Dr. David Delene from the Department of Atmospheric Sciences will present a seminar titled, "Importance of Quality Control and Quality Assurance of Airborne Measurements" in Room 210 of Clifford Hall at 3:00 p.m. on Thursday, October 15. The seminar is free and open to the public. All faculty, staff and students are invited to come hear about the link between field measurements and scientific data analysis.

Abstract: Quality control of airborne scientific measurements involves conducting tests to check that measurements are being made correctly and accurately. Quality assurance refers to the process of reviewing an airborne data set to eliminate (replace with missing value codes) measurements that are invalid due to known problems. Quality control during airborne field projects typically involves instrument calibration using a traceable standard and the checking of instrument performance and proper instrument operation during a field project. Without conducting in field quality control, large inaccuracies can exists in instrument measurements that can affect scientific conclusions. An example of the importance of quality control is illustrated with recent Forward Scattering Spectrometer Probe (FSSP) measurements during field projects in Saudi Arabia.

The importance of quality assurance is evident from comparison of preliminary and final datasets from recent field projects in North Dakota, Mali, and Saudi Arabia. The relationship between total aerosol concentration and cloud condensation nuclei concentration changes sufficiently between the preliminary and final North Dakota datasets. Conclusions about the significance of Bamako, Mali as a aerosol source change if you conduct quality assurance.

The open source Airborne Data Processing and Analysis (ADPAA) software project was started at Source Forge in November 2008 to provide a community reviewed and accessible software package for conducting quality control and quality assurance of airborne measurements. The ADPAA package is intended to fully automate data processing while incorporating the concept of missing value codes and levels of data processing. ADPAA contains several tools that facilitate quality control procedures conducted on instruments during field projects and laboratory testing. Data processing value codes into a time period that had instrument problems. Since data processing is automatic, preliminary data can be created and analyzed within hours of an aircraft flight and a complete field project data set can be reprocessed many times during the quality assurance process.