

# **LANGRANGIAN EVOLUTION OF CLOUD PROPERTIES FROM GEOSTATIONARY SATELLITES**

Brian Soden

NOAA/GFDL

## **ABSTRACT**

This study seeks to better understand the evolution of cirrus clouds and their impact on the radiative and moisture budgets of the upper troposphere by utilizing the tracking capabilities of geostationary satellites. Lagrangian composites of cirrus cloud properties are constructed by objectively tracking radiance patterns from successive geostationary images of 11 and 6.7 micron Tb. The evolution of cirrus cloud cover and their impact on the upper tropospheric humidity are diagnosed and compared to that predicted from a high-resolution cloud resolving model integration under various parameter settings. Surface-based lidar measurements from the ARM tropical western Pacific field site are also combined with the satellite-tracked clouds to help characterize the evolution of cirrus vertical structure and cloud optical properties.