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SPEAKER TITLES/ABSTRACTS

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“Evaluating and Constraining Climate Model Simulations Using Satellite Data”

Climate projections rely on general circulation models that parameterize many physical processes that cannot be resolved by finite-sized grids and contain large uncertainties. Therefore, evaluations of the performance of models in simulating present-day climate are necessary to ensure the accuracy of the projections of future climate. Reanalysis datasets and satellite observations are routinely used for model evaluations. Furthermore, a number of metrics have been proposed to serve as “emergent constraints” on future climate projections based on the correlations of present-day model simulations and future projections. Large ensemble members of model simulations are needed to minimize the effects of internal variabilities and extract robust signals driven by forced climate change. These climate science studies involve large amounts of climate model simulations and observational datasets. Access to and analysis of the climate model simulations and observational data often encounter difficulties in data transfer and reorganization. The increasing resolutions of climate models make the data processing even more challenging. My presentation will review some of the recent studies in evaluating and constraining climate model simulations using satellite data and seek innovative ideas to facilitate such climate studies to be more efficient and accurate.