

UNIVERSITY OF WATERLOO

# PHYS 437A Assignment 2

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This week, I compared my list of 284 primaries to Ryan's list of 274 primaries to check if the extra 10 in my list were the ones missing in Ryan's list and why Ryan excluded them.

I made a script called “284\\_primaries\\_compared\\_to\\_274.py” to compare the two lists and print the primaries in my list that were missing from Ryan's list. When I did that, instead of getting back 10 extra primaries, I got back 23. 23 primaries in my list that weren't in Ryan's list. These were primaries that Ryan cut that I did not cut.

I then went back to last week's script to see what was going on. I found out that there was a discrepancy between my cut of primaries not within the SDSS survey and Ryan's cut. I had cut 64 primaries in that cut, as the SDSS DR8 CrossID tool did not give back those primaries when I queried them in the database (ie. these galaxies were not within 0.5 arcminutes of a detection in SDSS). However, 13 of those primaries were in Ryan's list of 274 primaries. These were primaries I cut that Ryan did not cut. Using the SDSS DR8 and DR13 Navigate Tools [9] [10], these 13 were in fact in SDSS. The CrossID tool was not sufficient at providing all the primaries that were in SDSS that I queried. The 13 primaries that I should not have cut were namely:

1. NGC0628
2. NGC1073
3. NGC2775
4. NGC2903
5. NGC3169
6. NGC3184
7. NGC3344
8. NGC4559
9. NGC4725
10. NGC4736
11. NGC5005
12. NGC5371
13. NGC7714

So in all, I had 23 extra primaries in my final list, not the expected 10, from Ryan's list and Ryan had 13 primaries which I cut from my list. That means I cut 13 that I shouldn't have cut, leaving me with 297 primaries, not 284 primaries after applying the second cut, and 23 primaries extra which are in badly masked regions or regions of incomplete coverage. This would leave me with  $284 + 13 - 23 = 274$  primaries - the same as Ryan.

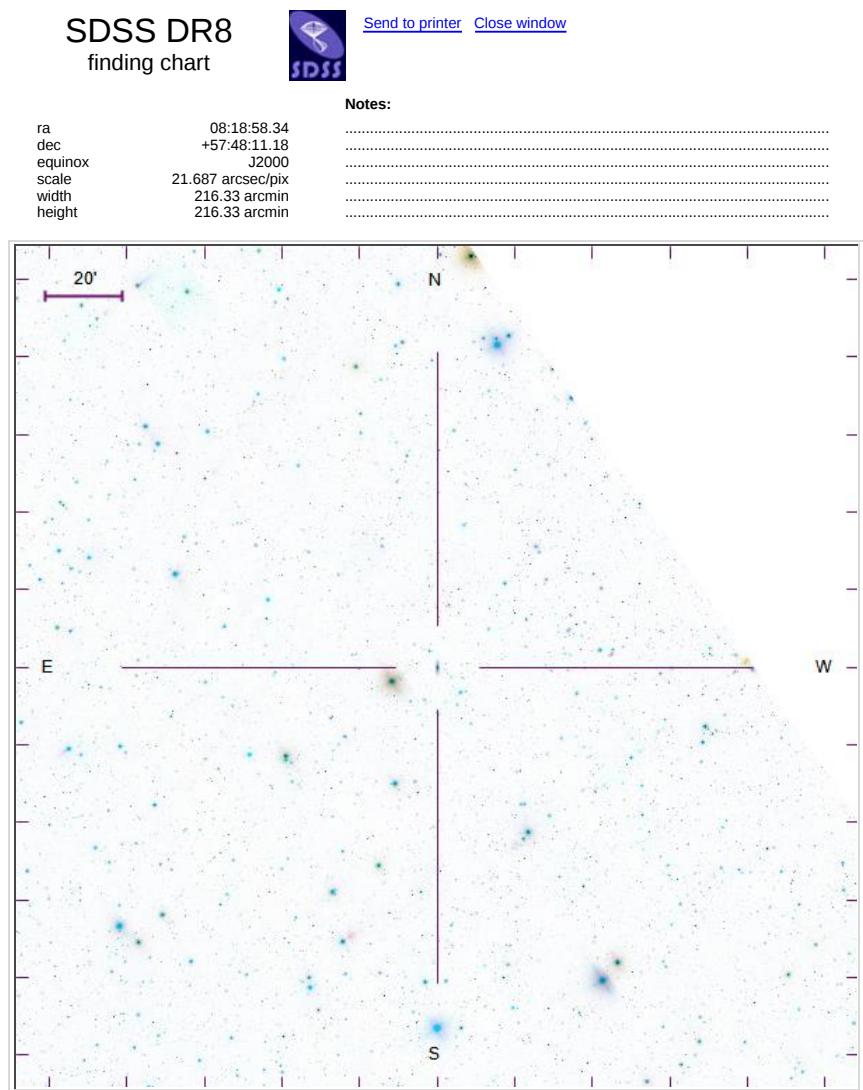
I checked to make sure my first and third cuts were applied properly. This involved writing in last week's script, “871\\_to\\_274\\_cuts.py”, code which looked into each list of cut primaries for each cut and making sure each primary that I cut was not in Ryan's list (ie. the first and third cuts I applied were the same primaries that Ryan cut). Both the first and third cuts cut primaries that Ryan also cut. Therefore, the 23 extra primaries Ryan must have cut in his second cut, and they must have been primaries in badly masked regions, or regions of incomplete coverage.

To check why Ryan cut these extra 23 primaries (why they were in badly masked regions or regions of incomplete coverage), I queried the 23 primaries in the SDSS DR8 and DR13 Navigate Tool. I provide reasoning

for why they are cut, as well as pictures to support my reasoning.

1. NGC2549 - Galaxy very close to edge of survey
2. PGC042549 - Galaxy very close to edge of survey
3. NGC0573 - Not sure why this isn't in Ryan's list
4. NGC0864 - Not sure why this isn't in Ryan's list
5. NGC1012 - Near survey edge
6. NGC1924 - In badly masked region
7. NGC2690 - In badly masked region and near edge of survey
8. NGC3359 - Near badly masked region
9. NGC4348 - Near survey edge
10. NGC4602 - Near survey edge
11. NGC4604 - Near survey edge
12. NGC4691 - Not sure why this isn't in Ryan's list
13. NGC6015 - Near survey edge
14. NGC6070 - Badly masked region
15. NGC6118 - At edge of survey
16. NGC6339 - Near badly masked region
17. NGC6384 - In badly masked region
18. NGC6675 - Near edge of survey
19. NGC7814 - Not sure why this isn't in Ryan's list
20. PGC005363 - Not sure why this isn't in Ryan's list
21. UGC03258 - Not sure why this isn't in Ryan's list
22. UGC10288 - In badly masked region
23. UGC12857 - Not sure why this isn't in Ryan's list

Most of the 23 primaries are clearly in bad regions, but for some it isn't immediately clear why Ryan removed them from his sample. The rest of this document will be the figures of the above 23 primaries from the SDSS DR8 and DR13 Navigate Tools.

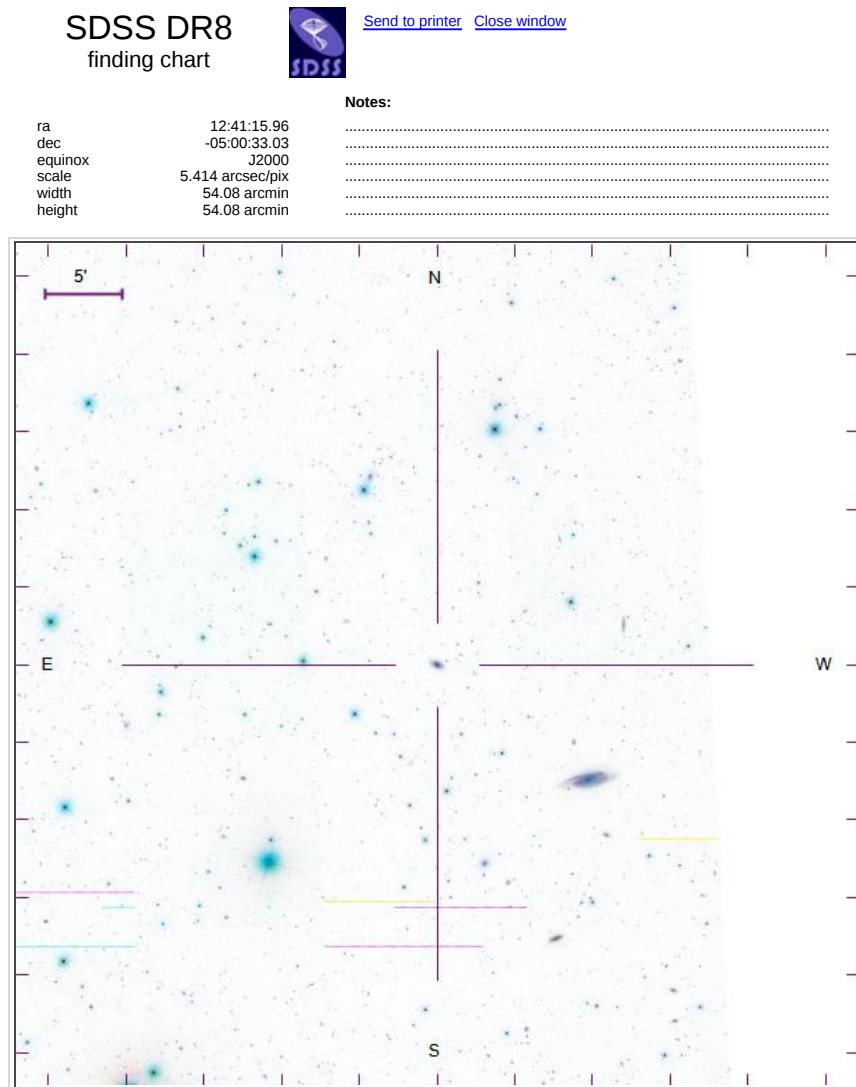


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Figure 1: NGC2549 SDSS DR8 Navigate Tool image with masks

