**Objectives**

This work will improve King Air in-situ droplet distribution and LWC retrieval capabilities utilizing algorithm development, laboratory development, and UWKA data analysis. Several inter-related foci will advance departmental in-situ probe limitation characterization and calibration abilities.

In-lab droplet generator development will expand departmental Cloud Droplet Probe (CDP) and 2D-S calibration and characterization capabilities. Laboratory efforts will be focused on system development, equipment assembly/testing, and procedure development/documentation. The droplet generator will be capable of creating pure liquid water particles of precise size, velocity, and placement; attributes which will allow for calibration and uncertainty investigations free of calibration material differential refractive index and locational uncertainty complications.

New Nevzorov data processing algorithms (written in IDL) will correct for instrument bias, quantify uncertainty, output diagnostic and experimental products, and streamline processing workflow.

**Background**

Nevzorov data processing software has been developed and tested against well-established COPE-MED 2013 calculations provided by Alexi Korolev, a principle Nevzorov developer. Summer/Autumn 2016 research flight data will provide further algorithm truthfulness and robustness confirmation.