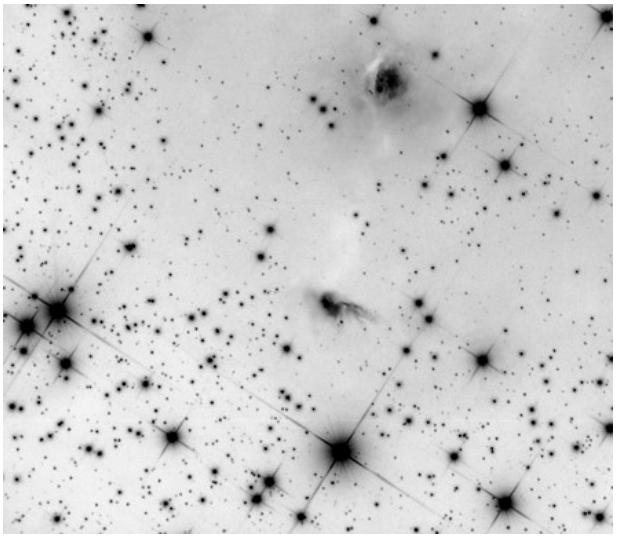

+15°00'
+10°00'
+05°00'
NGC 2169
NGC 2264
Cr 106
Cr 97
Cr 107
NGC 2236
NGC 2238
Cr 91
38
35
30
73
74
75
16
17
13
63
66
18
7h00m
6h30m
6h00m


+10°00'
+09°00'
+08°00'
+07°00'
NGC 2264
Tr 5
NGC 2251
NGC 2254
16
17
14
13
6h50m
6h45m
6h40m
6h35m
6h30m

Thommes' Nebula around V900 Mon in Monoceros







POSS blue 1983

Adam Block/Mount Lemmon SkyCenter/University of Arizona, Nov 2011

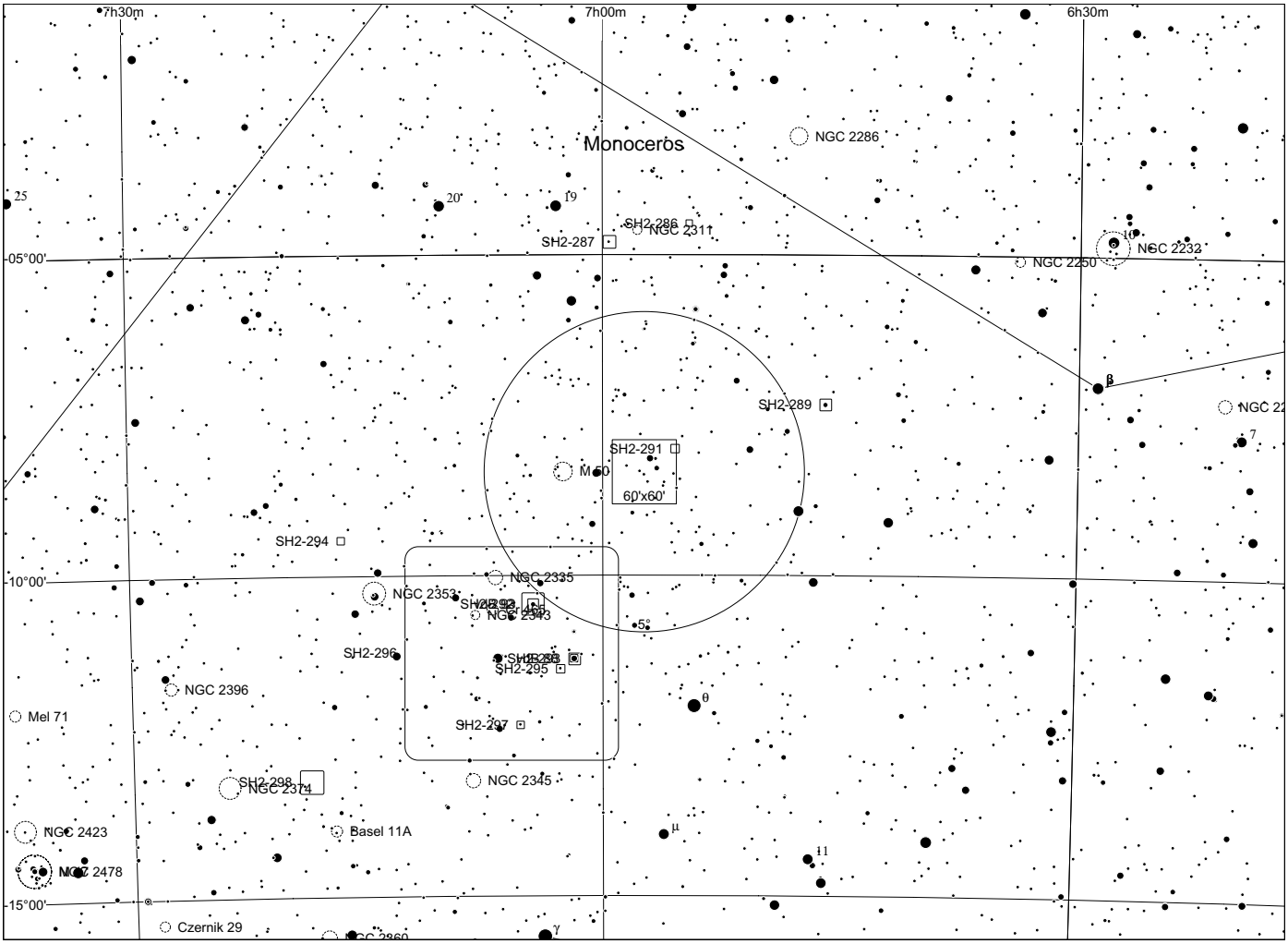
	other	RA	Dek	comments
V900 Mon		06 57 22	-08 23 22	FU Ori type

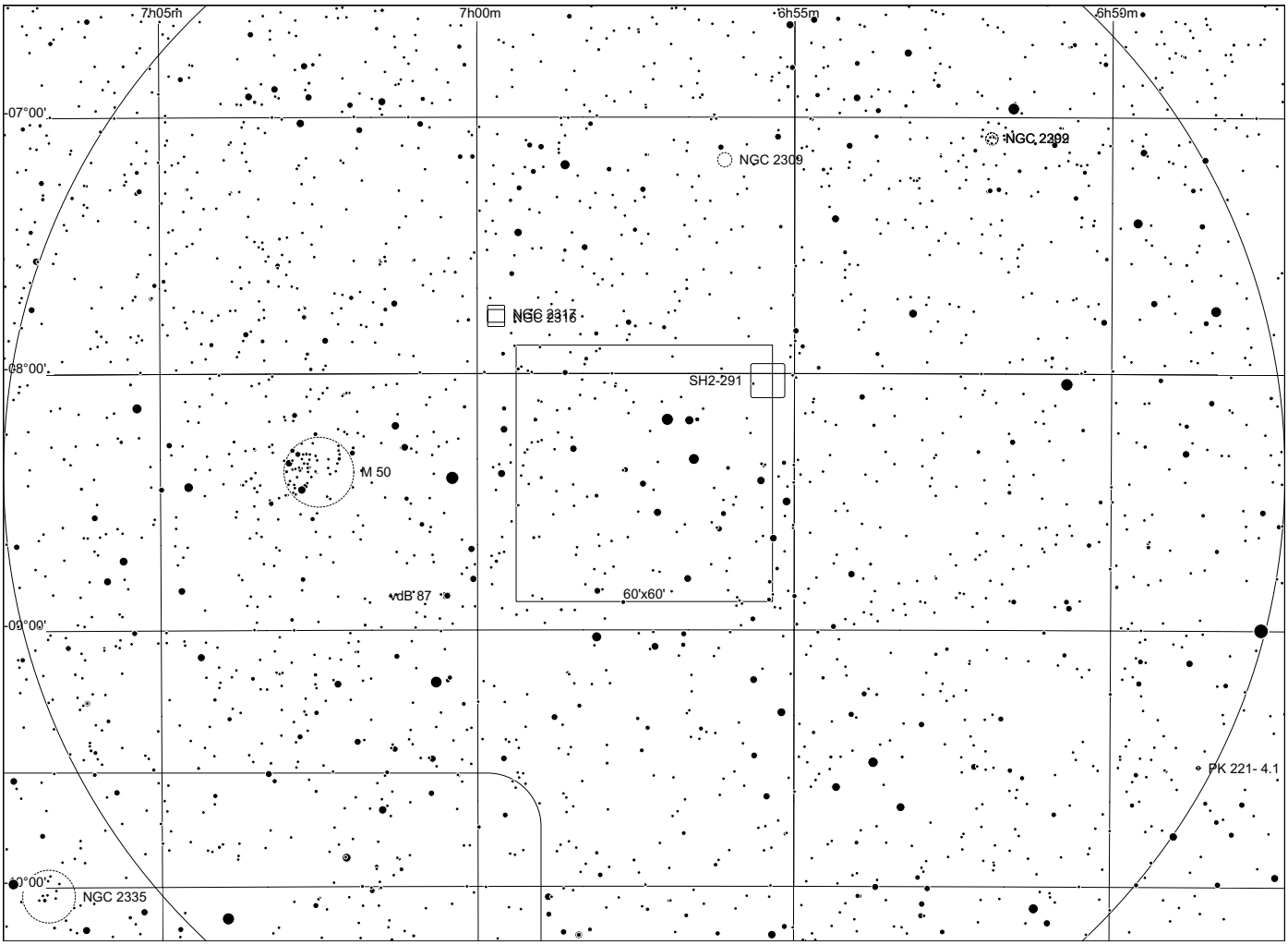
Observing notes:

22" f/4.5

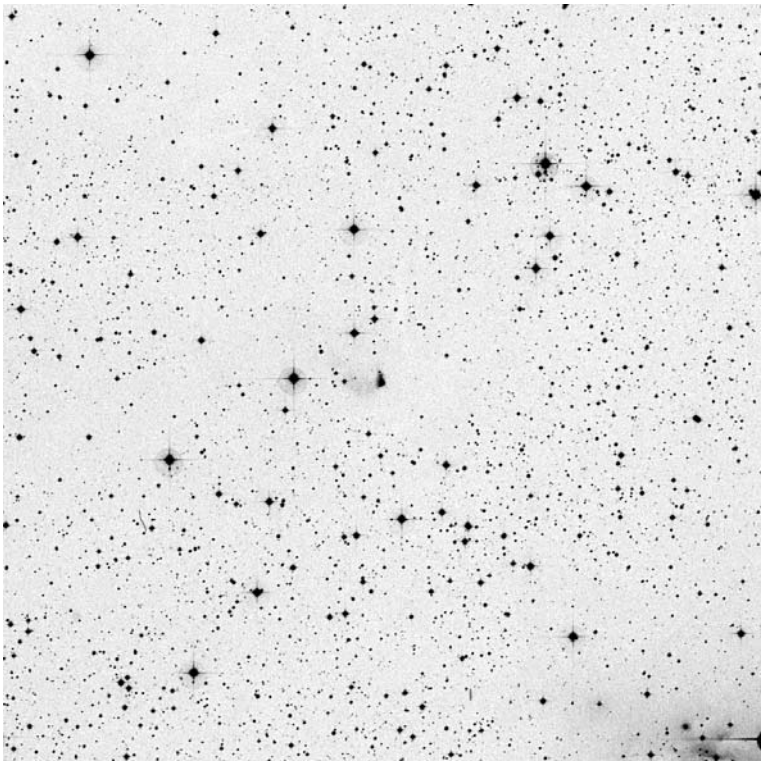
Thommes' Nebula is a YSO discoverd by Jim Thommes in 2009 around the FUor V900 Mon.

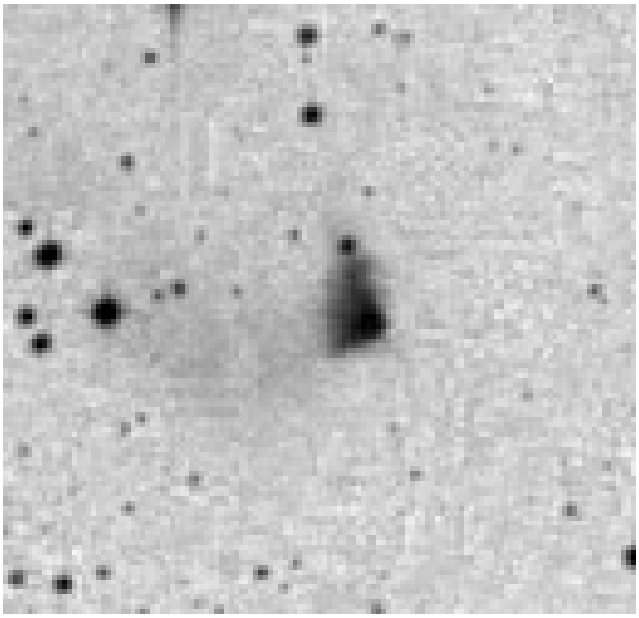
At the eyepiece, this is a relatively easy YSO, appearing as clearly non-stellar direct vision object. At times, it appeared elongated with a tail-like feature pointing towards southern direction, possibly reflecting outflow.


7h30m
7h00m
6h30m
Monoceros
NGC 2286
25
20'
19
SH2-286
NGC 2311
SH2-287
05°00'
NGC 2232
NGC 2250
β
SH2-289
NGC 22
7
SH2-291
M 50
60'x60'
SH2-294
10°00'
NGC 2335
NGC 2353
NGC 2343
5
SH2-296
SH2-295
NGC 2396
Mel 71
θ
SH2-297
SH2-298
NGC 2374
NGC 2345
NGC 2423
Basel 11A
μ
11
NGC 2478
15°00'
Czernik 29
γ


7h05m
7h00m
6h55m
6h50m
07°00'
NGC 2309
NGC 2292
NGC 2317
NGC 2316
08°00'
SH2-291
M 50
vdB 87
60'x60'
09°00'
PK 221- 4.1
10°00'
NGC 2335

V565 Monocerotis





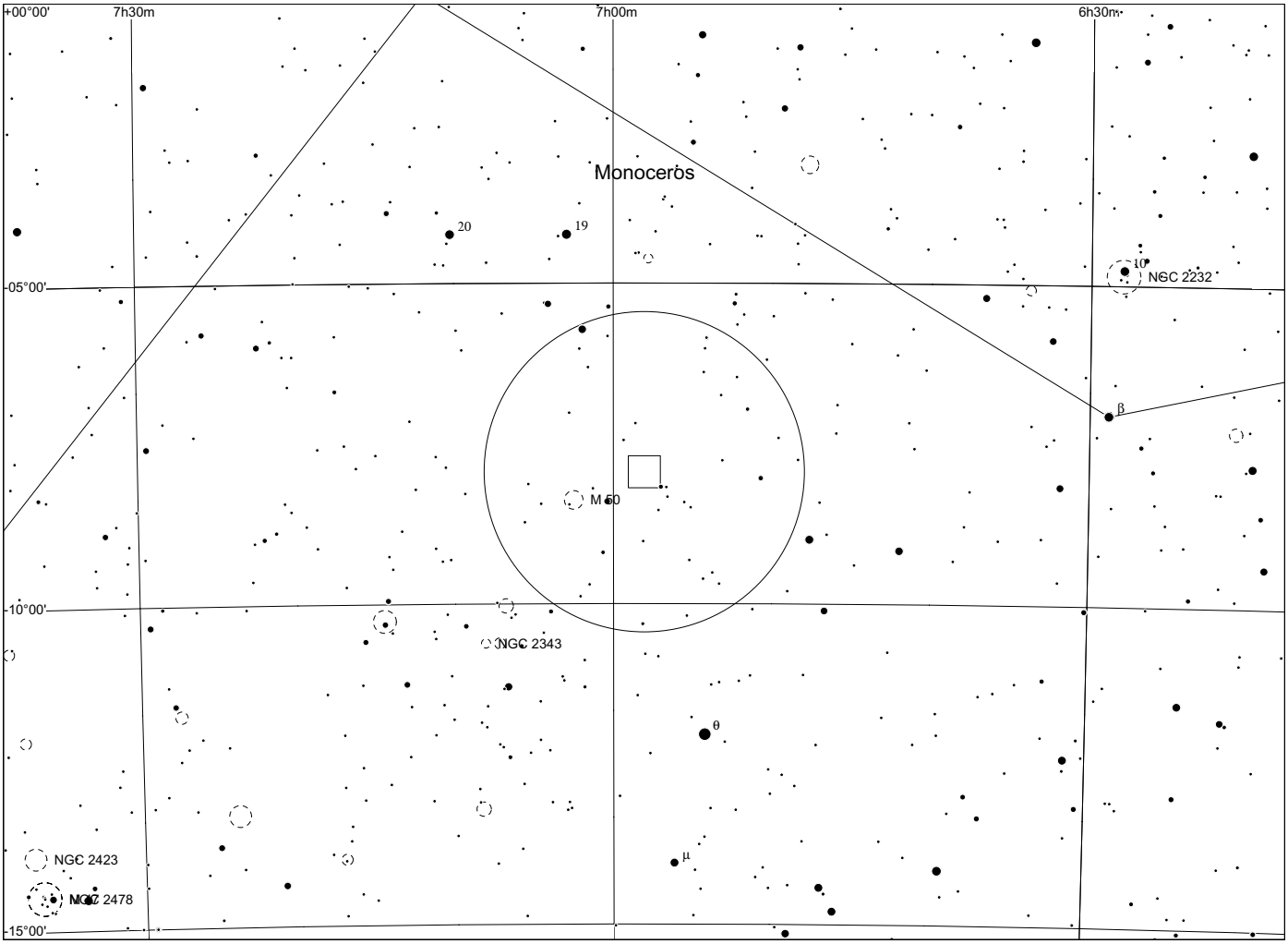
POSS blue

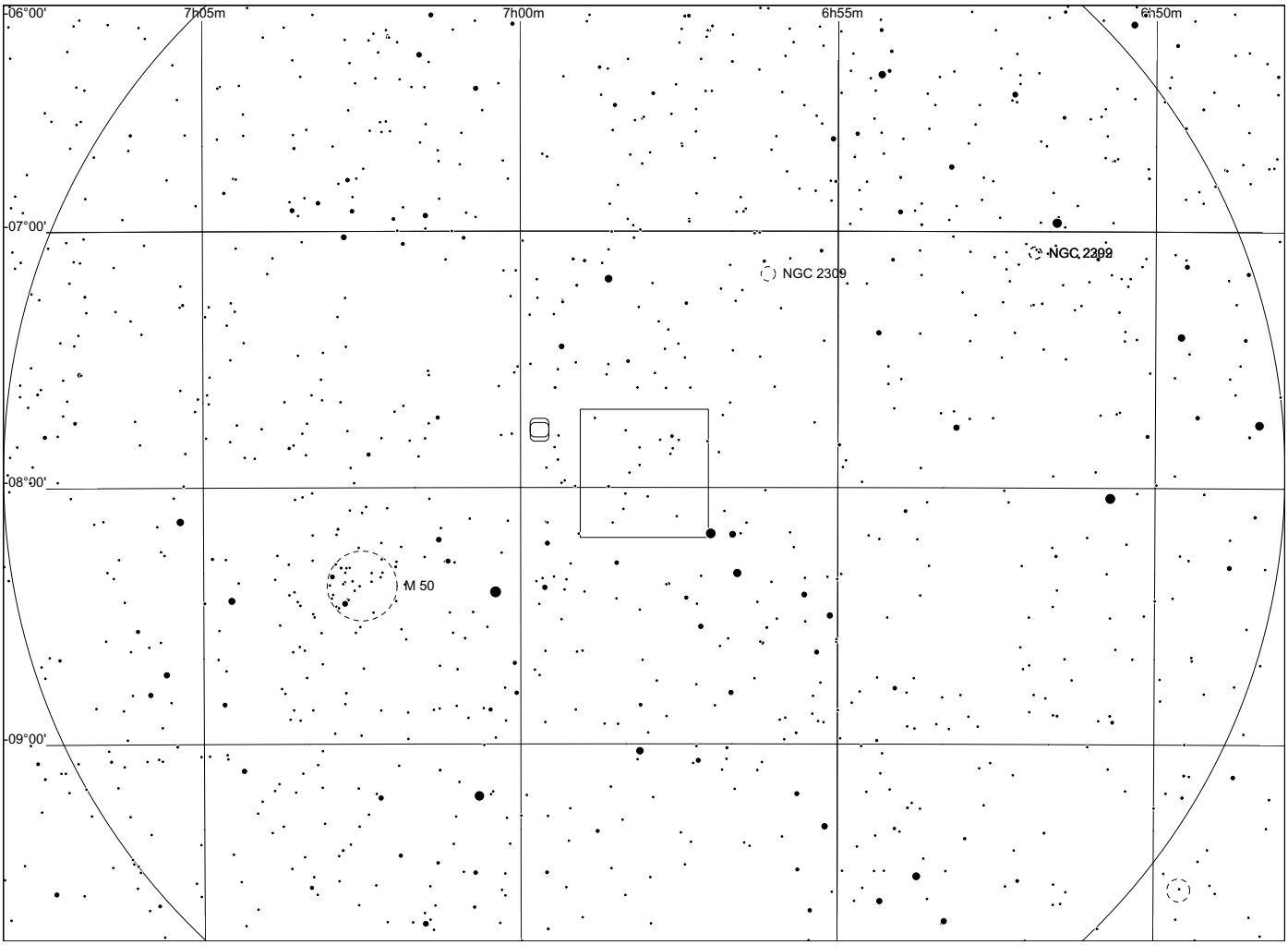
POSS composite

	other	RA	Dek	comments
V* V565 Mon	NGC 2313, Parsamian 17	06 58 02.80	-07 56 42.0	

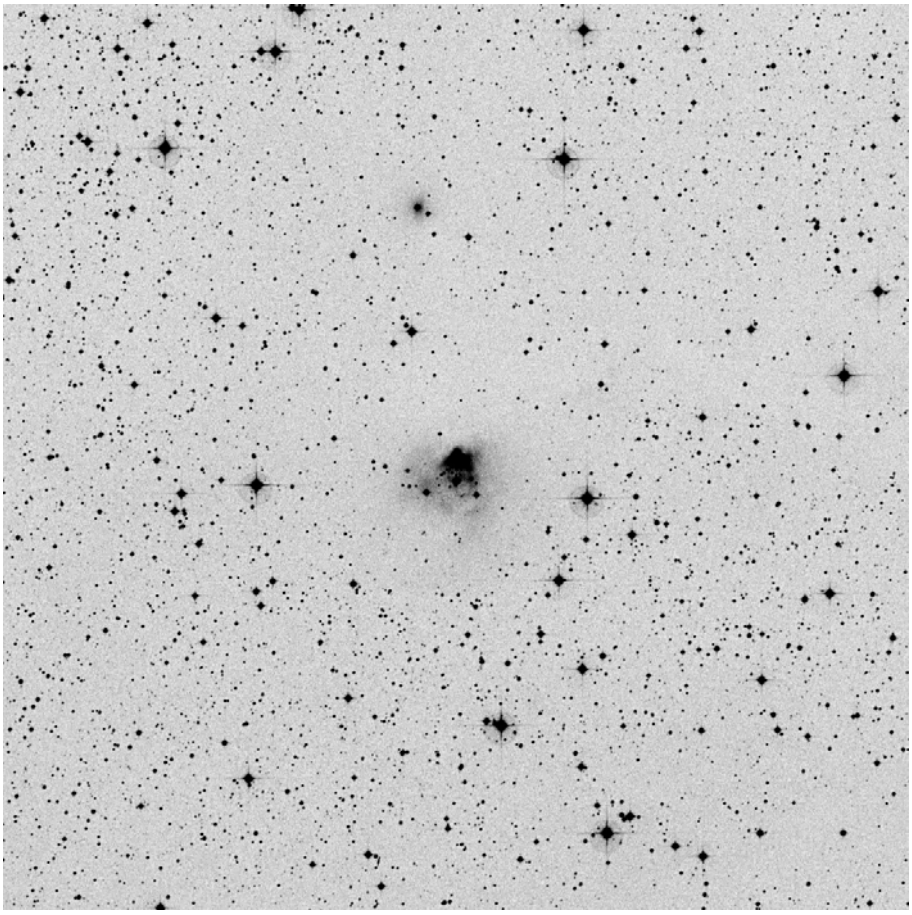
Observing notes:

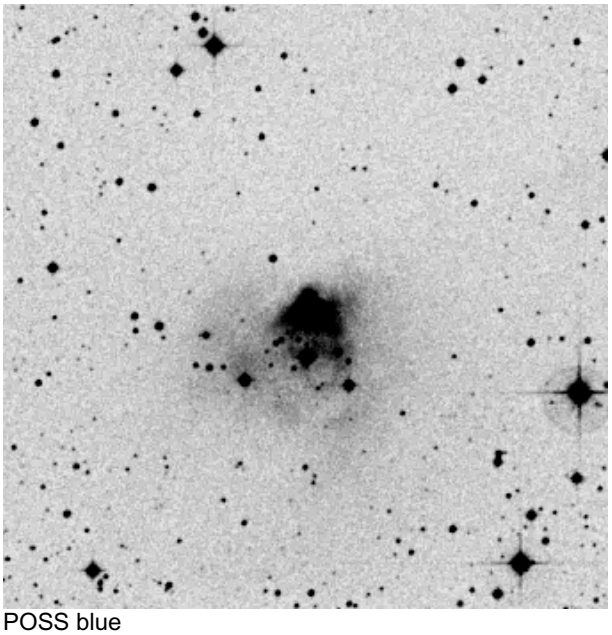
22" f/4.5
At 350x, the object is stellar with direct vision. With averted vision, the YSO becomes slightly diffuse.


+00°00'
7h30m
7h00m
6h30m
Monocerōs
20
19
10
NGC 2232
-05°00'
β
M 50
-10°00'
NGC 2343
θ
μ
NGC 2423
NGC 2478
-15°00'


-06°00'
7h05m
7h00m
6h55m
6h50m
-07°00'
NGC 2309
NGC 2292
-08°00'
M 50
-09°00'

HBC 547 / NGC 2316 in Monoceros





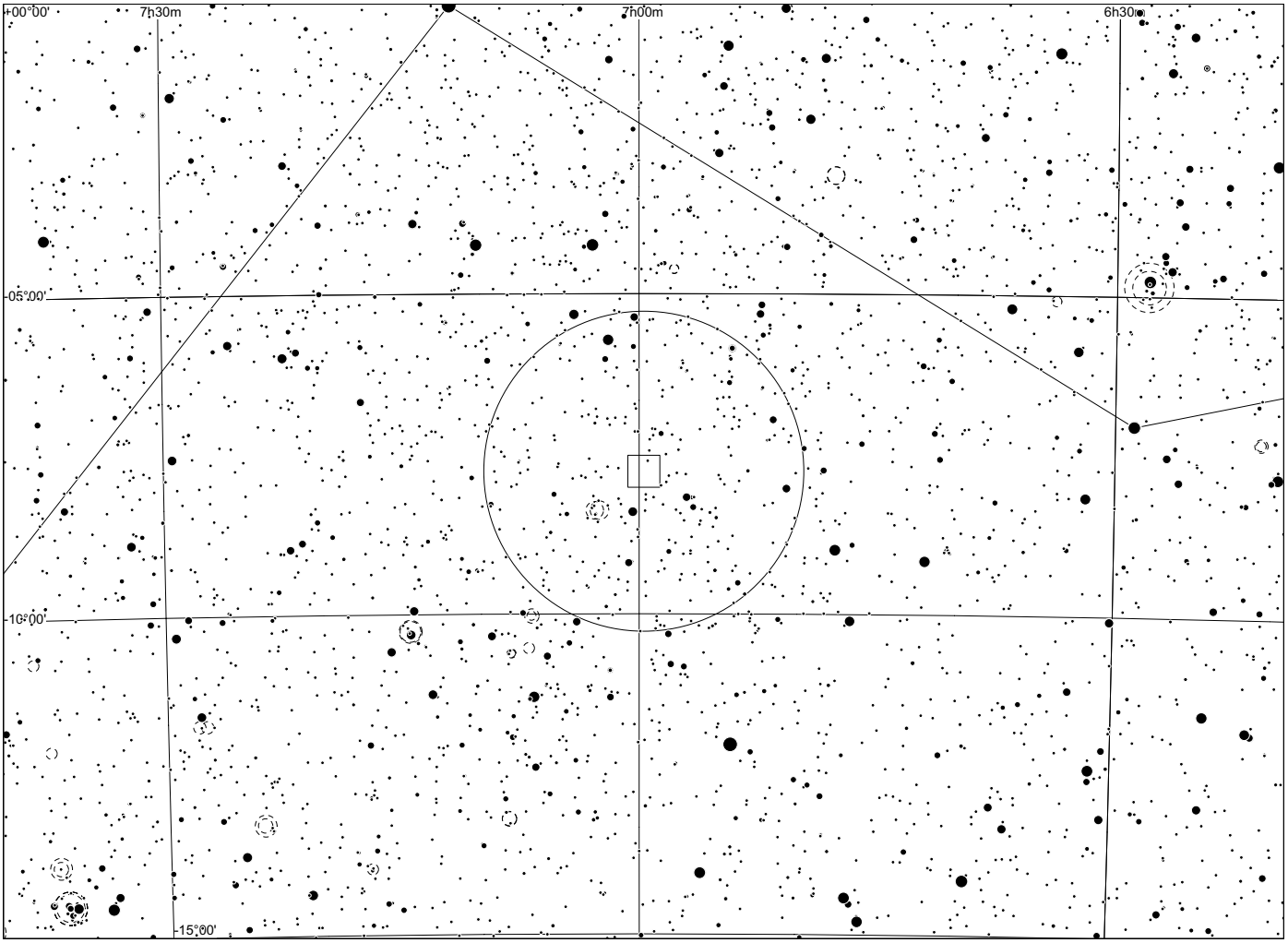
POSS blue

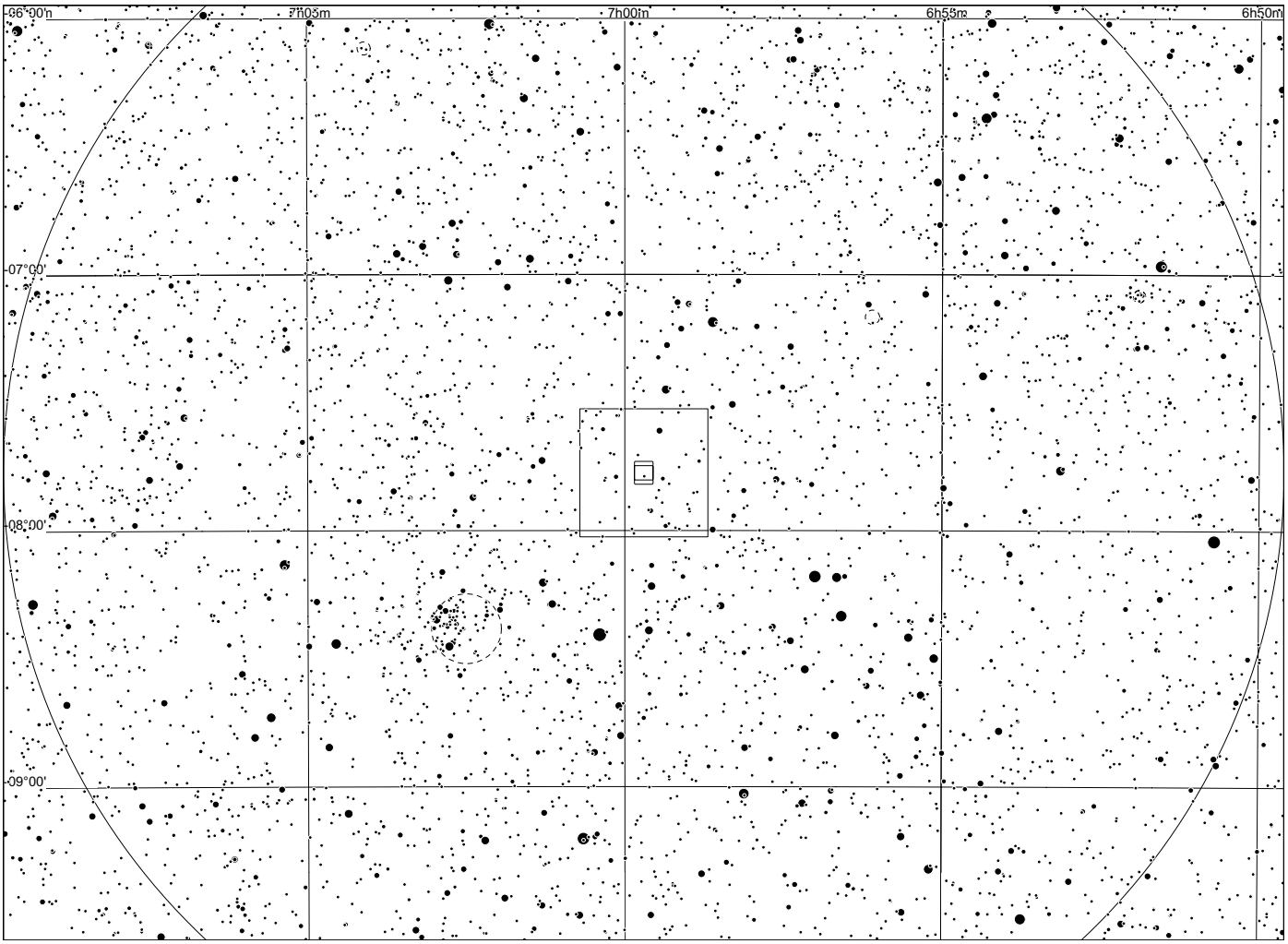
POSS composite

	other	RA	Dek	comments
HBC 547		06 59 41.56	-07 46 28.8	

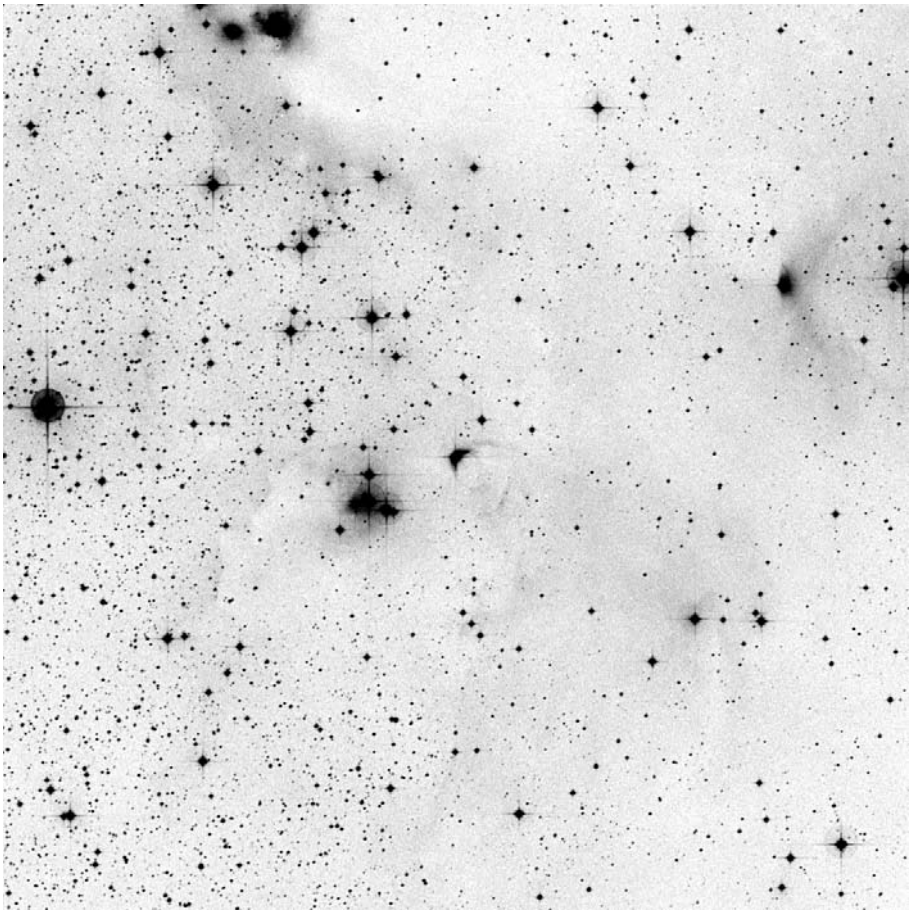
Observing notes:

