AKARI/FIS All-Sky Survey Bright Source Catalogue β-2

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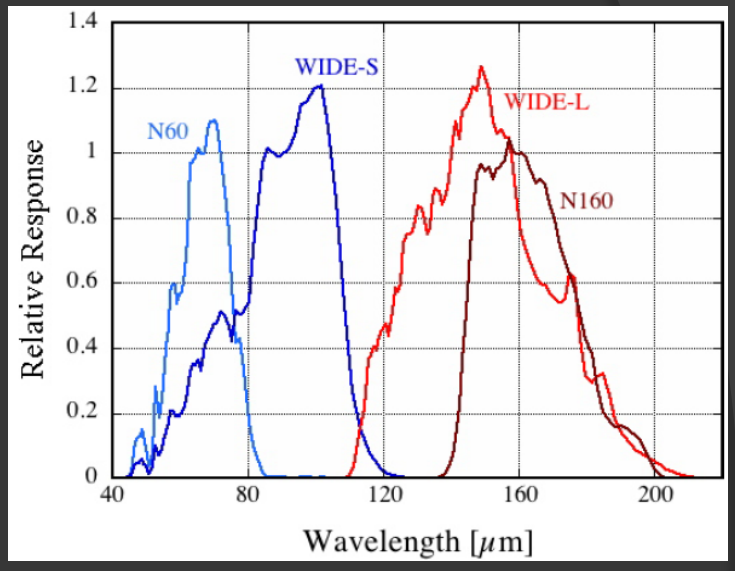
1. AKARI/FIS All-Sky Survey

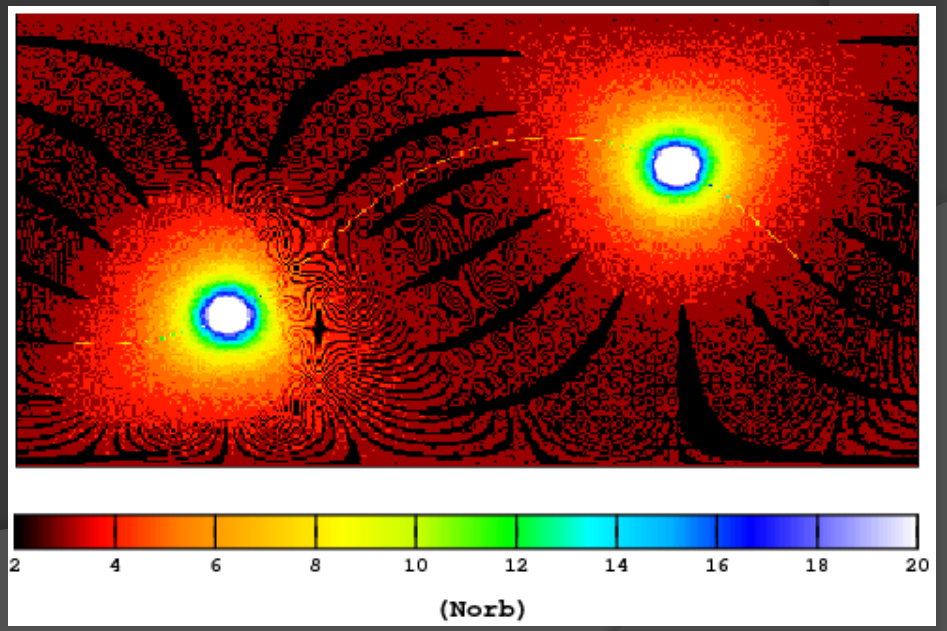
- Telescope: 68.5cm @ 5.8K
- All sky survey (~500 days)

  (Mid ~ Far-IR)
- FIS (Far-IR Surveyor):

  4 bands (65, 90, 140, 160μm)

  Pixel size: 30-50 arcsec
- Survey area (Ns ≥ 2): 94%
- Flux calibration by stars, asteroids & planets