<http://skyserver.sdss.org/dr8/en/tools/chart/printc...>



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Figure 2: PGC042549 SDSS DR8 Navigate Tool image with masks

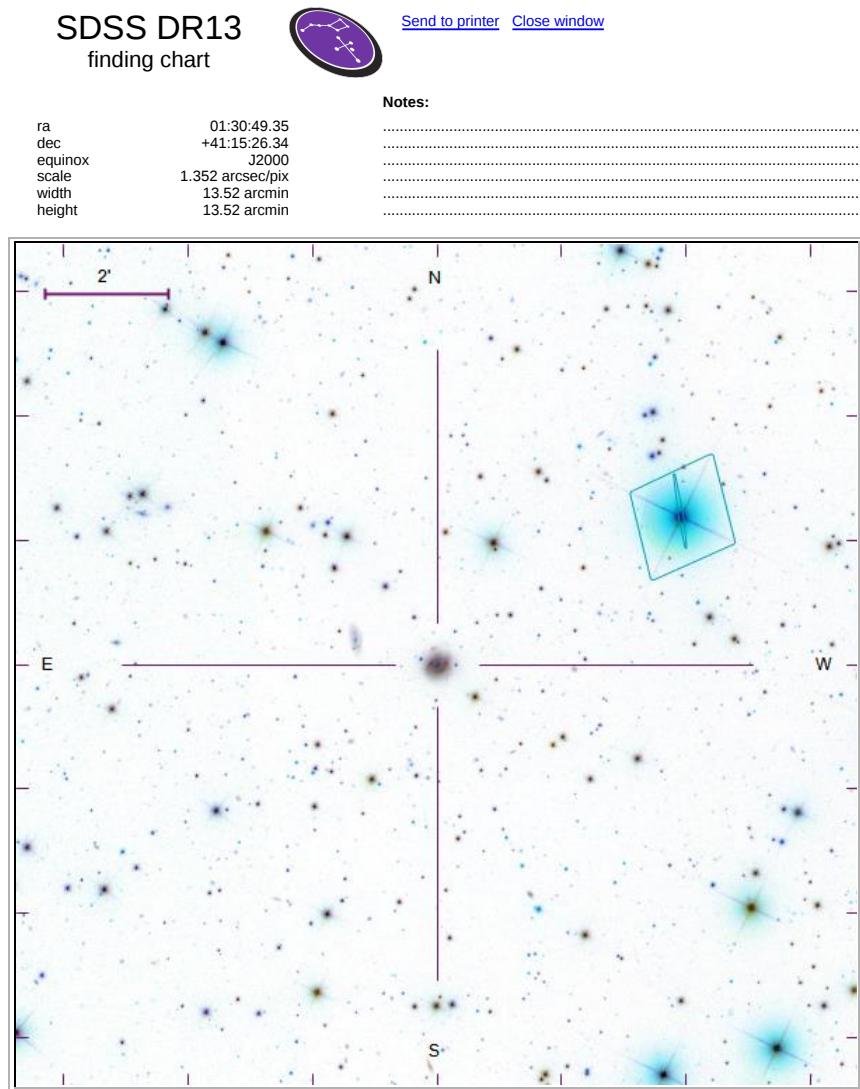


Figure 3: NGC0573 SDSS DR8 Navigate Tool image with masks

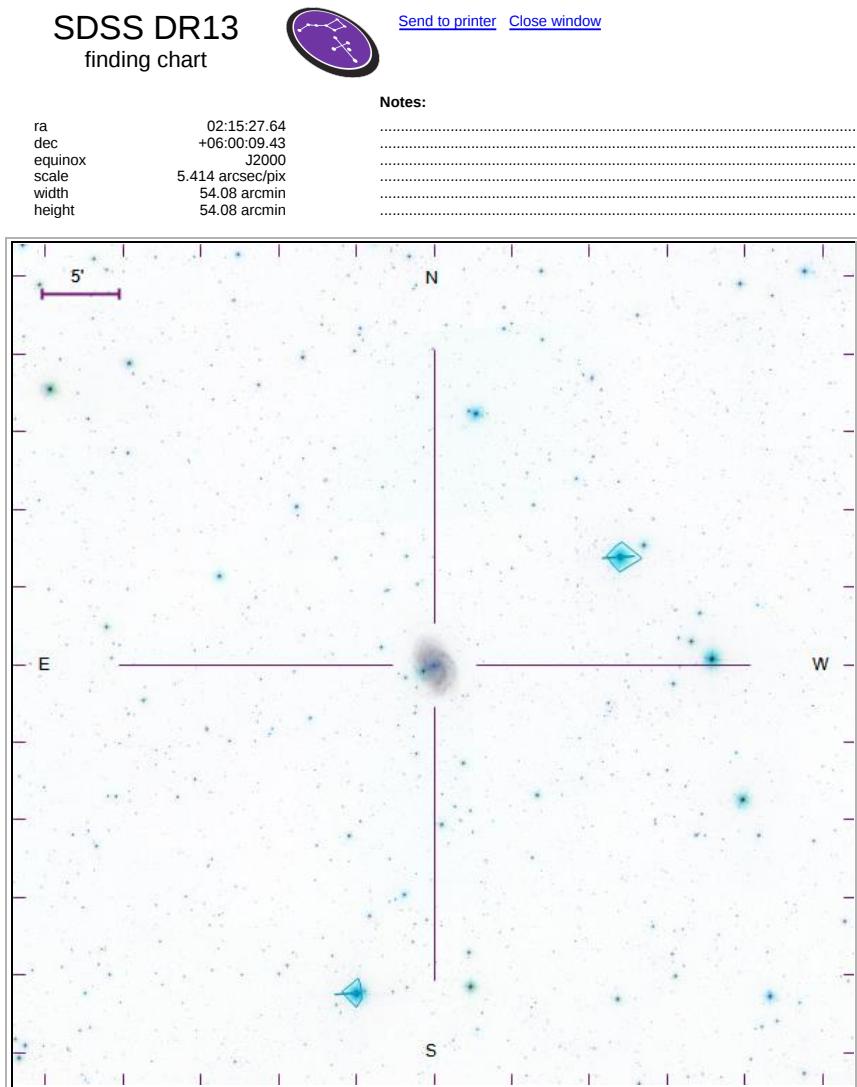


Figure 4: NGC0864 SDSS DR8 Navigate Tool image with masks

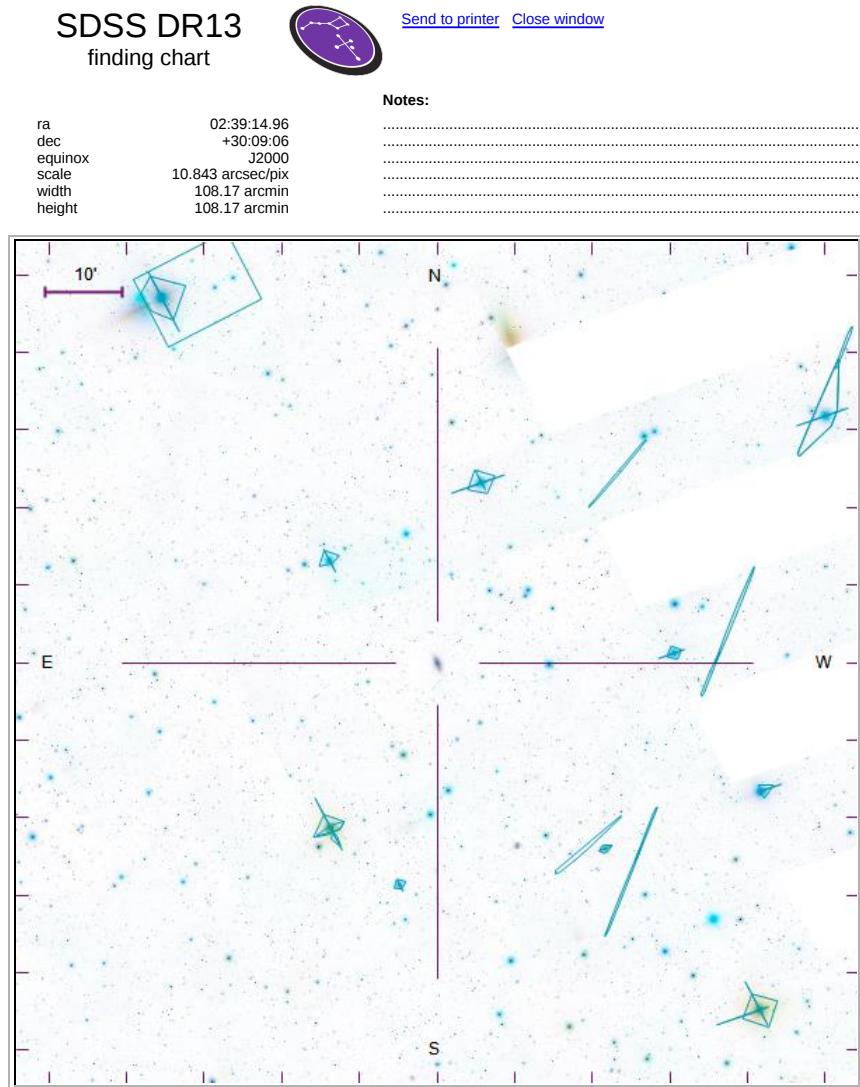
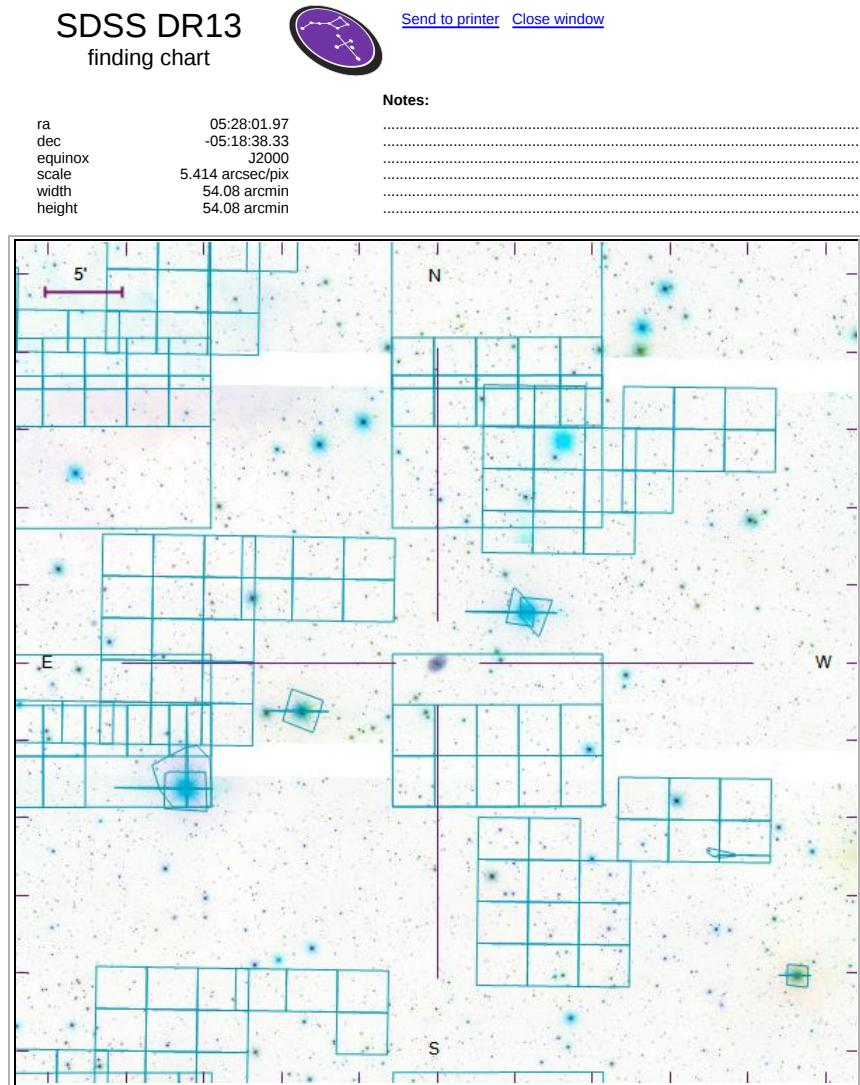


