

**Climate Center Lecturer Series: Fall 2008  
17 - 20 November 2008  
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## **The Flow of Energy Through the Climate System II**

A brief review is given of the trends, variability, mean and annual cycle of energy flowing through the climate system, and its storage, release, and transport in the atmosphere, ocean, and land surface as estimated with recent observations, with some new updates using the latest datasets. The current imbalance in radiation at the top-of-atmosphere owing to human-induced increases in greenhouse gases means that the atmosphere, land and ocean are warming up, and ice is melting, leading to a rise in sea level. A discussion is given of our ability to track these changes with current observations and analyses. The global atmospheric analyses are run with specified sea surface temperatures and thus the ocean provides an infinite source or sink of energy and moisture. The imbalances in top-of-atmosphere and surface energy provide interesting diagnostics on model performance. We have also evaluated CMIP3 models used in the IPCC assessment, and will comment on the insights these reveal and speculate on their implications for climate sensitivity and future projections.

**Wednesday, November 19 at 2pm in the 3rd Floor Conference Room, Armstrong Hall, GISS Campus**