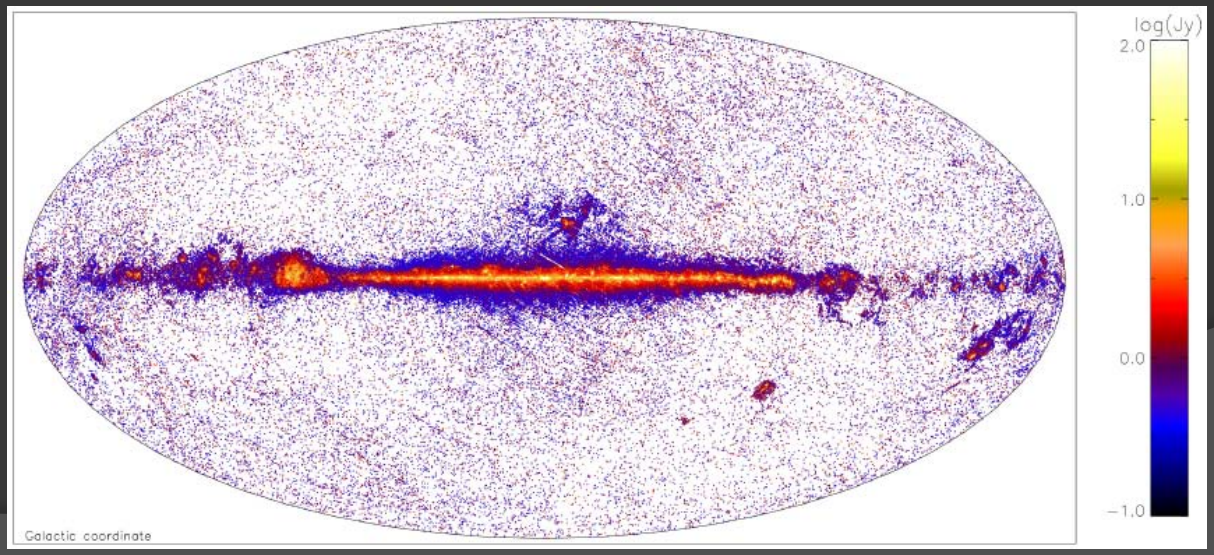




2. FIS Point Source Catalogue

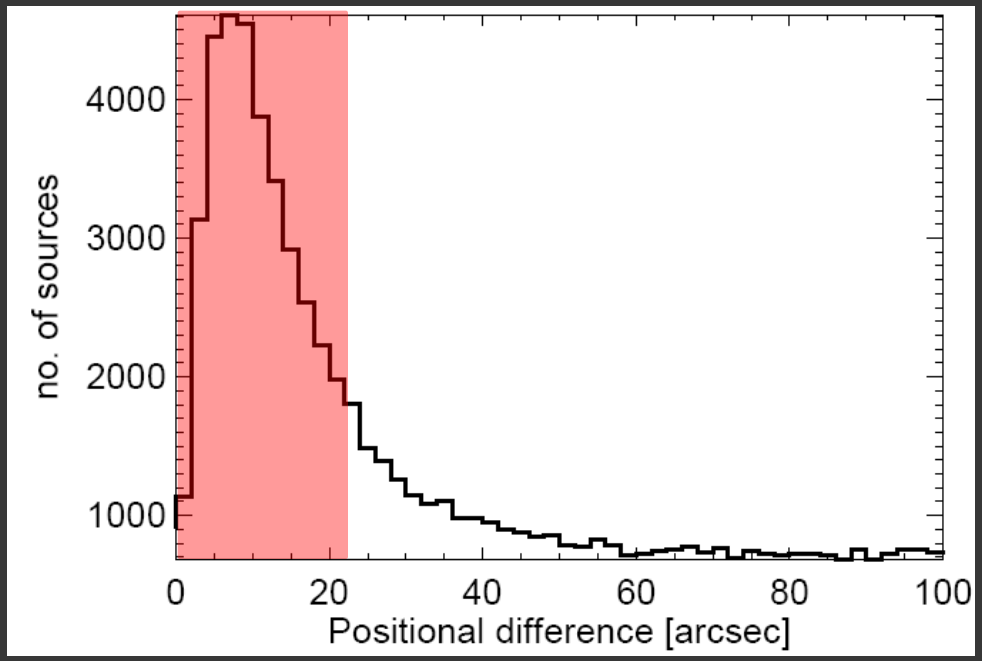
- Bright Source Catalogue β-2
  - Number of detected sources (~30% in CDS @ 90μm)
    65μm: 18638, 90μm: 290209, 140μm: 69092, 160μm: 26631
  - Detection Limits: normal (CDS) [Jy]
    65μm: 3.2(10), 90μm: 0.56(1.8), 140μm: 3.5(16), 160μm: 5.6(25)
  - Flux uncertainty: 10-20% (SW), 30-40% (LW)

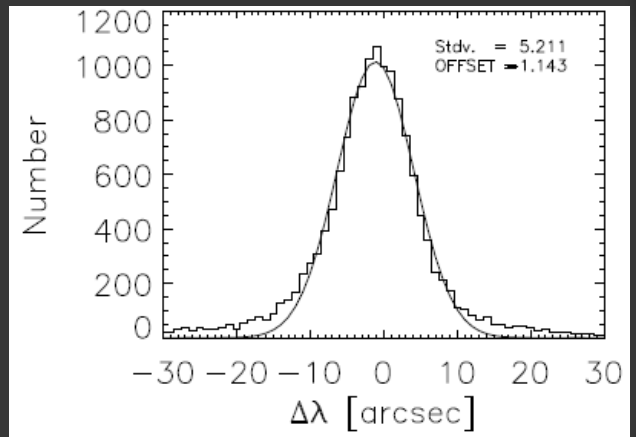
90μm Point Source All-Sky Map

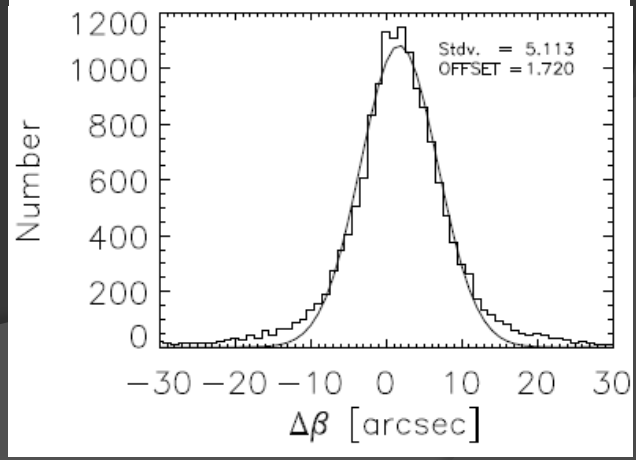


2.1 IRAS Associations (1)

- Positional difference from the nearest IRAS source (peak at ~7 arcsec)
- Positional difference from the Radio catalogue: σ ~5 arcsec



