

The Role of Satellite Observations in Climate Change Projection and Future Expectations

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Earth system models (ESMs) are numerical simulation models that incorporate biogeochemical processes, such as the carbon cycle, into coupled atmosphere-ocean general circulation models (AOGCMs). ESMs have played a significant role in projecting anthropogenic climate change. As ESMs have developed, satellite observation data has provided an invaluable scientific basis for verifying model performance and elucidating the mechanisms of processes to be incorporated. Furthermore, satellite data are extensively used in data assimilation techniques that create initial conditions based on observational data when performing predictions on relatively short, decadal timescales taking into consideration both anthropogenic warming and natural climate variations. The presentation will introduce recent topics in climate change prediction, such as decadal-scale projections of the carbon cycle and the detection of possible abrupt climate change. The presentation will discuss the role played by satellite data, including the latest ones from GCOM-C and GOSAT, as well as expectations from climate modelers for future satellite observations.

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