Figure 5: NGC1012 SDSS DR8 Navigate Tool image with masks



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Figure 6: NGC1924 SDSS DR8 Navigate Tool image with masks

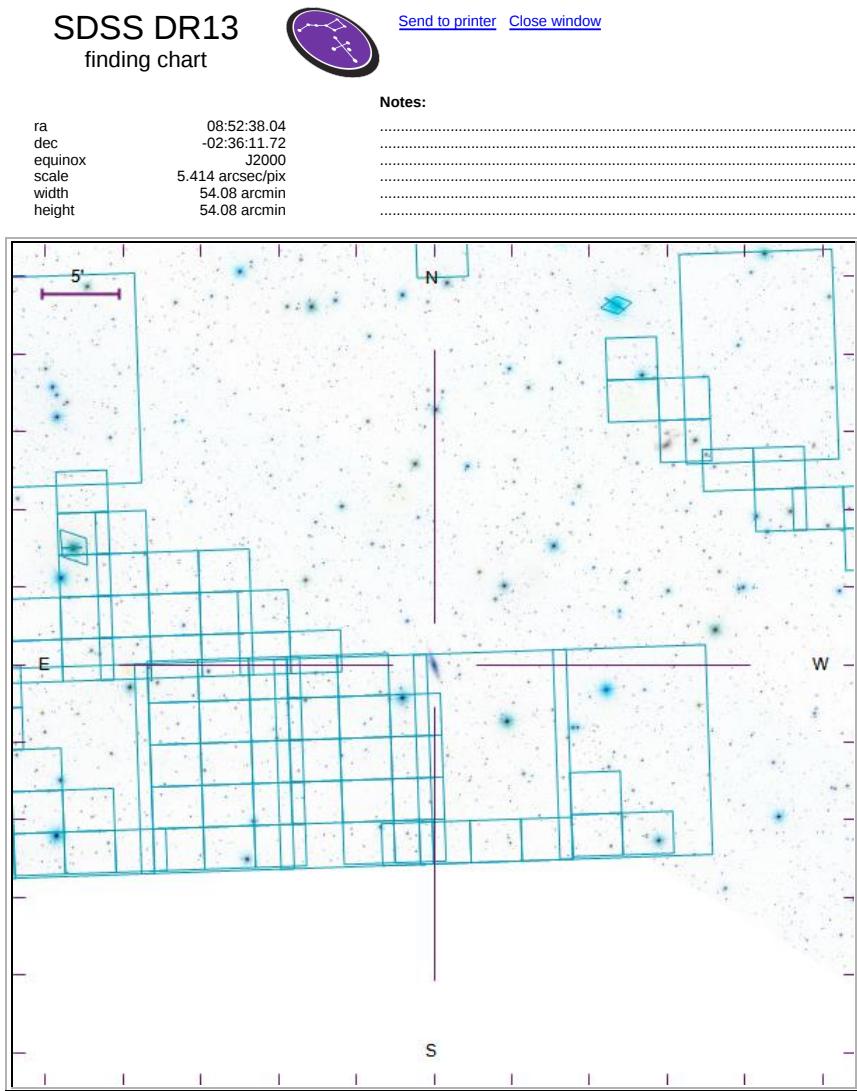


Figure 7: NGC2690 SDSS DR8 Navigate Tool image with masks

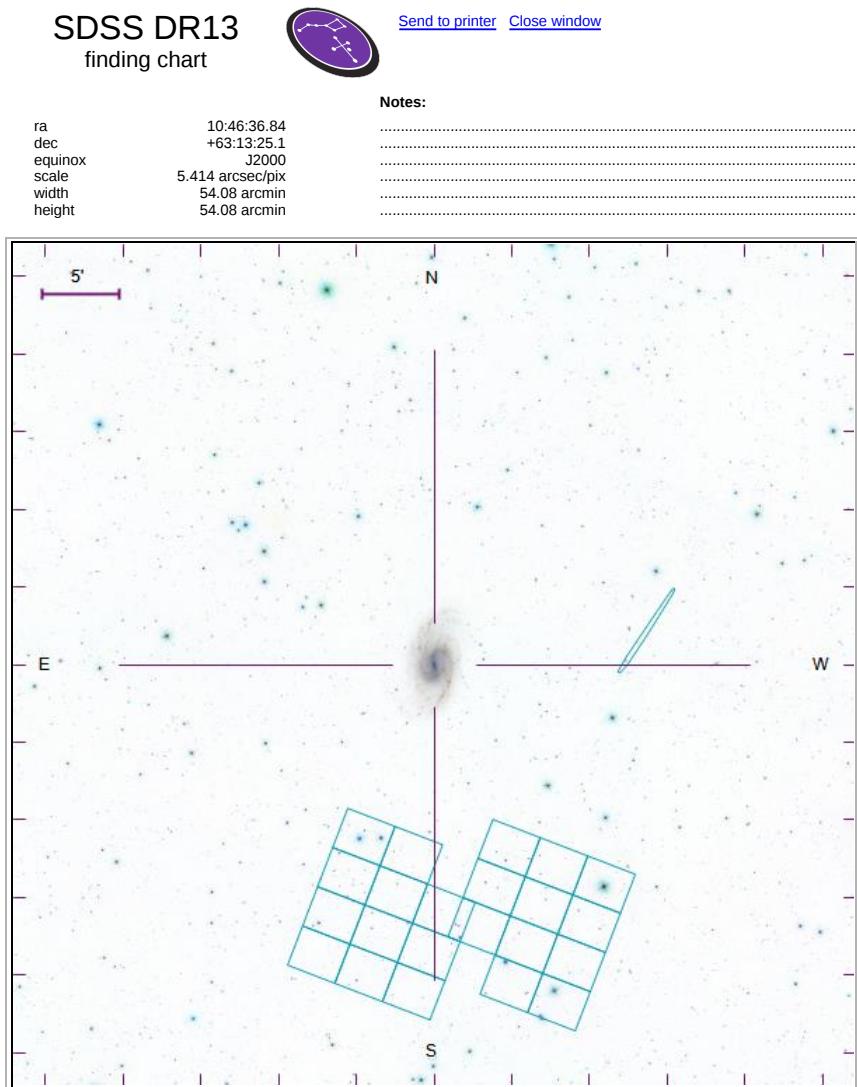


