

GOTHAAM Data Management Plan

All GOTHAAM PIs at their respective universities (Stony Brook University (SBU), University of Michigan (UM), University of Washington, University of Maryland, Colorado State, University of Colorado, University of California, Irvine) will comply with the data policies of the National Science Foundation to make the results of this research visible, accessible, and independently understandable to general users, free of charge or at minimal cost, and in a timely manner, with appropriate and helpful metadata. The PIs will work together to consolidate and archive the project data to optimize its usability.

1. Expected Data

Most of the data for this project will be semi-continuous data acquired from the C-130 aircraft. All clocks related to data acquisition will be GPS-time synced prior to each flight. As described in the proposal, this will include data for a wide variety of measurements. Many data products, including from the I-CIMS, the AMS, ATOFMS, Voocus, and TRAC, will require substantial post-processing. All data files will have appropriate associated metadata files.

Flight science crew members will maintain electronic flight logs (to contain notes on each day's flight plan and any deviations, and visual observations about the weather, surface conditions, instrument performance, etc.), which will be stored and remain accessible, as accessory files to the data files. All flight data will be backed up daily to two independent storage devices, one of which will be cloud-based (Stony Brook University can provide this service). All data processing steps will be documented by the student or scientist responsible for each individual instrument. Aircraft data for standard flight instruments will be available via netCDF files, for all processed data. The file formats follow the NCAR-RAF/nimbus conventions (<https://archive.eol.ucar.edu/raf/Software/netCDF.html>). Software for viewing files is available from EOL (<https://www.eol.ucar.edu/software-downloads>).

2. Archive Data Format

Six months after deployment, revisions of individual instrument datasets will be uploaded to the EOL data repository, after initial quality control measures (calibrations and internal diagnostics) have been applied. Offline TRAC data will be added, as available, with a goal of 1 year. Within 1 year of deployment, a master data file (with meta data), with measurements time-synced to a master clock, will be uploaded to the EOL data repository. Archived data, in ASCII format, will be accompanied by a "README" file which explains the nature and objectives for each flight, the instrument and operator producing the data. Appropriate meta-data will be included with each file to specify project, location, time, PI, operator, last modification date, and any details about the data pertinent to interpretation. The metadata for final archived data will include information about uncertainty estimates.

3. Access to Data

Final instrument data, as well as the associated metadata, will be submitted to the NSF EOL archive within one year of the deployment. Data will be QC-ed and verified by the co-PIs prior to submission to these data archives.

4. Data Sharing Practices and Policies

Data requests from researchers will be contingent on preserving our right to publish these data first and to be considered in resulting publications by others using these data. The data submitted to the EOL will include a formal citation and digital object identifier (DOI) to facilitate tracking of re-use and to give fair credit to the project. All publications resulting from the GOTHAAM project will refer to the data availability from the archive, and the procedures for requesting/retrieving the data.

5. Archiving of Data

Processed data and interpretation will be disseminated through reports, conference posters and presentations, and journal publications. Data processing, creation of backups, and data protection will be

handled in a systematic fashion making use of existing facilities at the PIs' laboratories. Data used for publications (peer-review journal and conference proceedings) will be stored on long-term archives at the EOL and the PIs' laboratories.