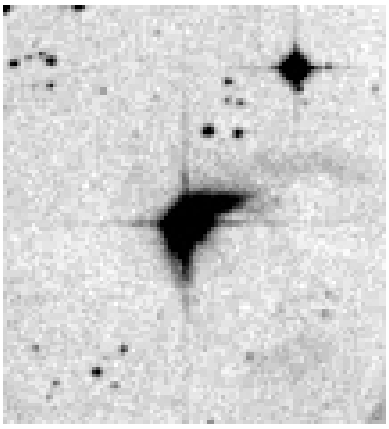
22" f/4.5
At 350x, this is a quite distinct nebula of round shape. There are two possibly stellar condensations within the nebula.


+00°00'
7h30m
7h00m
6h30m
-05°00'
-10°00'
-15°00'


-06°00'
7h05m
7h00m
6h55m
6h50m
-07°00'
-08°00'
-09°00'

Z CMa in Canis Major





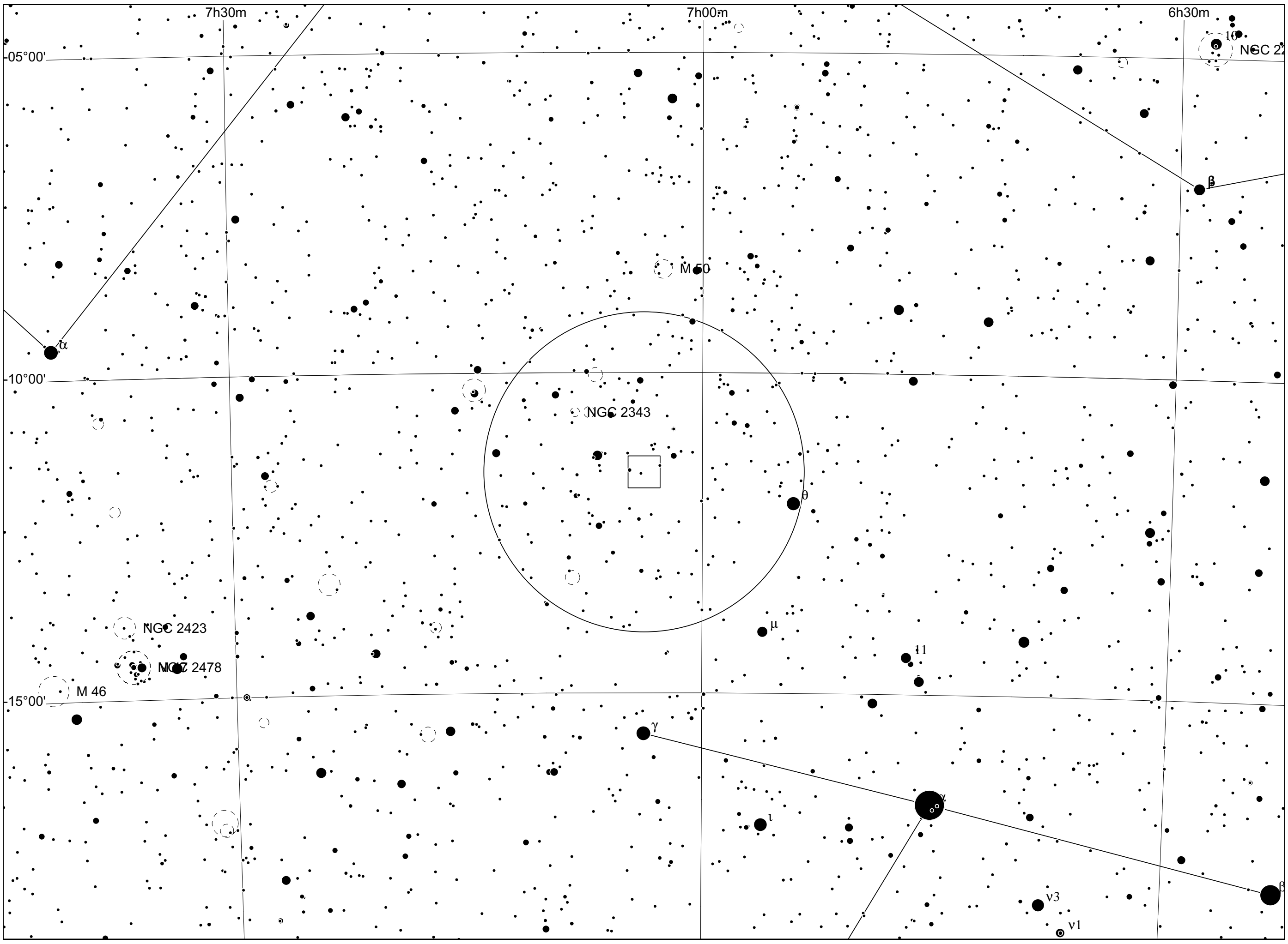
POSS blue

POSS composite

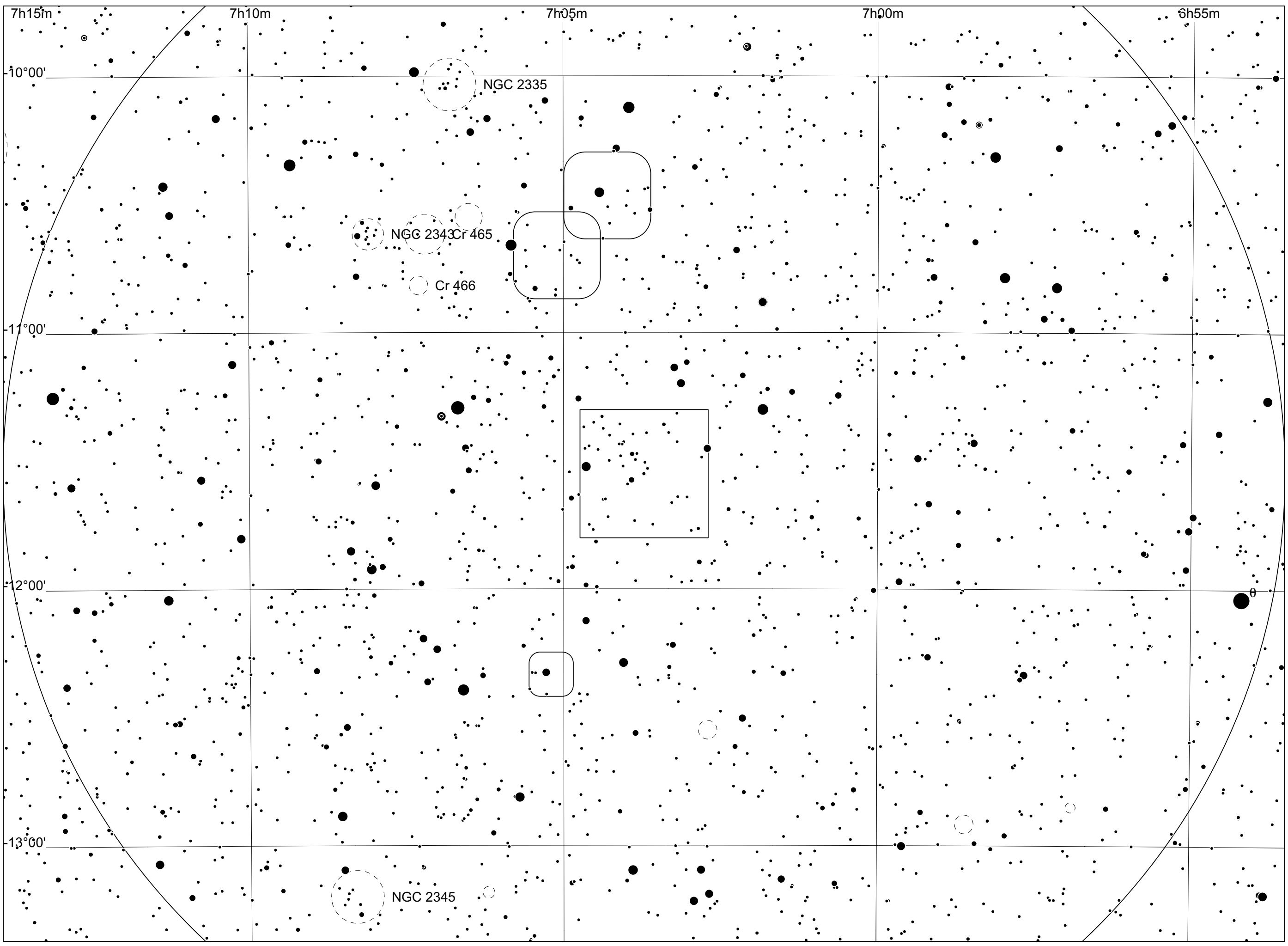
	other	RA	Dek	comments
Z CMa		07 03 43.16	-11 33 06.2	FU Ori star with HH 160

Observing notes:

22" f/4.5
At 350x, Z CMa is quite bright. Intermittently, an extremely faint nebulosity was suspected to extend from the star to W. Uncertain observation.

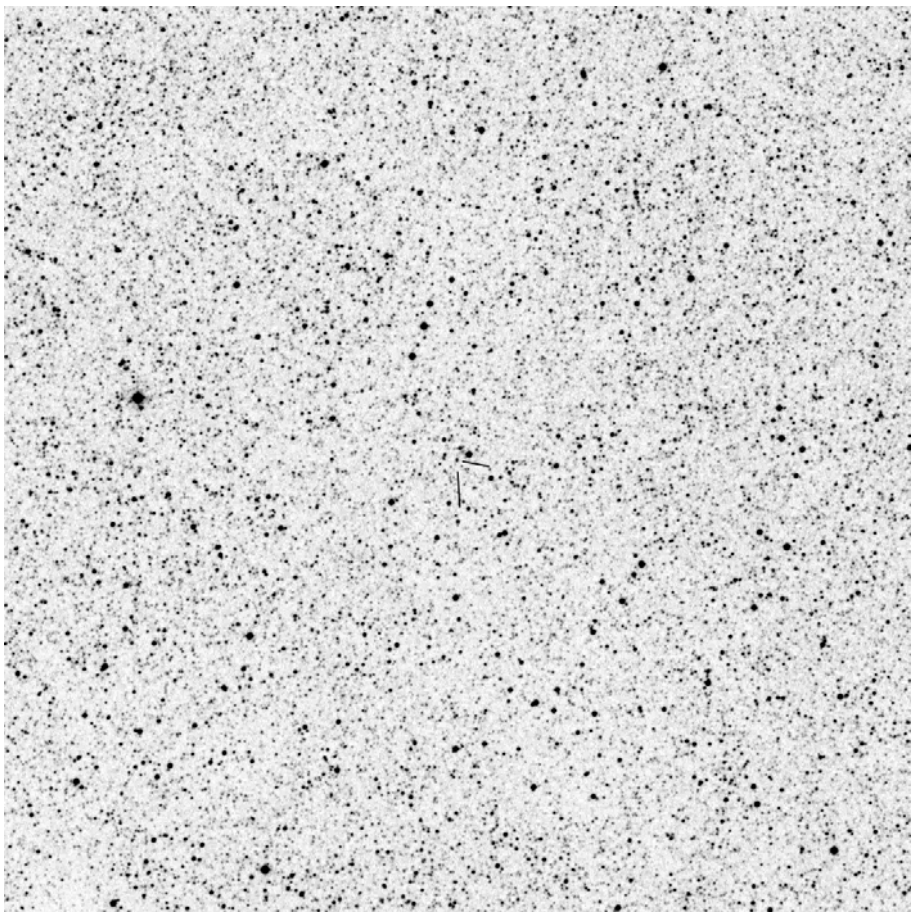


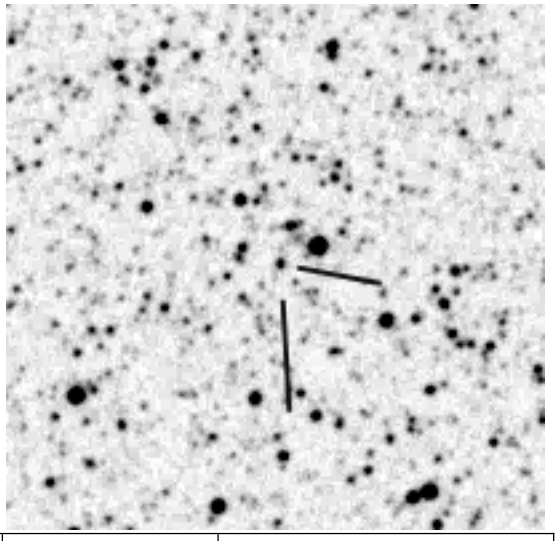
7h30m
7h00m
6h30m
05°00'
10°00'
15°00'
M 50
NGC 2343
NGC 2423
NGC 2478
M 46
NGC 22



7h15m
7h10m
7h05m
7h00m
6h55m
10°00'
11°00'
12°00'
13°00'
NGC 2335
NGC 2343
Cr 465
Cr 466
NGC 2345

Gomez Hamburger in Sagittarius

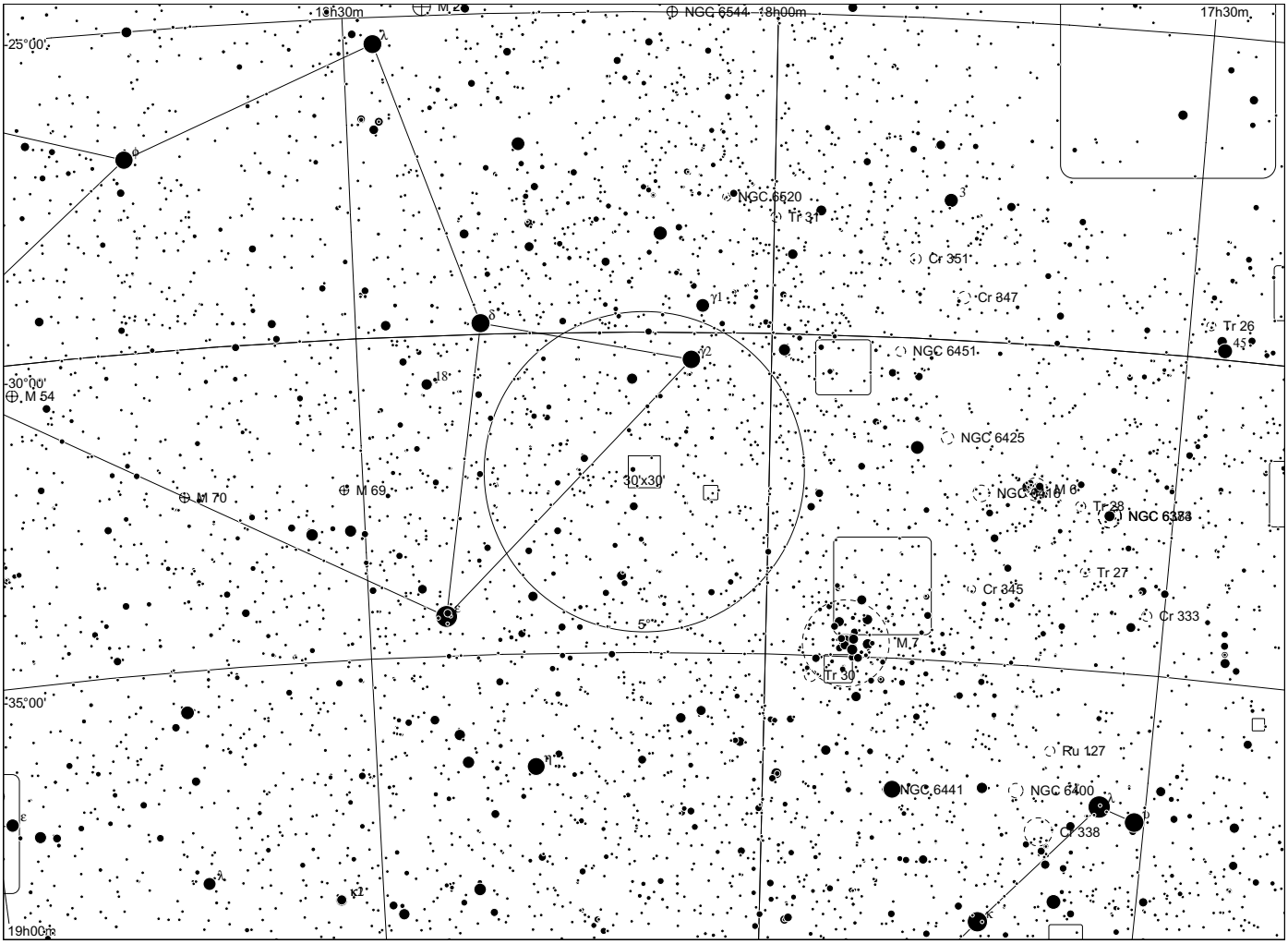


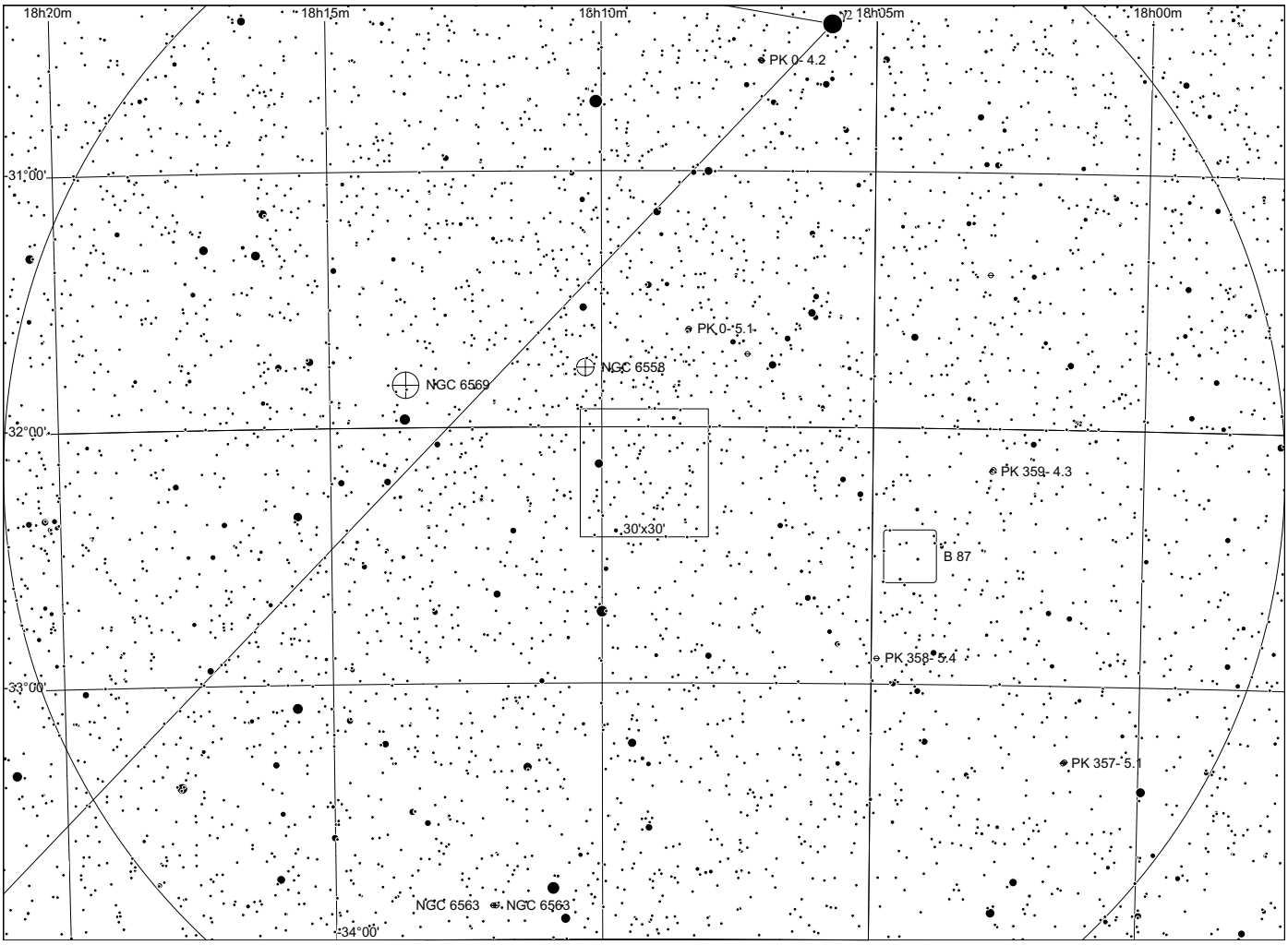


		RA	Dek	other names
IRAS 18059-3211	Gomez' Hamburger	18 09 13.30	-32 10 48.0	

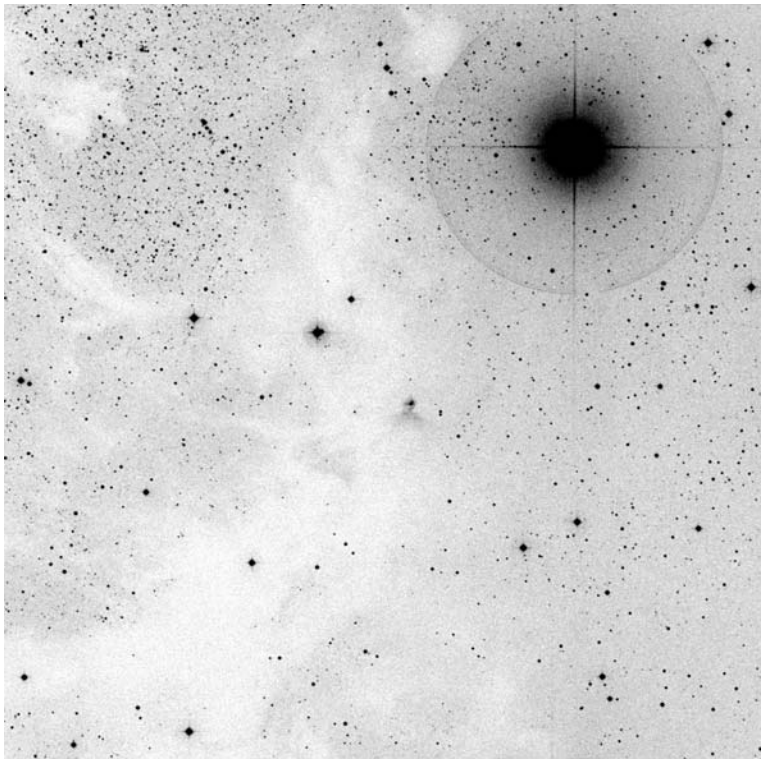
Observing notes:

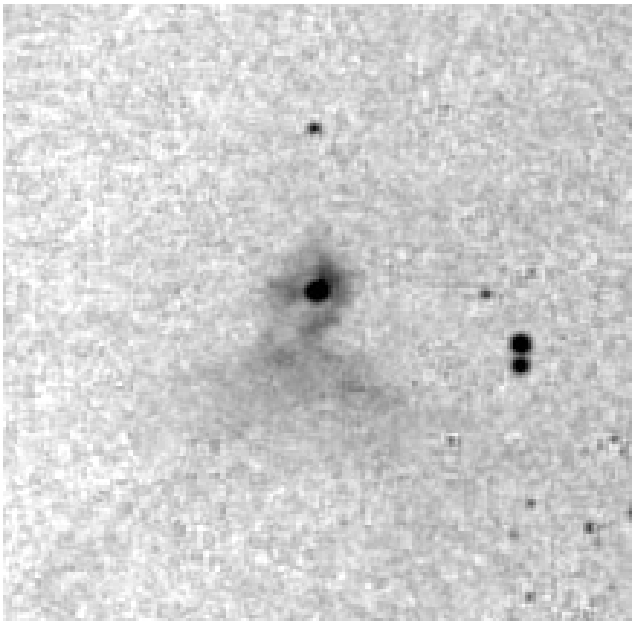
22" f/4.5
This object (first classified as a protoplanetary Nebula) could be observed during a night with excellent transparency down to the horizon. The Hamburger could be seen several times with averted vision as an extremely faint stellar object.


