The detection and distribution of light rainfall from CloudSat

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CloudSat was launched in 2006 and contains the first millimetre wavelength radar to fly in space with the express purpose of vertically resolving cloud structures around the globe. Due to its high sensitivity, the radar can also determine the presence of precipitation within these cloud structures. The combination of these capabilities provides a powerful tool to study the structure of clouds which produce precipitation on the planet. This talk outlines the attenuation-based retrieval algorithm developed to determine precipitation occurrence and rate along the CloudSat track, including complications caused by multiple scattering and frozen precipitation. Ongoing validation efforts, initial findings on the state of precipitation occurrence in NWP models, and work to resolve differences between the CloudSat and TRMM views of tropical rainfall are discussed.

Application of the algorithm to near-global CloudSat observations has revealed new information about the clouds which produce precipitation, including the important role of multiple-layered cloud systems as opposed to the textbook "deep convective" model of precipitation that is often considered to dominate tropical precipitation. CloudSat observations have also revealed new information about precipitation outside the tropics, observing precipitation more often than the passive microwave, with greater resulting seasonal accumulations.

Seminars held in Room 345, Building 28, Fridays 1pm-2pm

All Welcome!

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