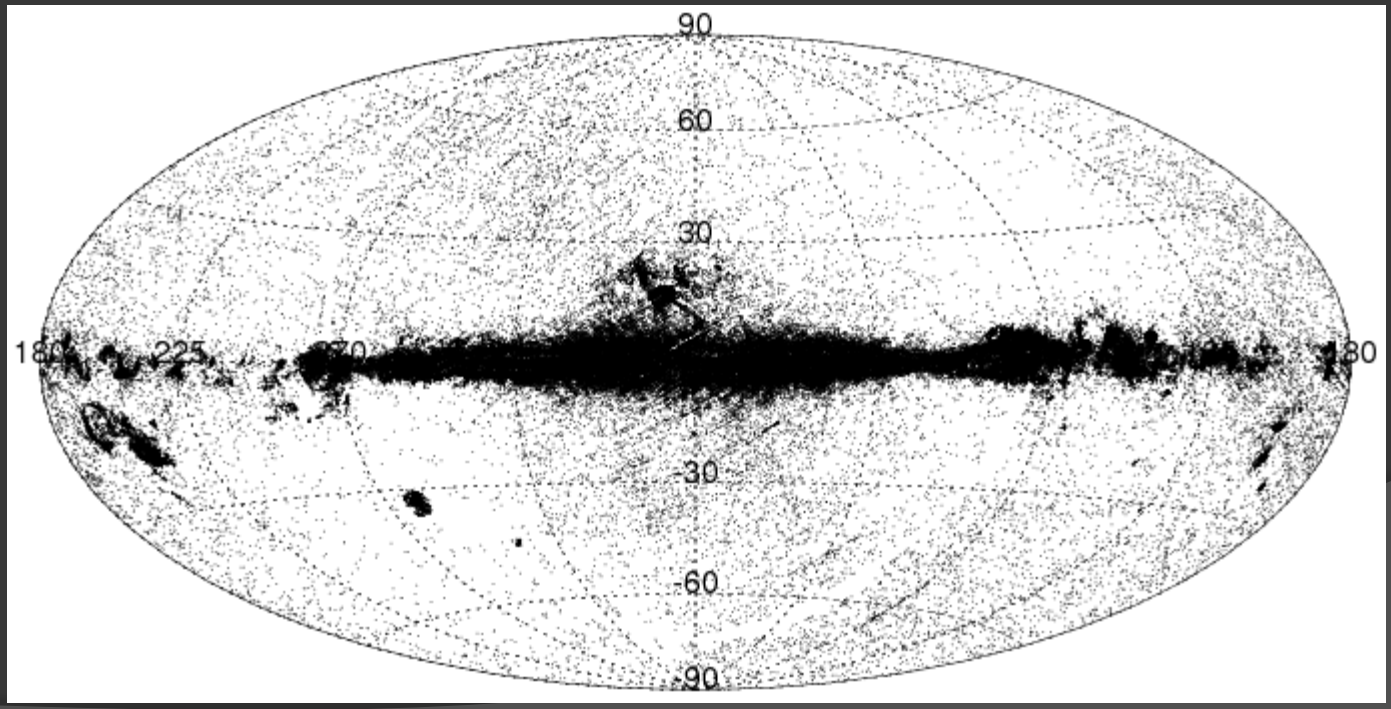




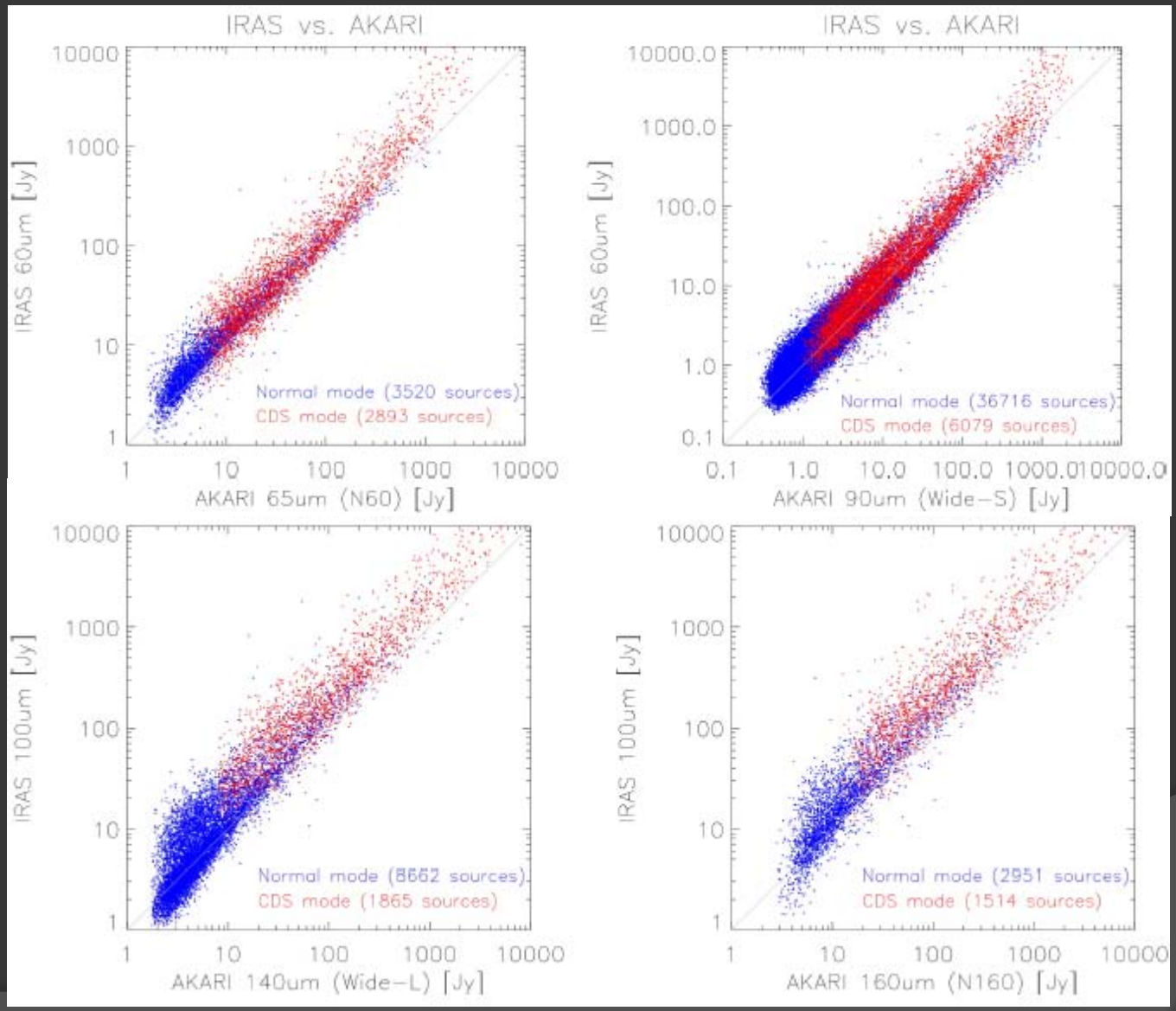
2.2 IRAS Associations (2)

- ~20% IRAS Associations
- Classify IRAS sources as the extended sources
- New AKARI sources: high background regions

New AKARI Sources



