

The Future of Continuum Source Finding for ASKAP SSPs

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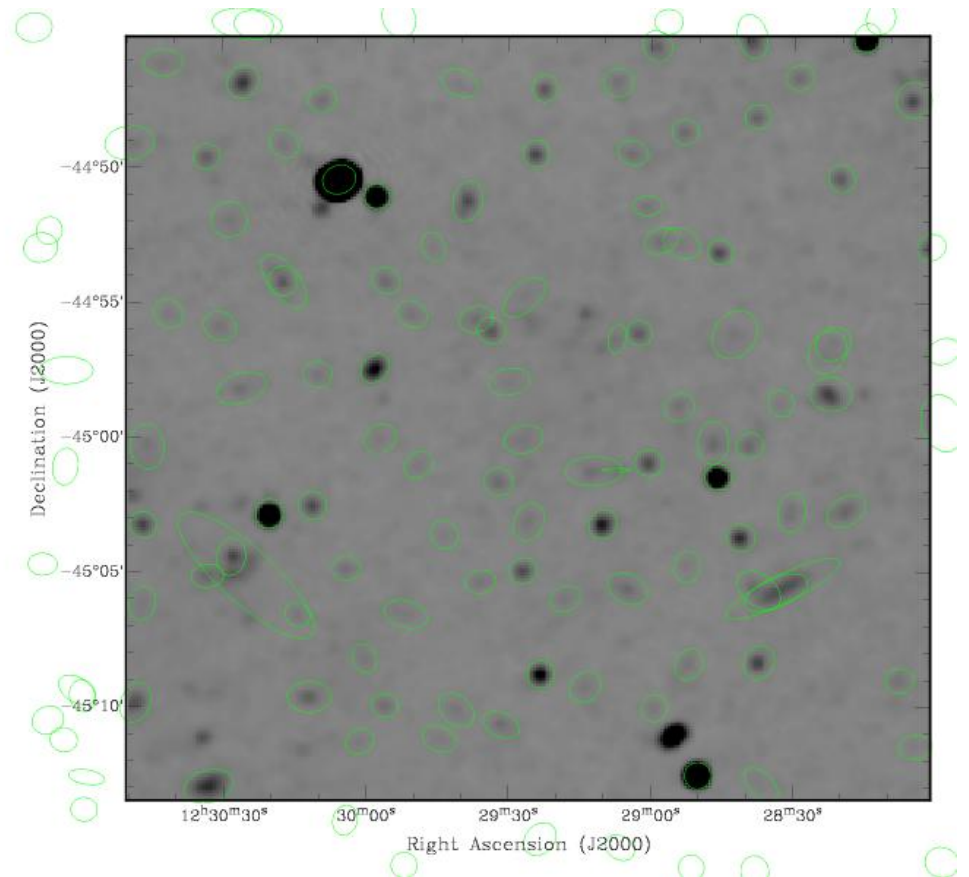
- › Generic SF programs are available
 - Tend to be quite basic
 - Require post-processing
 - › More refined SF programs
 - Telescope/Survey specific
 - Effective
 - Hard to transfer to other Telescopes/Surveys
 - › ASKAP will require a refined program
 - › “How well do the currently available source finding programs work on the simulated ASKAP data?”
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What do we want from a SF program?

- › Completeness
 - As many real source as possible
 - › Reliability
 - As few spurious sources as possible
 - › A predictable behaviour of the above
 - To statistically correct for the effects of completeness and reliability
 - e.g., how does the reliability change with SNR or flux density?
 - › Automation is essential
 - Computers are for data crunching
 - Humans are for doing science
 - › Fast / cpu efficient
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What DATA do we want from a SF program?

- › Position/Flux + err
- › Morphology
- › Local noise level
- › Detection confidence
- › Complete or filtered source list



