

CGD SEMINAR



DATE: Tuesday, 4 October 2016

TIME: 11 a.m.

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

TITLE: Implications of Earth's energy imbalance for surface fluxes and especially ocean heat transports

SPEAKER: Kevin Trenberth, NCAR/CGD

ABSTRACT:

The current Earth's energy imbalance (EEI) is mostly caused by human activity, and is driving global warming. The EEI represents the most fundamental metric defining the status of global climate change, and can best be estimated mainly from changes in ocean heat content (OHC), complemented by radiation measurements from space. Sustained ocean observations from the Argo array of autonomous profiling floats in the global ocean provide the backbone of new estimates of OHC changes. New estimates of EEI and corresponding rates of change of OHC will be presented. However, we can also do this regionally and therefore provide a commentary on energy flows around the climate system. In particular, new estimates will be shown of the changes in ocean heat transports in the Atlantic Meridional Overturning Circulation (AMOC), which have a profound affect on decadal variability, not only for North America and Europe, but also around the planet. For 2000 through 2013 meridional heat transports in the Atlantic agree well with observational estimates at 26.5°N from the RAPID array but, along with model assessments, suggest that the RAPID assumptions and methodology overestimate the peak transports by about 0.2 PW. Average peak northward Atlantic Ocean heat transports are 1.1 PW but vary considerably in latitude and time. In addition, these results have no hint of a trend, unlike the RAPID results.

Live chat: <http://www.fin.ucar.edu/it/mms/ml-live-chat1.htm>

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

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