Figure 8: NGC3359 SDSS DR8 Navigate Tool image with masks

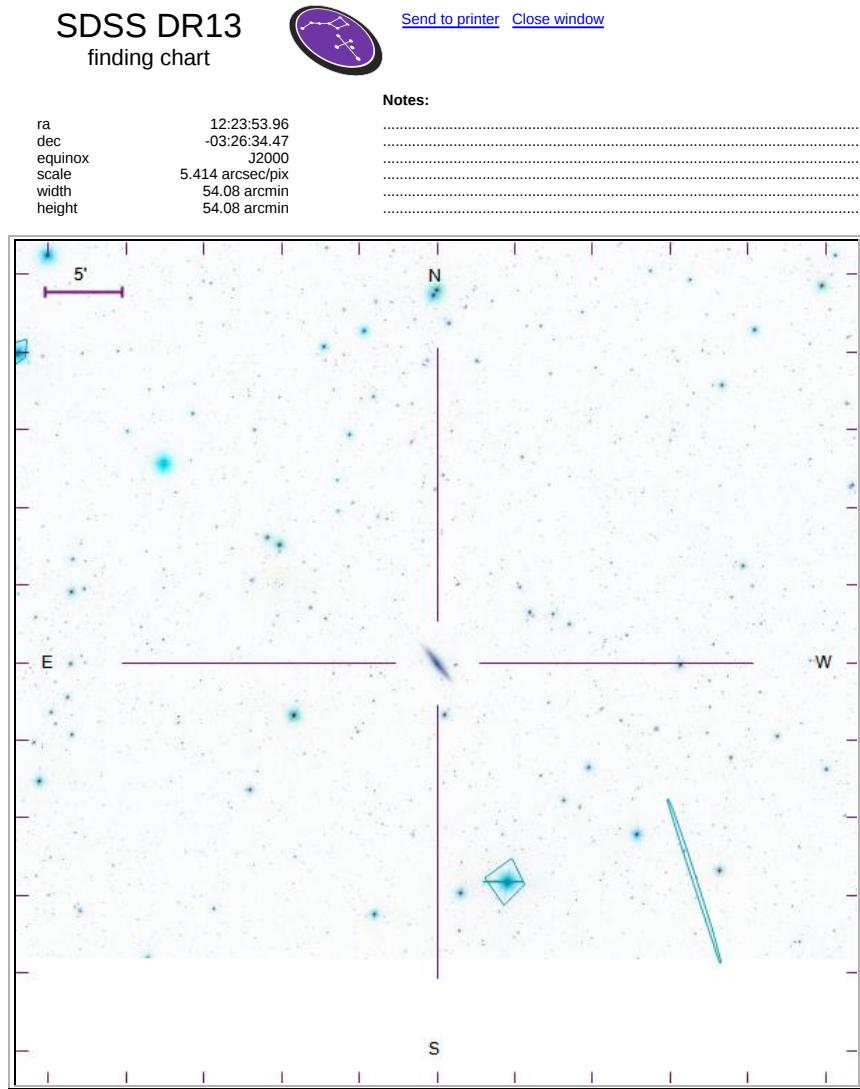


Figure 9: NGC4348 SDSS DR8 Navigate Tool image with masks

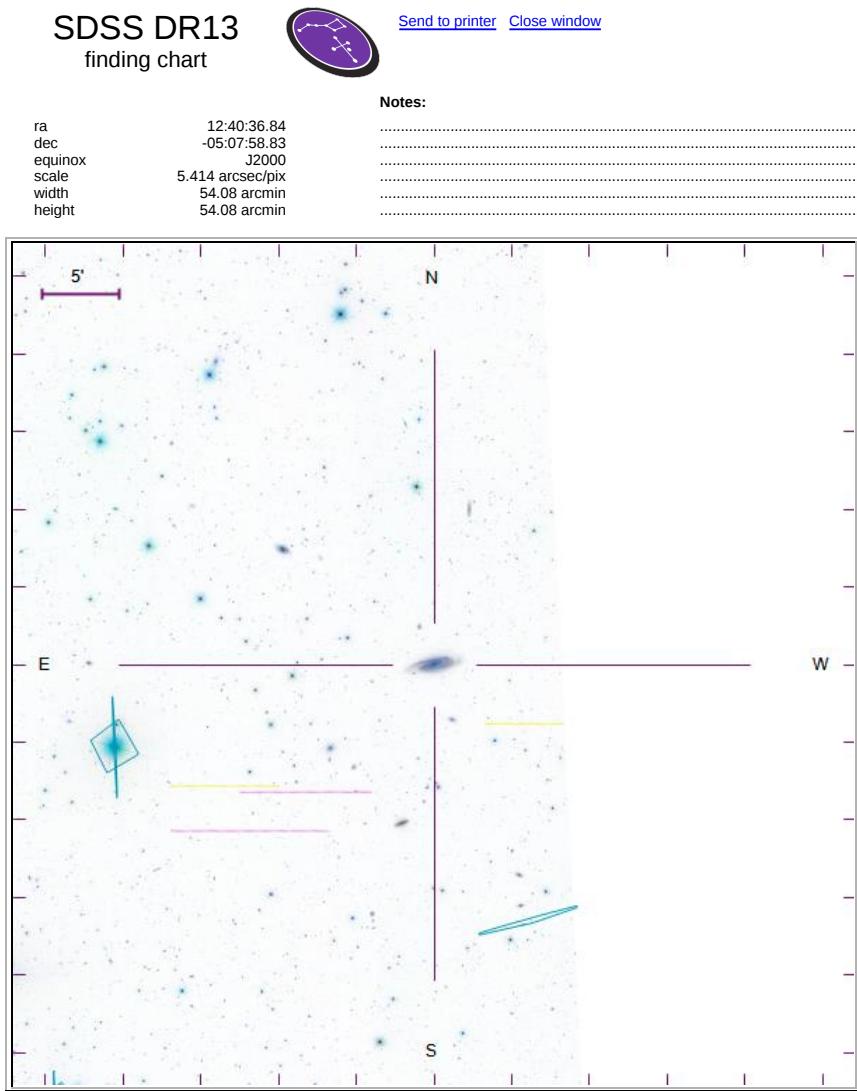


Figure 10: NGC4602 SDSS DR8 Navigate Tool image with masks

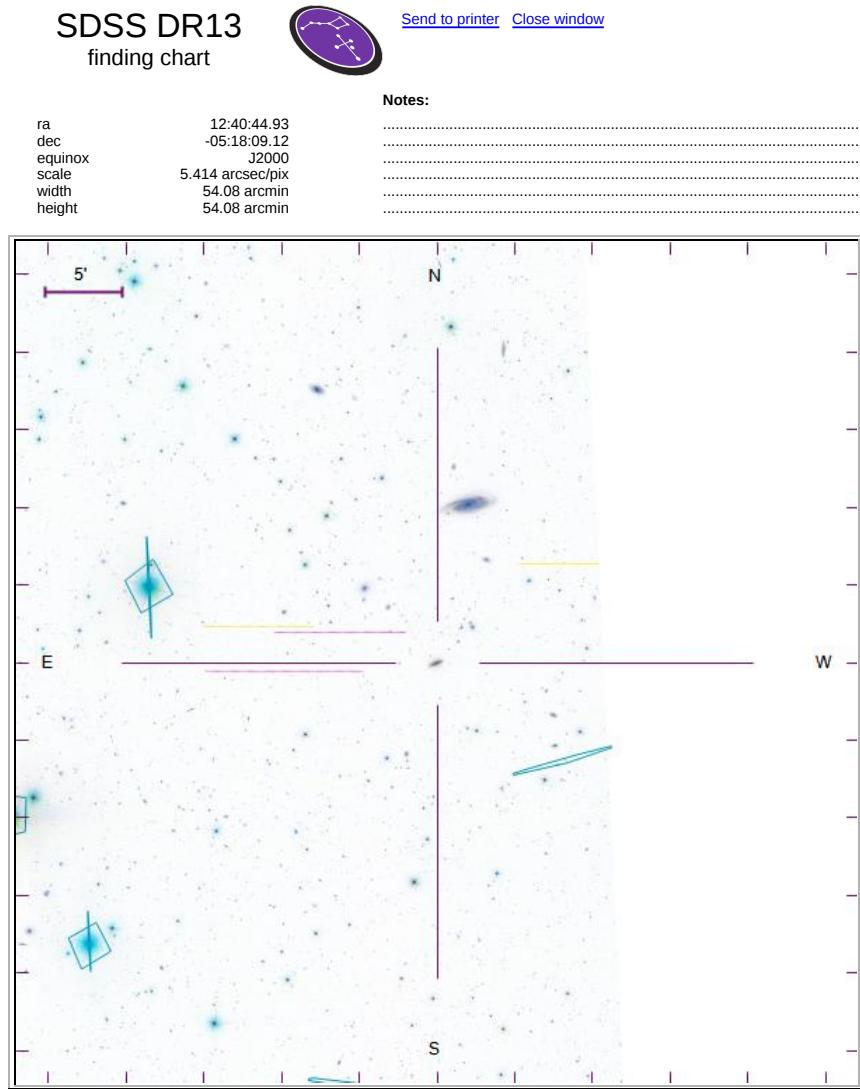
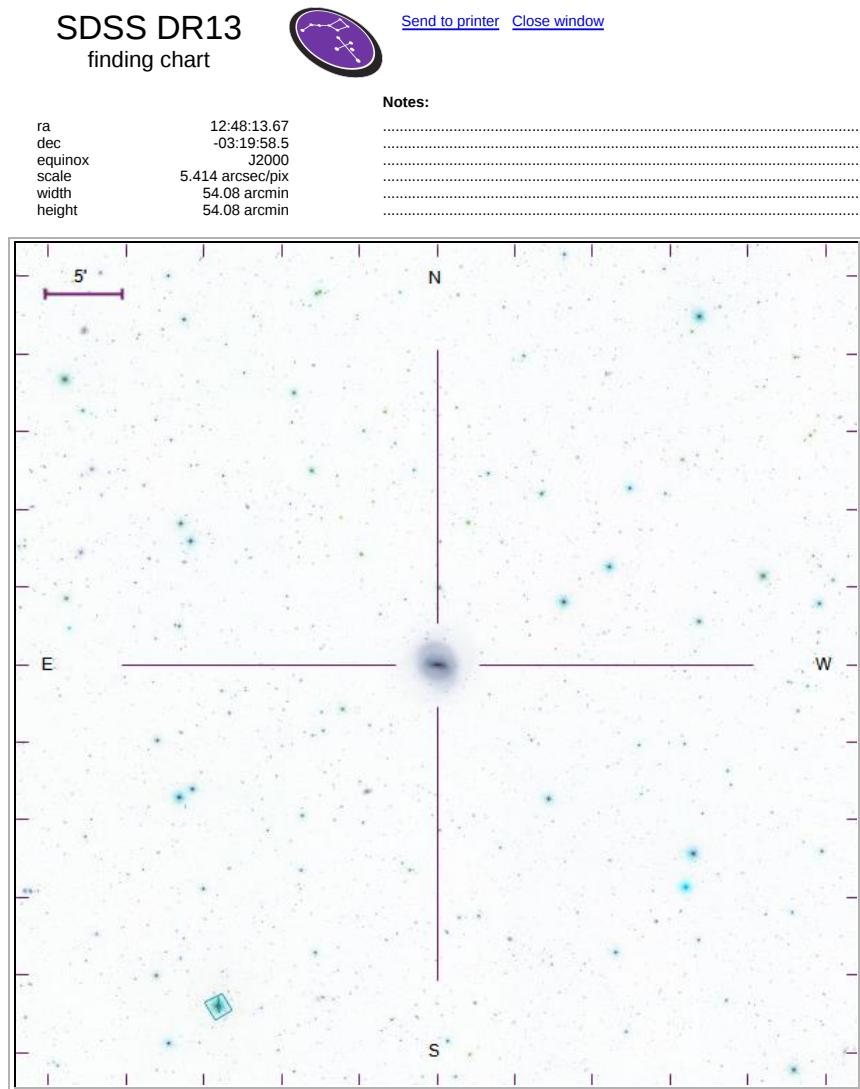