Total Intensity

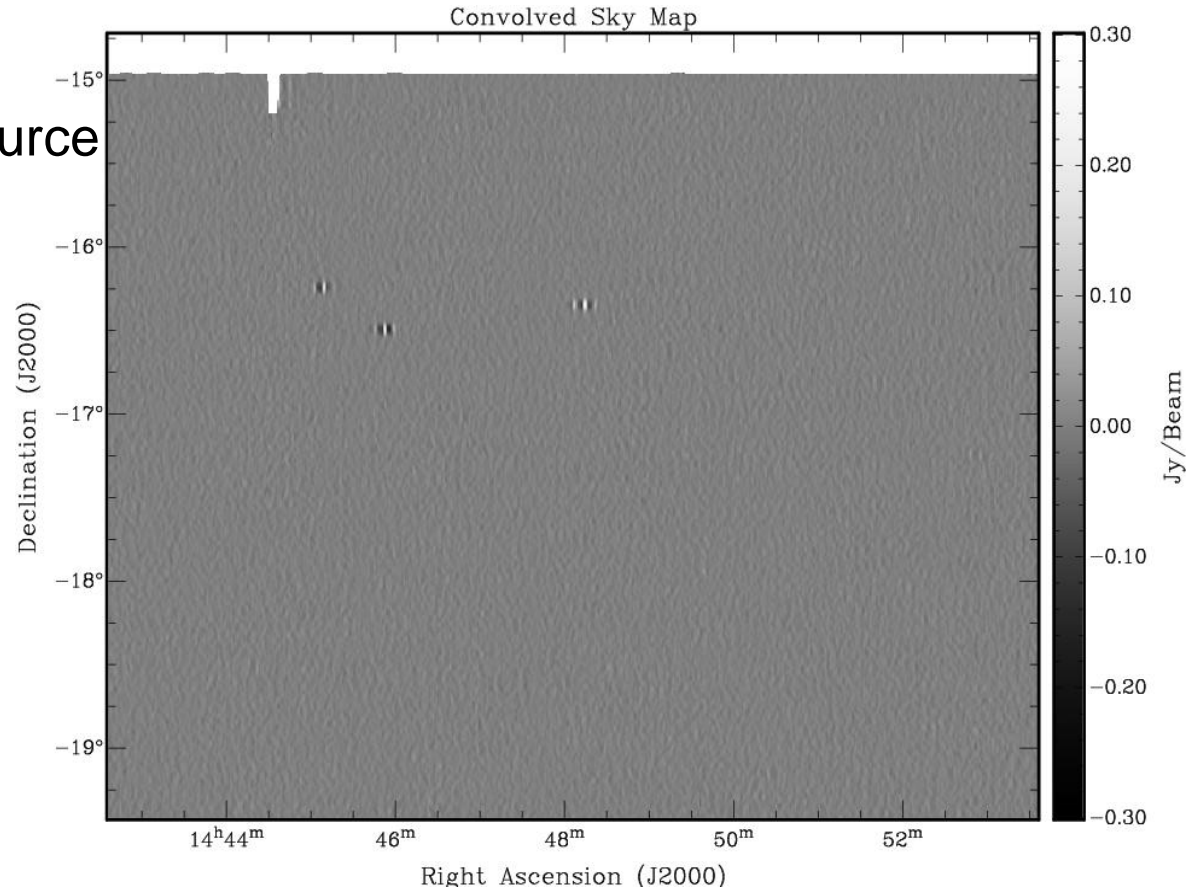
- › SUMSS/MGPS (IMSAD)
- › S-extractor
- › Duchamp
- › sfind
- › + Home-Brew Programs

Polarized Intensity

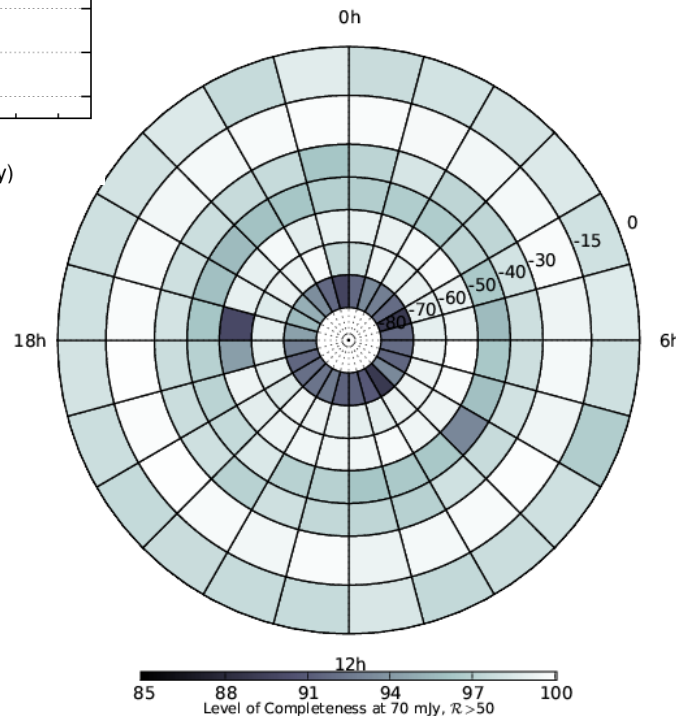
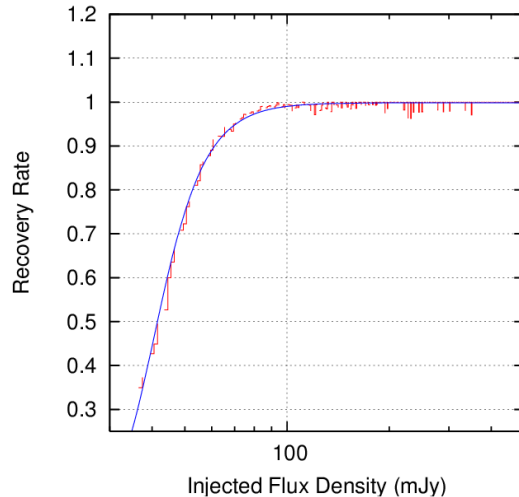
- › VSAD
- › ?

