Geophysical Statistics Project plans

Much of the research that involves the analysis of climate model experiments will be continued. New statistical covariance models will be developed for the attribution and detection of climate change along with an extension to handle multiple climate models. These will also be applied with respect to intermediate climate models to estimate parameters. The synthesis of multi-model global and regional climate experiments will be extended to include several variables, e.g. surface temperature and precipitation and also measures of extremes.

In the area of spatial processes, nonstationary covariance models using multiresolution wavelet bases will be applied to estimate the variability of the aurora based on air glow and also to electric fields over the poles in the ionosphere. These covariance models will also be applied to analyze extremes in surface ozone pollution measurements for the U.S.

A new project will be initiated to combine carbon monoxide measurements from the MOPPIT instrument and other satellite retrievals to provide a synthesized concentration field over space and time. The initial approach is to use a Bayesian hierarchical model based on transport by the wind field and diffusion of CO to interpolate concentrations to points not observed.

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