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Development of snow depth assimilation for the Met Office UK forecasting system

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An accurate representation of snow extent and depth is of great importance in Numerical Weather Prediction (NWP) models for calculations of surface fluxes which provide the lower boundary conditions for the atmosphere. In the UK the model representation of snow is itself of great interest to forecasters, who must provide current information on and predictions of snow positioning, depths and evolution of lying snow.

At the Met Office a new snow depth assimilation scheme has been developed for the high-resolution UK Numerical Weather Prediction system. The scheme is based on a 2D Optimal Interpolation method and makes use of observations of snow depth from the ground-based SYNOP network as well as observations of snow cover, derived from MSG SEVIRI and provided by the EUMETSAT H SAF. They provide improved coverage, for cloud-free areas, and valuable observations of snow-free ground, which enable better spatial analysis of the snow-affected surface.

In this presentation we describe the assimilation method that has been developed and show the performance of the snow analysis for particular UK snow events, along with results from assimilation trials in the Met Office UK NWP system, in preparation for implementation in the operational forecasting system.

Which session would you like to present in?

1. Hydrological data assimilation for NWP

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