18h30m
M 2
NGC 6544
18h00m
17h30m
25°00'
NGC 6520
Tr 31
Cr 351
Cr 347
Tr 26
45'
NGC 6451
30°00'
M 54
NGC 6425
30'x30'
M 70
M 69
NGC 6405
M 6
Tr 28
NGC 6383
Tr 27
Cr 345
Cr 333
5°
M 7
Tr 30
35°00'
Ru 127
NGC 6441
NGC 6400
Cr 338
19h00m


18h20m
18h15m
16h10m
18h05m
18h00m
PK 0- 4.2
31°00'
PK 0- 5.1
NGC 6569
NGC 6558
32°00'
PK 359- 4.3
30'x30'
B 87
PK 358- 5.4
33°00'
PK 357- 5.1
NGC 6563
NGC 6563
34°00'

RNO 109 in Aquila





POSS blue

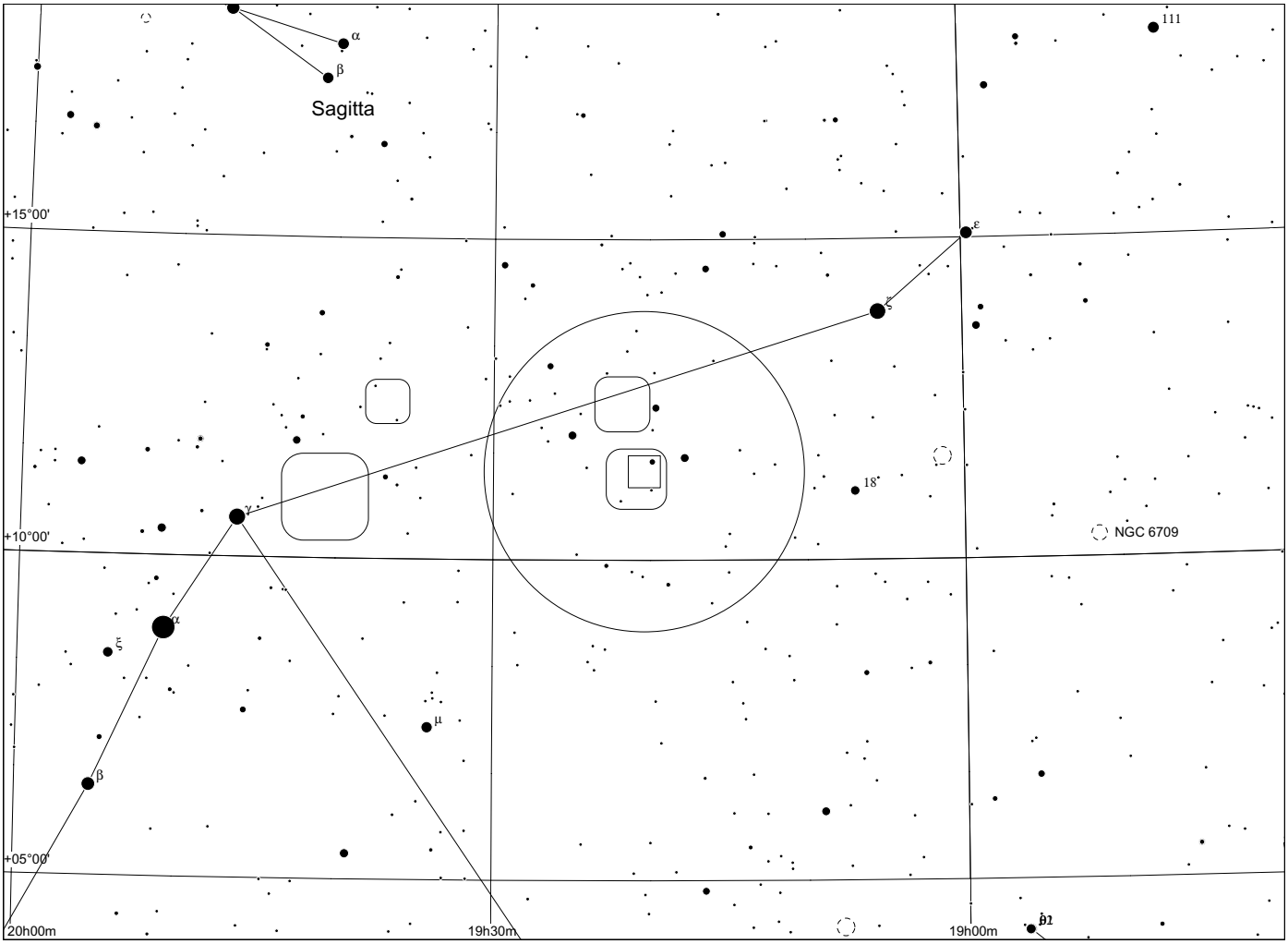
POSS composite

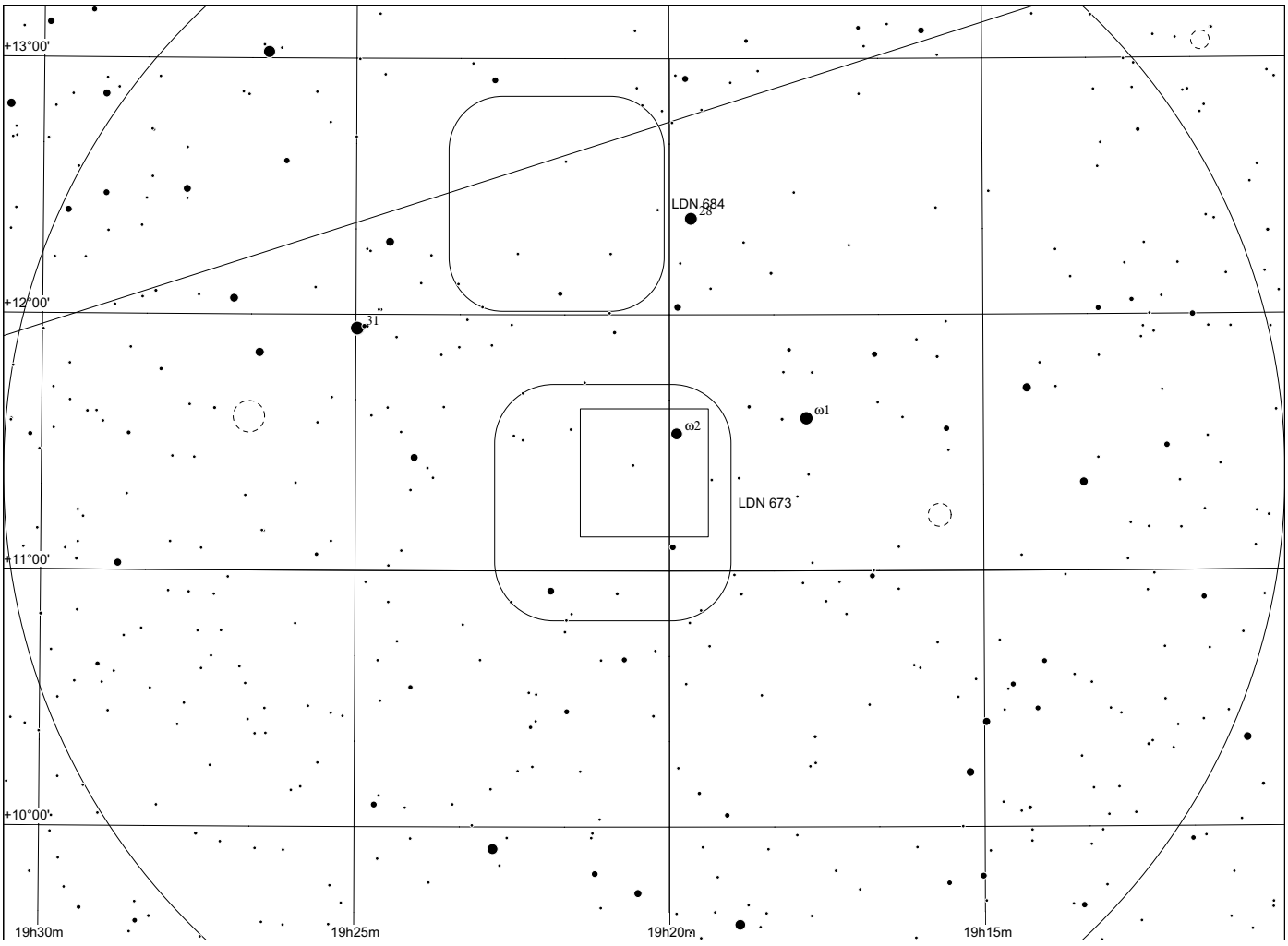
	other	RA	Dek	comments
RNO 109		19 20 24.00	+11 22 58.8	

Observing notes:

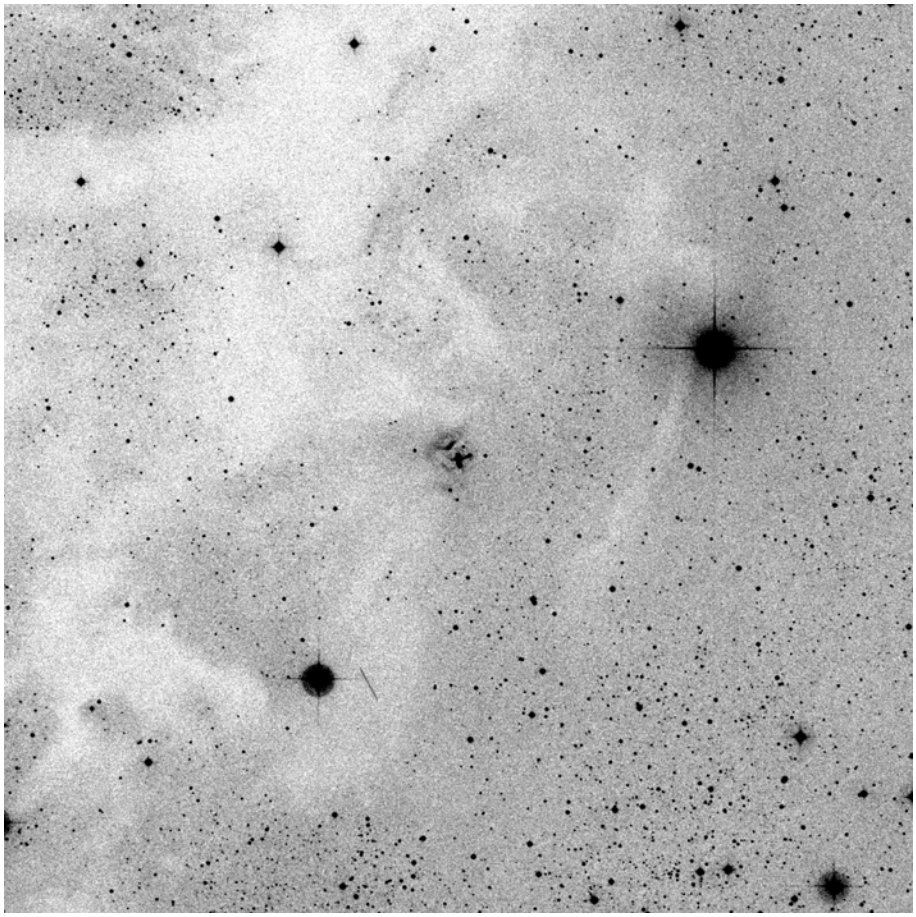
22" f/4.5

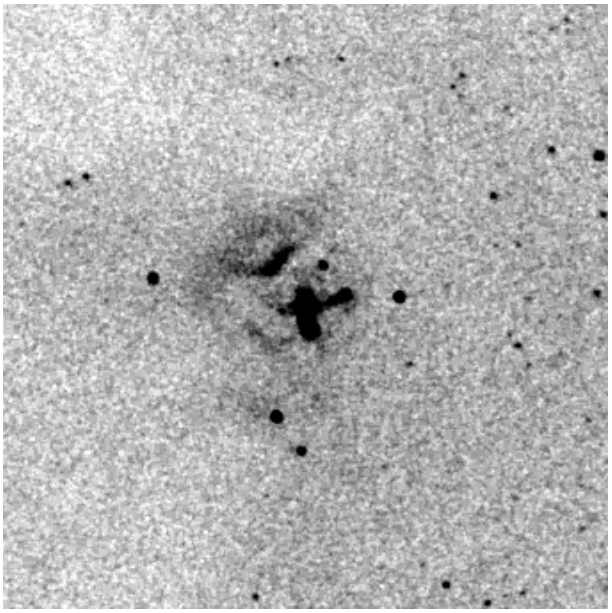
This is a really dusty area with almost no stars. After locating the field, the position could be fixed between two stars. After some time, the object could be held with indirect vision with no further structure.


α
β
Sagitta
111
+15°00'
ε
ζ
18
γ
+10°00'
NGC 6709
α
ξ
μ
β
+05°00'
20h00m
19h30m
19h00m


+13°00'
LDN 684
28
+12°00'
31
ω1
ω2
LDN 673
+11°00'
+10°00'
19h30m
19h25m
19h20m
19h15m

V1352 Aquilae



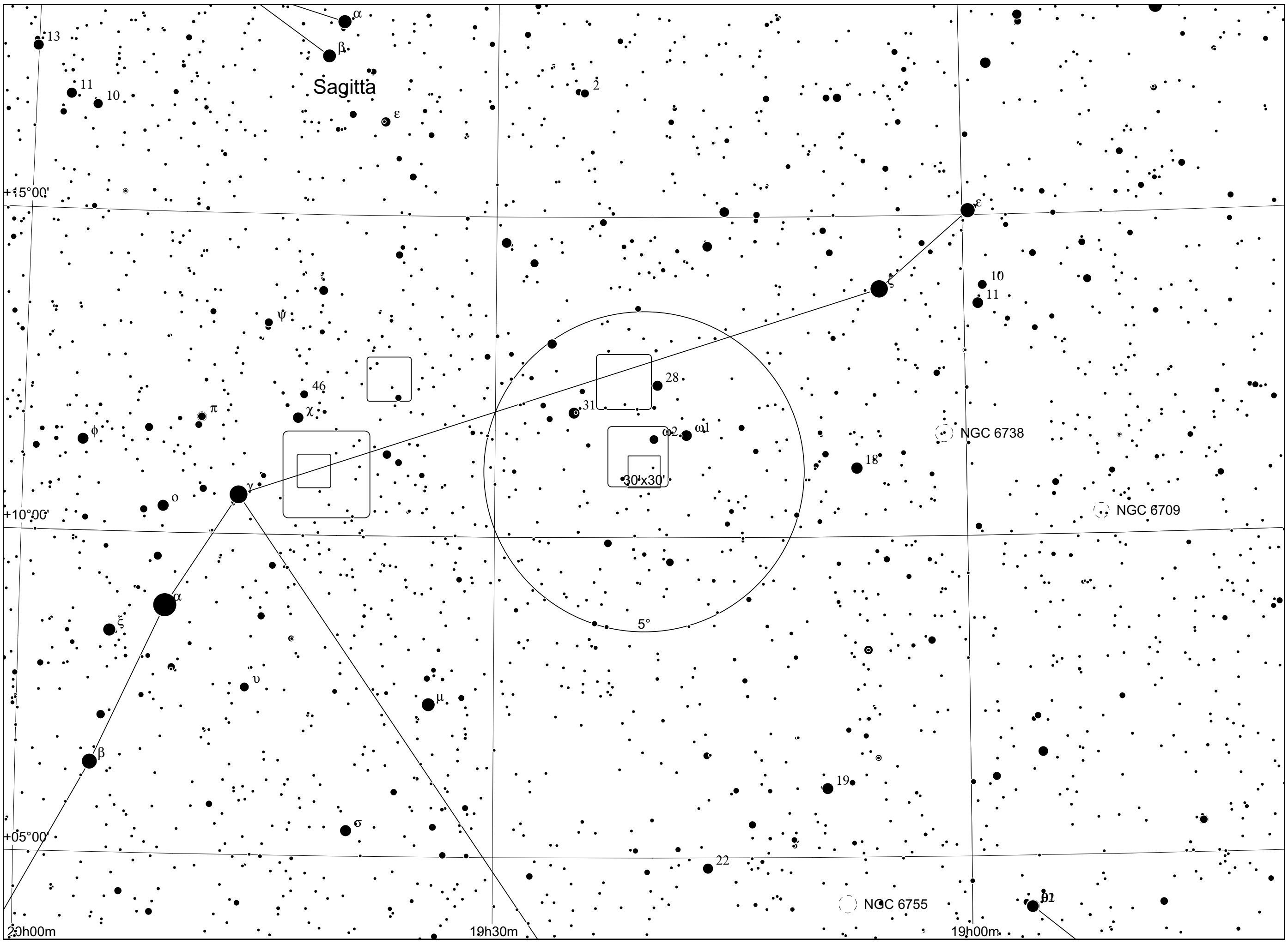


POSS blue

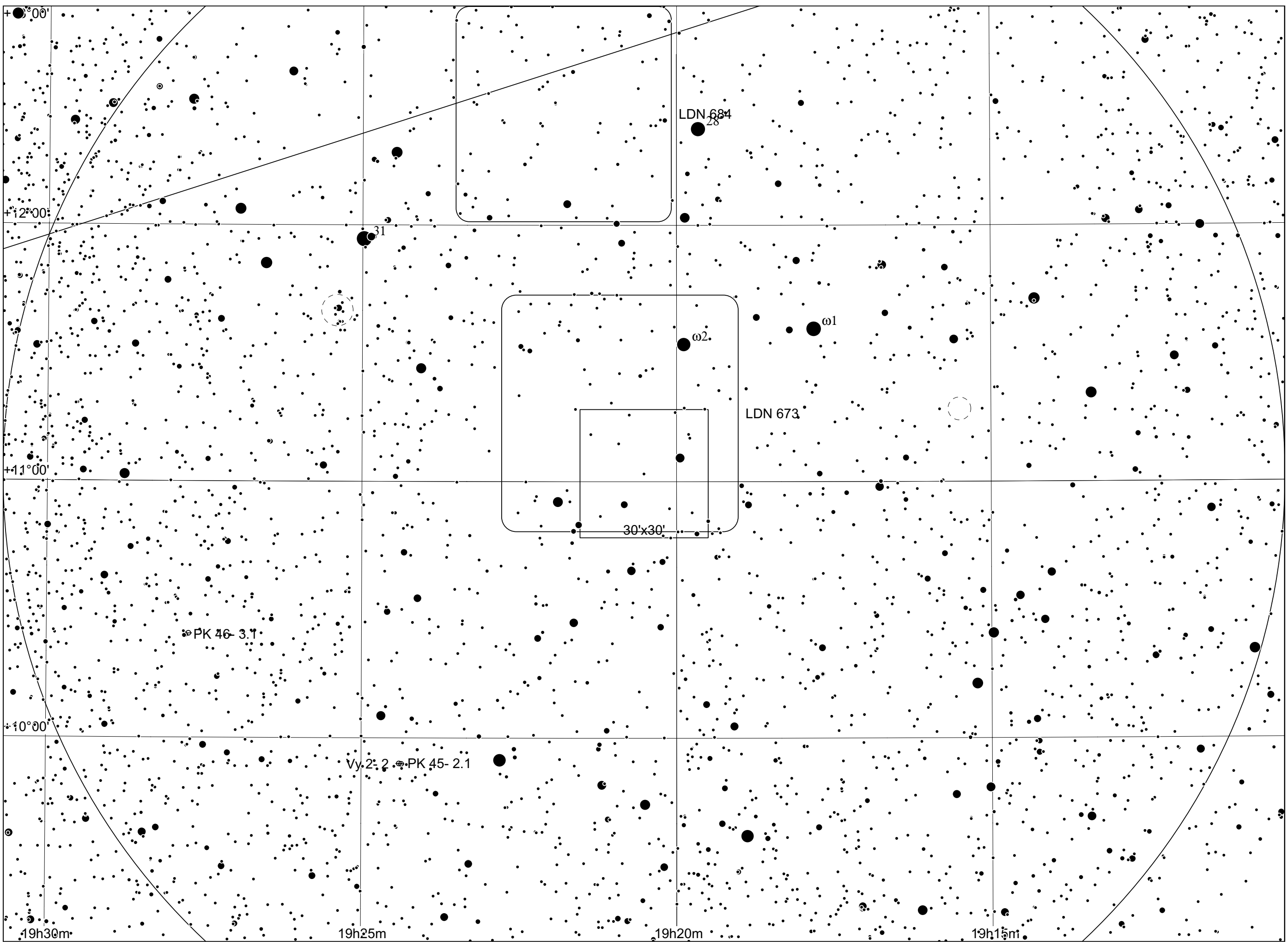
POSS composite

	other	RA	Dek	comments
V* V1352 Aql	HBC 292, AS353	19 20 30.99	+11 01 54.5	associated with HH32

Observing notes:

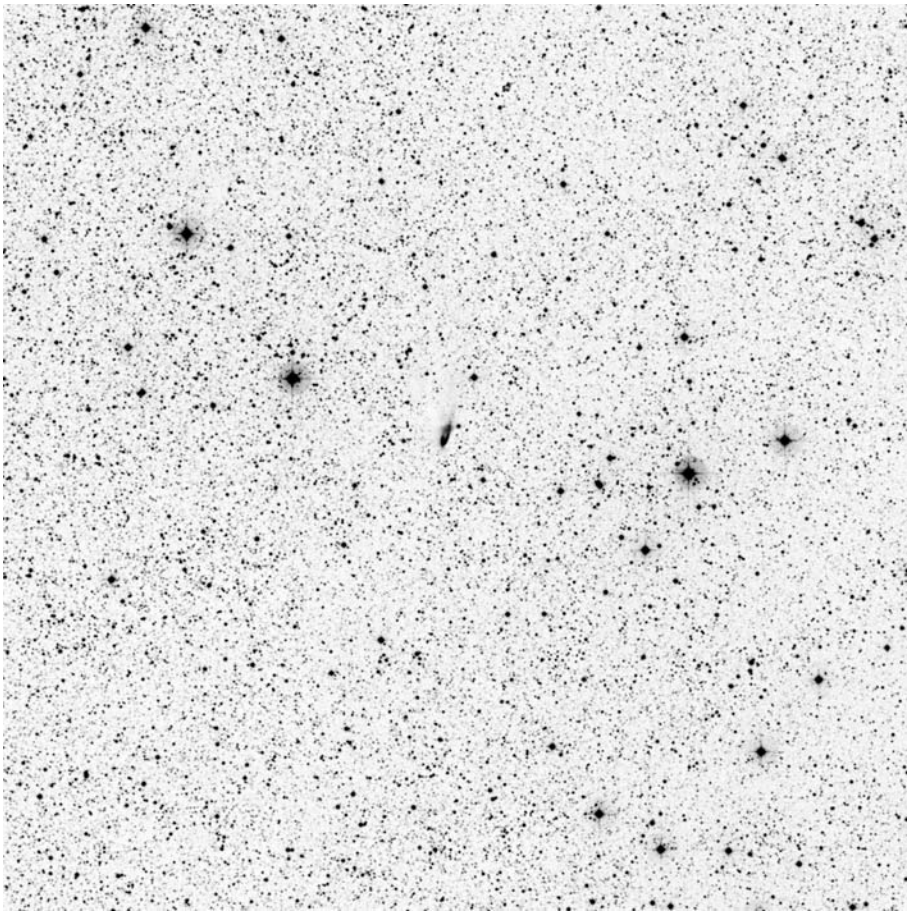


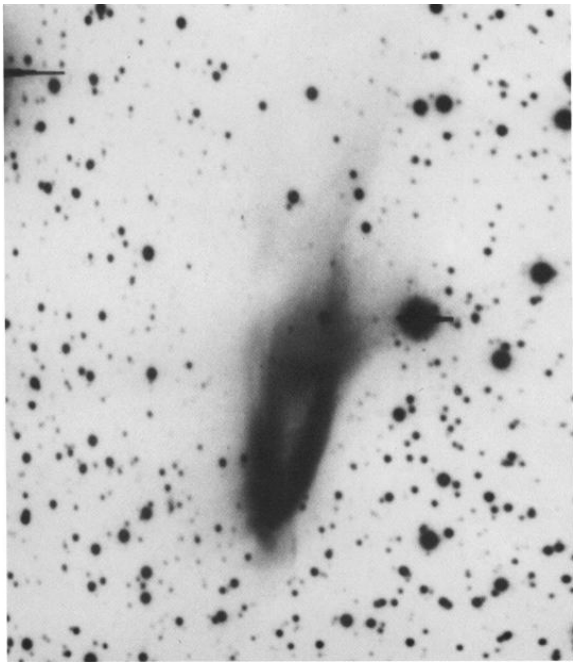
Sagitta
+15°00'
+10°00'
+05°00'
20h00m
19h30m
19h00m
30'x30'
5°
NGC 6738
NGC 6709
NGC 6755



+12°00'
+11°00'
+10°00'
LDN 684
LDN 673
30'x30'
PK 46- 3.1
Vy 2- 2
PK 45- 2.1
19h30m
19h25m
19h20m
19h15m

Parsamian 21 in Aquila





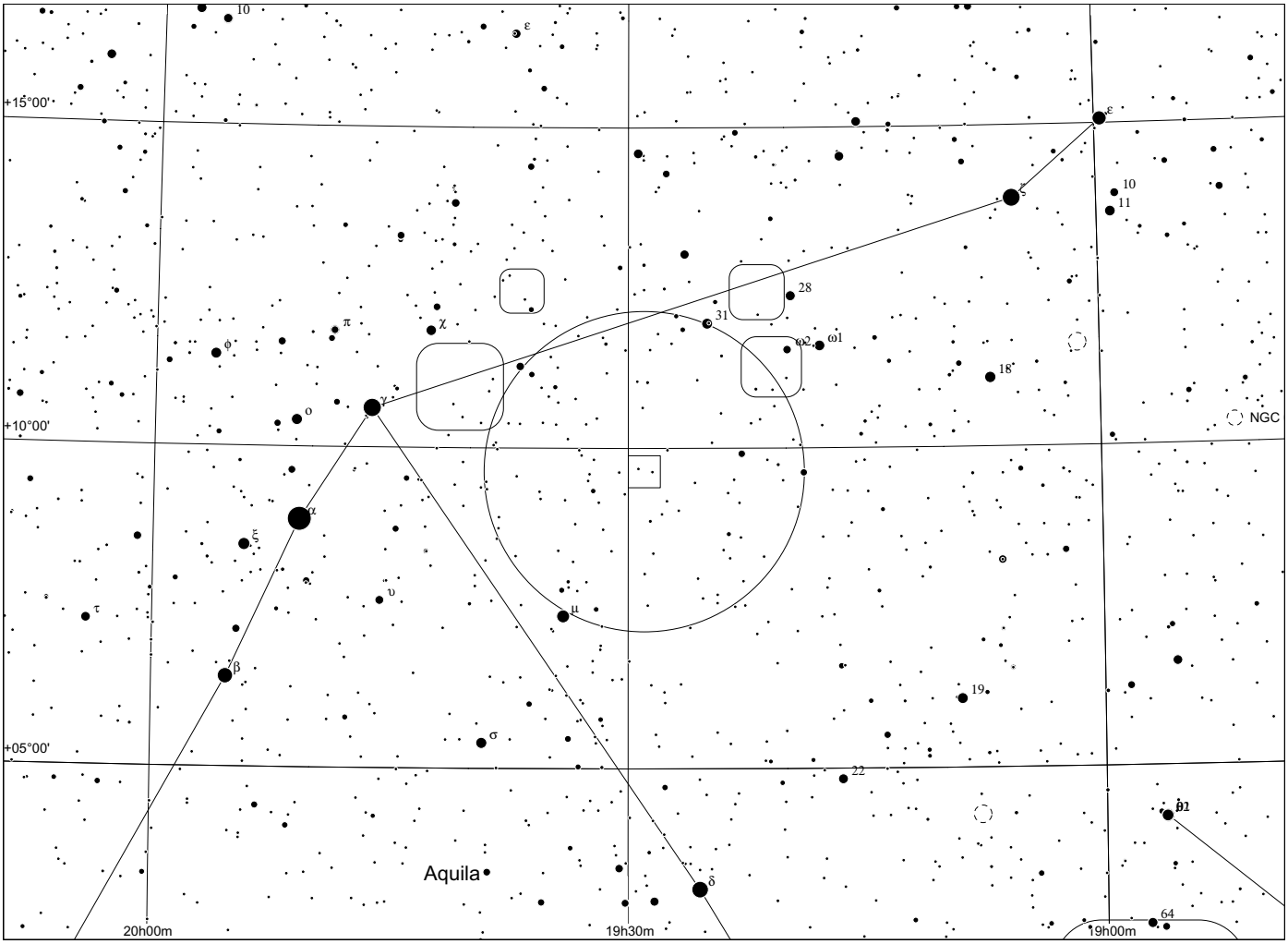
POSS composite

	other	RA	Dek	comments
Parsamian 21	**NS 18**	19 28 59	+09 38 15	FU Ori star HBC 687

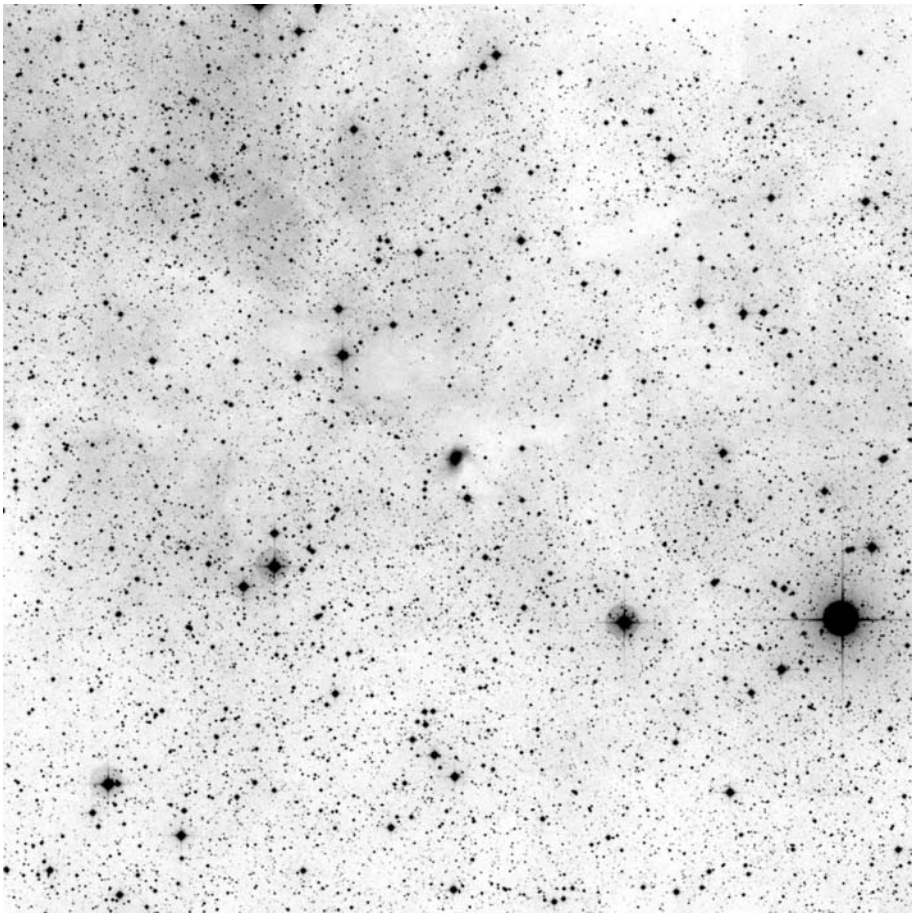
Observing notes:

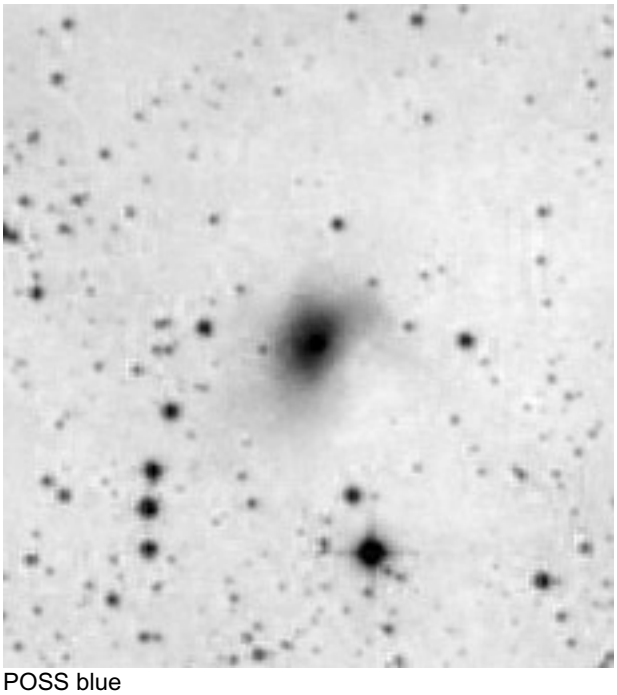
22" f/4.5

This is a very nice cometary nebula. It is relatively bright and immediately visible. It is elongated, extending from a bright knot (star?). According to the literature, it's light should be partially polarized. I could not detect any polarization using a linear polarizer.