Figure 11: NGC4604 SDSS DR8 Navigate Tool image with masks



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Figure 12: NGC4691 SDSS DR8 Navigate Tool image with masks

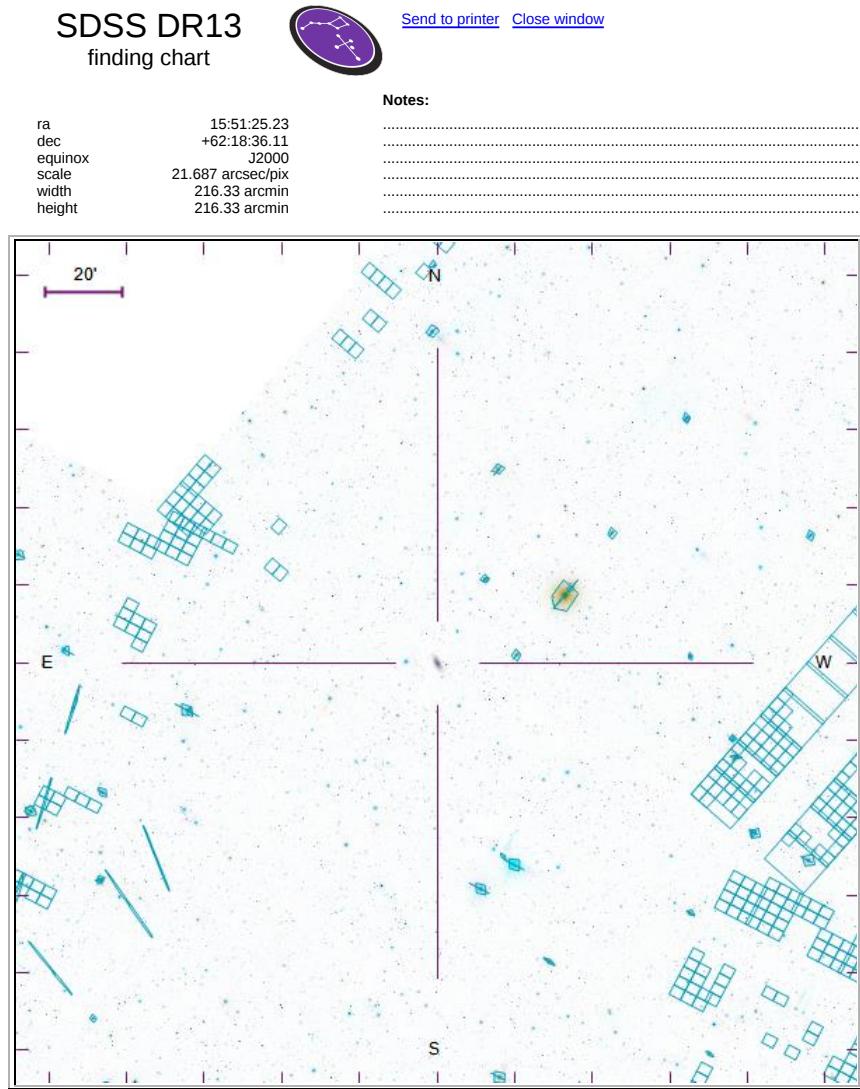


Figure 13: NGC6015 SDSS DR8 Navigate Tool image with masks

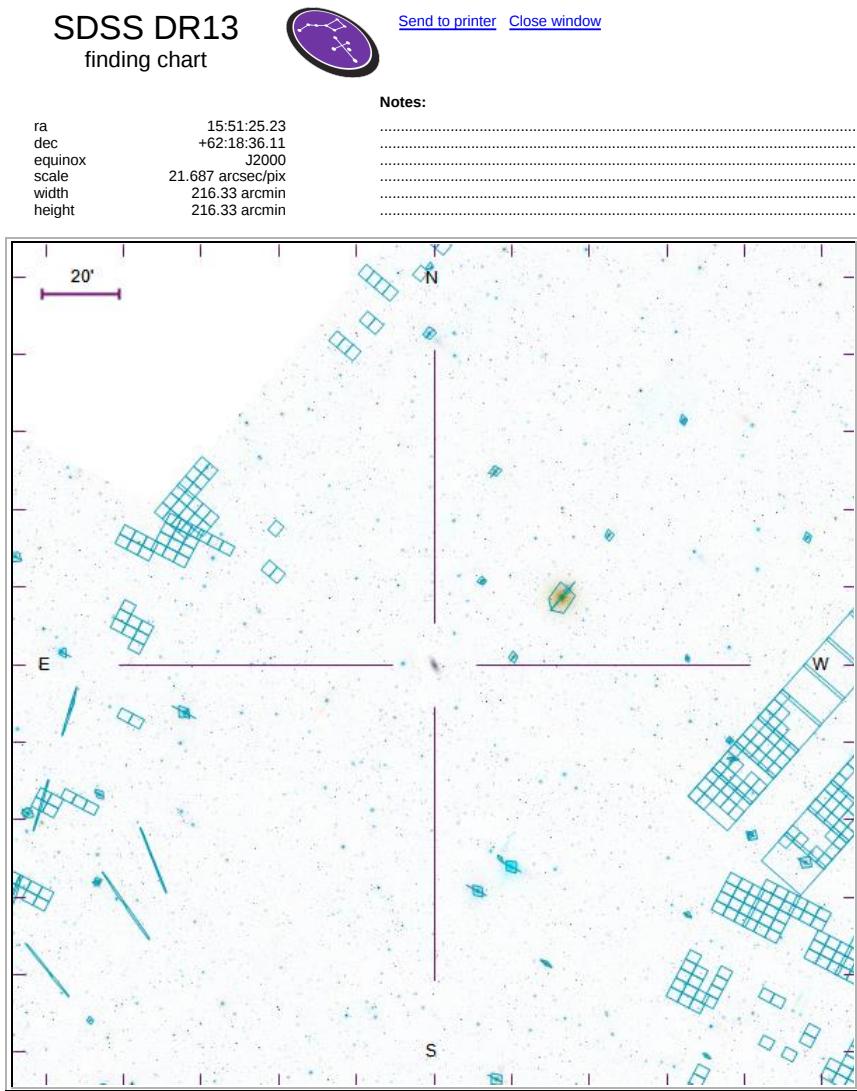


Figure 14: NGC6015 SDSS DR8 Navigate Tool image with masks

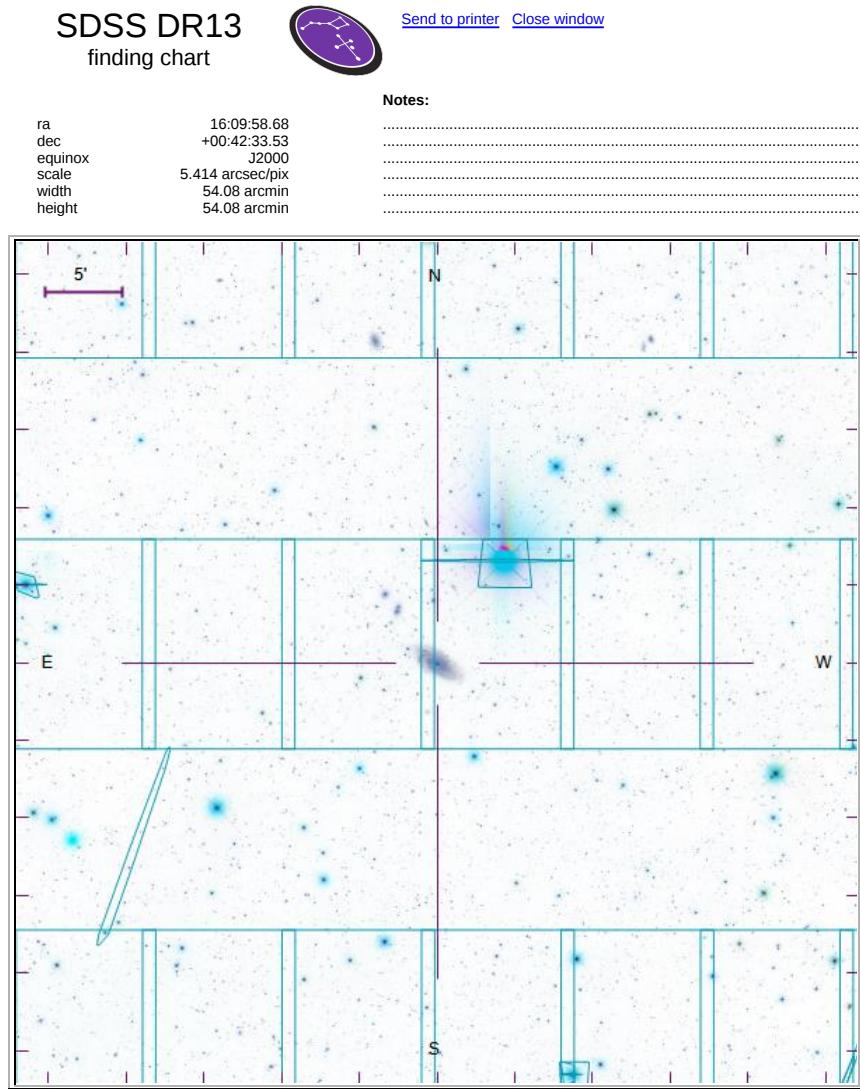


Figure 15: NGC6070 SDSS DR8 Navigate Tool image with masks