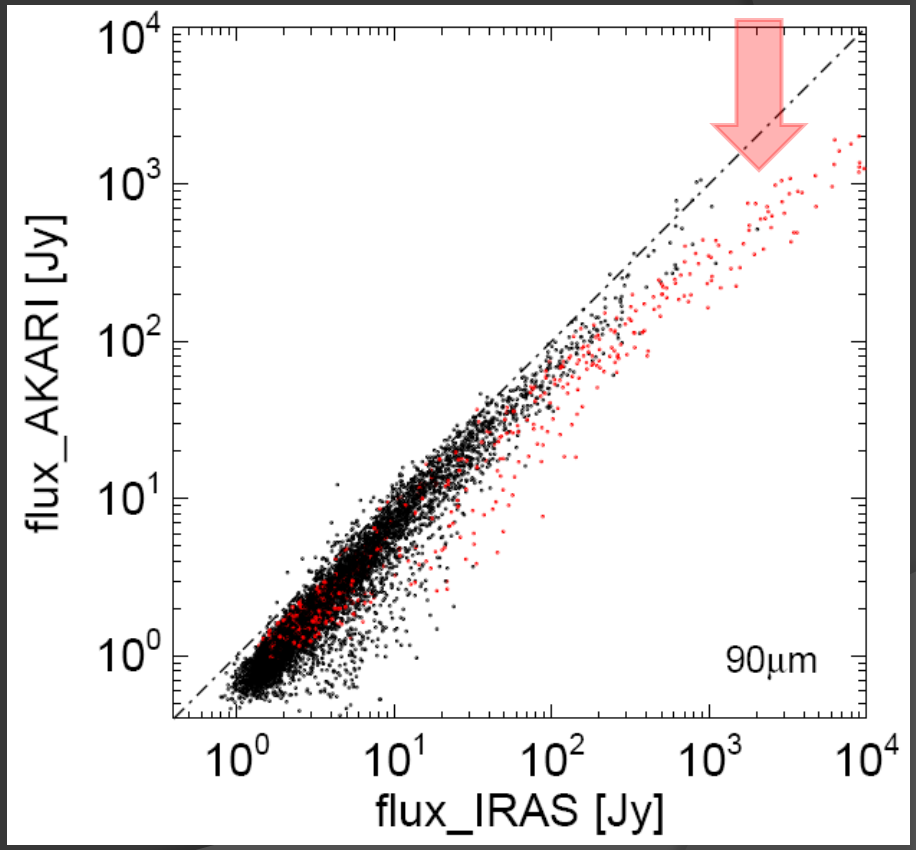
3.1 Comparison between AKARI & IRAS



3.2 Comparison between AKARI and IRAS

- AKARI WIDE-S & IRAS @ 90μm
  - Positional criteria < 10 arcsec
  - ~18,000 IRAS Associations
  - Larger scatter for CDS data
  - Anomaly in Bright end (CDS)