+15°00'
+10°00'
+05°00'
20h00m
19h30m
19h00m
Aquila
NGC
PK 47-4.1
+11°00'
+10°00'
+09°00'
+08°00'
19h40m
19h35m
19h30m
19h25m
19h20m

GM 2-39 in Cygnus





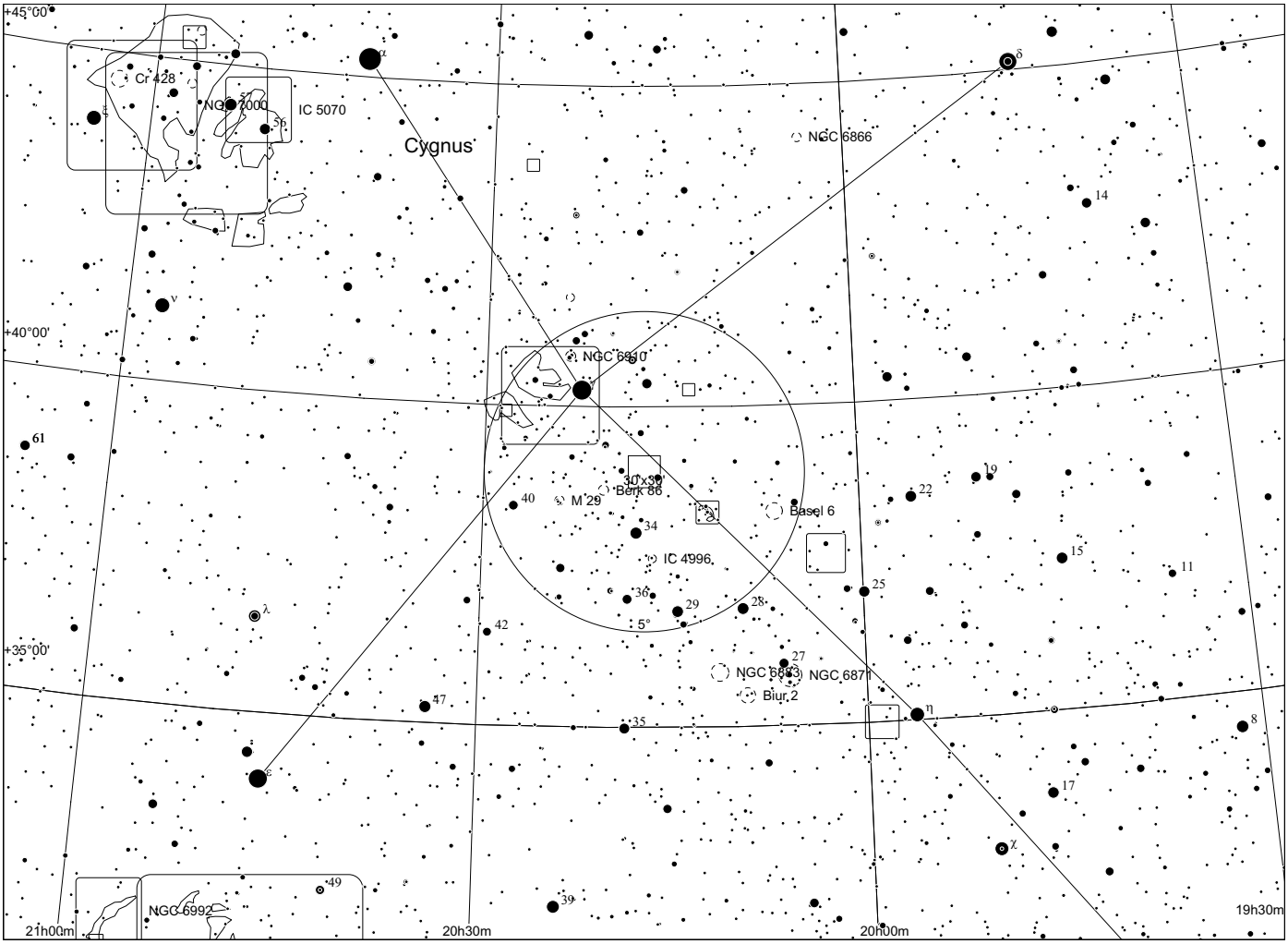
POSS blue

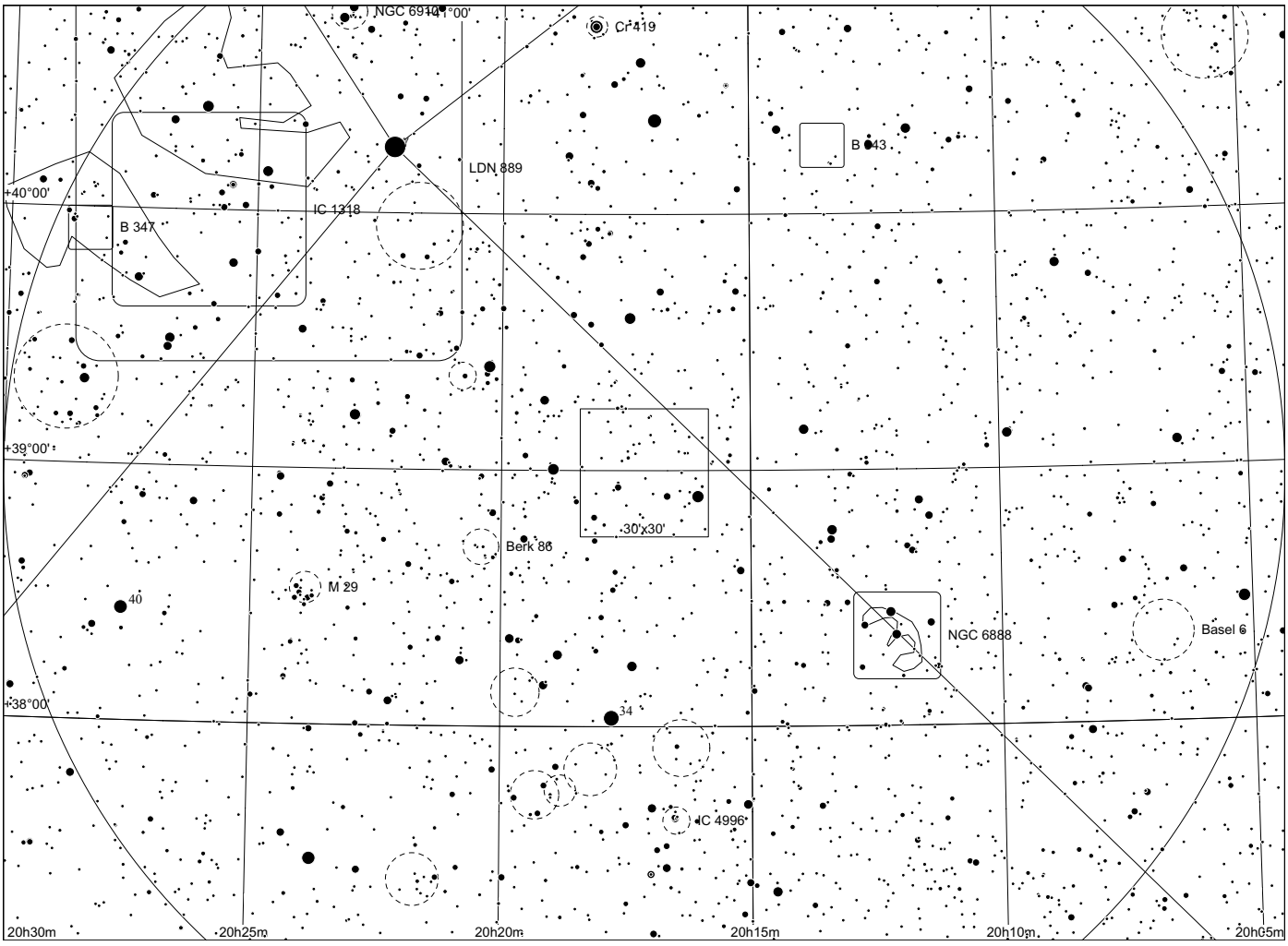
POSS composite

	other	RA	Dek	comments
GM 2-39		20 17 08.05	+38 59 29.4	emission line star

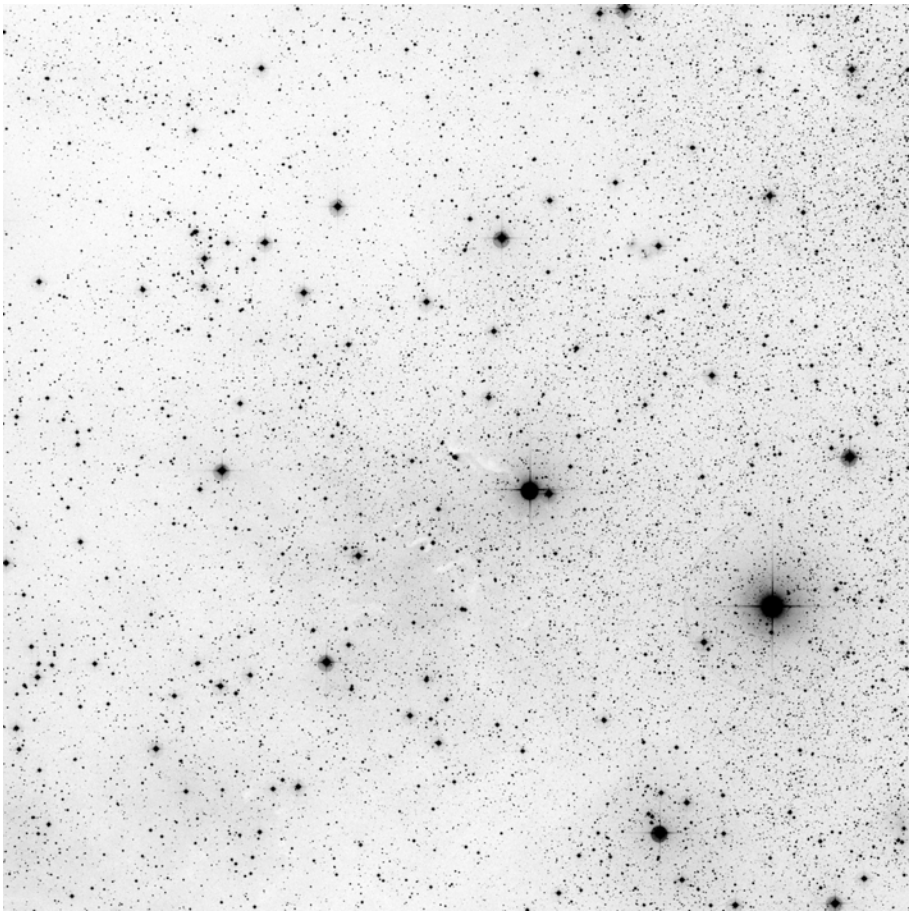
Observing notes:

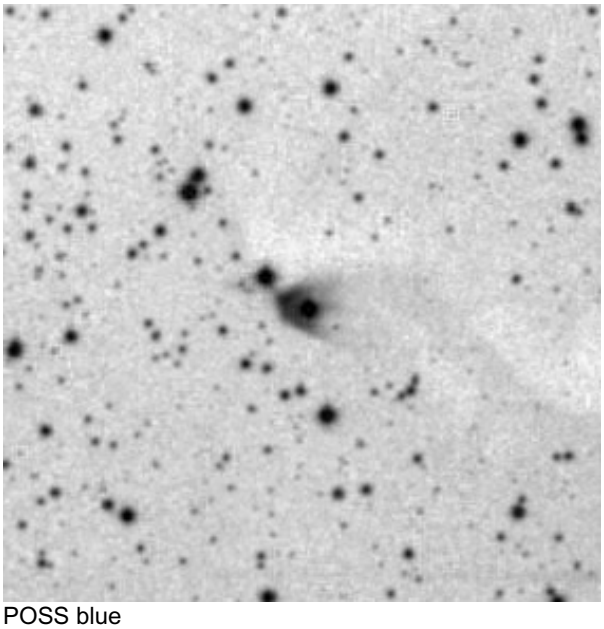
22" f/4.5
With 350x, a distinct, but very small nebula is visible next to a prominent curved chain of stars. It appears very diffuse, getting very much brighter to the center, having a quasi-stellar center. At times, the center appeared elongated in N/S direction.


+45°00'
Cr 428
NGC 7000
IC 5070
Cygnus
NGC 6866
14
+40°00'
NGC 6910
61
30'x30'
Berk 86
40
M 29
34
Basel 6
IC 4996
19
22
15
11
25
36
29
28
5°
42
+35°00'
27
NGC 6883
NGC 6871
Biur 2
47
35
8
17
49
39
NGC 6992
21h00m
20h30m
20h00m
19h30m


NGC 6914
41°00'
Cr 419
LDN 889
B 443
+40°00'
IC 1318
B 347
+39°00'
30'x30'
Berk 86
M 29
40
NGC 6888
Basel 6
+38°00'
34
IC 4996
20h30m
20h25m
20h20m
20h15m
20h10m
20h05m

GM 1-27 / GN 20.18.3 in Cygnus





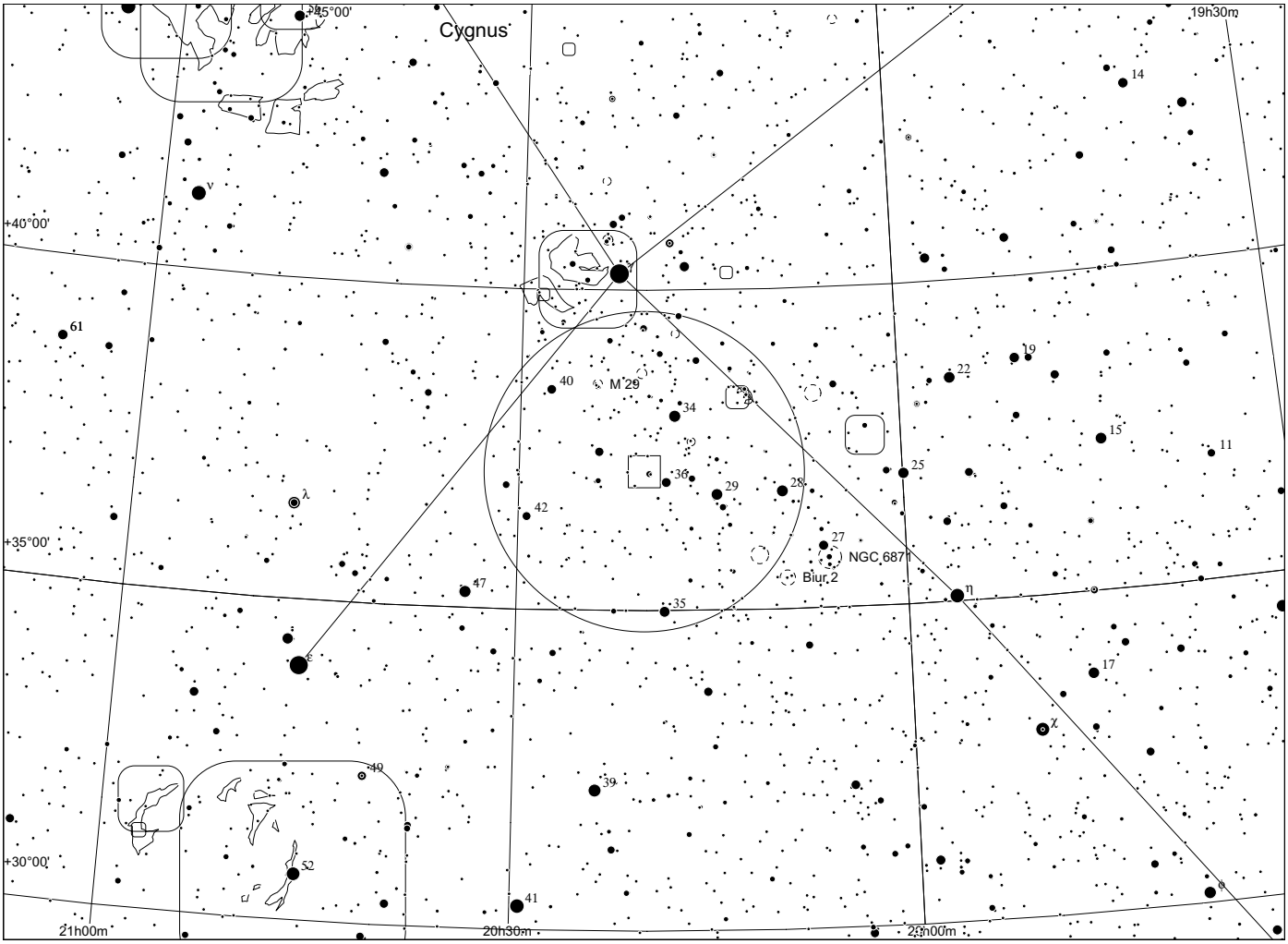
POSS blue

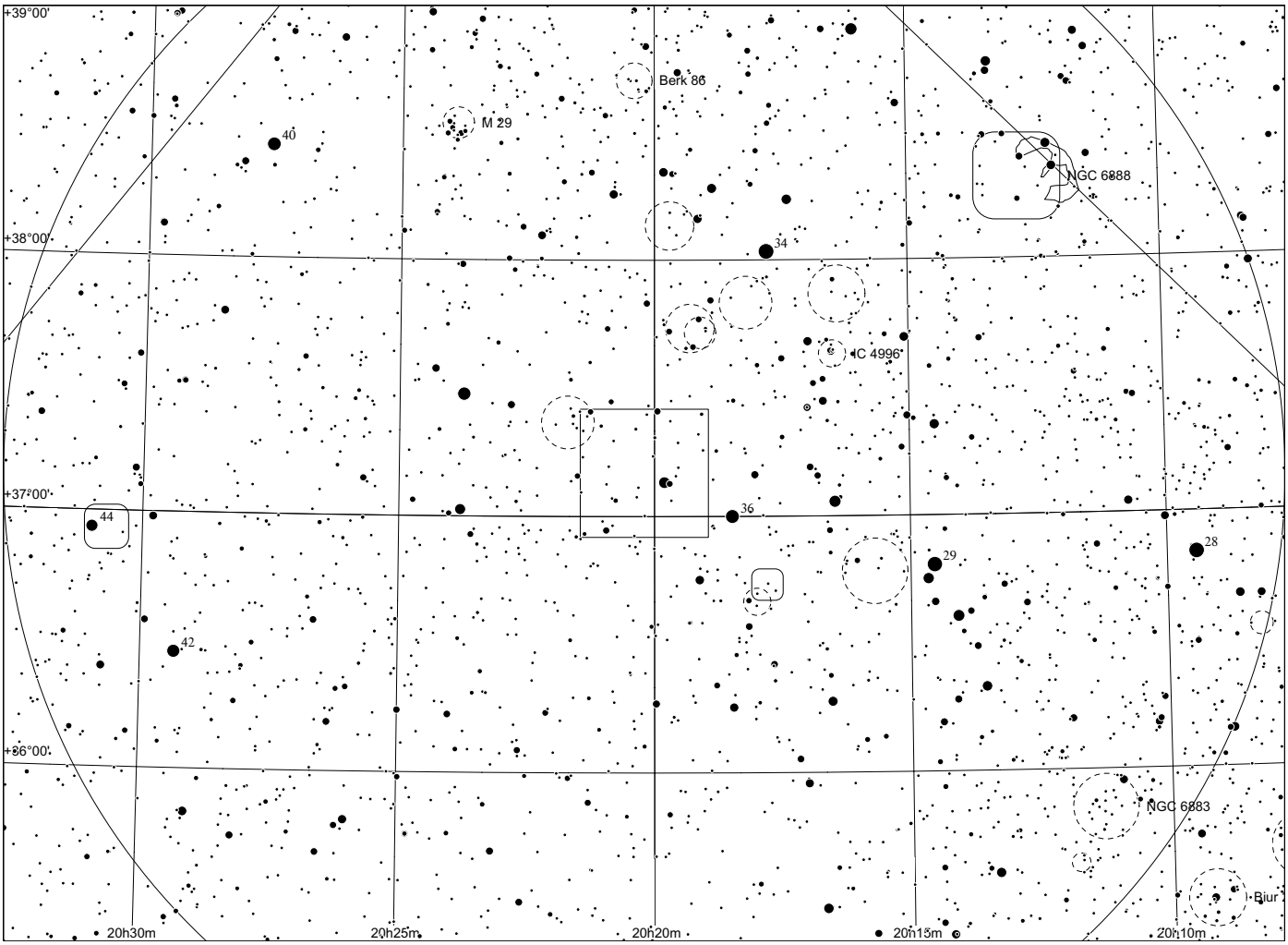
POSS composite

	other	RA	Dek	comments
GM 1-27	GN 20.18.3	20 20 12.7	+37 10 09	includes HH214

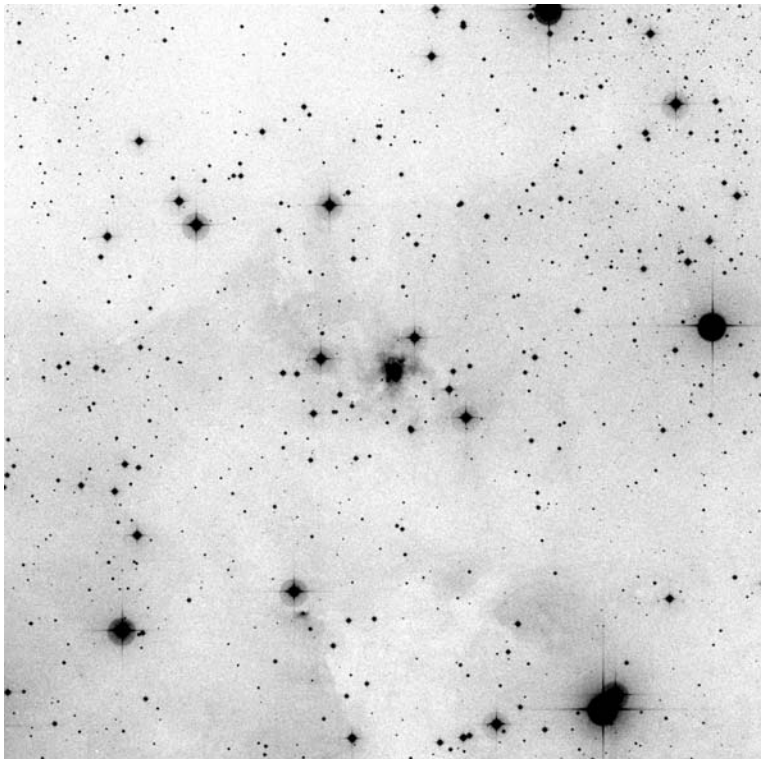
Observing notes:

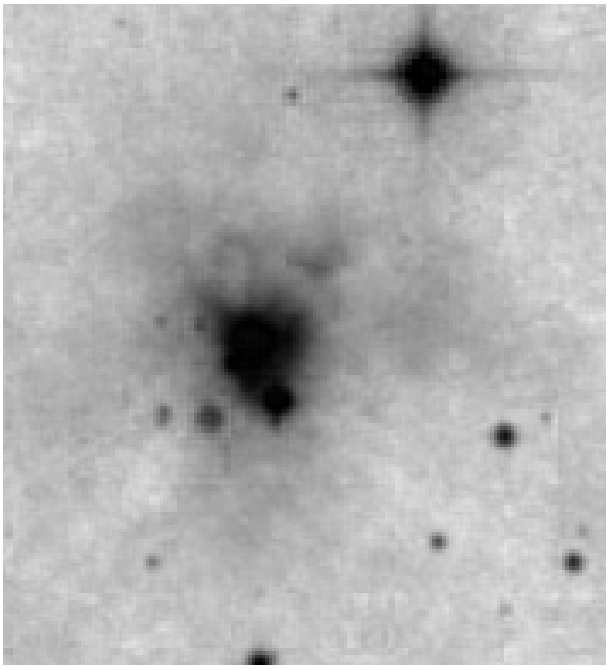
22" f/4.5
I observed this object several times. Superimposed star appeared brighter than neighboring star NE. Nebulosity suspected.


Cygnus
+45°00'
+40°00'
+35°00'
+30°00'
19h30m
21h00m
20h30m
20h00m
61
M 29
NGC 6871
Biur 2
52


+39°00'
+38°00'
+37°00'
+36°00'
Berk 86
M 29
NGC 6888
IC 4996
NGC 6883
Biur
20h30m
20h25m
20h20m
20h15m
20h10m

V 1318 Cygni





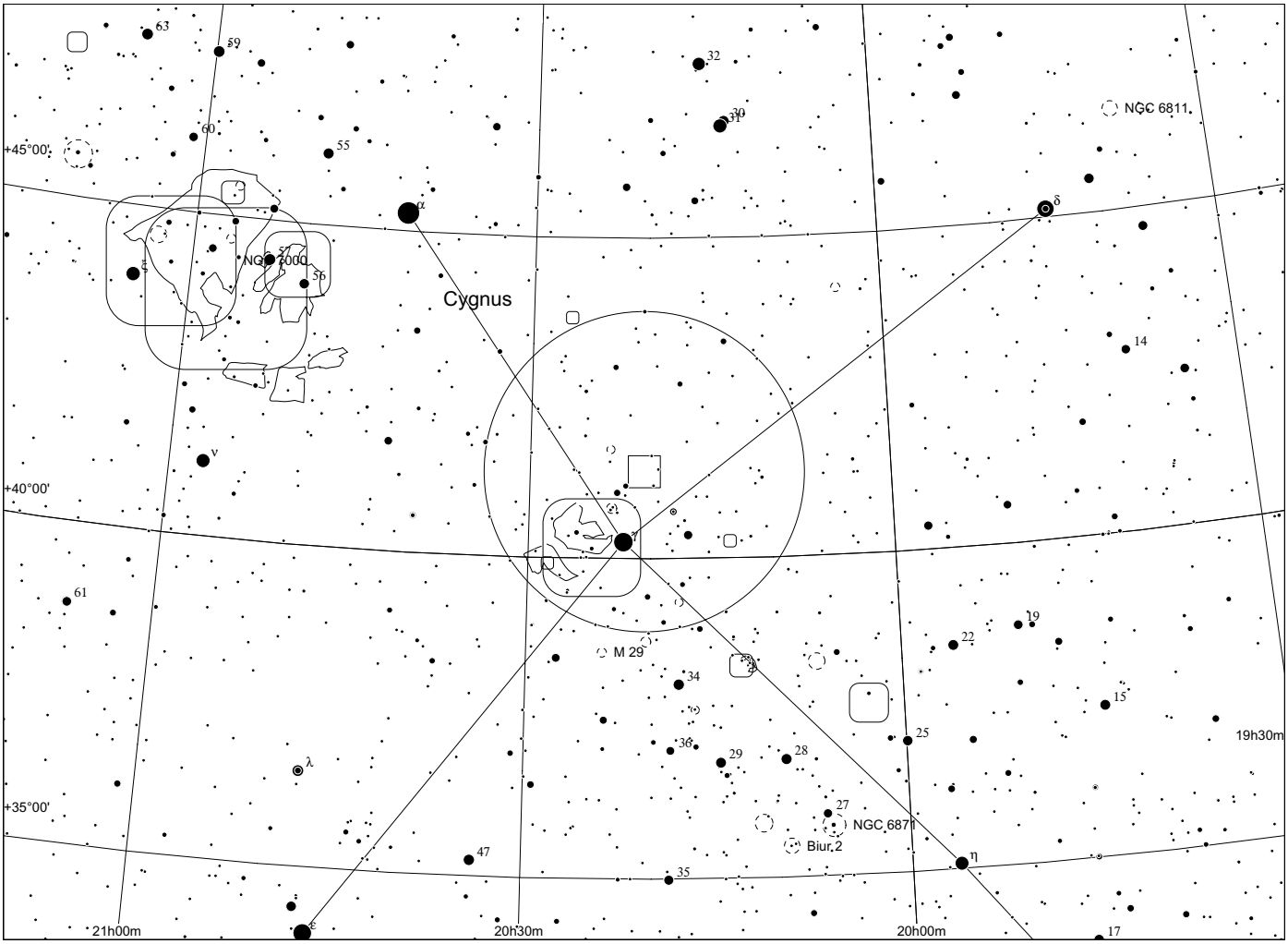
POSS blue

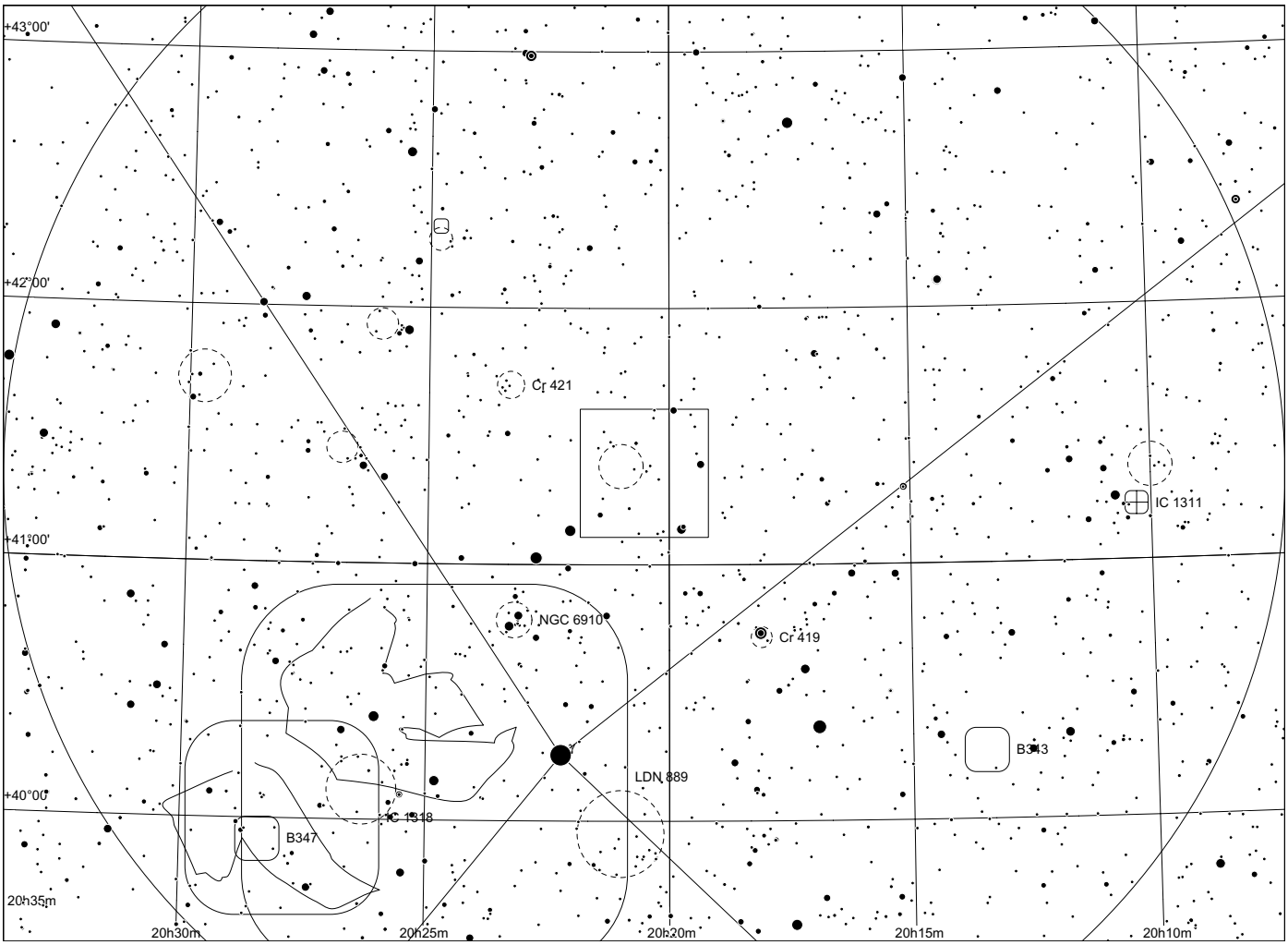
POSS composite

	other	RA	Dek	comments
V* V1318 Cyg		20 20 30.46	+41 21 26.8	emission line star

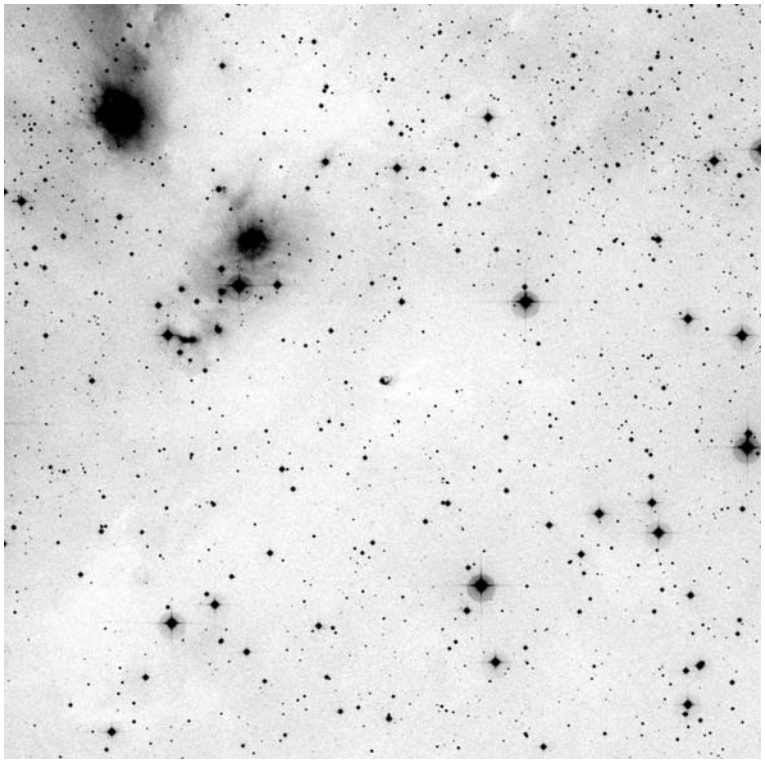
Observing notes:

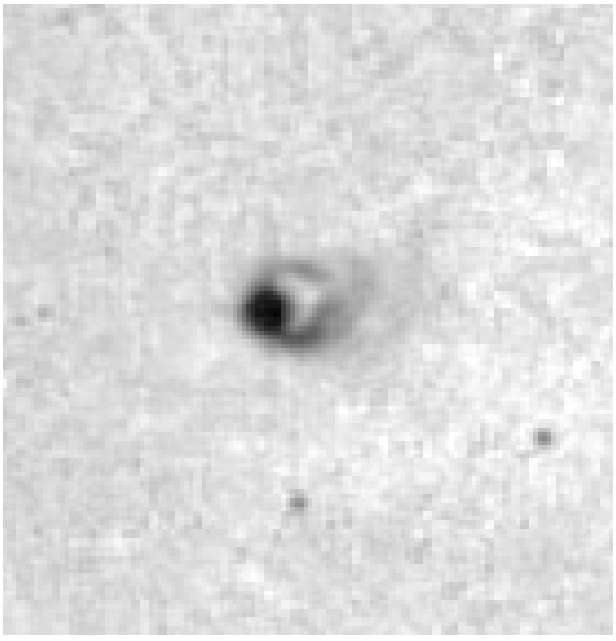
22" f/4.5
With 7 mm, the RN appears as an oval, structureless glow around a group of three stars.