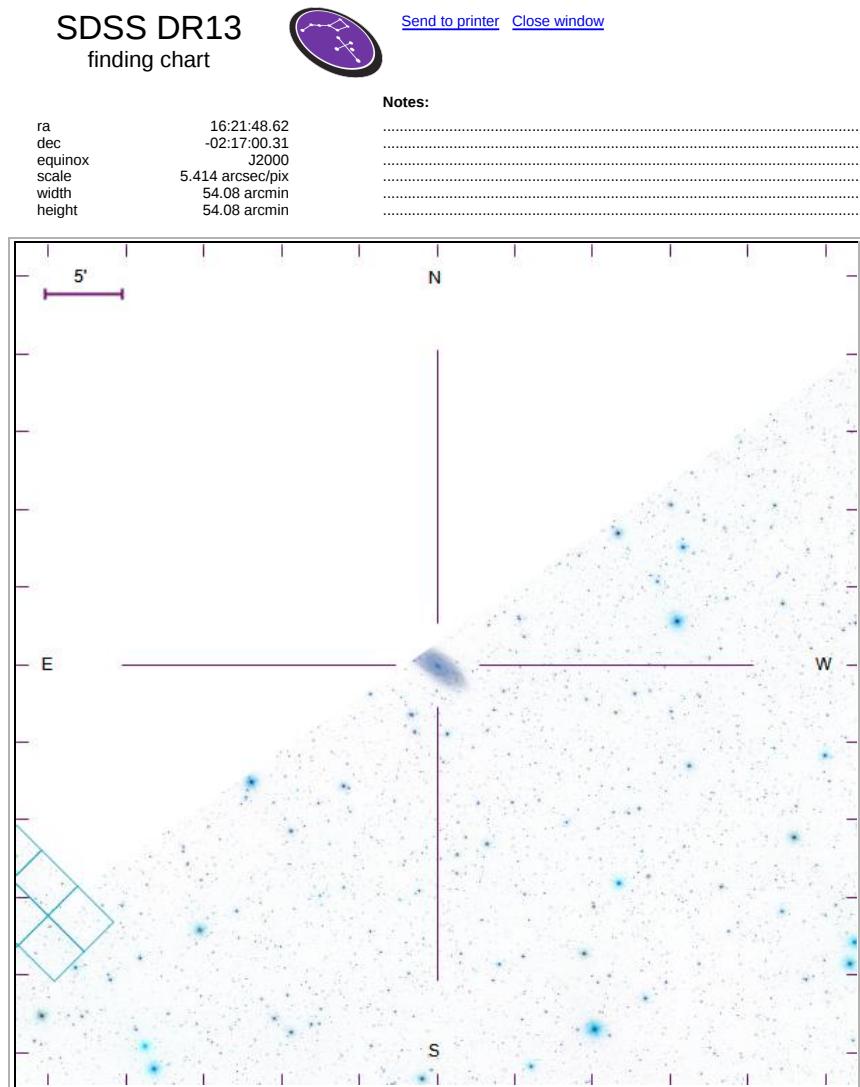


Figure 16: NGC6118 SDSS DR8 Navigate Tool image with masks

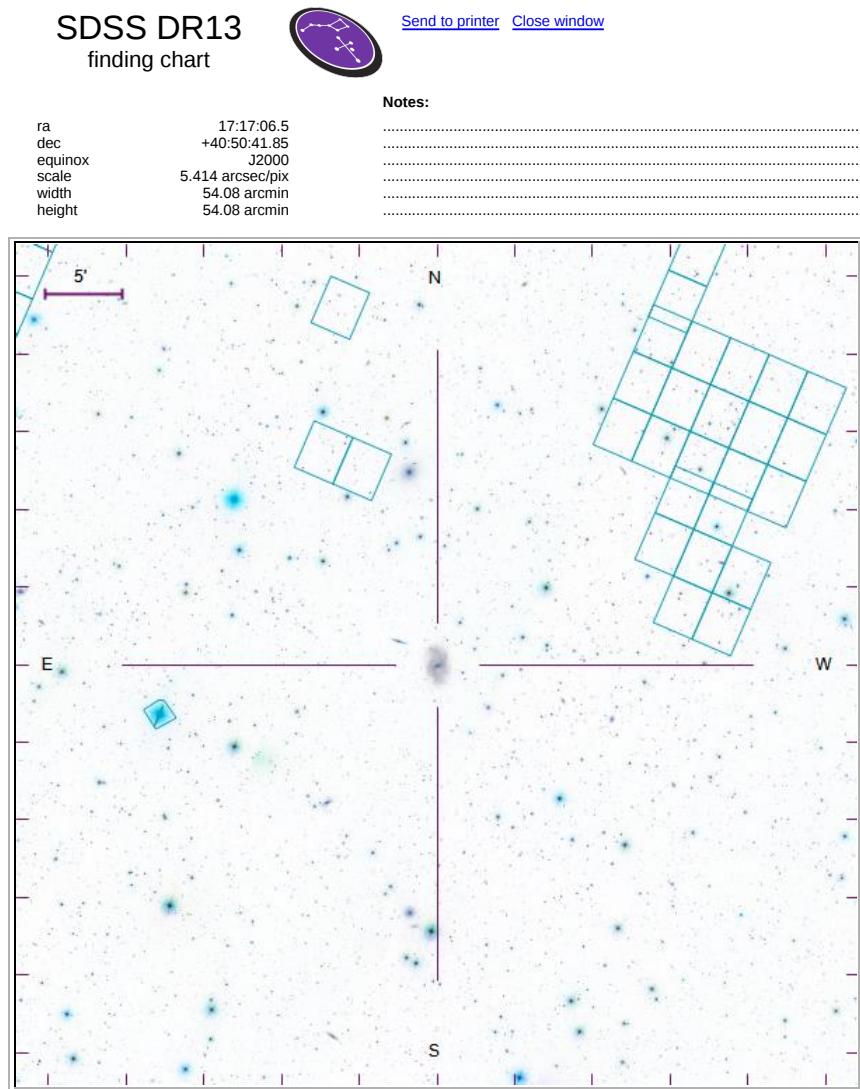


Figure 17: NGC6339 SDSS DR8 Navigate Tool image with masks

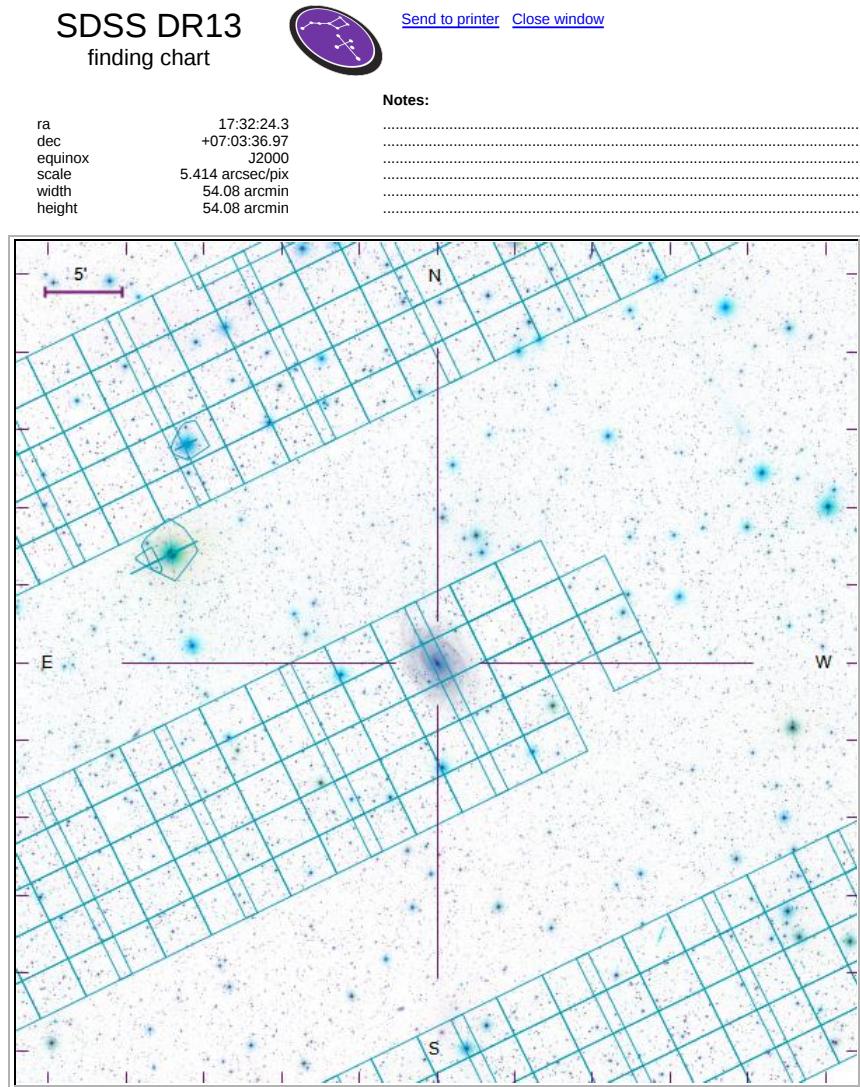
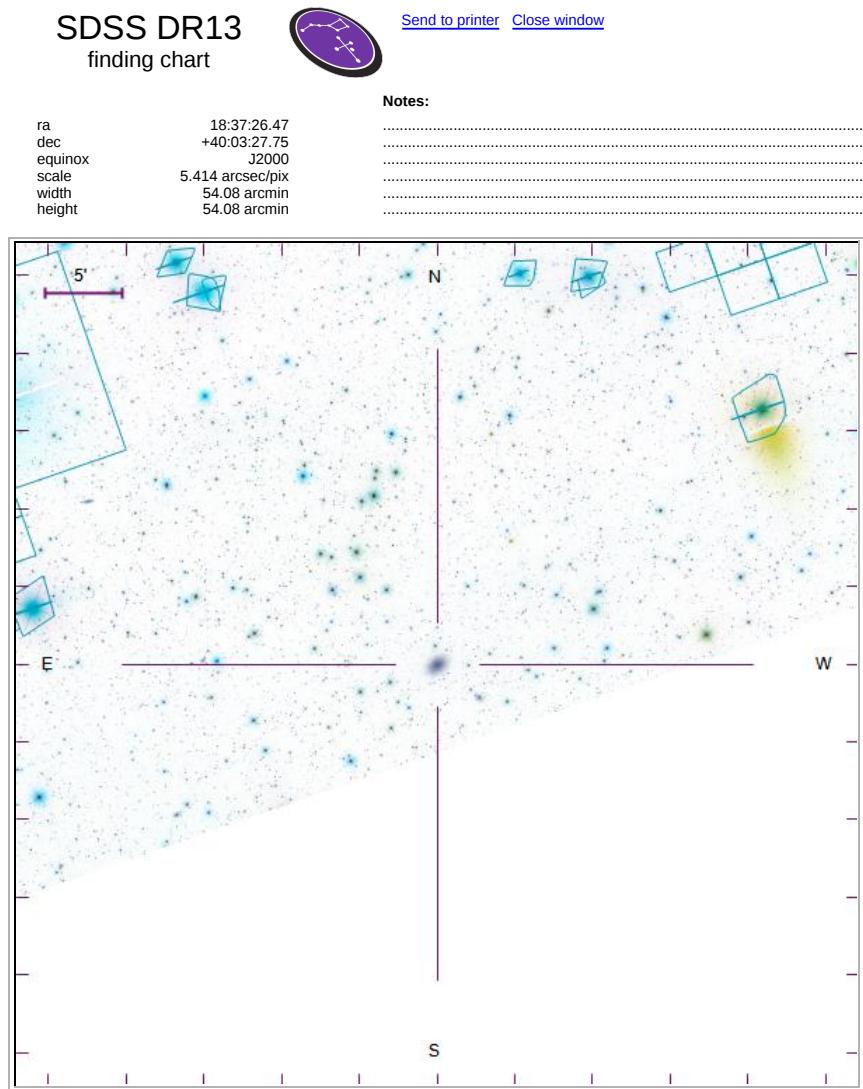


Figure 18: NGC6384 SDSS DR8 Navigate Tool image with masks



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Figure 19: NGC6675 SDSS DR8 Navigate Tool image with masks

