



MiKlip PastLand: Overview and first results

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MiKlip PastLand aims at a comprehensive, combined state and parameter estimation of a climate model land surface scheme using observations for different land surface variables simultaneously. Focus is hereby given on a most realistic model parameter optimization at the model grid scale to improve the model predictive skills for seasonal to decadal predictions. A flexible observational framework will be built up that utilizes existing land surface observations obtained by remote sensing from satellites. Investigations will be based on the JSBACH land surface scheme, which is part of the MPI-M coupled ECHAM/MPI-OM/JSBACH Earth System Model. Model predictive skills will be verified using coupled and uncoupled climate model simulations in hindcasting applications and independent observational data.

The main objectives of PastLand is to

- identify regions where the memory of the land surface has an impact on the climate, and on which time scales (from seasons to decades) this impact is noticeable,
- exploit the potential of new satellite observations for Earth System research and an improved estimate of the land surface state,
- assess the impact of observational data sets and initialization procedures on seasonal to decadal climate predictions,
- develop and assess a combined optimum model and state estimation tool which can be used for the initialization of seasonal to decadal climate predictions, and
- evaluate the impact of observation uncertainties on model initialization and prognostic skills.

Our presentation will give an overview about the plans and first achievements in PastLand. The results will be related to the first and second objectives. Based on an autocorrelation analysis we will explore soil memory effects in model data and observations and evaluate whether soil memory is represented by the model in a correct way.