63
59
32
30
NGC 6811
60
55
+45°00'
α
δ
NGC 7000
56
Cygnus
14
ν
+40°00'
61
19
22
M 29
34
15
25
19h30m
36
29
28
λ
+35°00'
27
NGC 6871
Biur 2
47
η
35
21h00m
20h30m
20h00m
17


+43°00'
+42°00'
Cr 421
IC 1311
+41°00'
NGC 6910
Cr 419
B343
LDN 889
+40°00'
IC 1318
B347
20h35m
20h30m
20h25m
20h20m
20h15m
20h10m

V1515 Cygni in Cygnus





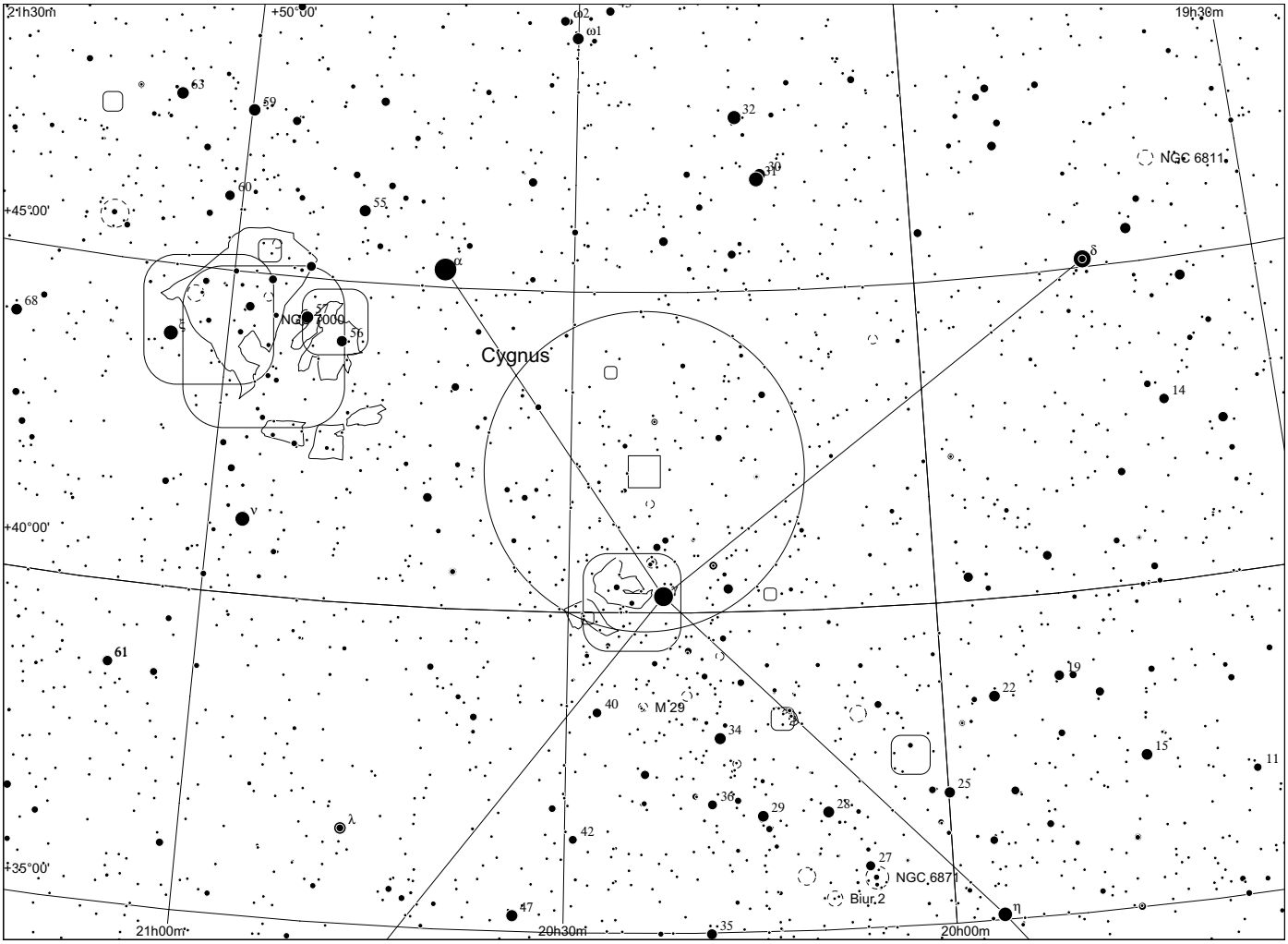
POSS blue

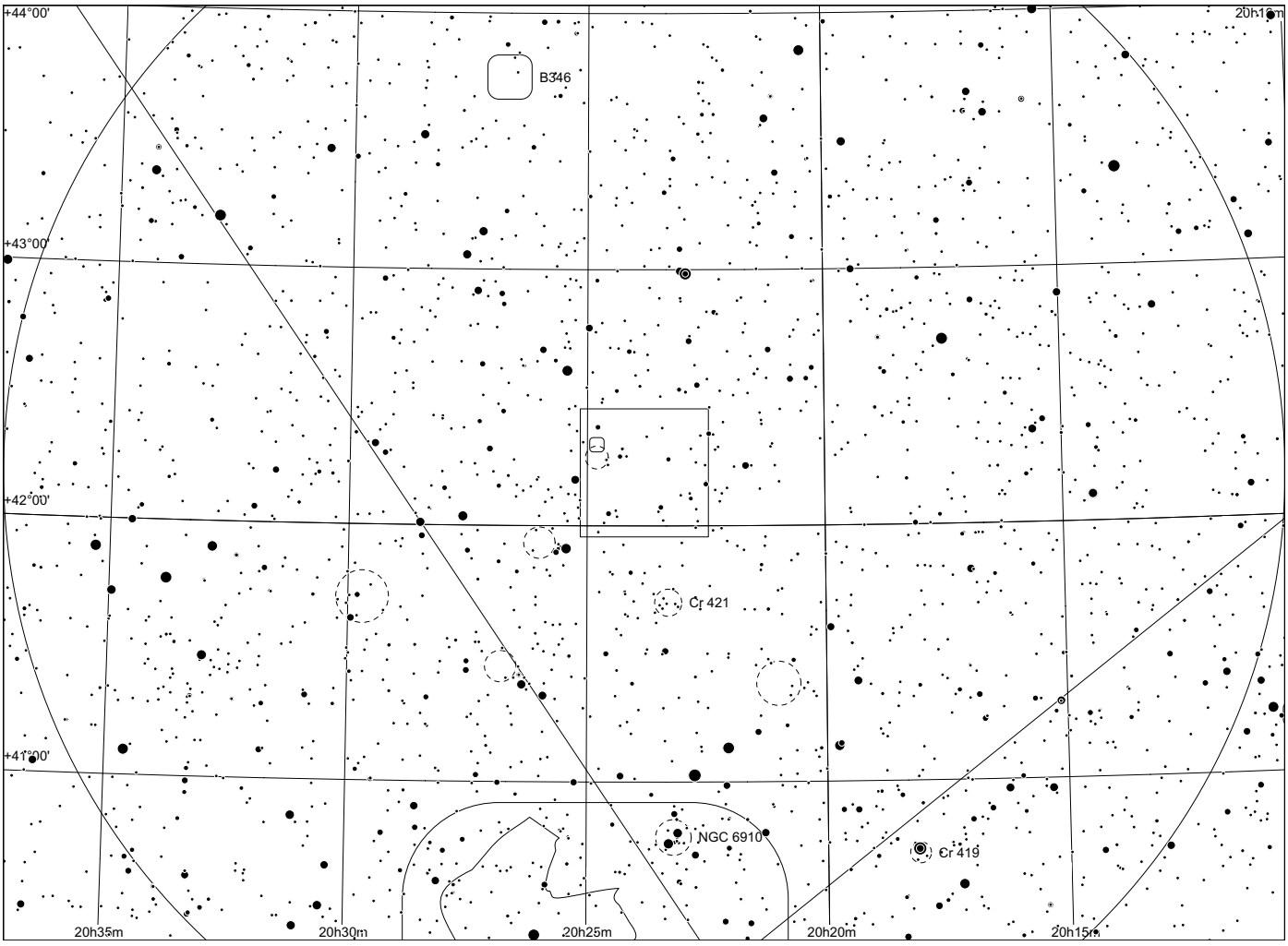
POSS composite

	other	RA	Dek	comments
V* V1515 Cyg		20 23 48.01	+42 12 25.9	FU Ori type

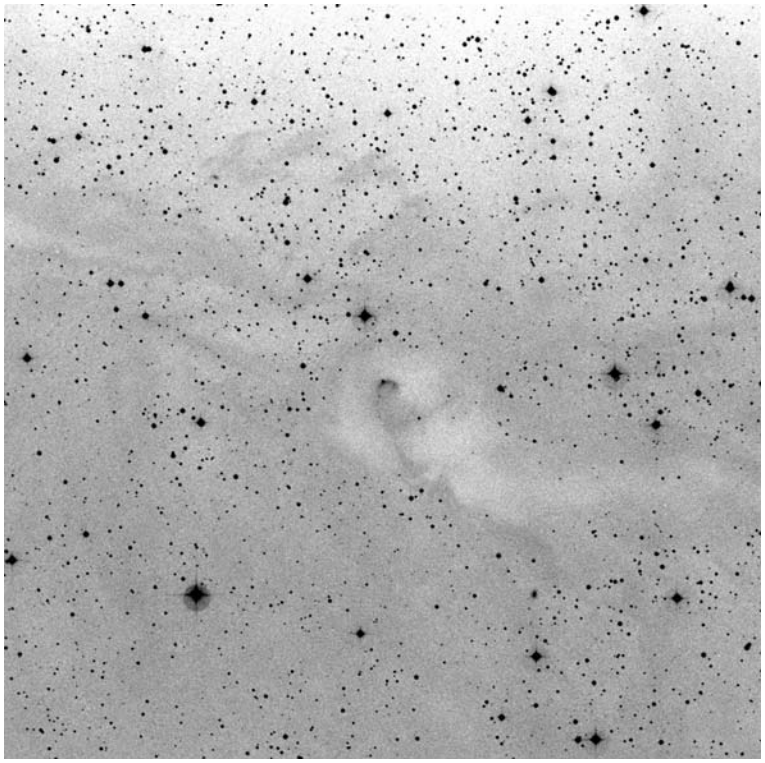
Observing notes:

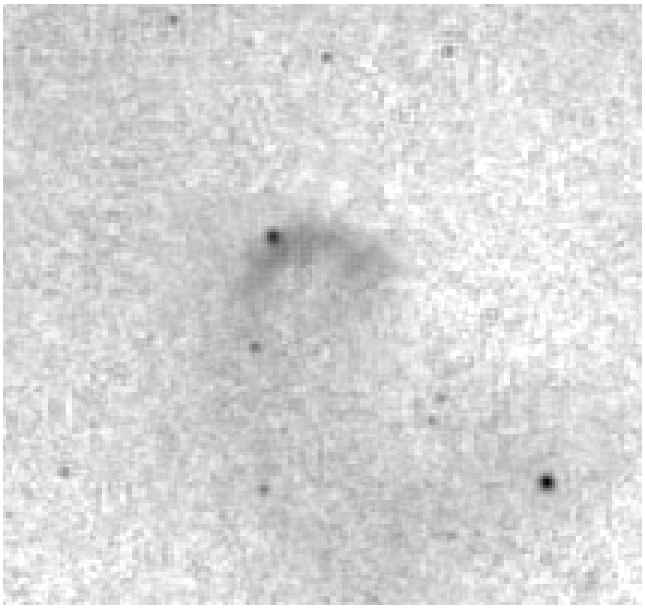
22" f/4.5
V1515 appears bright and is seen directly as a stellar object.


21h30m
+50°00'
19h30m
ω2
ω1
63
59
32
30
31
NGC 6811
60
55
+45°00'
α
δ
68
57
56
NGC 7000
Cygnus
14
ν
+40°00'
61
19
22
40
M 29
34
15
11
25
36
29
28
λ
42
+35°00'
27
NGC 6871
Biur 2
47
η
35
21h00m
20h30m
20h00m


+44°00'
20h40m
B346
+43°00'
+42°00'
Cr 421
+41°00'
NGC 6910
Cr 419
20h35m
20h30m
20h25m
20h20m
20h15m

HBC695 / RNO 124 in Cepheus





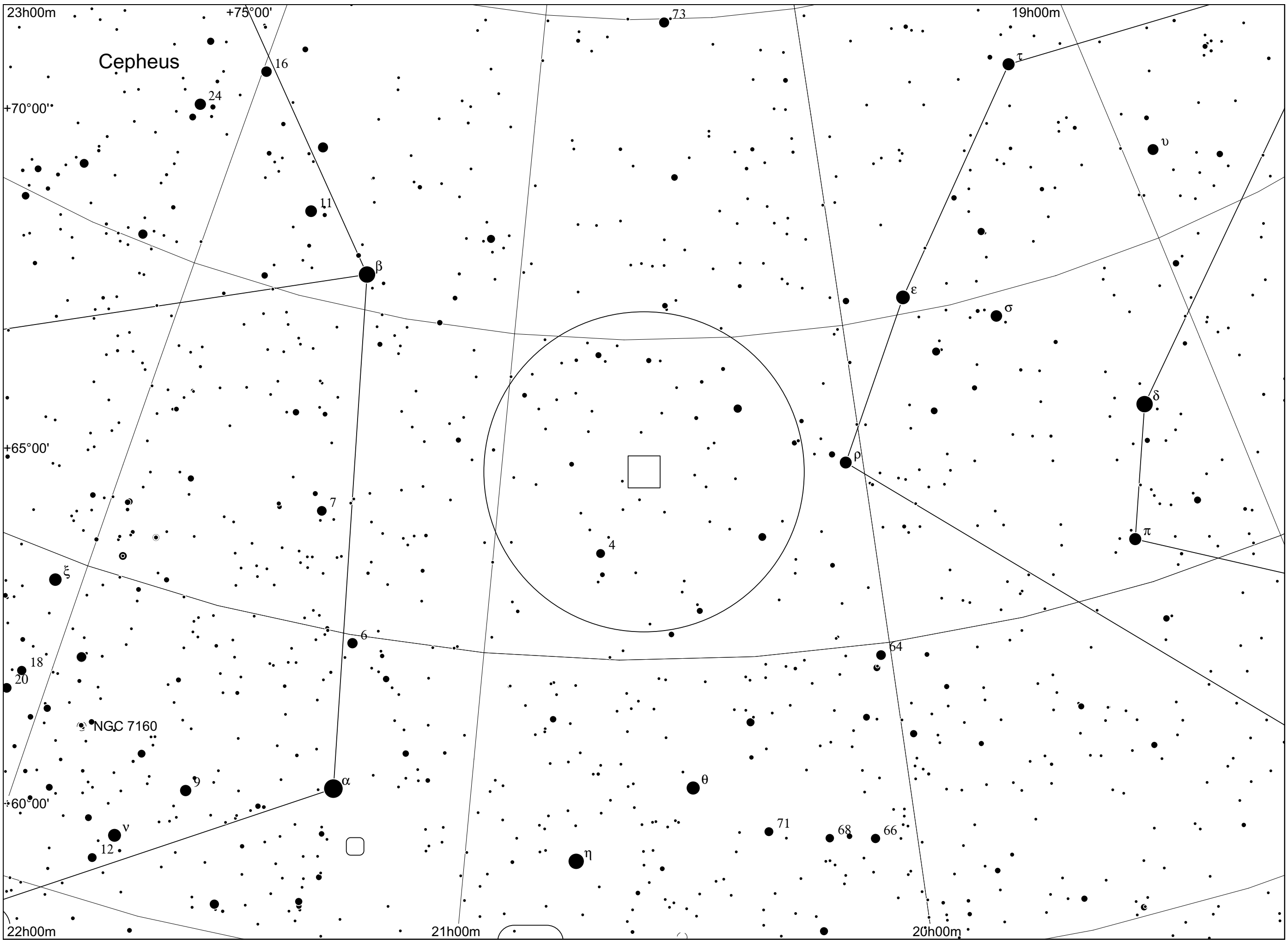
POSS blue

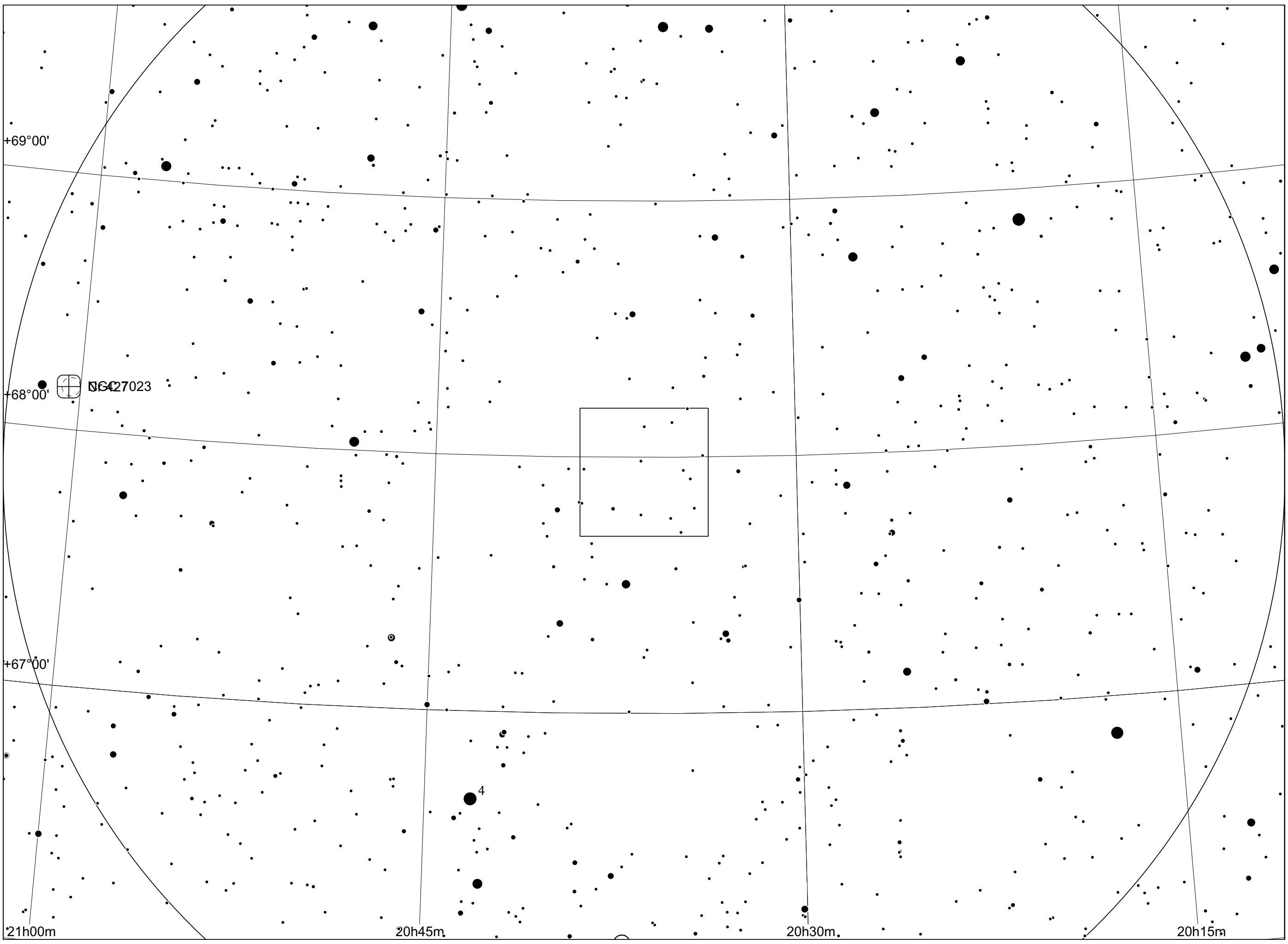
POSS composite

	other	RA	Dek	comments
2MASS J20361986+6756316	RNO 124, GM 3-12, HBC 695	20 36 19.78	+67 56 31.2	

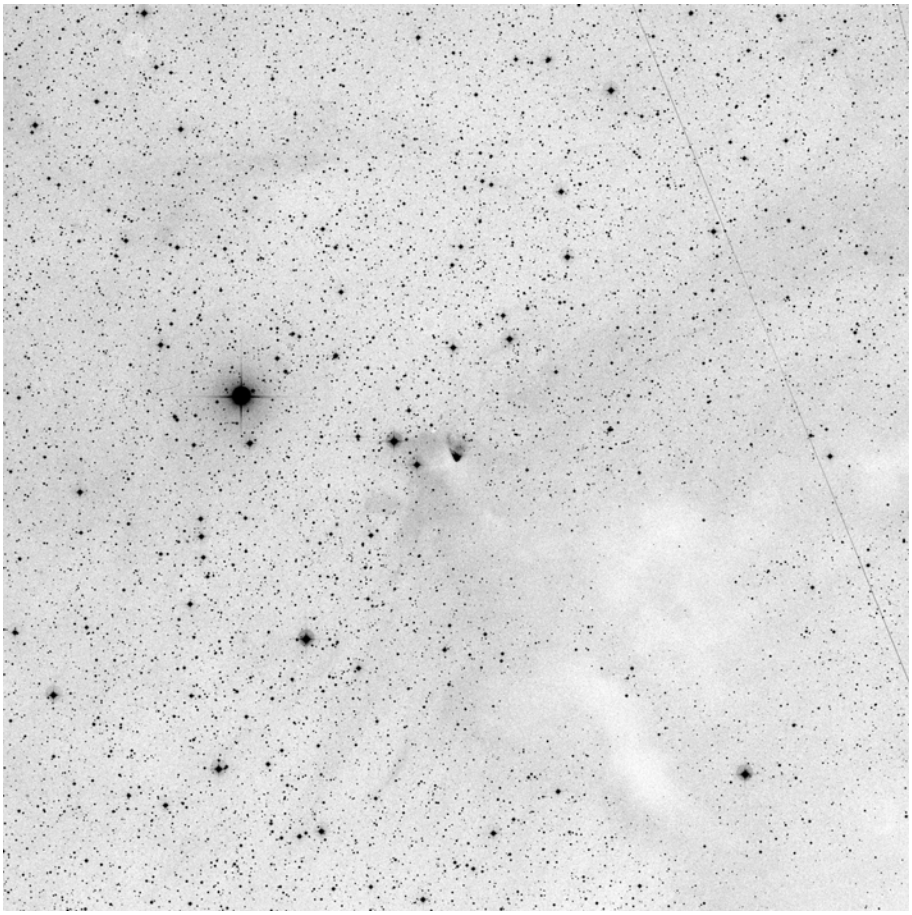
Observing notes:

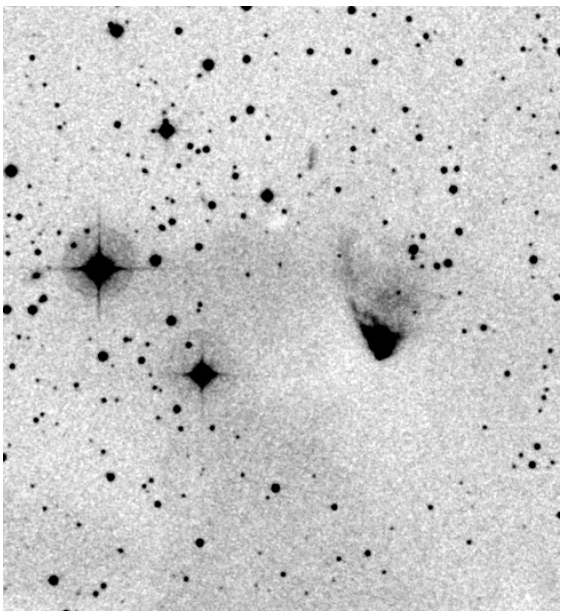
22" f/4.5
Nothing could be seen at the location of RNO124.


Cepheus
23h00m
+75°00'
+70°00'
+65°00'
+60°00'
22h00m
21h00m
20h00m
19h00m
NGC 7160
73
16
24
11
β
7
6
α
ξ
18
20
ν
12
4
θ
η
71
68
66
64
ε
σ
ρ
τ
υ
δ
π


+69°00'
+68°00'
+67°00'
NGC 7023
21h00m
20h45m
20h30m
20h15m
4

PV Cephei (Gyulbudaghian's Nebula) in Cepheus





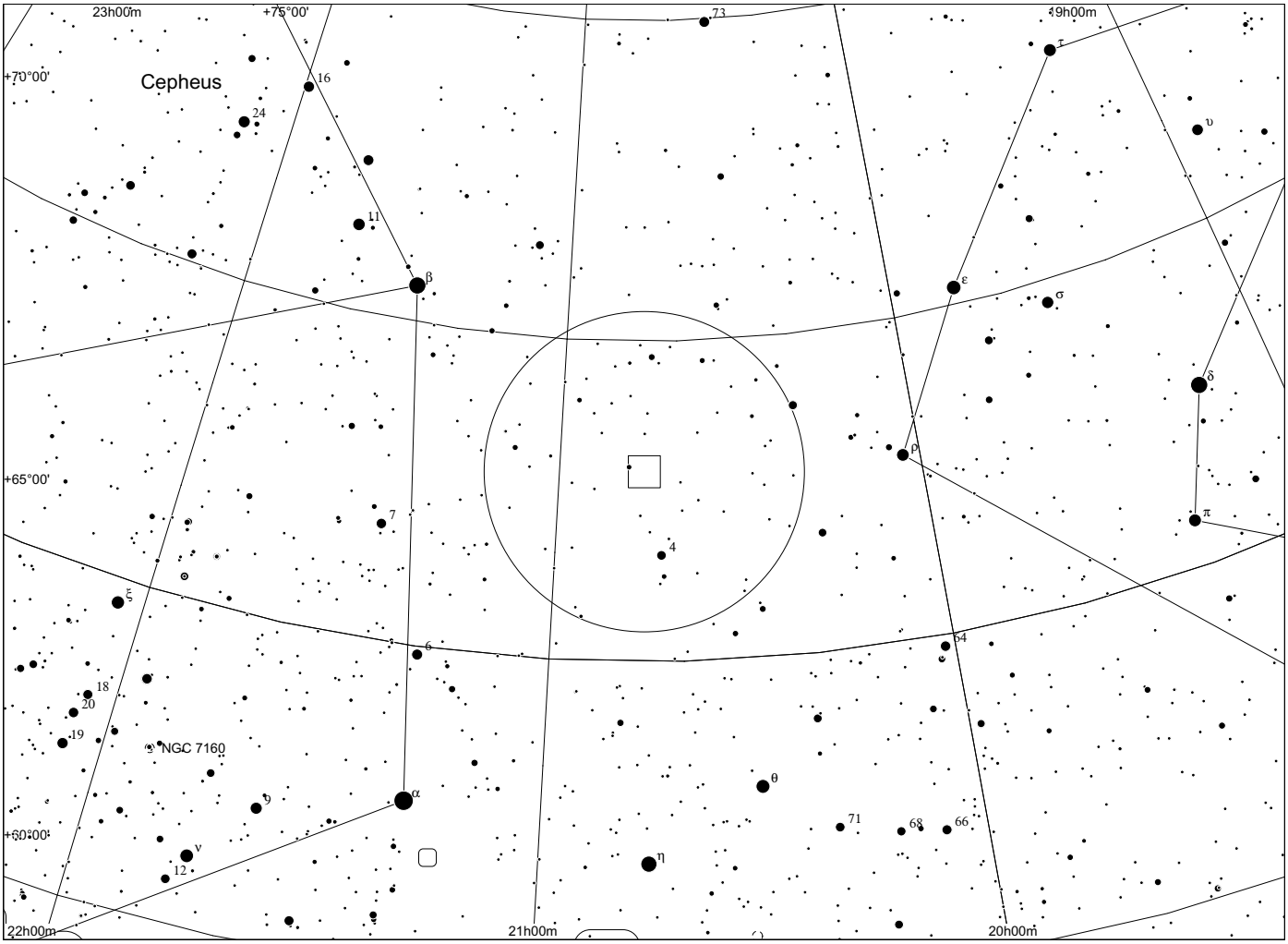
POSS blue

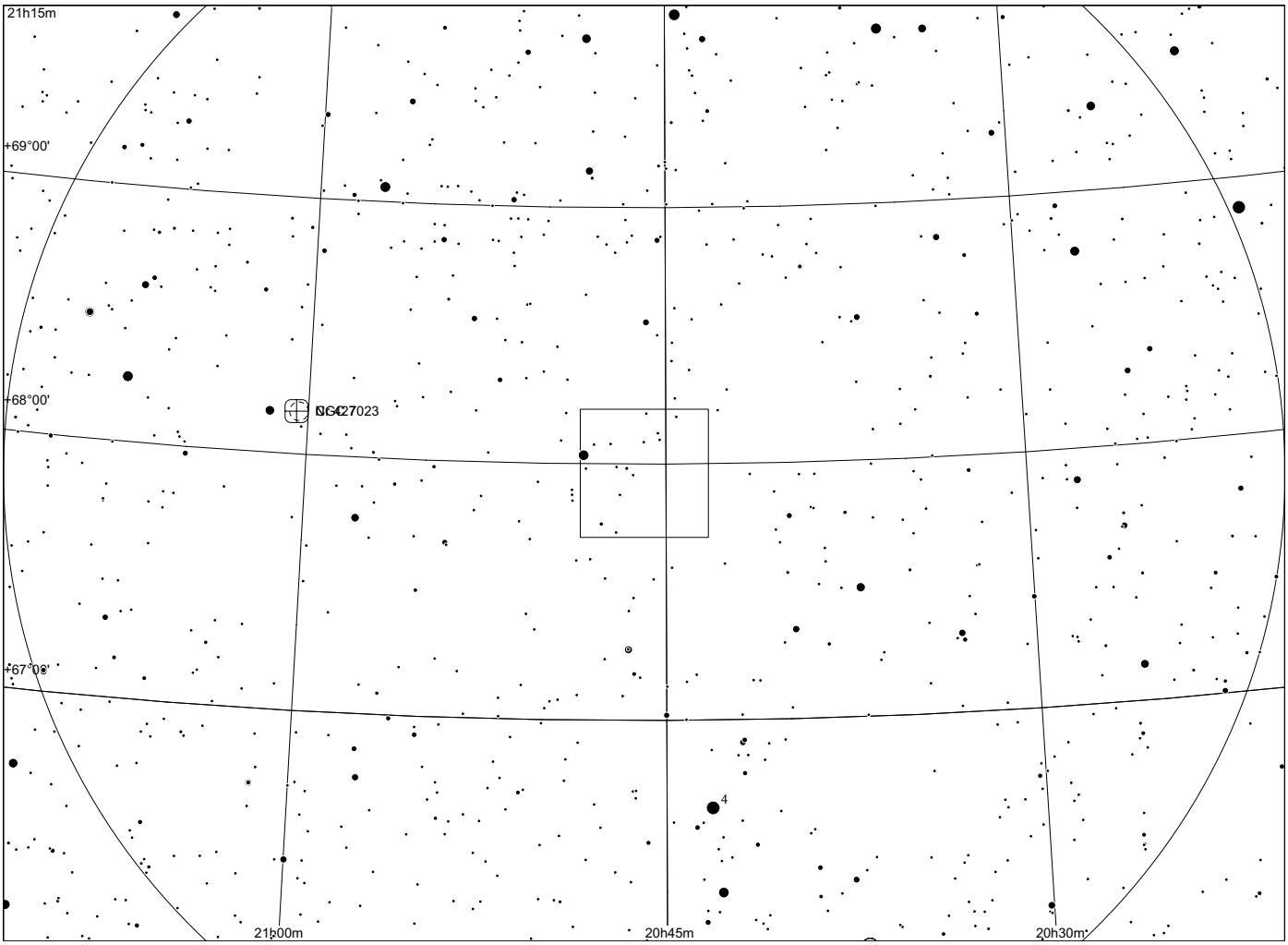
POSS composite

	other	RA	dec	comments
V* PV Cep	GM 1-29	20 45 54	67 57 51	FU Ori type

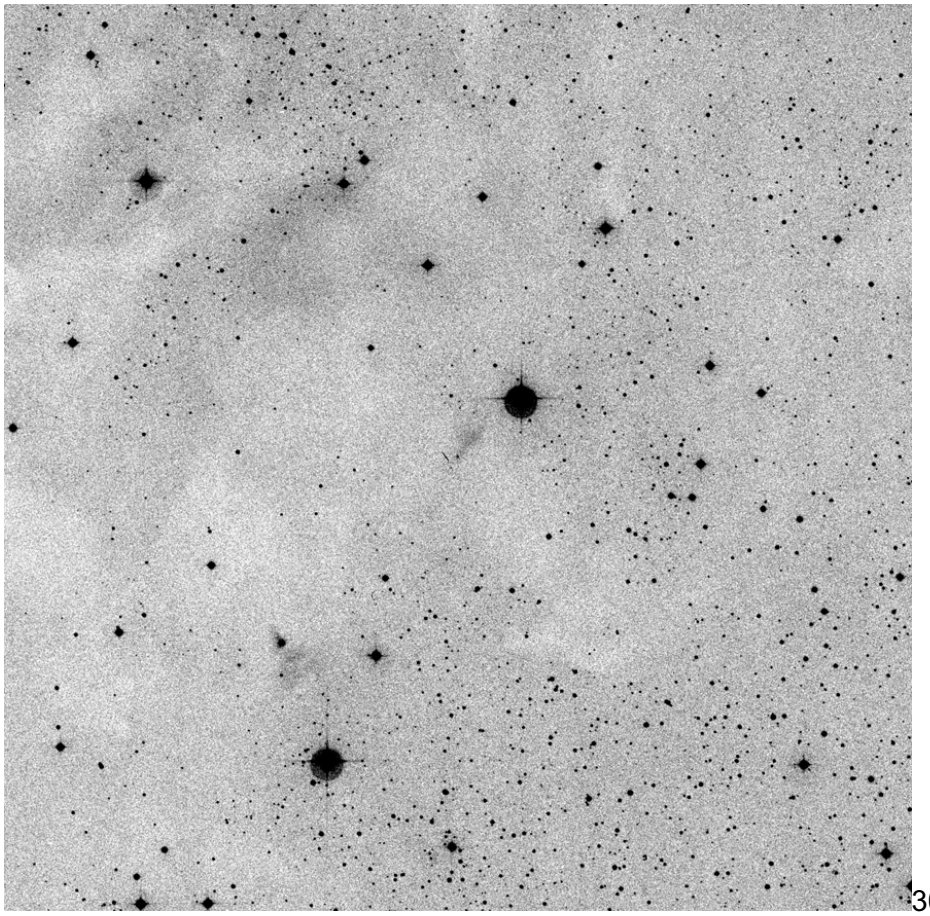
Observing notes:

22" f/4.5
PV Cep is highly variable. While it used to be accessible even to smaller telescopes years ago, it is presently (2010) a very difficult object even for large telescopes. I tried this object several times. Twice, in 8/2010 and 10/2010, I suspected intermittently a very faint extended nebulosity at the location with indirect vision. In 10/2011, PV Cep was an extremely faint, but stellar object.


