



Results from the Allen Telescope Array: Launch of the Pi GHz Sky Survey (PiGSS)

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ABSTRACT PiGSS, the Pi GHz Sky Survey, is a key project of the Allen Telescope Array. The principle goal is exploration of the static and transient radio sky at 3.1 GHz at flux densities an order of magnitude fainter than the best existing survey and matching FIRST and NVSS sensitivities, covering a large fraction of the northern sky, and exploring transient time scales from days to months through a tiered approach. Specific results of the survey will be detection of 250,000 radio sources in a 10,000 square degree region of the North Galactic Cap; daily monitoring of a 10 square degree region; automated identification and notification of transient sources in real time; and, multi-wavelength identification of sources overlapping with SDSS, FERMI, and other large surveys. PiGSS builds on the tools developed for ATATS (Croft et al.) and has been launched in Spring 2009. We present initial images and results from the survey.

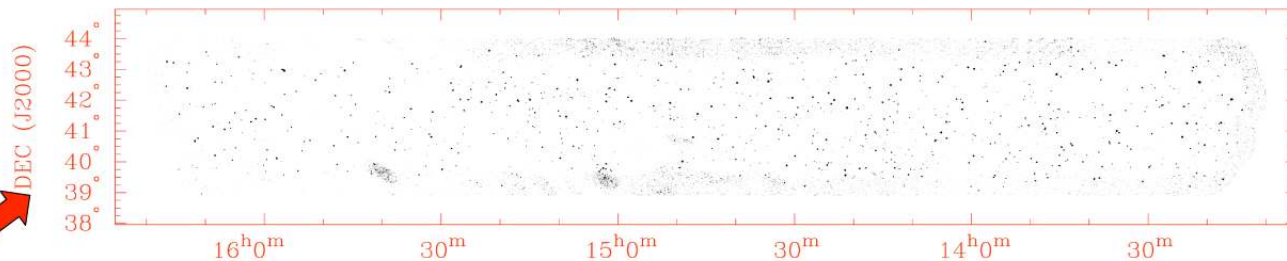
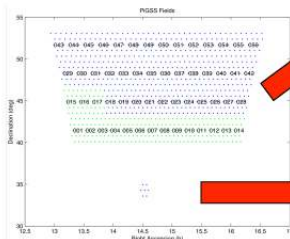
ACKNOWLEDGMENT

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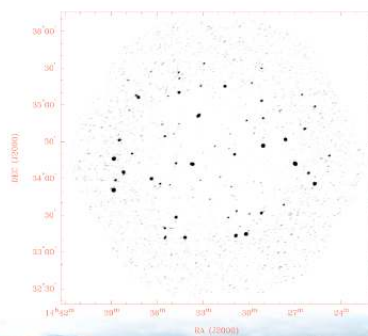


Survey Region & Strategy

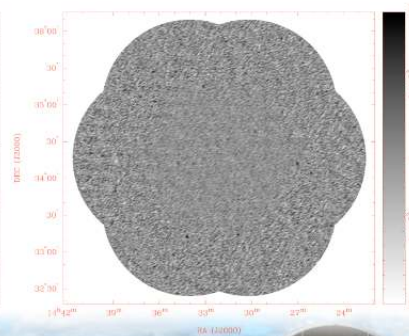
PiGSS consists of two survey regions:
-A 10-sq deg field centered on the NOAO DWFS region observed daily
-The north galactic cap, which will be observed three times with a characteristic separation of months. Early observations will focus on a 200 square degree region observed three times in three months.



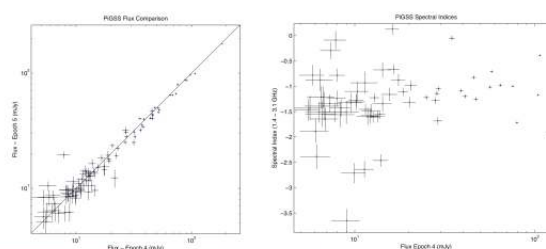
Bootes Field
Observed Daily



Bootes Field
Two Epoch Difference



Bootes Field
Flux-Flux Plot & Spectral Indices



Transient Science Targets

• Statistical Characterization of the Time-Domain

- Radio Supernovae
- Orphan Gamma-Ray Burst Afterglows
- AGN Variability
- Extreme Scattering Events
- Stellar flares
- The Unknown

$\pi?$

Why 3.14 GHz? This frequency represents a significantly higher frequency than 1.4 GHz used for FIRST & NVSS enabling us to probe spectral indices and new phenomena. It is also a sweet spot in terms of field of view, array performance, and low RFI for the ATA. Future surveys will go to higher frequencies.