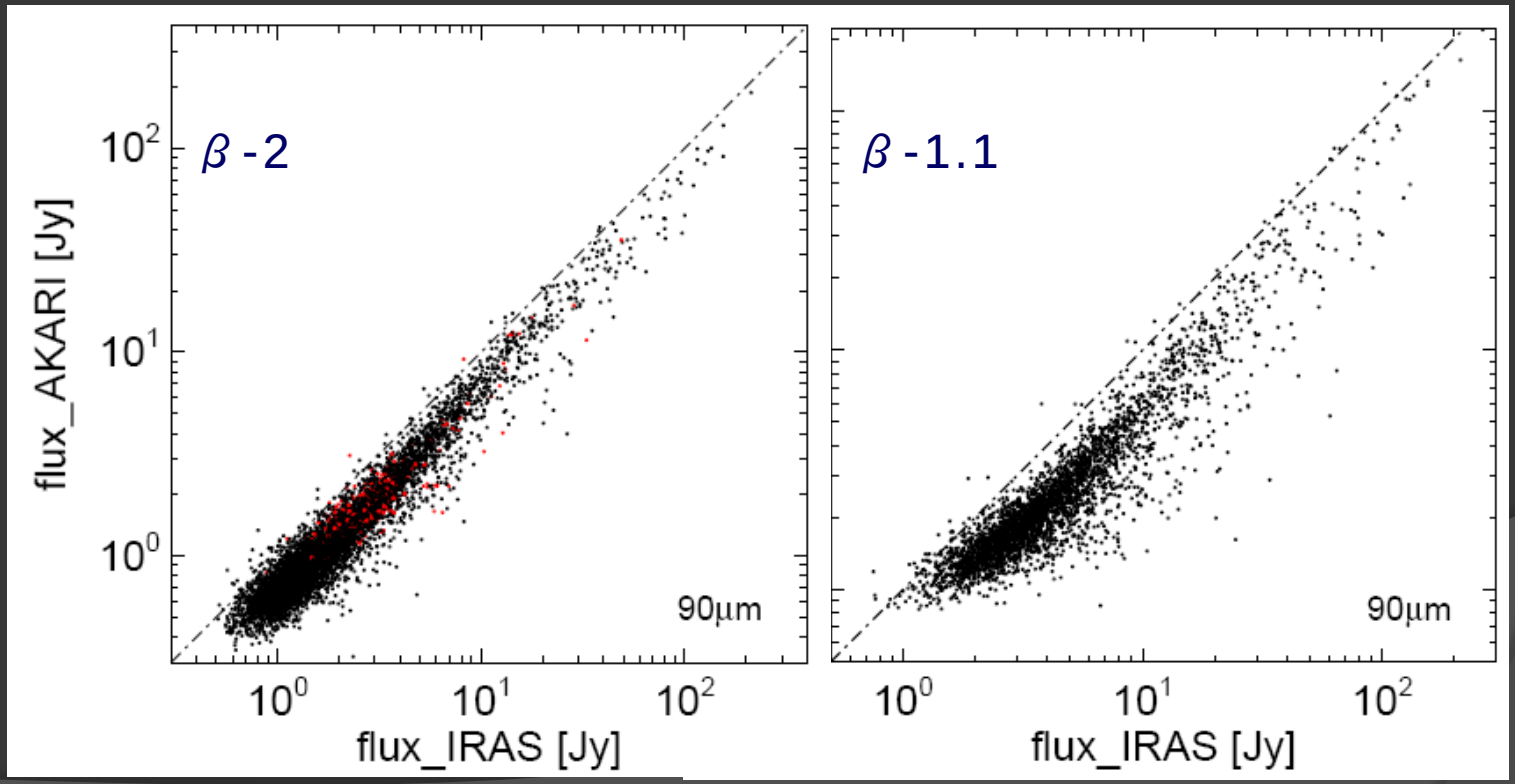
    → uncertainty of flux calibration
  - IRAS PSC
    - PSC: chose good flux quality