23h00m
+75°00'
49h00m
+70°00'
Cepheus
73
τ
16
24
υ
11
β
ε
σ
δ
ρ
+65°00'
7
π
4
ξ
6
64
18
20
19
NGC 7160
θ
α
υ
71
68
66
+60°00'
ν
12
η
22h00m
21h00m
20h00m


21h15m
+69°00'
+68°00'
NGC 7023
+67°00'
4
21h00m
20h45m
20h30m

V2494 Cygni / IRAS 20568+5217

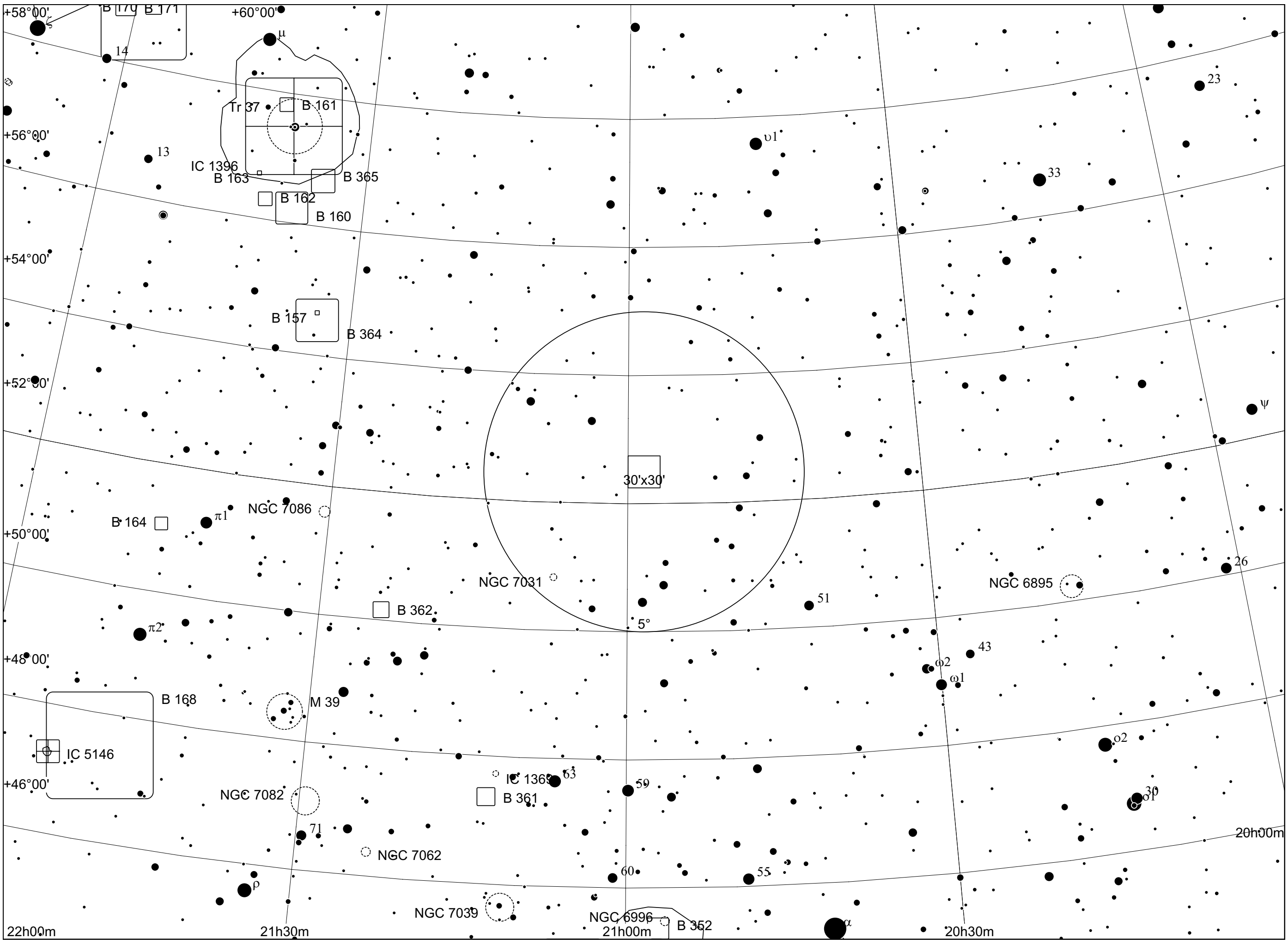


30'x30'

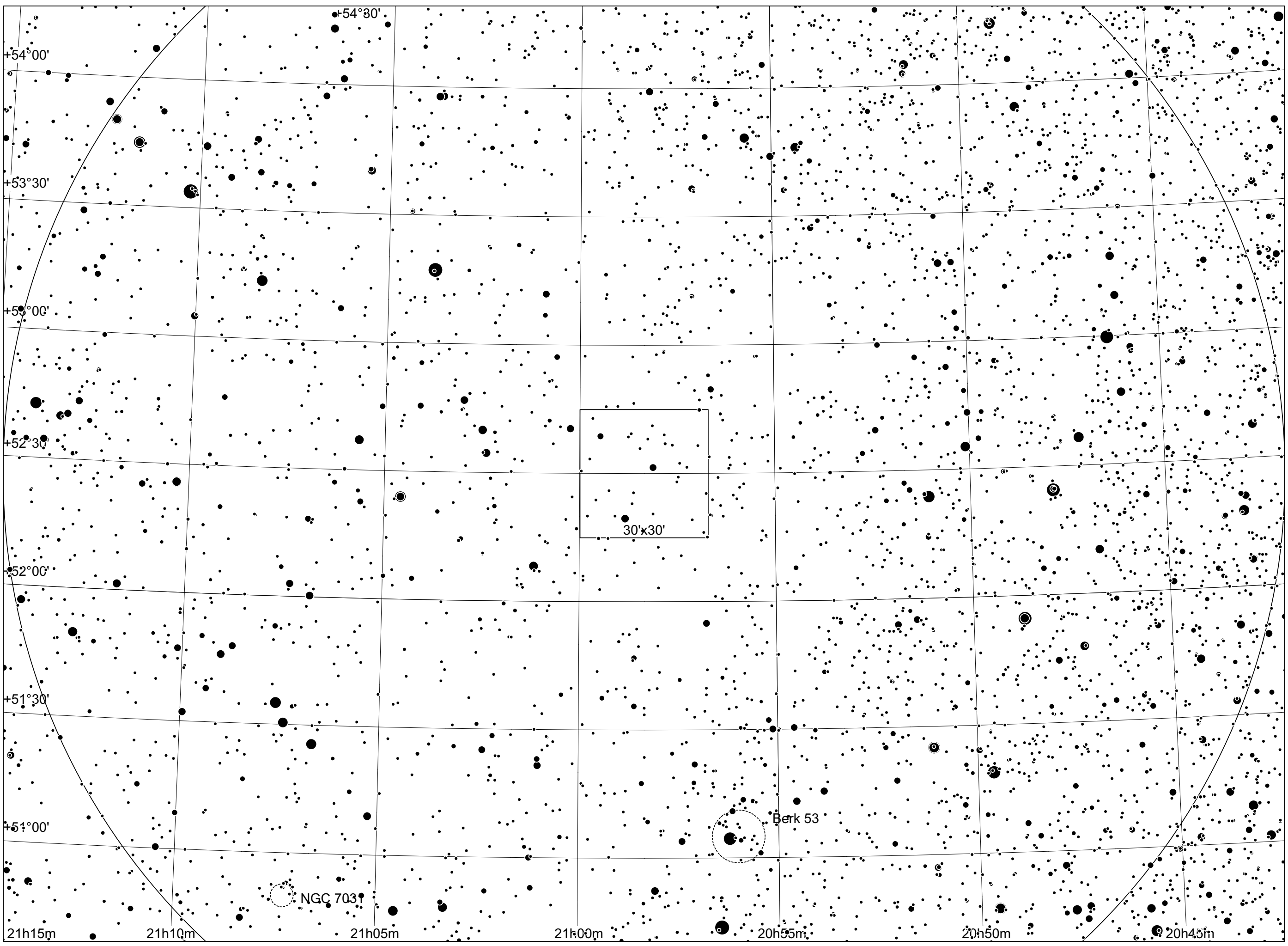
Antonio Sanchez

	other	RA	Dek	comments
V2494 Cygni	IRAS 20568+5217	20 58 21.09	+52 29 27.7	FU Ori star

Observing notes:

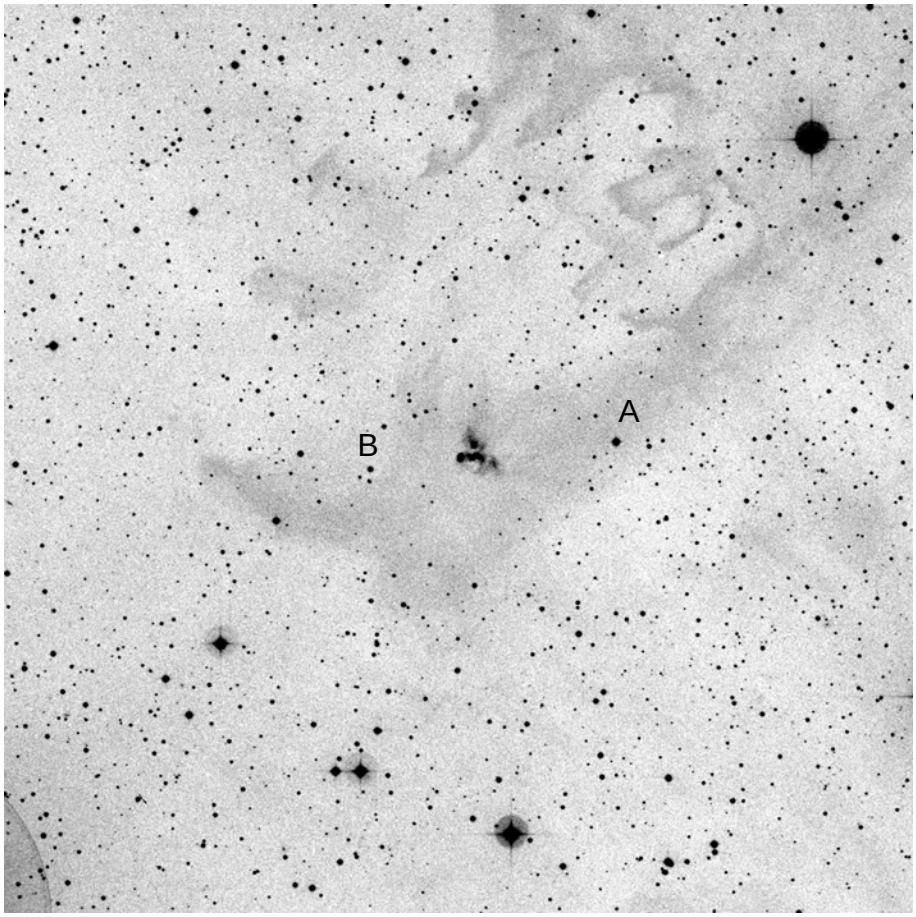


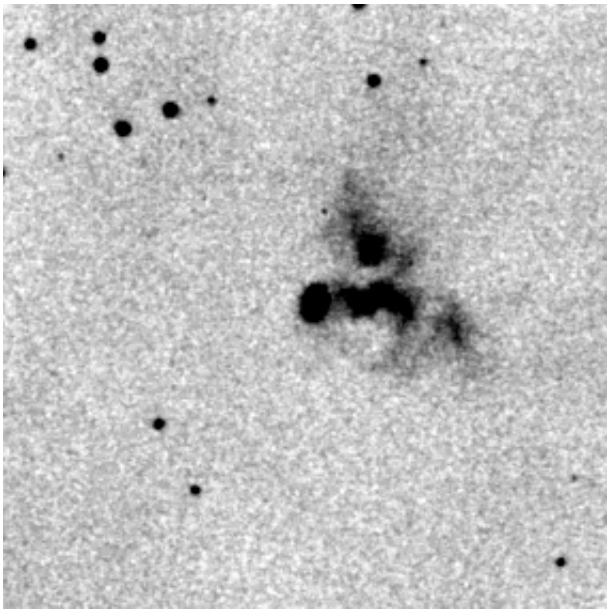
+58°00'
B 170
B 171
+60°00'
14
Tr 37
B 161
+56°00'
13
IC 1396
B 163
B 365
B 162
B 160
23
33
+54°00'
B 157
B 364
+52°30'
ψ
30'x30'
π1
NGC 7086
B 164
+50°00'
NGC 7031
26
NGC 6895
51
B 362
5°
π2
43
+48°00'
ω2
ω1
B 168
M 39
ο2
IC 5146
+46°00'
IC 1369
63
59
NGC 7082
B 361
30
71
20h00m
NGC 7062
60
55
ρ
NGC 7039
NGC 6996
B 352
α
22h00m
21h30m
21h00m
20h30m



+54°30'
+54°00'
+53°30'
+53°00'
+52°30'
30'x30'
+52°00'
+51°30'
+51°00'
Berk 53
NGC 7031
21h15m
21h10m
21h05m
21h00m
20h55m
20h50m
20h45m

RNO 129 in Cepheus





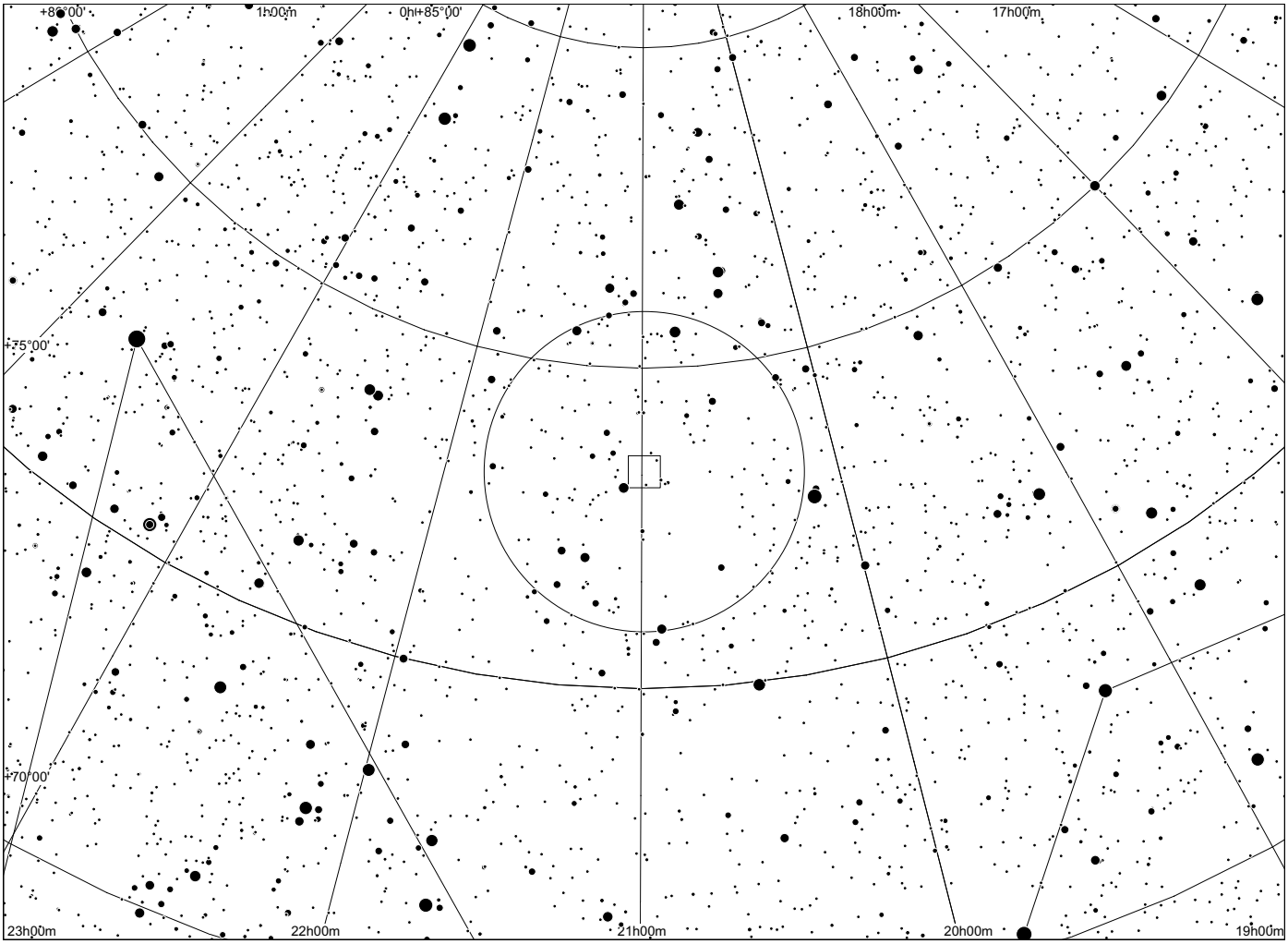
POSS blue

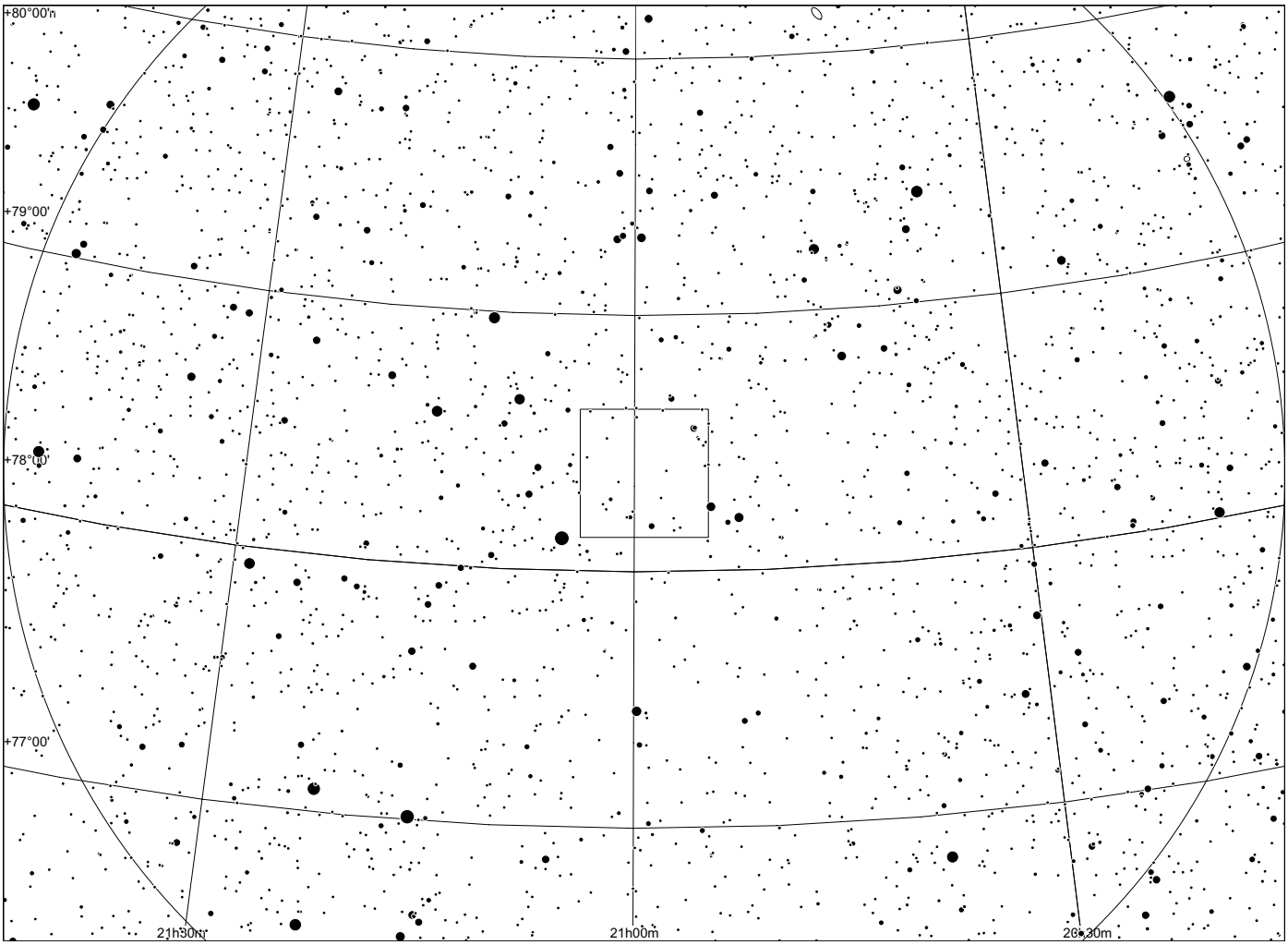
POSS composite

	other	RA	Dek	comments
2MASS J20591408+7823040		20 59 14.09	+78 23 04.0	

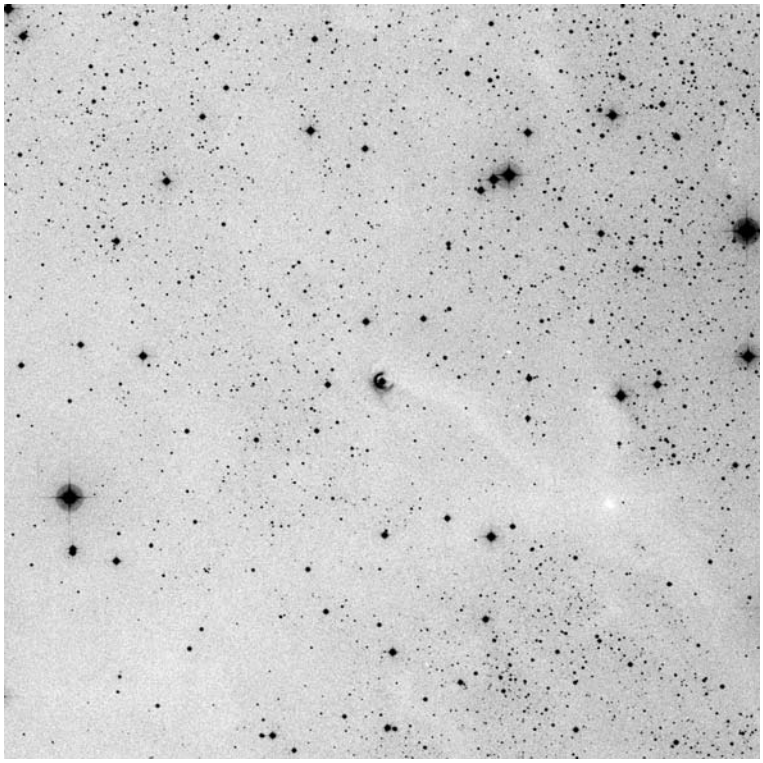
Observing notes:

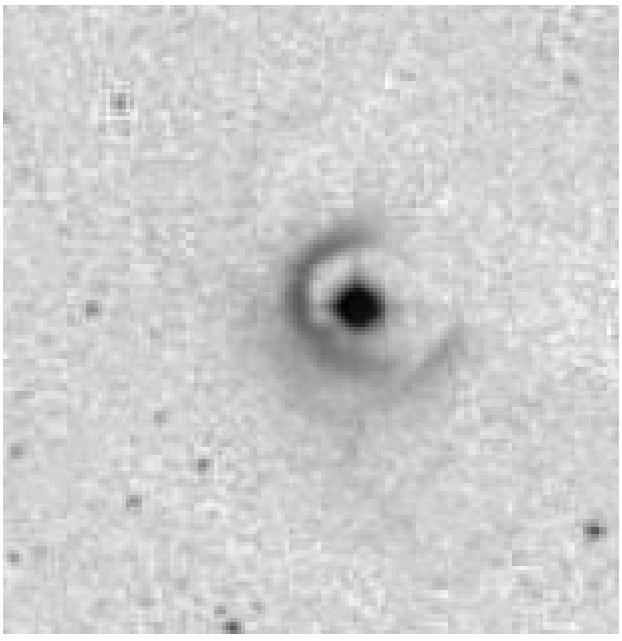
22" f/4.5
Observed with 200x and (better) with 350x. The object is positioned between two stars, A and B. A is bright, B is dimmer and consists of several stars. Both are directly visible. Between both, closer to B is a diffuse, non-stellar something, which can be seen with indirect vision about 50% of the time. I cannot make out any details. Looks quite similar to one of those very faint Hickson groups.