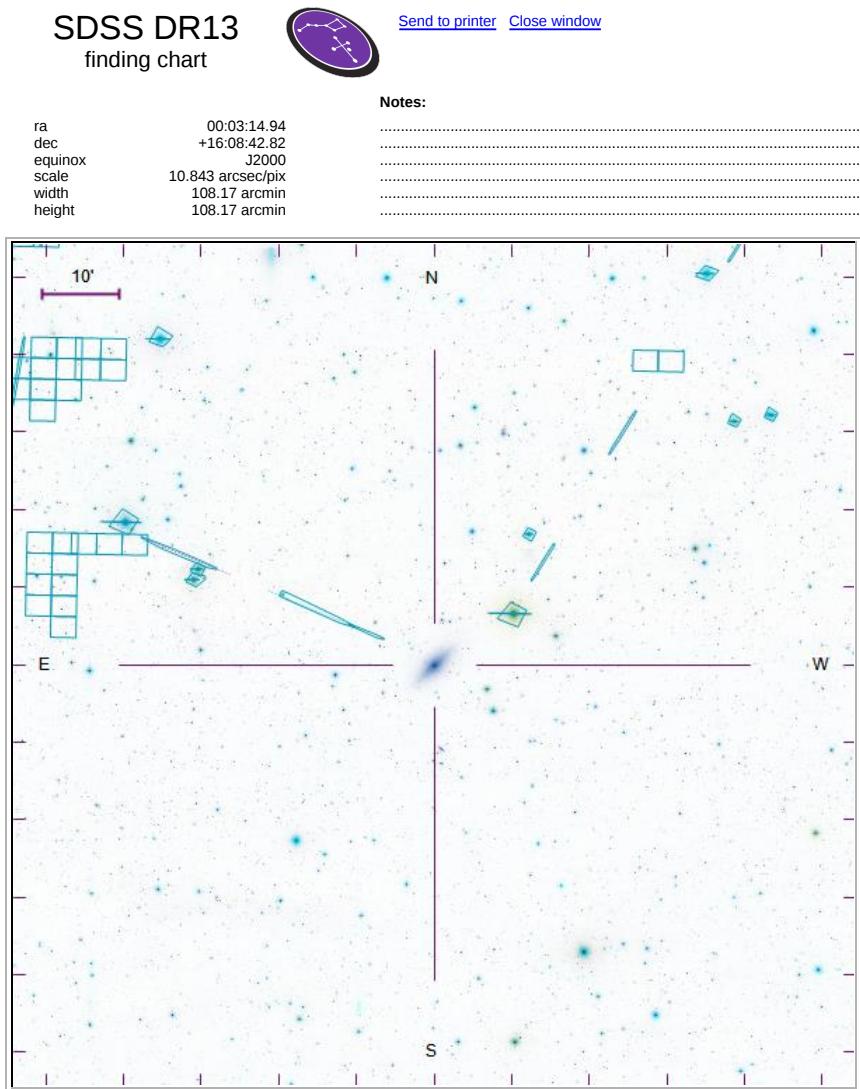


Figure 20: NGC7814 SDSS DR8 Navigate Tool image with masks

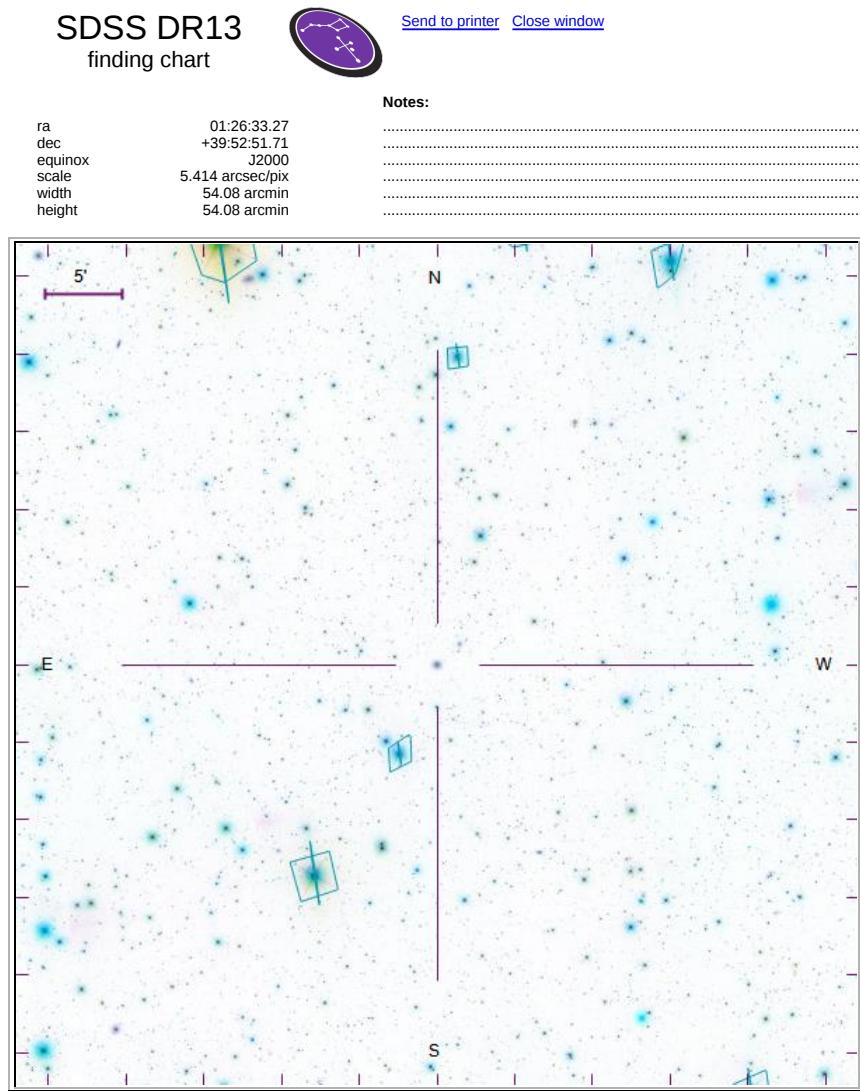


Figure 21: PGC005363 SDSS DR8 Navigate Tool image with masks

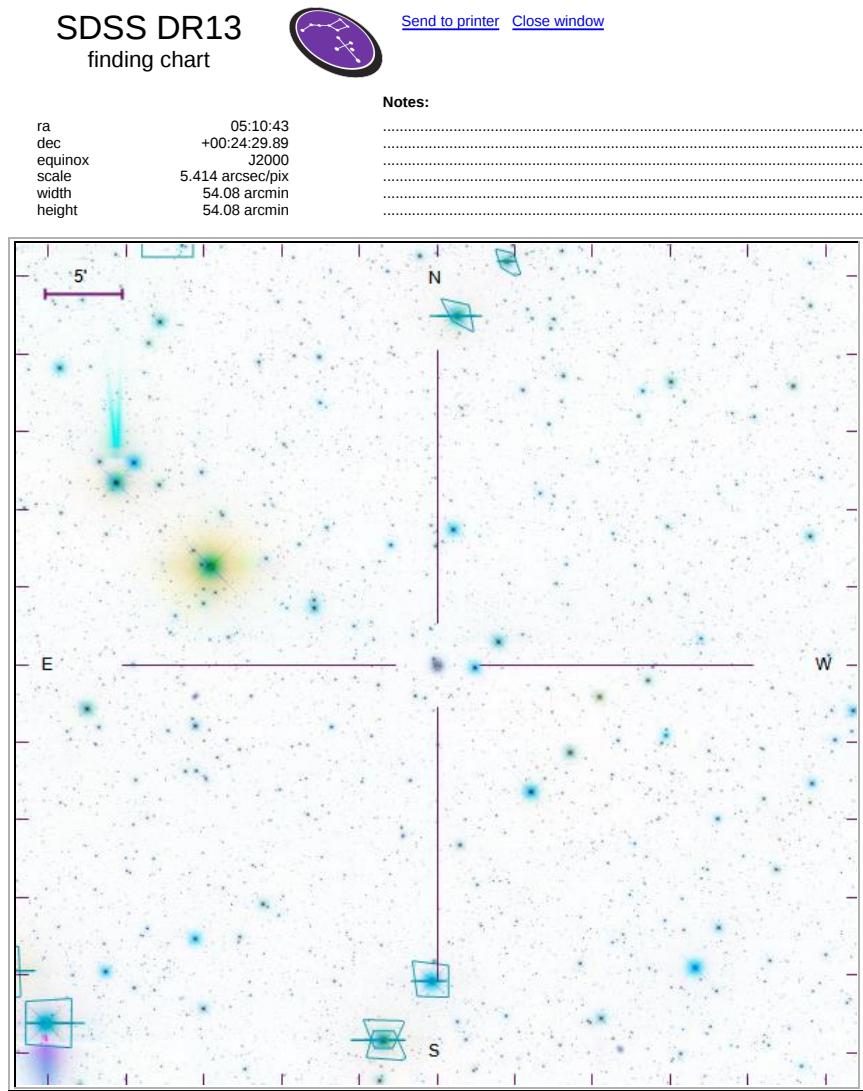


Figure 22: UGC03258 SDSS DR8 Navigate Tool image with masks

