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Testing methods for estimating physical and biogeochemical uncertainty in GENIE-1

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Our goal is the simultaneous estimate of the uncertainty in physical and ocean biogeochemical parameters in the intermediate complexity GENIE-1 model, which has an energy balance atmosphere and a 16 level frictional geostrophic ocean. Since the model is relatively cheap to run, it is also a good model for running large ensembles and testing new methods for parameter estimation. Here we have somewhat simplified our problem compared to previous work, performing an identical twin test and varying 4 physical and 4 biogeochemical parameters. We use ensembles of several hundred members to improve the accuracy of the solution. Here we present the results generated to date by two different flavours of Iterative Importance Sampling.