Inject Sources

- › Known list of sources
 - MC simulation of the source distribution
- › Real background data
 - Noise
 - Instrumental problems
 - Coverage variations
 - Missing data

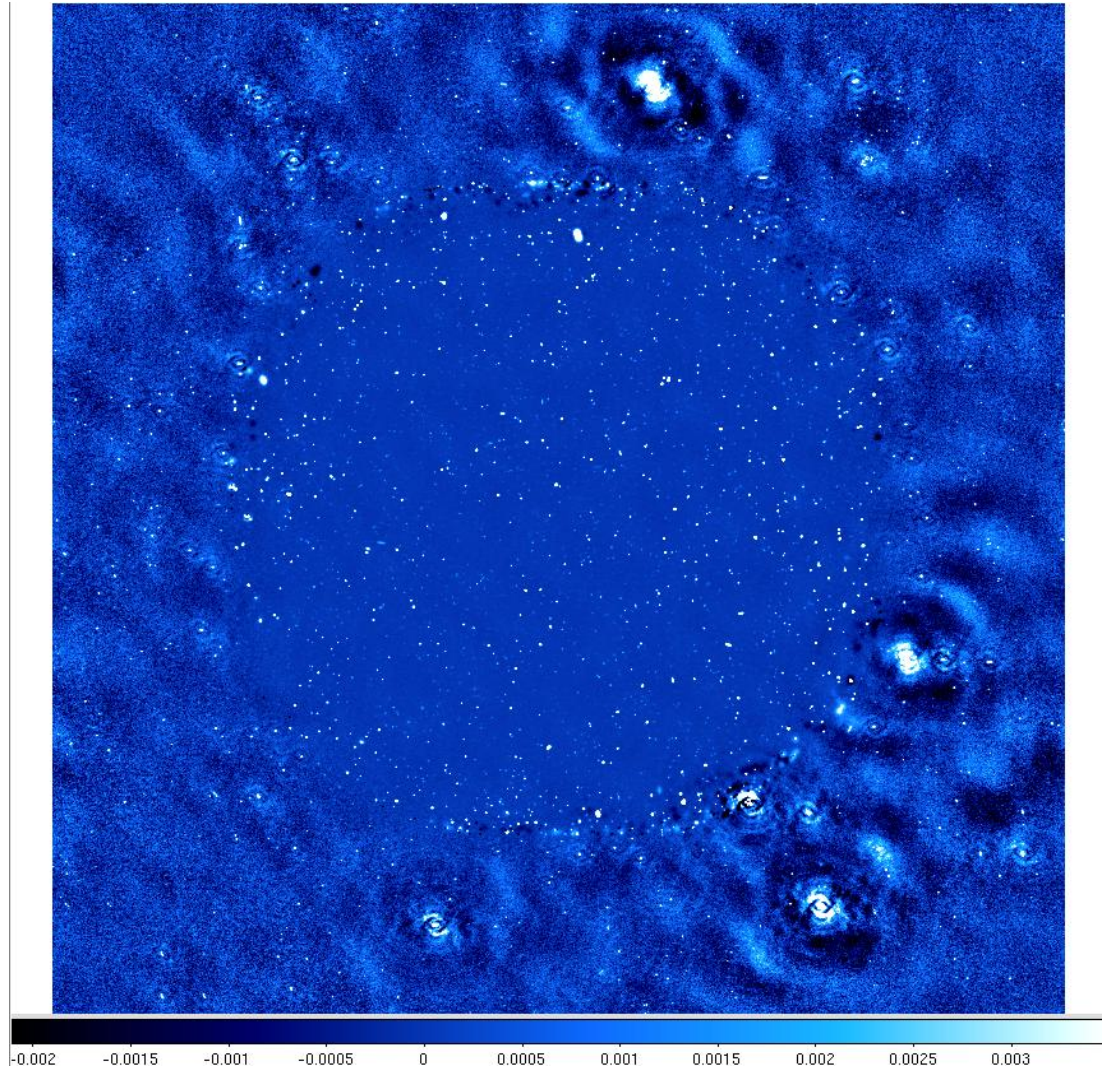


Recover and Compare



- › Find sources
- › Record quality parameters
- › Compare with auxiliary data
- › Separate Real/Spurious sources
- › Measure recovery rate, reliability and completeness as a function of flux/position/SNR/etc

- › ASKAP Simulations (Wilman et al. 2008, Obreschkow et al 2009)
 - Sky model (sources)
 - Noise image
 - Restored image
- › Enough information is available to test source finding programs



- › SF will have high priority
- › I will lead/coordinate the source finding program testing
- › Testing of your own / favourite program is welcome
 - Using the SF testing to hone your program is not cheating!
- › Source finding programs to be tested on ASKAP and ATLAS

- › Possible Outcomes:
 - 1) Small amount of work to be done on current SF program(s)
 - 2) Large amount of work to be done on current SF program(s)
 - 3) Completely new program is required
 - 4) Best SF is project/science dependant (don't think so)

Tell me what you want from a SF program

- › High completeness
- › Good reliability
- › ...