

## "Earth's energy balance revisited"

In this talk we will revisit the flow of energy through the climate system and some differences in recent estimates of the overall energy balance, at the top-of-atmosphere, for the atmosphere, and the surface. The energy imbalance associated with climate change has consequences for where the heat goes. Changes in the disposition of heat relates to the recent "hiatus in global warming". We also consider the natural fluctuations in the energy imbalance and how that relates to temperatures. At the surface, there are major discrepancies among climate model estimates of the energy balance manifested in the global precipitation estimates that will be better tied down with the new Global Precipitation Measurement (GPM) mission.

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