

ES13: Computer models and statistical methods in Earth sciences

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Session Description

Complex computer models are increasingly used to understand geophysical processes, in many cases replacing experiments or enabling experiments that are physically or logistically impossible. Increases in computing power have made computational tools widely applicable to large-scale problems in Earth and environmental sciences, while developments in uncertainty quantification and computer model calibration, validation and prediction have begun to target these applications. This session is intended to bring together statisticians interested in Earth, ocean and atmospheric sciences with geoscientists of all stripes interested in using computational models and physical data to make inferences about complex systems. We invite contributions that focus on (1) using computational models and physical data for parameter estimation and prediction in complex systems within Earth sciences; (2) quantifying uncertainty in projections made from geophysical models; (3) inference for multi-model ensembles; (4) geophysical problems that require or lend themselves to statistical/computational methods and (5) emergent research at the intersection of statistics and Earth sciences.

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