+80°00'
1h00m
0h+85°00'
18h00m
17h00m
+75°00'
+70°00'
23h00m
22h00m
21h00m
20h00m
19h00m


+80°00'
+79°00'
+78°00'
+77°00'
21h30m
21h00m
20h30m

V1331 Cygni in Cygnus





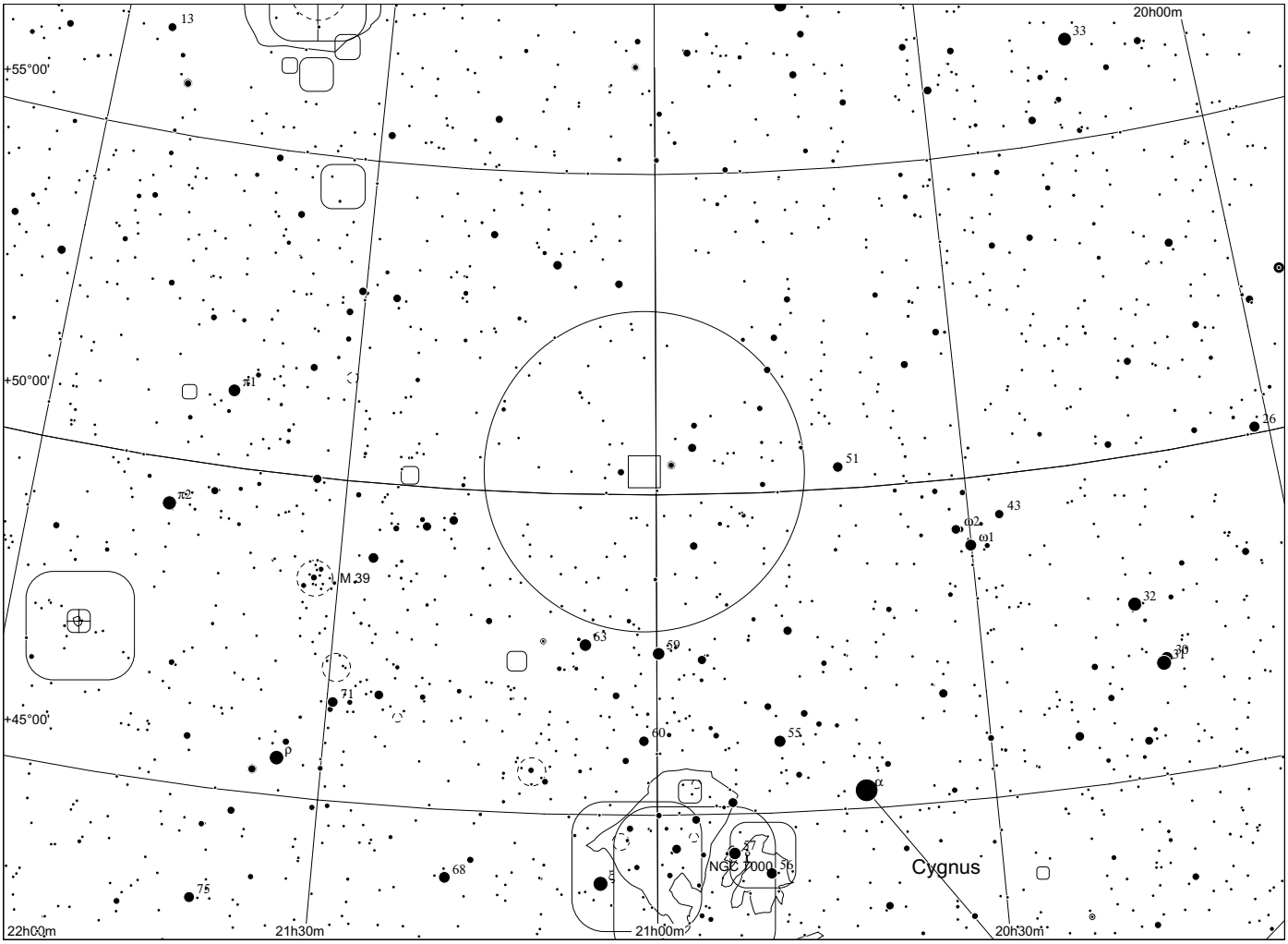
POSS blue

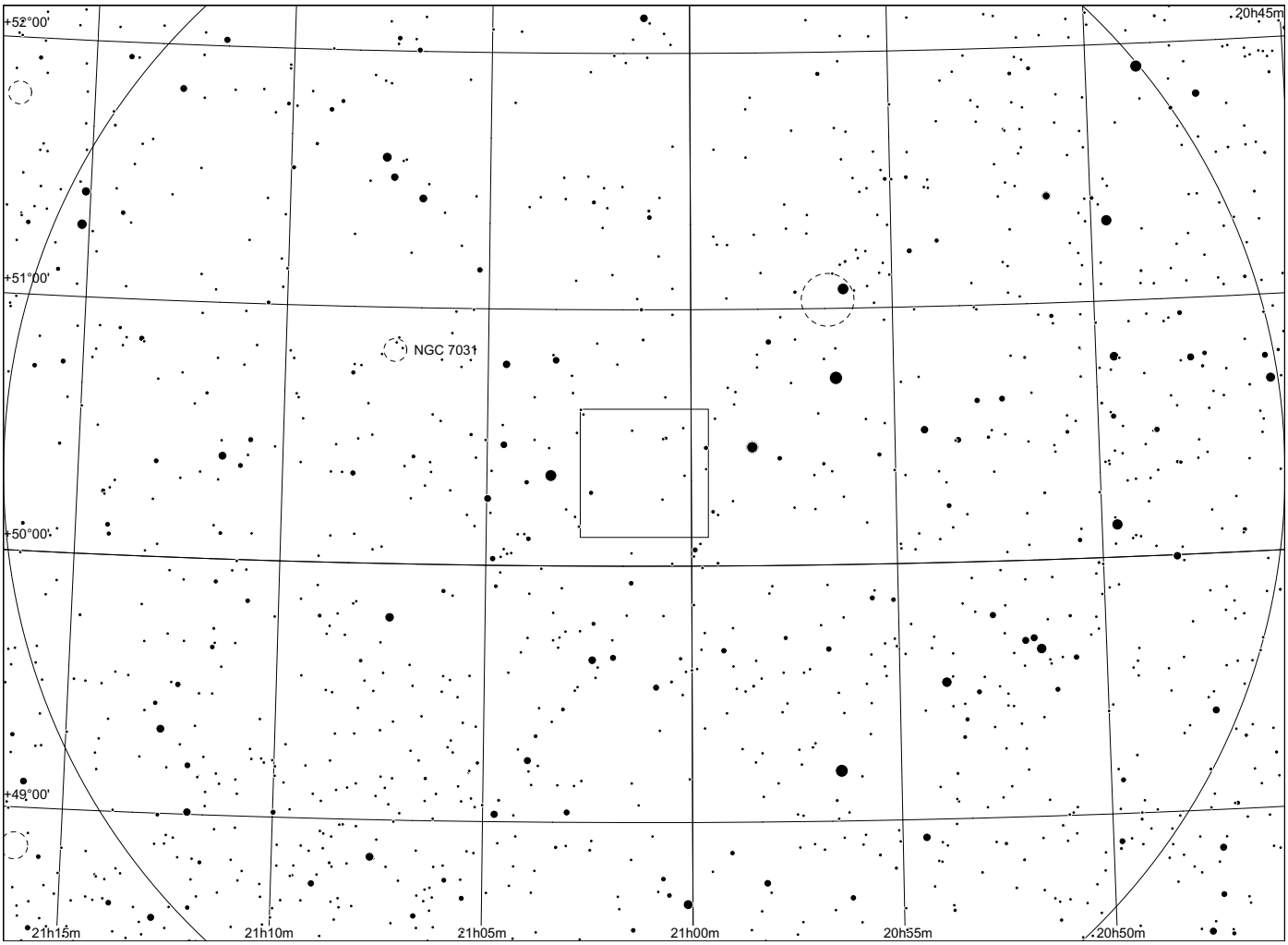
POSS composite

	other	RA	Dek	comments
V* V1331 Cyg		21 01 09.21	+50 21 44.8	FU Ori, questionable

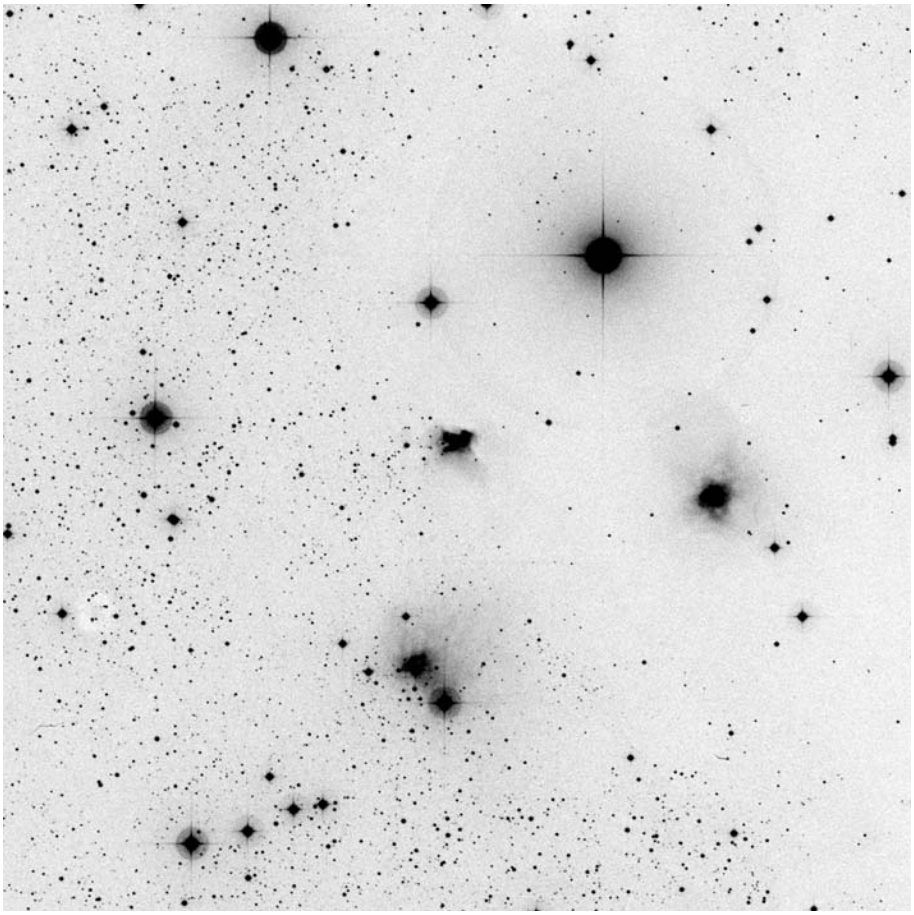
Observing notes:

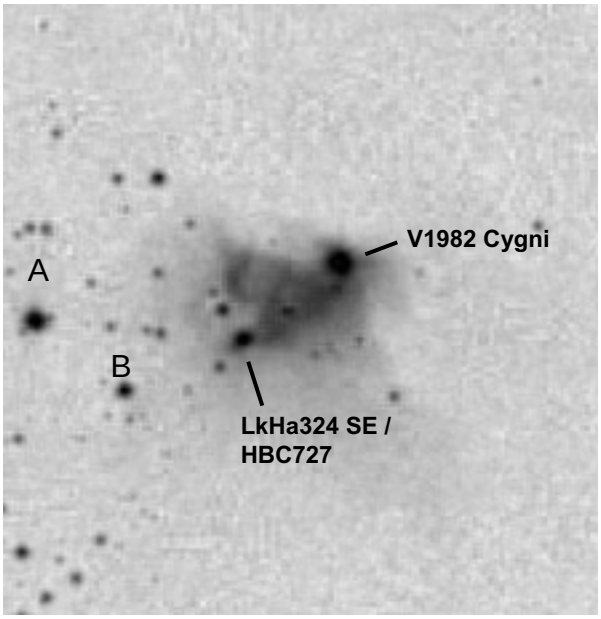
22" f/4.5
While V1331 is bright and easy, the ring is an extremely difficult object. At times, an extremely faint "envelope" was suspected around the star, at least on one side.


20h00m
+55°00'
+50°00'
+45°00'
13
33
π1
π2
16
51
43
ω2
ω1
M 39
32
30
63
59
71
60
55
ρ
α
37
NGC 7000
36
Cygnus
68
75
22h00m
21h30m
21h00m
20h30m


20h45m
+52°00'
+51°00'
NGC 7031
+50°00'
+49°00'
21h15m
21h10m
21h05m
21h00m
20h55m
20h50m

Gyulbudaghian 98-171 / V1982 Cygni





POSS blue

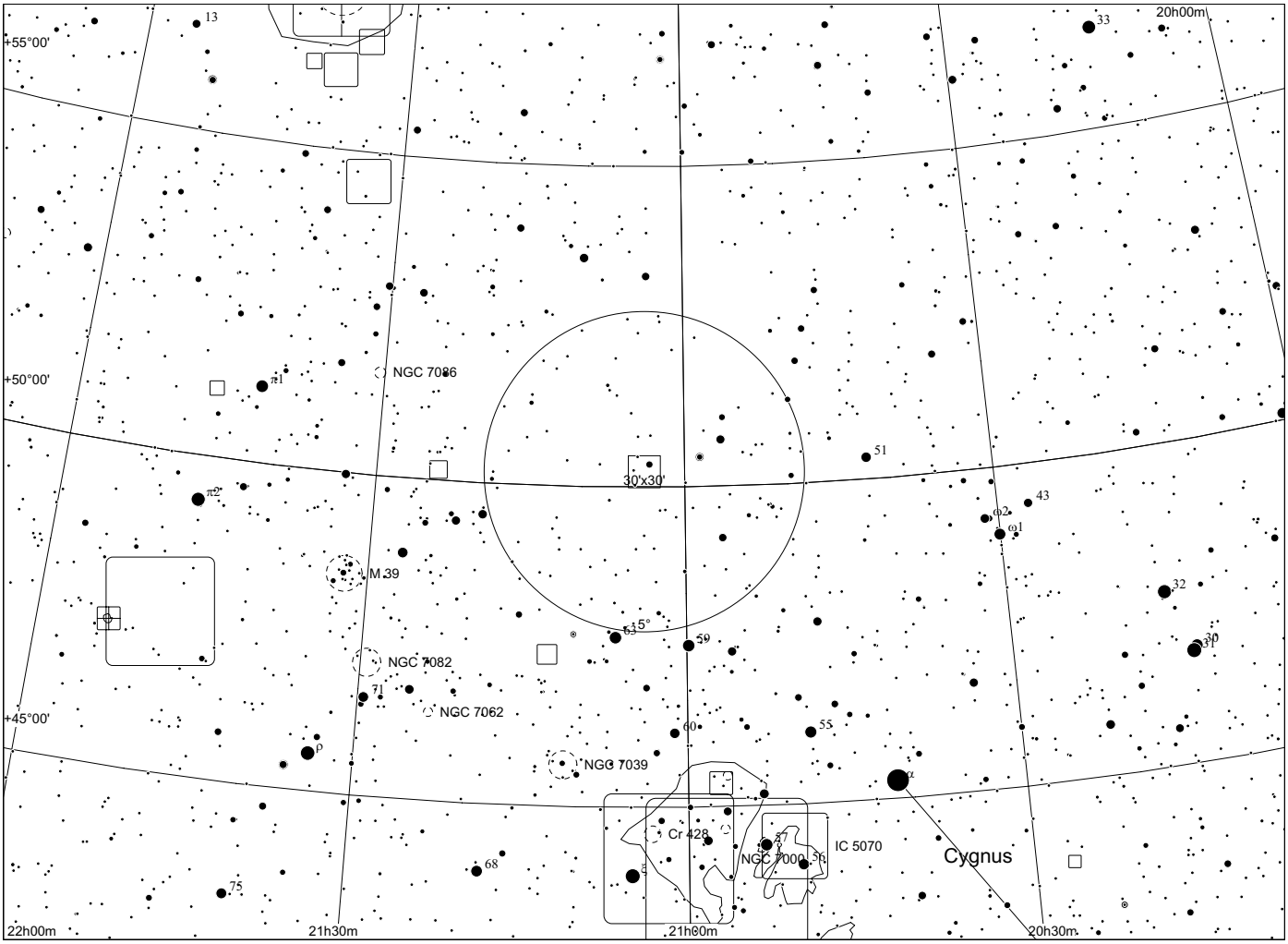
POSS composite

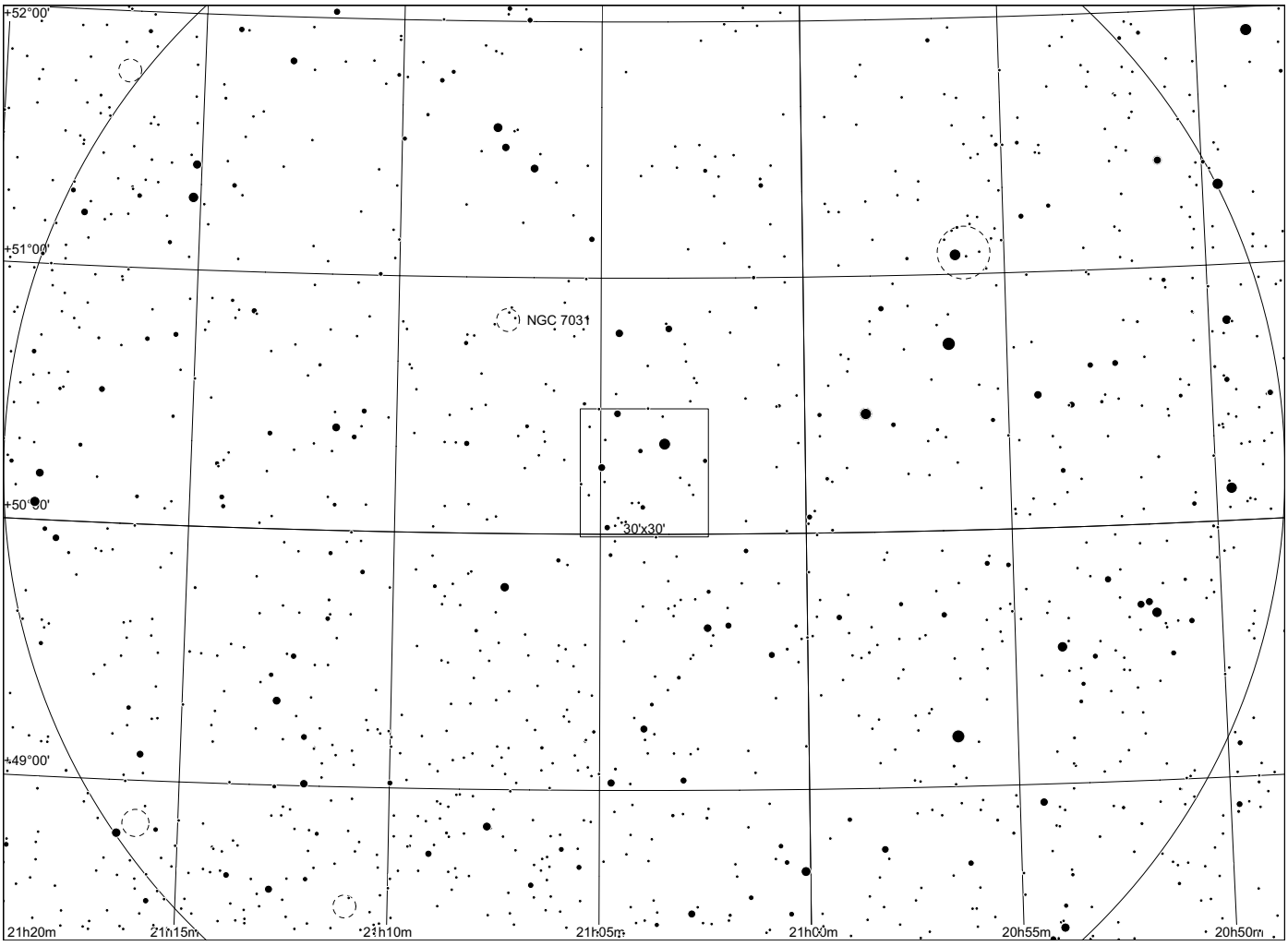
	other	RA	Dek	comments
Gyul 98-171 (ISM), V1982 Cygni	LkHa 324, HBC 305	21 03 55.92	+50 14 24.0	emission line star

Observing notes:

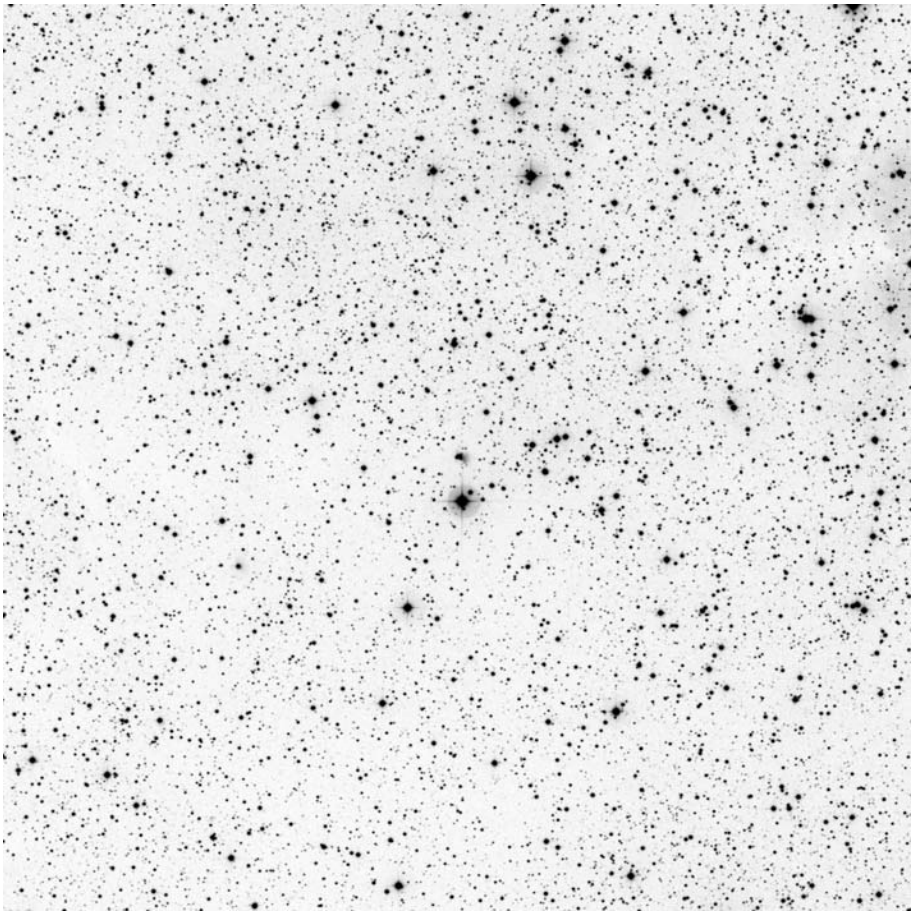
22" f/4.5

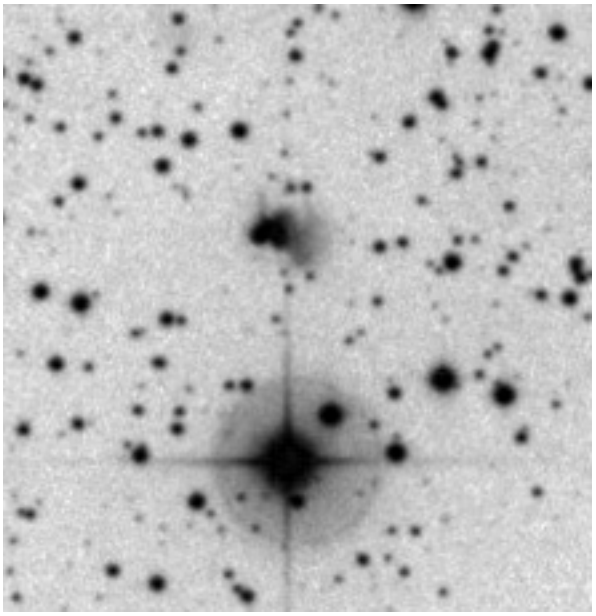
At 350x, nebulosity is immediately visible E of V1982 Cygni, which is a relatively bright stellar object. First the nebulosity appeared diffuse and structureless, while during extended observation a more defined roughly WE oriented streak was visible. HBC 727 was visible at the end of this streak with indirect vision, but could not be heald steadily. The stars A and B were steadily visible with direct and indirect vision, respectively.


20h00m
+55°00'
+50°00'
+45°00'
NGC 7086
30'x30'
M 39
NGC 7082
NGC 7062
NGC 7039
Cr 428
IC 5070
NGC 7000
Cygnus
22h00m
21h30m
21h00m
20h30m


+52°00'
+51°00'
+50°00'
+49°00'
NGC 7031
30'x30'
21h20m
21h15m
21h10m
21h05m
21h00m
20h55m
20h50m

V645 Cygni





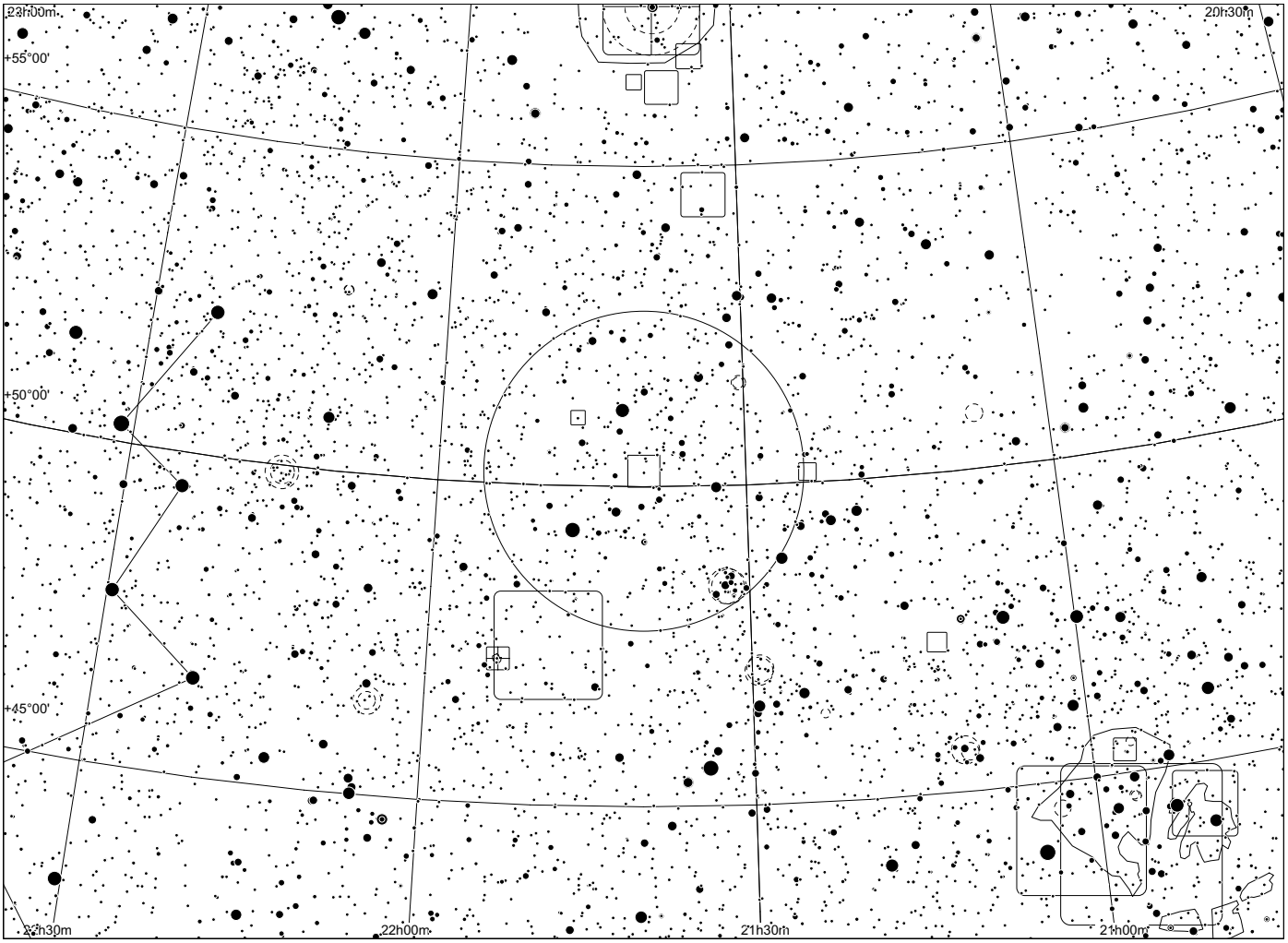
POSS blue

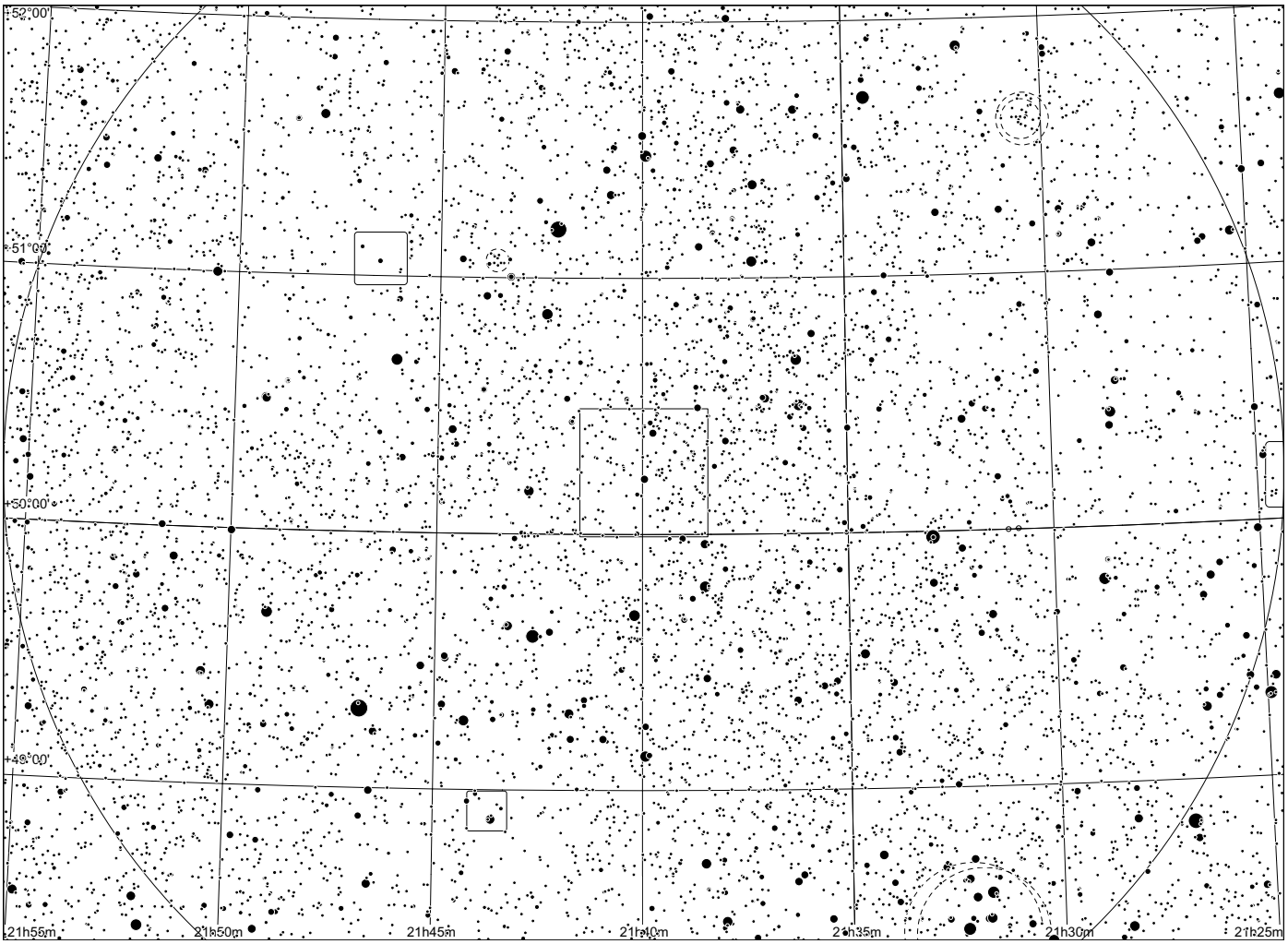
POSS composite

	other	RA	Dek	comments
V645 Cyg	HH218	21 39 58.24	+50 14 21.2	

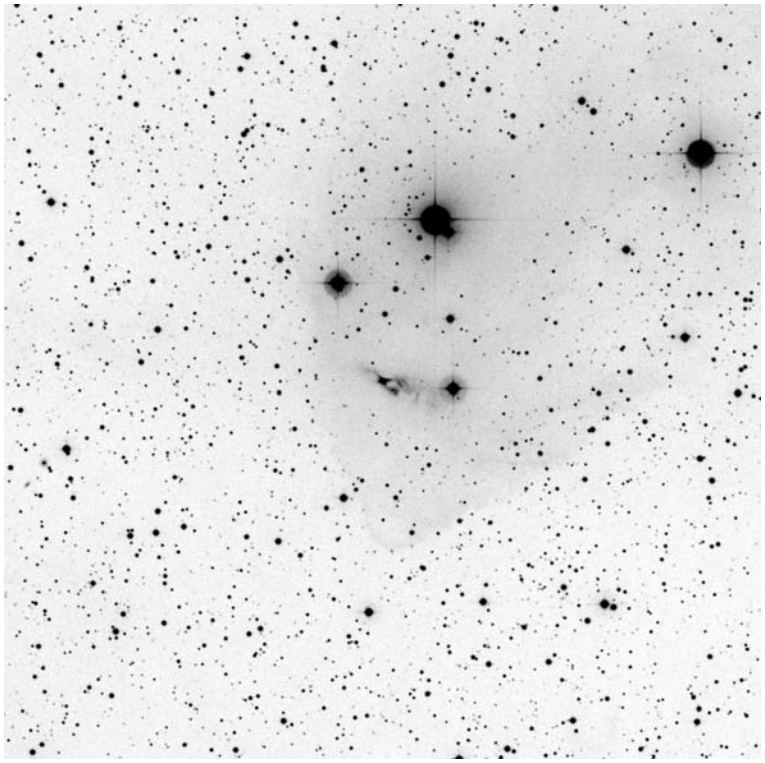
Observing notes:

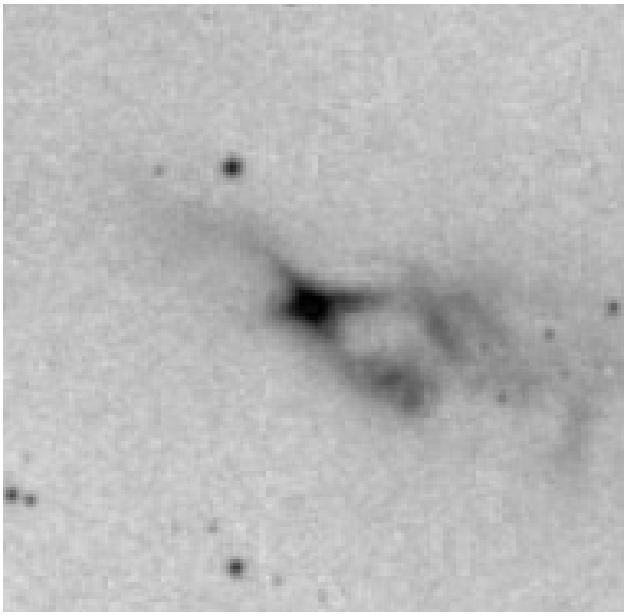
22" f/4.5
At 350x, the YSO appears directly as a stellar object visible with direct vision. Indirectly, a distinct small cometary tail appears that is oriented to the W. Comparatively easy target.