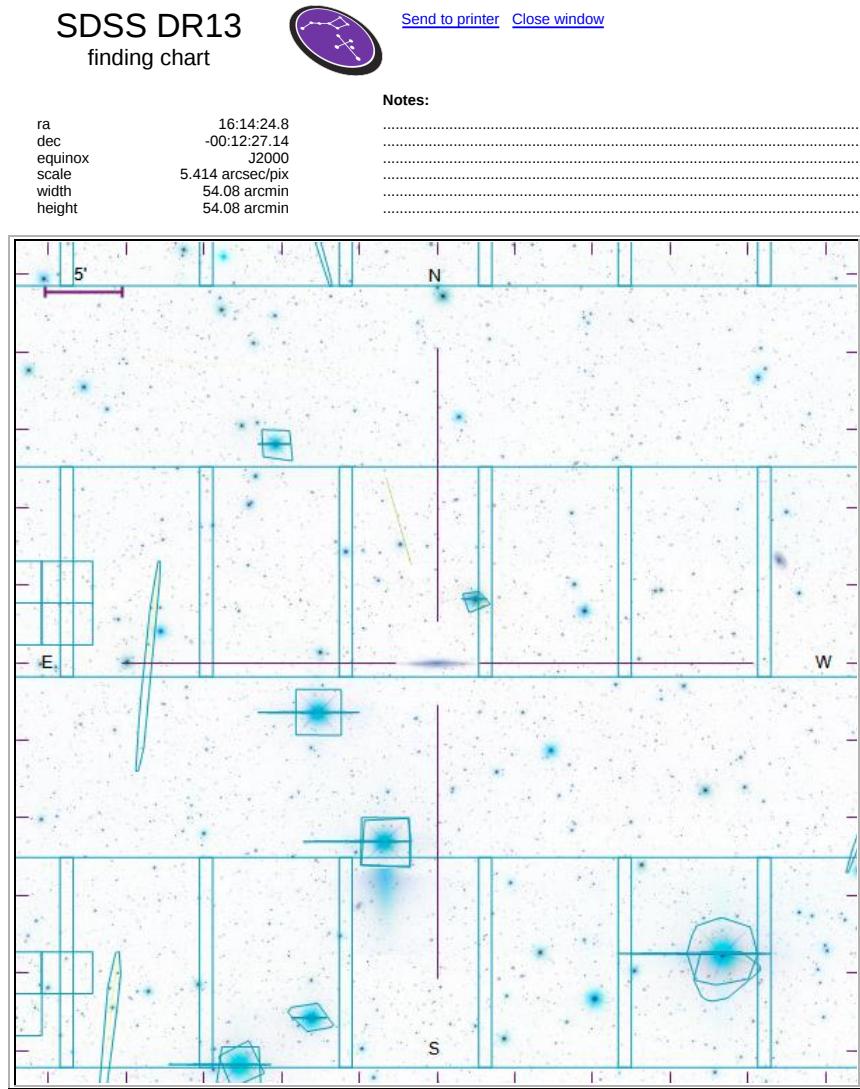


Figure 23: UGC10288 SDSS DR8 Navigate Tool image with masks

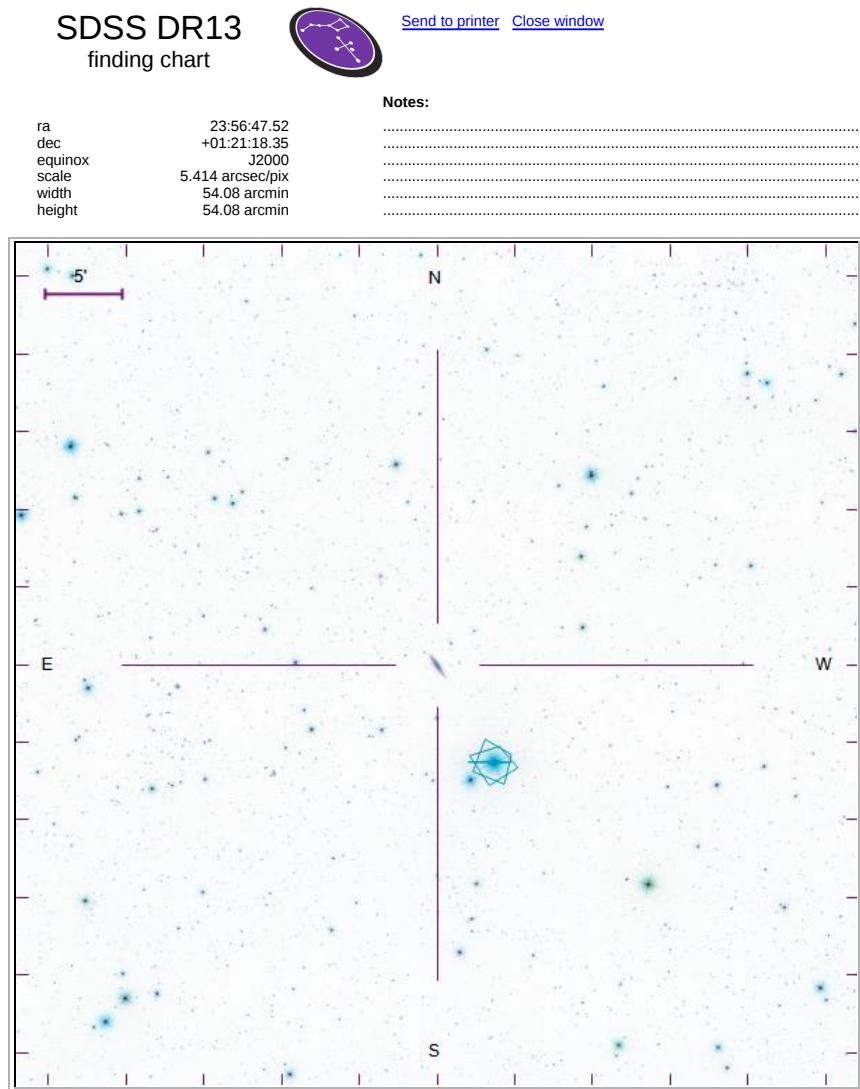


Figure 24: UGC12857 SDSS DR8 Navigate Tool image with masks

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