

CGD SEMINAR



DATE: Tuesday, 31 October 2017

TIME: 11 a.m.

LOCATION: NCAR, 1850 Table Mesa Drive
Mesa Lab, Main Seminar Room

TITLE: How often does it rain and the
covariability of hourly precipitation in
space and time

SPEAKER: Kevin Trenberth, NCAR

ABSTRACT:

A detailed analysis of hourly precipitation from 60°N to 60°S of the covariability is performed at 0.25° resolution using the new CMORPH dataset. We firstly examine how often it really rains. Then for all points, correlations are computed with all surrounding points both concurrently and for various leads and lags up to a day. Results are far more coherent over the oceans than over land; the contours of constant correlation tend to be elliptical, oriented northeast-southwest in the northern extratropics, and southeast-northwest in the southern extratropics. For all data, over the main extratropical ocean storm tracks correlations exceed 0.8 for points 50 km distant and fall to about 0.3 at about 5° radius. In the tropics values drop to 0.65 or so within 50 km and 0.2 at 5° radius. Over land, values are lower in summer, and drop to 0.1 at 5° radius. The lead-lag relationships indicate movement of systems but reveal the relatively short lifetimes of precipitation, or lack thereof, of less than 12 hours, even taking movement into account. These kinds of statistics demonstrate that daily averages, especially with coarse resolution, fail to capture the essential character of precipitation, which must be simulated to provide a basis for understanding extremes and how they may change.

Live webcast: <http://www.fin.ucar.edu/it/mms/ml-live.htm>

For more information, contact Barbara Middlebrook, email bmiddleb@ucar.edu, phone: 303.497.1366