

This is a short list of the topics that Dr. Small Griswold is interested in researching that span topics covering in-situ measurements of clouds and aerosols, satellite remote-sensing of aerosols and clouds, and the aerosol-cloud-climate interactions.

Remote-sensing of aerosol-cloud-precipitation and climate interactions

- Satellite remote sensing of biomass burning smoke and its impact on clouds.
- Satellite remote sensing of pyrocumulimimbus clouds and their impact on global climate
- Satellite remote sensing of pyroconvection and its relationship to local atmospheric conditions including upper atmosphere jets and humidity.
- Satellite remote sensing of anthropogenic pollution and its impact on clouds and.
- Satellite remote-sensing estimations of precipitation susceptibility.
- Regional studies of cloud-aerosol interactions as a function of aerosol type.
- Regional studies of cloud-aerosol interactions as a function of season.
- Regional studies of cloud-aerosol-precipitation relationships.
- Regional studies of drought and aerosol inter-relationships.
- Inter-comparison of satellite remote-sensing data sets and CMIP5 model results.
- Evaluation of CALIOP Virtual Feature Mask aerosol type data as a function of region and season for use with cloud and other studies.

In-situ sensing of aerosol-cloud-precipitation and interactions

- Measurement of aerosol effects on clouds using aircraft based sensors at a continental site.
- Measurement of aerosol effects on clouds using aircraft based sensors at a marine site.
- Comparison of marine and continental aerosol effects on clouds.
- Impact of aerosol on stratocumulus cloud development.
- Impact of aerosol on stratocumulus and drizzle formation.

In-situ sensing of cloud properties and precipitation initiation

- Measurement of continental cloud microphysical properties using aircraft based sensors.
- Measurement of marine cloud microphysical properties using aircraft based sensors.
- Evaluation of collision-coalescence process in marine cumulus.
- Evaluation of collision-coalescence process in continental cumulus.
- Impact of entrainment and mixing on precipitation initiation in warm cumulus.
- Analysis of droplet spacing and turbulence in warm cumulus.

Aviation Meteorology

- Analysis of historical METAR data from airports to identify changes in weather parameters related to commercial aviation performance.
- Identification of climate impacts on commercial aviation performance.

Machine Learning for Atmospheric Sciences

- Identification of machine learning techniques for analyzing aircraft and field project data
- Identification of machine learning techniques for analyzing multiple large satellite data sets