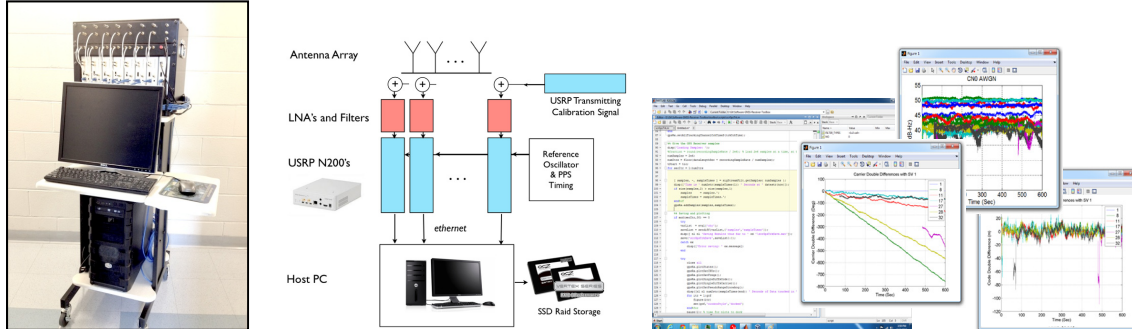


Multi-Channel Data Acquisition System

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Sponsor: ElectroScience Laboratory Consortium



We are developing a Data Acquisition System (DAS) to support our research on GNSS antennas, antenna electronics and receivers. The DAS is a multi-channel recording and playback system composed of eight Universal Software Radio Peripheral (USRP) N210 receivers combined with additional connectorized RF front-end hardware. The current system supports simultaneous recording from all channels at a high sampling rate and high quality. The recorded signals are received at any one or multiple user-defined GNSS frequency bands, digitized, and streamed directly into a host PC, where they are saved to hard drives for post-processing. DAS uses a novel channel calibration approach to support precision needed by cm-level GNSS receiver measurements. The hardware capabilities and calibration have been quantified and verified by performing outdoor recordings with an actual GPS antenna array and performing precise differential GPS measurements.

Further Reading:

A.J. O'Brien and I.J. Gupta, "Low-Cost, High-Fidelity Data Acquisition System for Precision GNSS Adaptive Antenna Arrays," *Proceedings of ION 2014 International Technical Meeting*, San Diego, CA, January 2014.