

## **Radio Transient Searches with the Allen Telescope Array**

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Radio transient searches constitute a major research goal of the ATA. The powerful survey capability and the commensal observing mode of the ATA enables a wide range of searches covering large areas of the sky on timescales of milliseconds to years. The ATA transient survey capability is enabled by the wide field of view of the telescope, good snapshot (u,v)-coverage, flexible digital electronics in the correlator, and the opportunity to conduct commensal science.

Construction of the 42 element ATA is now complete. Commissioning and early science operations are now underway. I will describe the instrument status, the results of early transient searches with the ATA, and plans for future transient searches.

We have currently completed a 20-square degree map of the sky at 20 cm wavelength and are working on achieving a 100 square-degree map. These efforts will lay the groundwork for the Five GHz Sky Survey (FiGSS), which has the goal of surveying 10,000 square degrees three times, 100 square degrees every 10 days, and 10 squares daily, all with a source detection threshold of a few mJy. Expected source classes are active galactic nuclei, gamma-ray burst afterglows, radio supernovae, tidally disrupted stars, flare stars, and galactic black-hole and neutron star binaries. Transients such as the extragalactic burst detected by Lorimer et al. (2007) with the Parkes multi-beam search should be apparent in short integrations with this data, provided that they extend in frequency to 5 GHz.

Transient searches other than FiGSS will be targeted on the Galactic Center (commensal with SETI observations) and the Virgo cluster (commensal with HI mapping) and simultaneous with campaigns with telescopes at other wavelengths.