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Land data assimilation: a tool for improving land surface models and observations

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In Numerical Weather Prediction, the routine confrontation of short-range weather forecasts with observations, facilitated by the analyses-prediction-comparison cycles built into the data assimilation method, has identified numerous shortcomings in the forecast model, leading to steady improvements in model performance over the years. More recently, this approach has started to be applied to testing parametrizations in climate General Circulation Models, and to the evaluation of chemical models. All these applications are based on the concept of confronting models with observations. At NILU, we are applying this concept to develop a land data assimilation capability, initially focussing on soil temperature and soil moisture, later moving to snow, to provide analyses and forecasts and to improve the observations and the models (both land surface models and models containing the former). This presentation will discuss current plans at NILU and our view of the way forward.