Semi-random approach for determination of climate model parameters optimal sets

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A hydrodynamical climate model is presented which includes a fully three-dimensional, frictional geostrophic ocean component. The model also includes energy and moisture balance atmosphere and a dynamic and thermodynamic sea-ice model. In our semi-random approach, we generate an ensemble by uniformly spanning the range of each individual parameter, but choose combinations of parameters at random. By analyzing a randomly generated set of 200 runs, each 2000 years in length, we have considered the uncertainty in 12 mixing and transport parameters. Constructing a quantitative measure for the model error allowed us to address both the inverse problem of estimation of model parameters, and the direct problem of model predictions.

Keywords: *global climate model, thermohaline circulation, prognosis.*

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