The SDP Catalogue for the H-ATLAS Survey

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The Herschel-ATLAS Survey

- The Herschel-ATLAS (H-ATLAS) is the largest of the Open Time Key Programmes in both time (~600 hours) & area (~550 deg²)
- FIR-submm counterpart of SDSS - it will cover 100-500μm and detect ~200,000 sources with a median redshift of 1
- It will be the first unbiased survey of cool dust & obscured star formation in the Local Universe
- Other science goals range from debris disks to quasars as described in Eales et al. (2010)
- 4x4 deg² H-ATLAS field observed as part of Science Demonstration Phase (SDP) observations

Creating the SDP Catalogue

- Sources extracted from the 3 SPIRE maps together, using the Multi-band Algorithm for source eXtraction (MADX; Maddox et al. 2010); 6878 sources detected at >5σ in any of the SPIRE bands
- Flux densities for extended sources at 250 & 350 μm replaced with aperture flux density, measured using an aperture-radius based on optical size - Figure 1.
- PACS sources identified using the SExtractor package (Bertin & Arnouts, 1996), measured using aperture photometry & matched to SPIRE catalogue
- Catalogue values in good agreement with those found previously, e.g. Figure 2

Assessing Catalogue Reliability

- Realistic SPIRE simulations of the SDP field are needed to assess the catalogue - created using noise properties of maps, & populated using models of Negrello et al. (2007) which match the real data (Figure 3 & see poster by Dave Clements on the H-ATLAS source counts)
- The simulations also contain IRAS cirrus & realistic source sizes
- Simulated extracted catalogue again created using combination of MADX & aperture photometry
- These catalogues are used to determine completeness, contamination and boosting in the real SD data, as illustrated in Figures 4, 5 & 6

Conclusions

- This poster has presented the SDP catalogue created for the first observations of the H-ATLAS survey, along with a description of the realistic simulations of the SDP field that have been created to assess the reliability of these data
- Full details of the catalogue, along with the corrections determined from the simulations, can be found in Rigby et al., (2010)