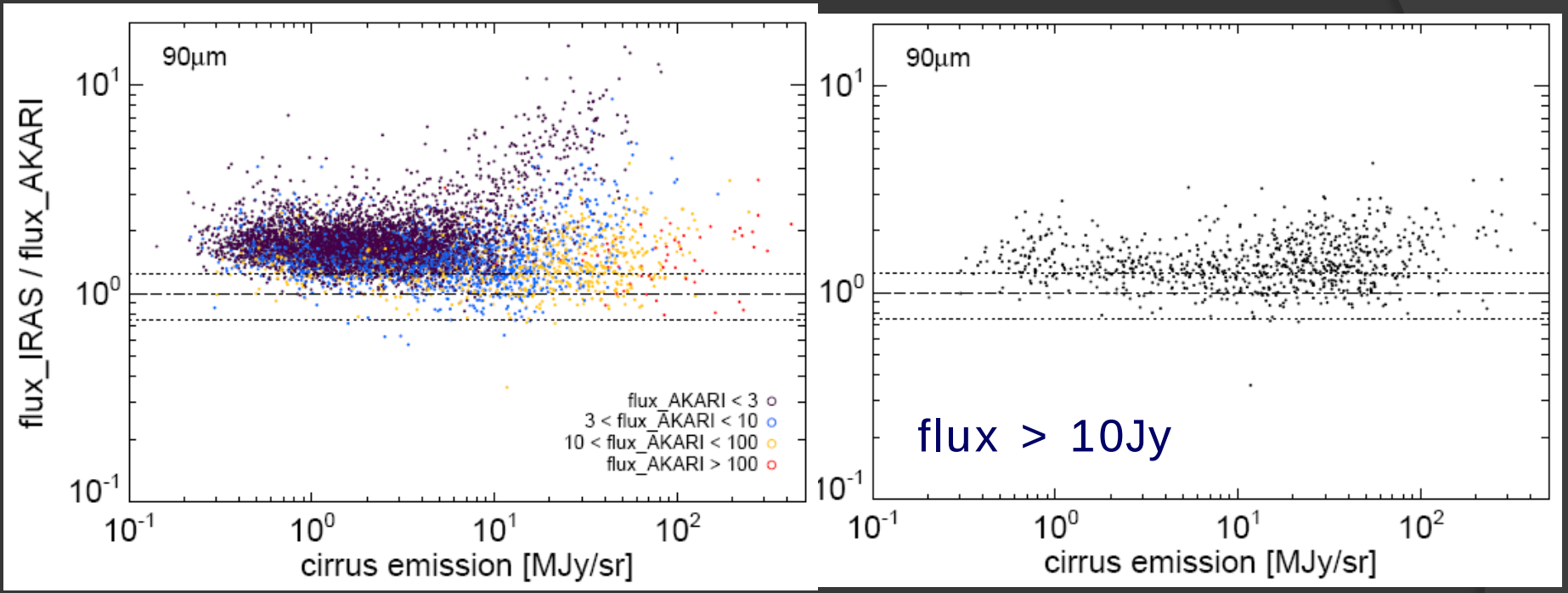
IRAS PSC

3.3 Comparison between AKARI and IRAS

- AKARI WIDE-S & IRAS @ 90μm
  - IRAS FSC: 60μm – good quality, 100μm – low quality
  - Better correlation compared with BSC β -1.1