23h00m
20h30m
+55°00'
+50°00'
+45°00'
22h30m
22h00m
21h30m
21h00m


+52°00'
+51°00'
+50°00'
+49°00'
21h55m
21h50m
21h45m
21h40m
21h35m
21h30m
21h25m

V375 Lacertae in Lacerta





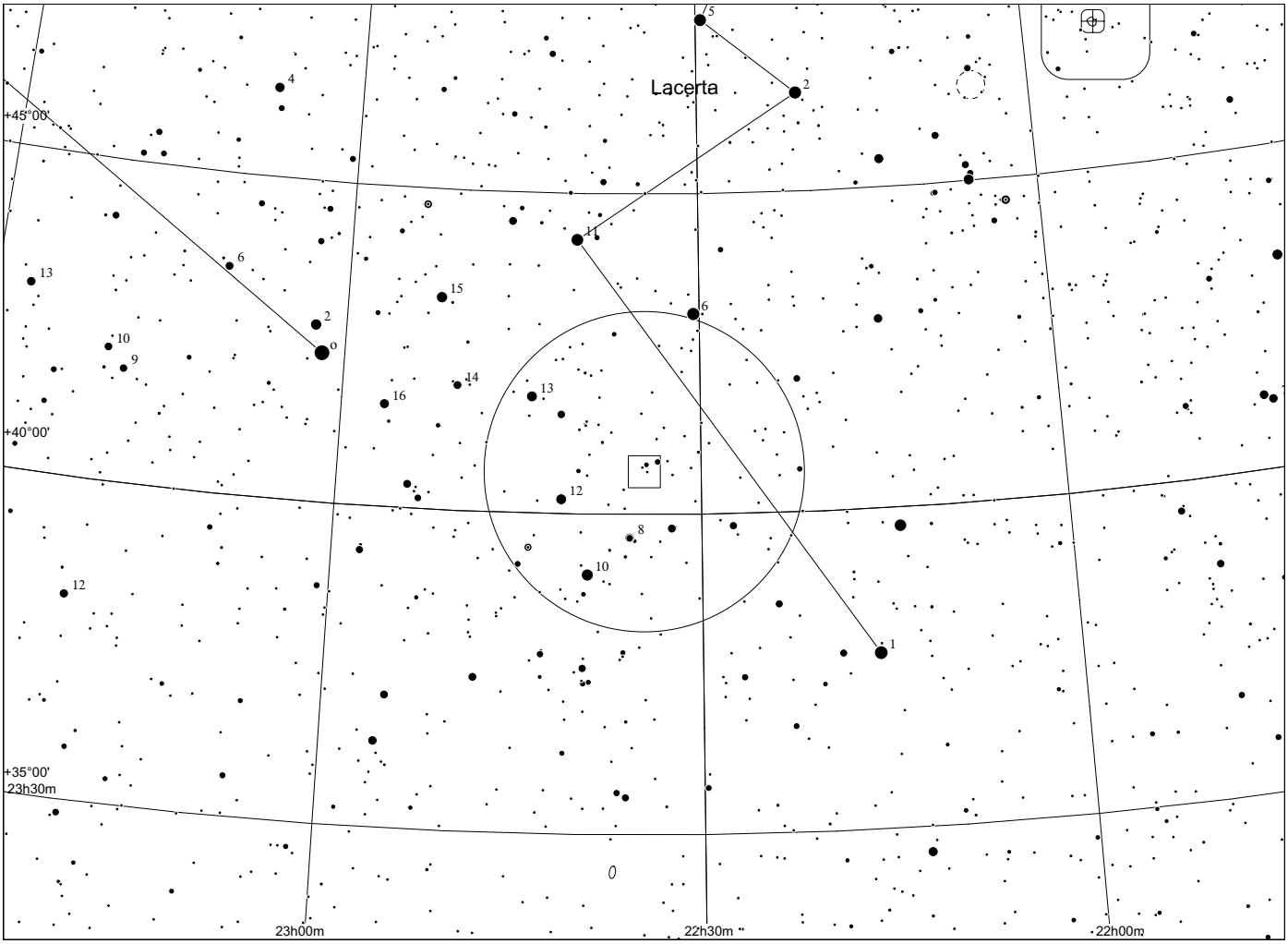
POSS blue

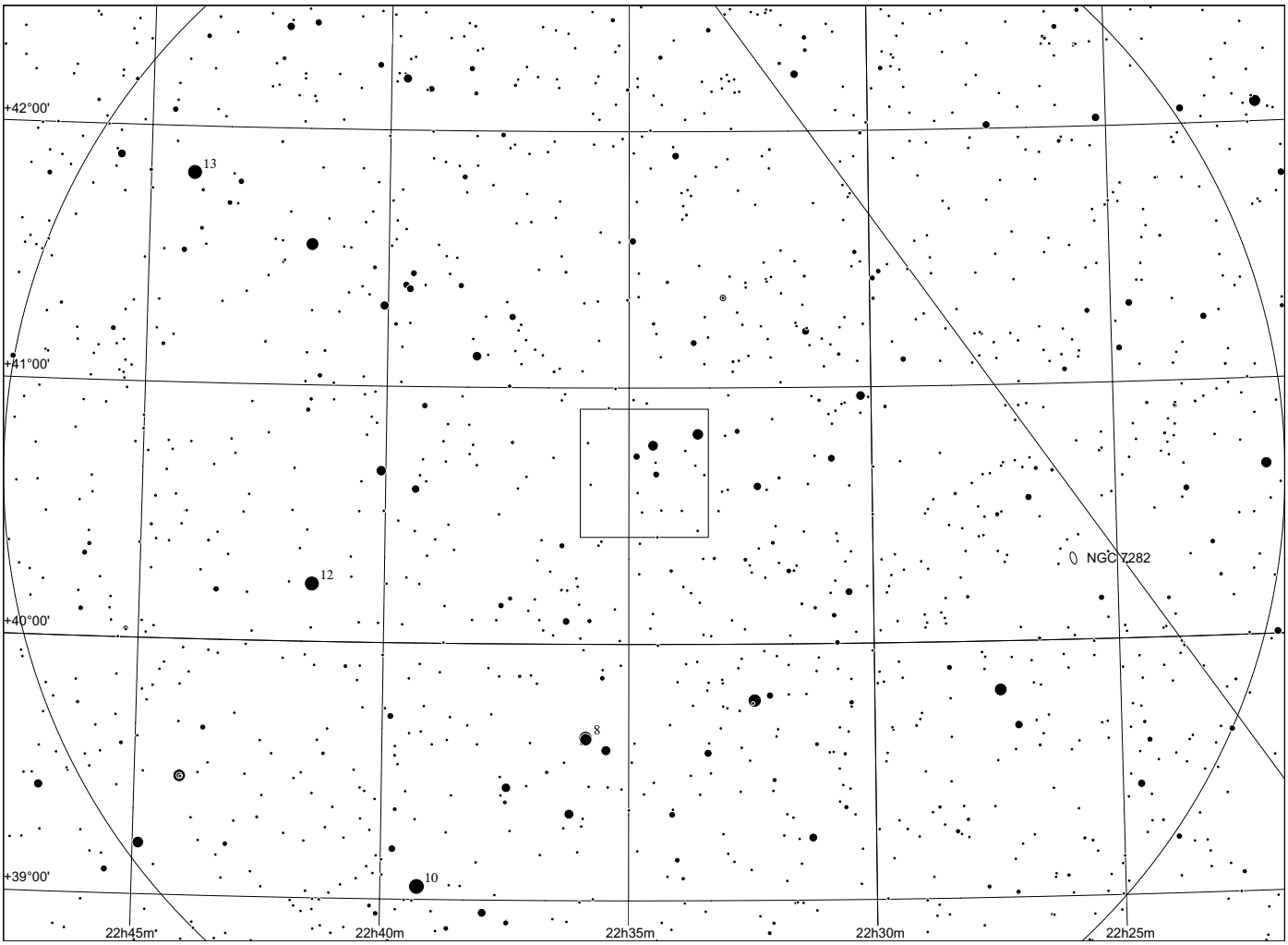
POSS composite

	other	RA	Dek	comments
V 375 Lac	LkHa 233, HBC 313	22 34 41.04	+40 40 03.6	Herbig Ae/Be star, includes HH398

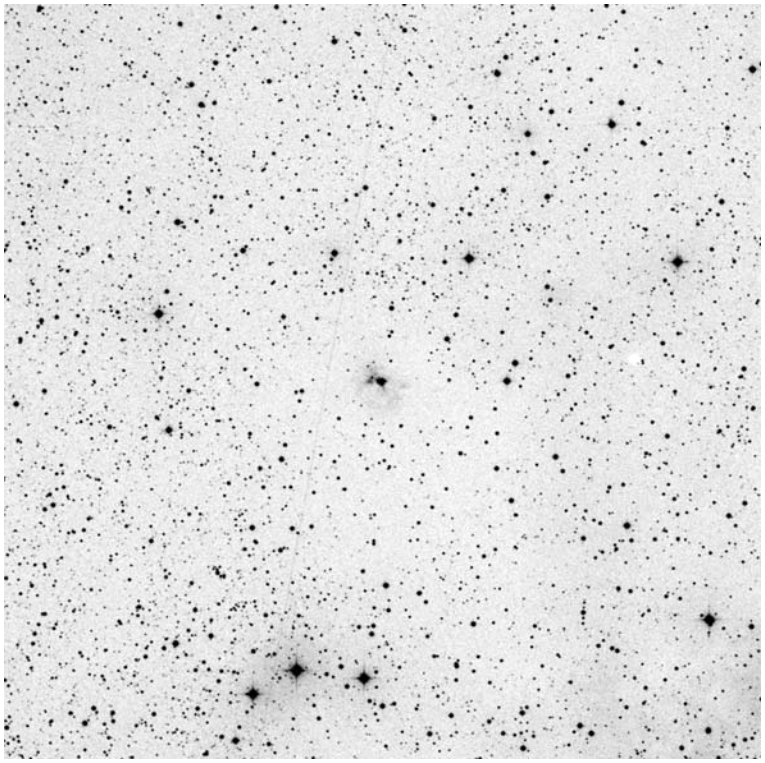
Observing notes:

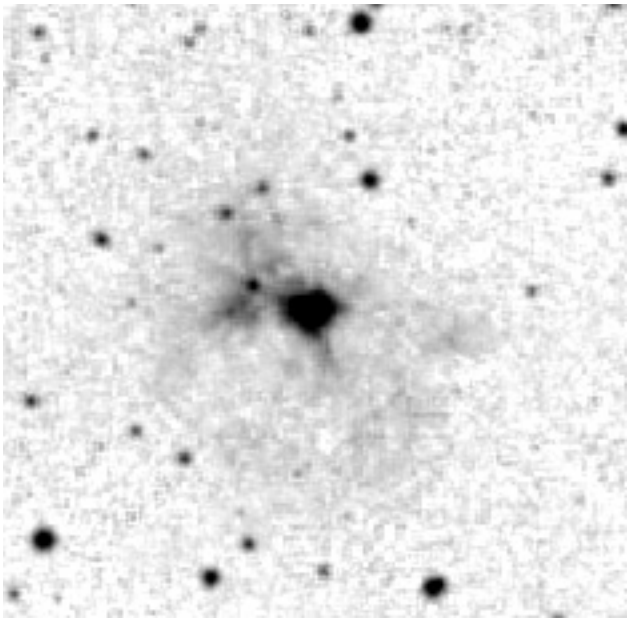
22" f/4.5
Appears as a weak stellar object. SW extension only suspected at times with indirect vision.


Lacerta
+45°00'
+40°00'
+35°00'
23h30m
23h00m
22h30m
22h00m


+42°00'
+41°00'
+40°00'
+39°00'
NGC 7282
22h45m
22h40m
22h35m
22h30m
22h25m

V628 Cas / MWC 1080 in Cassiopeia





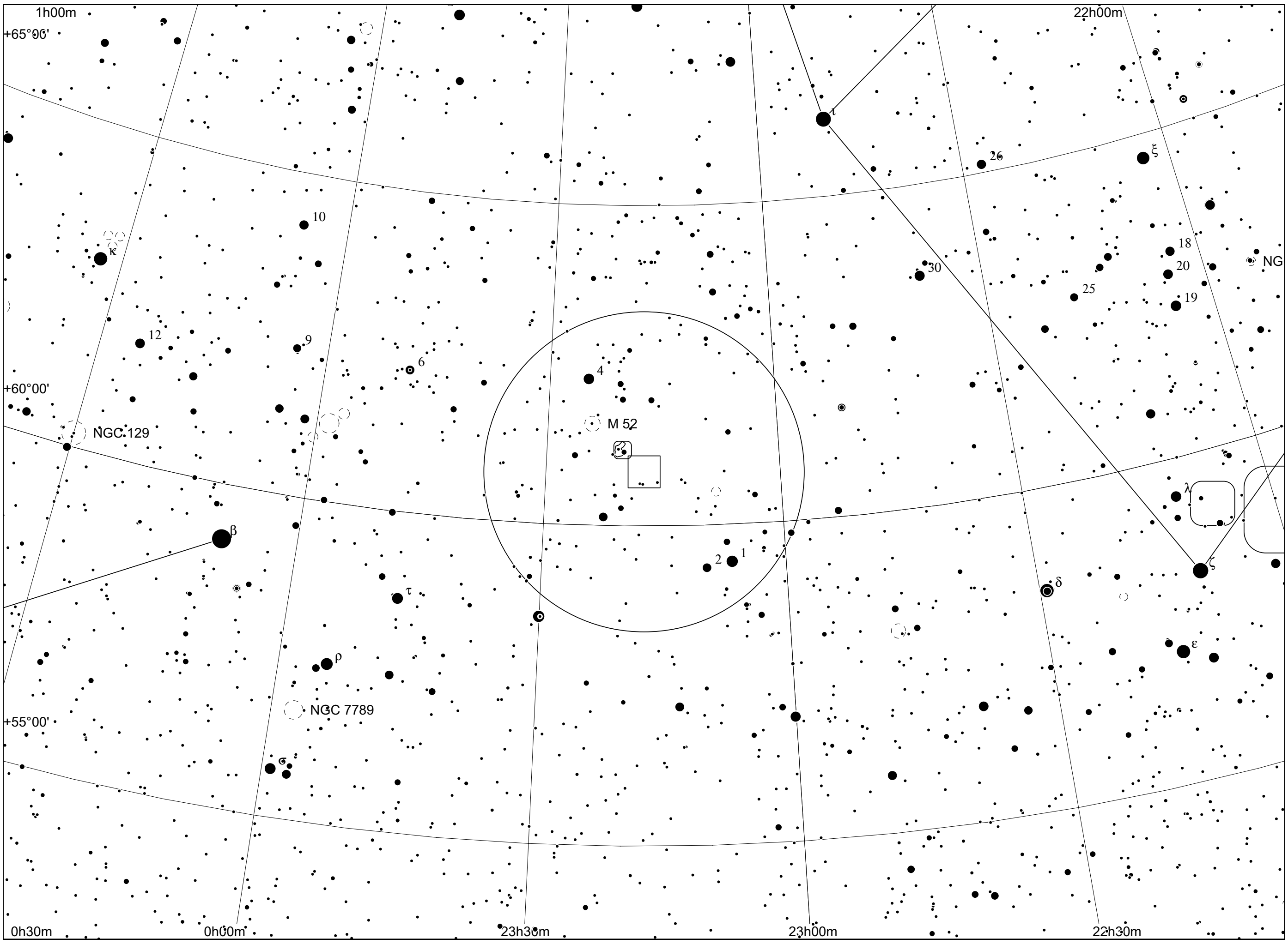
POSS blue

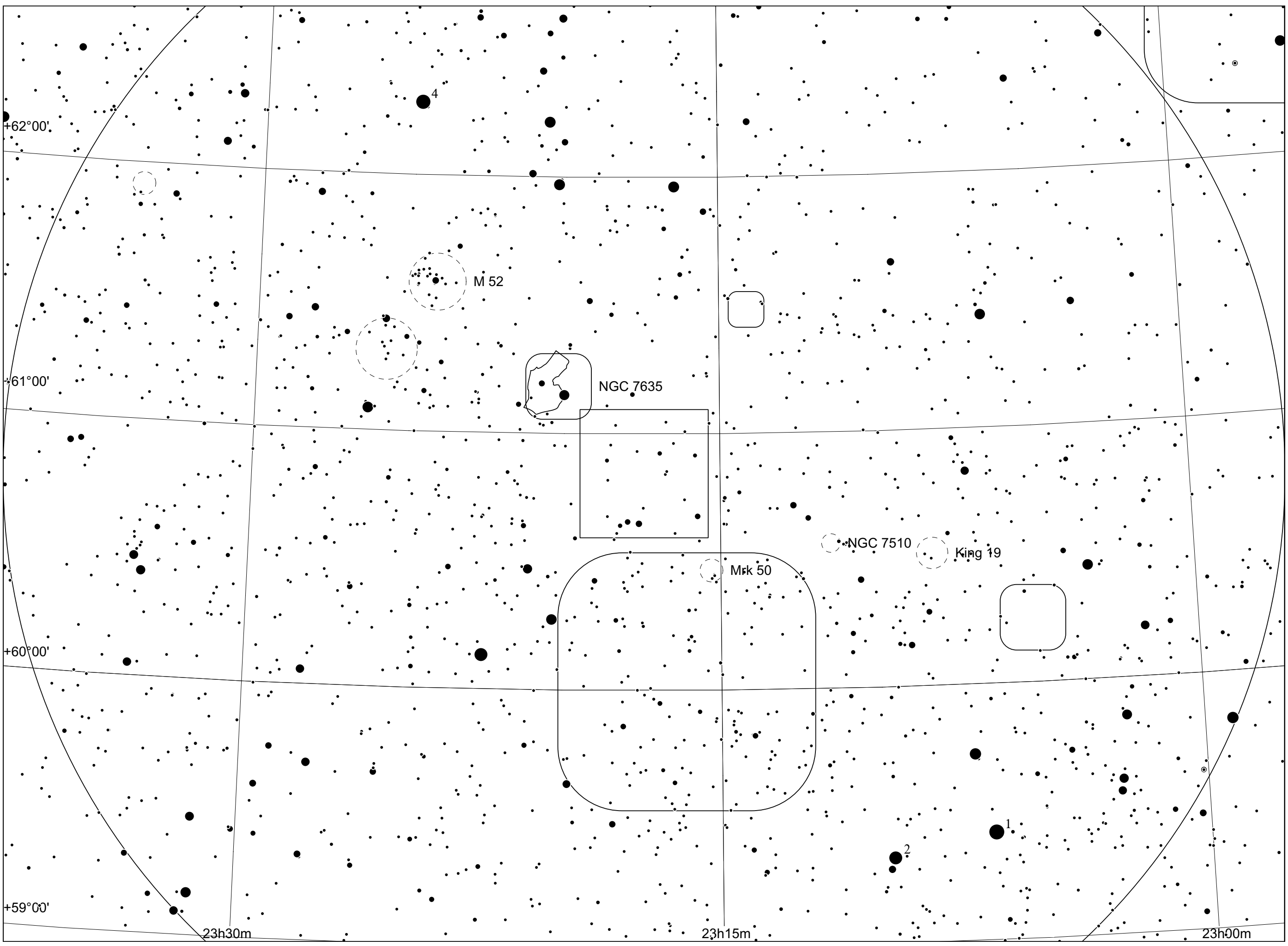
POSS composite

	other	RA	Dek	comments
V* V628 Cas		23 17 25.57	+60 50 43.3	**with** HH 170

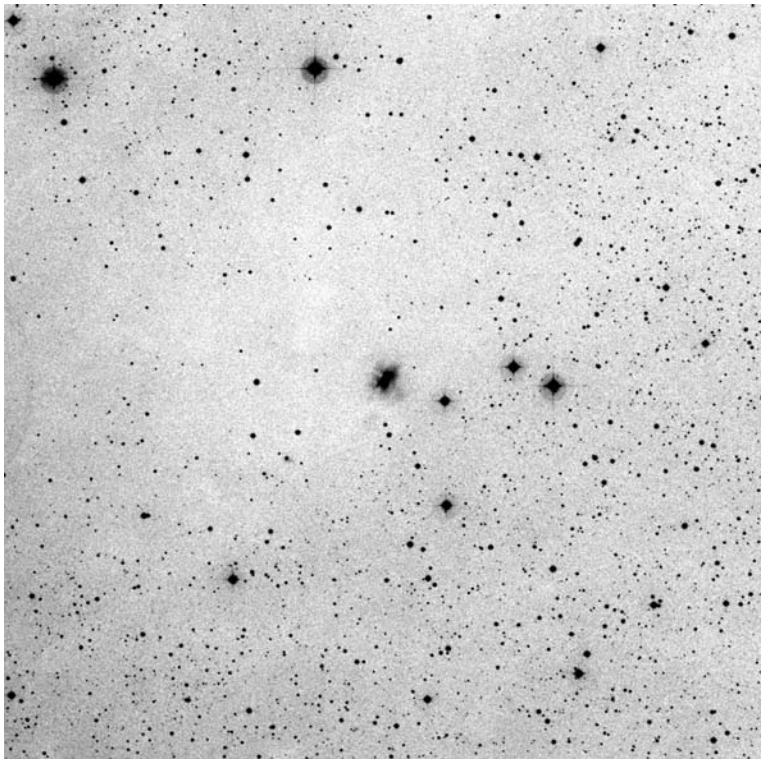
Observing notes:

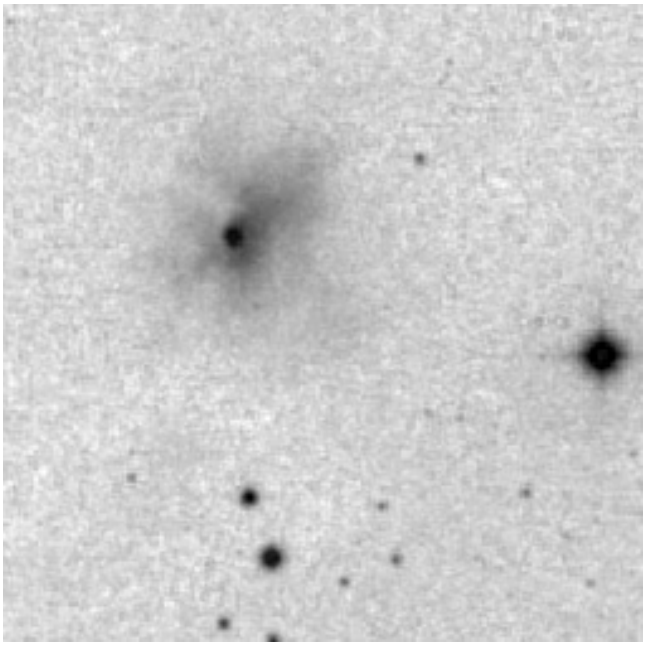
22" f/4.5
With 7 mm, the object appears bright and stellar with direct vision. With indirect vision, I suspected an extended glow to the E.


1h00m
22h00m
+65°00'
+60°00'
+55°00'
NGC 129
M 52
NGC 7789
0h30m
0h00m
23h30m
23h00m
22h30m


+62°00'
+61°00'
+60°00'
+59°00'
M 52
NGC 7635
NGC 7510
King 19
Mrk 50
23h30m
23h15m
23h00m

LkHa 259 in Cepheus





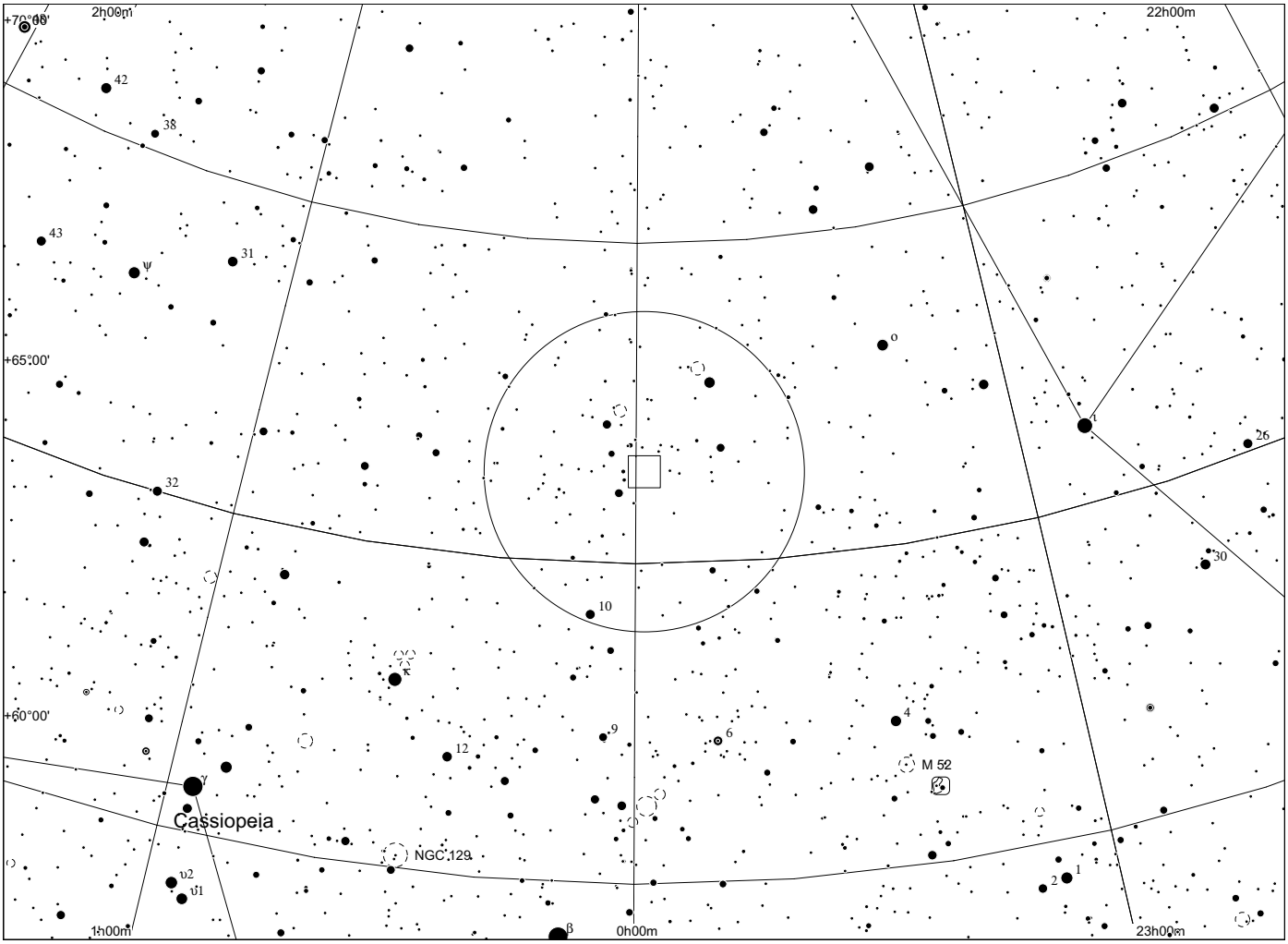
POSS blue

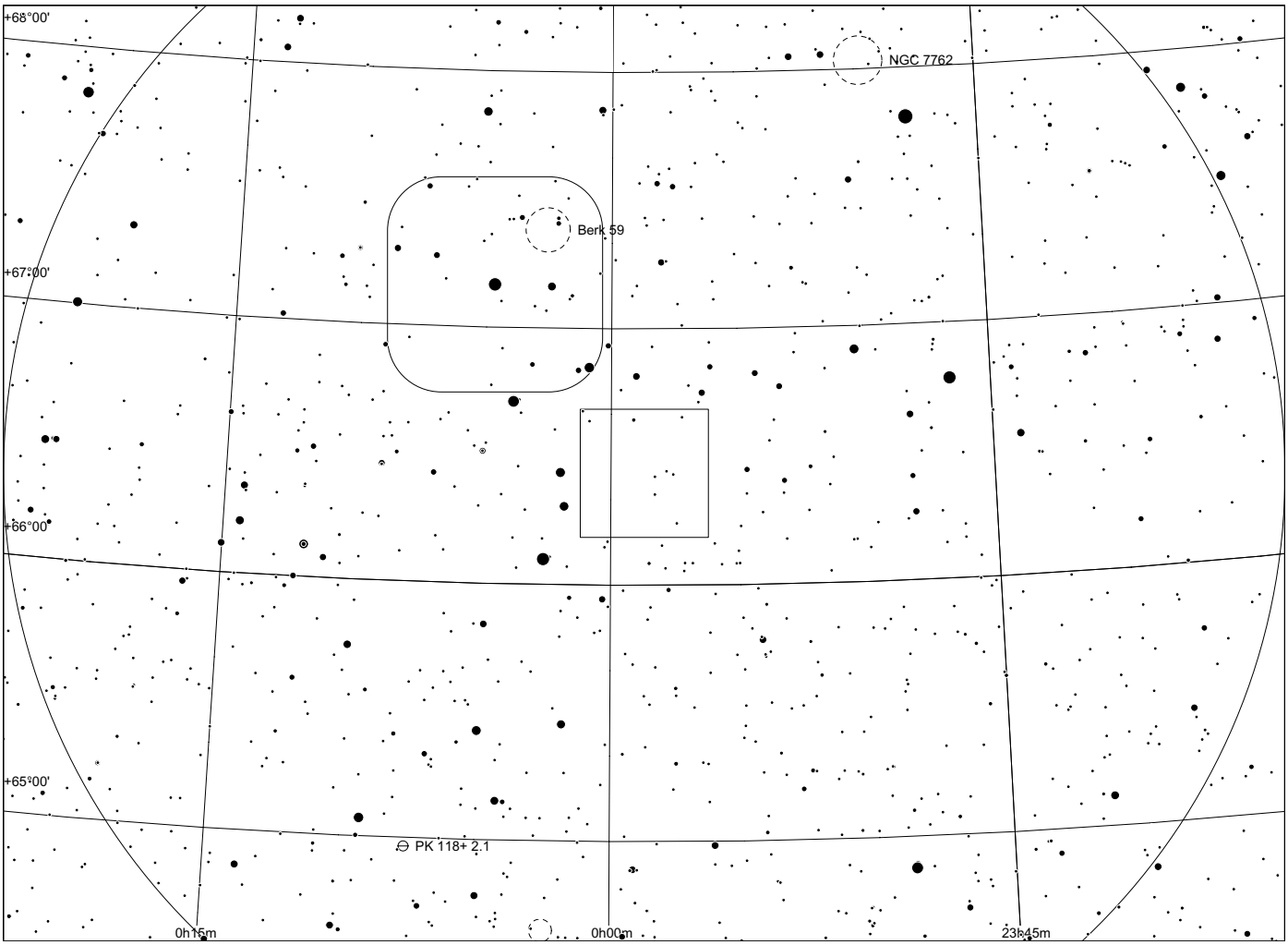
POSS composite

	other	RA	Dek	comments
2MASS J23584164+6626126	HBC 321, PP 106	23 58 41.54	+66 26 12.9	

Observing notes:

22" f/4.5
A faint glow could be seen relatively easily, which is condensed to the middle with a stellar center. Sometimes, the nebula appeared fan shaped, with the broader side opening to NW.


+70°00'
2h00m
22h00m
42
38
43
31
ψ
+65°00'
o
1
26
32
30
10
+60°00'
9
6
4
12
M 52
γ
Cassiopeia
NGC 129
υ2
υ1
2
1
1h00m
β
0h00m
23h00m


+68°00'
NGC 7762
Berk 59
+67°00'
+66°00'
+65°00'
PK 118+ 2.1
0h15m
0h00m
23h45m