



LakeMIP : the Lake Model Intercomparison Project. First results and forthcoming experiments

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This paper describes the objectives and shows some preliminary results obtained throughout the first phase of the Lake Model Intercomparison Project, termed LakeMIP. Parallel to this poster, an oral presentation will focus in turn on other features of the project. This international effort started off after the workshop “Parameterization of Lakes in Numerical Weather Prediction and Climate Modelling” in September 2008, held in St. Petersburg (Zelenogorsk) Russia, and was prompted by participants coming from different theoretical, applied and modelling groups who recognized the needs for an intercomparison and a major test of existing lake-model formulations. A number of issues are intended to be addressed in this project in order to evaluate lake models and to create a benchmark for the different approaches, parameterizations and applications. The first phase of this project aims at the intercomparison of different formulations of one-dimensional lake models forced by heat and momentum fluxes computed on the basis of observed atmospheric variables in a stand-alone mode over a number of types of lakes. This phase focuses mainly over open water and seasonally ice-covered water bodies. Two lakes have currently been taken into account: Sparkling Lake in Wisconsin, USA and Kossenblatter See in Germany. Other lakes are considered for further experiments, including Toolik Lake in Alaska, USA, and the Laurentian Great Lakes. Subsequent steps would then deal with the coupling of these lake models with atmospheric models (either single column as well as more complex NWP and RCMs) in order to assess the atmosphere-lake interactions and their impact on the weather and climate, with particular attention on surface heat fluxes and momentum transfer parameterisation schemes. This phase of LakeMIP put emphasis on the simulated thermal profiles. Preliminary results have recently been published in a special issue of *Boreal Environment Research*. Newer results are presented, highlighting some of the model formulations and their performances, their sensitivity, and their behaviour when driven by observations.