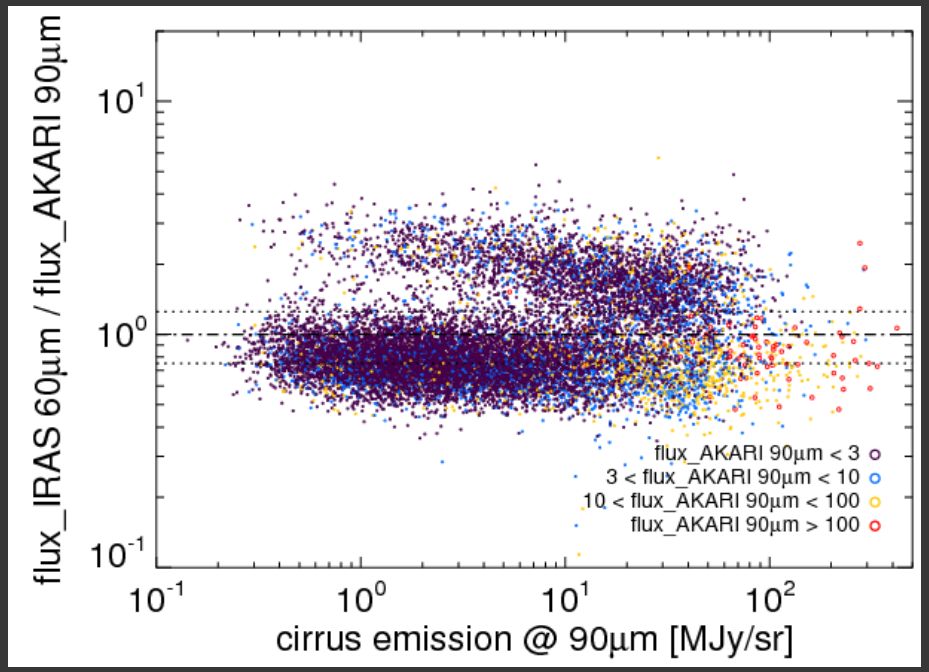


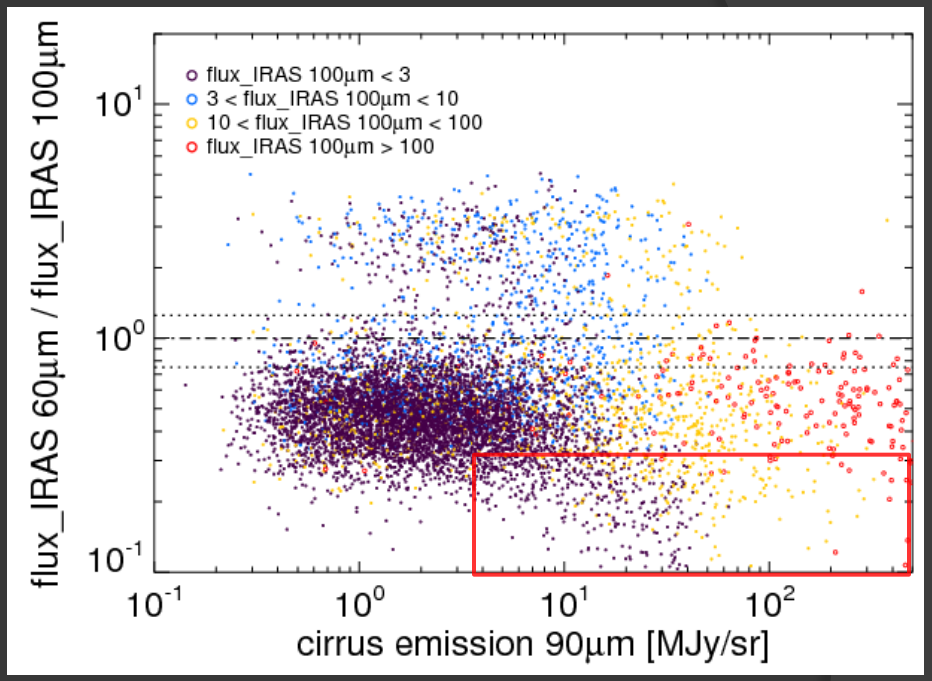
3.4 Flux ratio - Cirrus Background



- Flux ratio over different background levels
- Larger scatters in the strong background
- Overestimation of IRAS flux
- Segregations for different flux levels
  - More severe effect by high background for faint sources

3.5 FIS & IRAS Flux Ratio



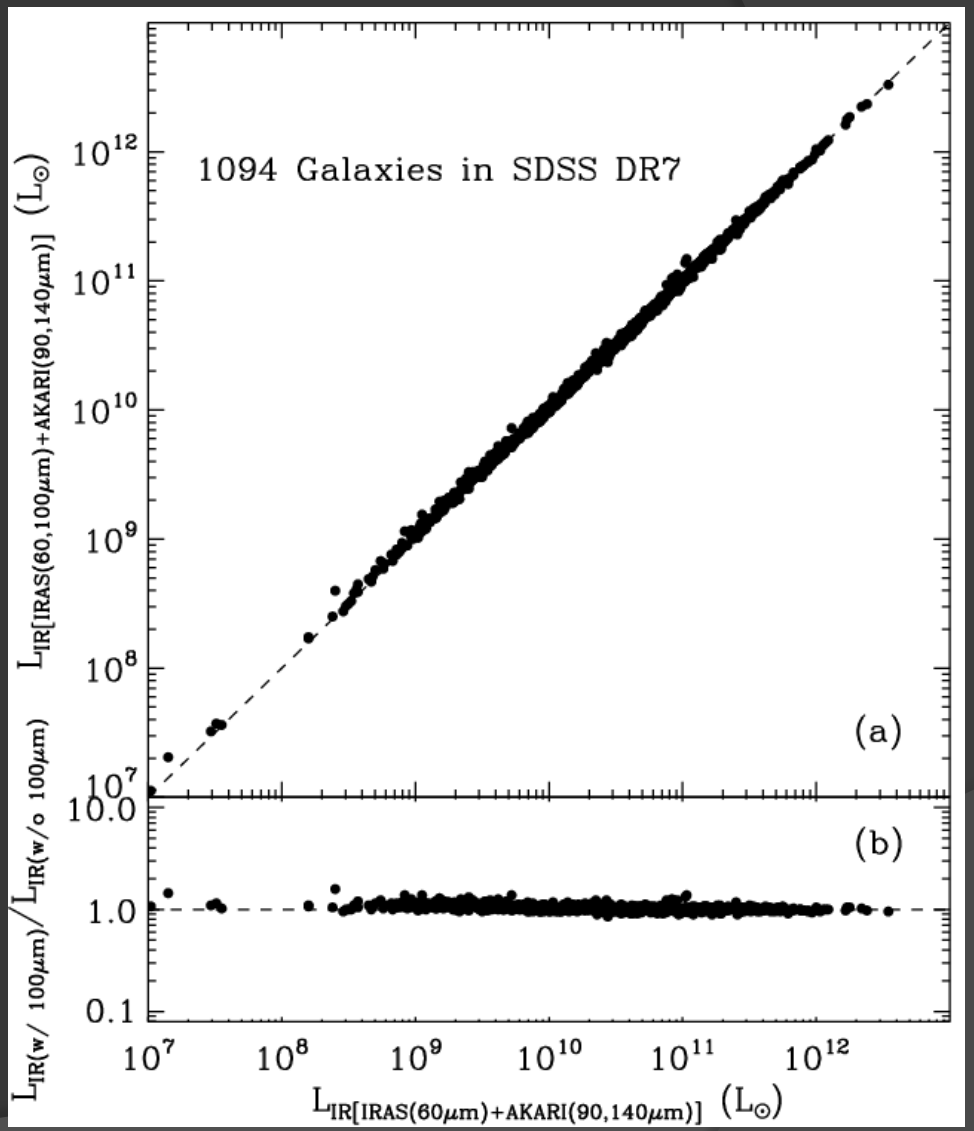


- Clear segregation with AKARI flux
- Scatters become larger in IRAS flux

  → Low flux & high background
- Clear segregation with AKARI flux
- Larger flux uncertainties in IRAS 100μm

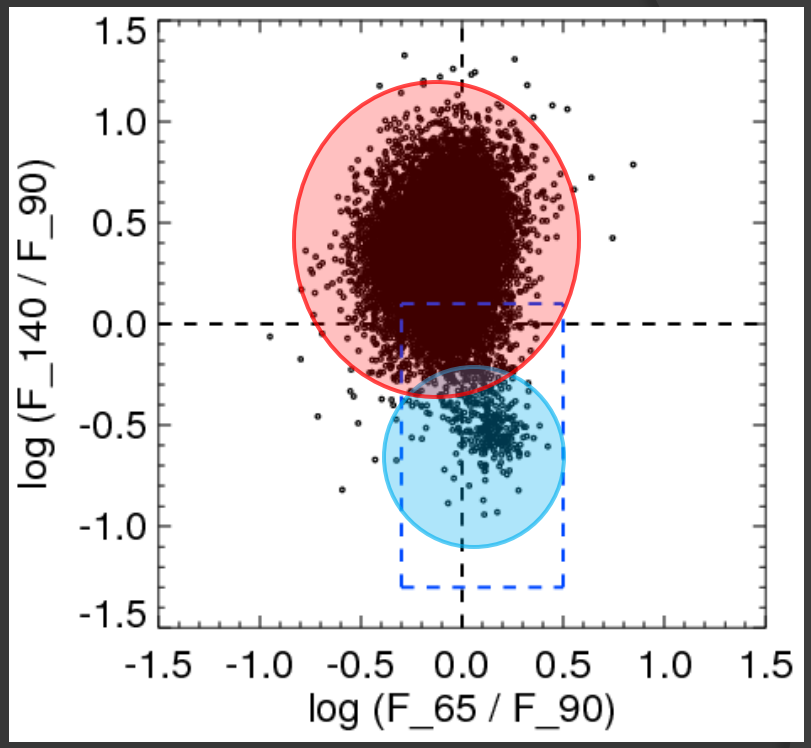
4. IR Luminosity

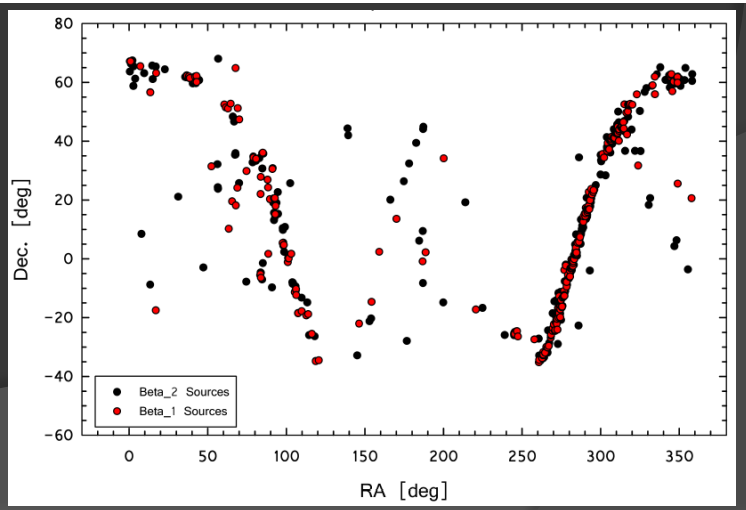
- 6443 galaxies in both SDSS DR7 & FIS BSC β-2
- IRAS Associations: 1094
- Estimation of IR Luminosity (Chary & Elbaz 2001)
- Inclusion of IRAS 100m flux: larger luminosity



5. Color Information

- Segregation between warm and cold objects
  (include IRC colors?)
- Stars ↔ Galaxies or YSOs …
- Simultaneous Observation of H_2O and SiO maser lines (22/43 GHz bands) with the KVN (Korean VLBI Network)





Summary

- Overestimation of IRAS flux
- IRAS 100μm flux was much more affected by the background.
- ~5000 FIS Galaxies in SDSS DR7 (IRC case?)
- Importance of Color Information (IRC & FIS catalogues)
- Still improving the catalogue

  → Public release of catalogue before April