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Gridded snow maps supporting avalanche forecasting in Norway

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We present gridded maps indicating key parameters for avalanche forecasting with a 1 km x 1 km resolution. Based on the HBV hydrology model, snow parameters are modeled based on observed and interpolated precipitation and temperature data. Modeled parameters include for example new snow accumulated the last 24 and 72 hours, snow-water equivalent, and snow-water content. In addition we use meteorological parameters from the UK weather prediction model "Unified Model" such as wind and radiation to model snow-pack properties. Additional loading in lee-slopes by wind-transport is modeled based on prevailing wind conditions, snow-water content and snow age. A depth hoar index accounts for days with considerable negative temperature gradients in the snow pack. A surface hoar index based on radiation and humidity is currently under development. The maps are tested against field reports from avalanche observers throughout Norway. All data is available via a web-platform that combines maps for geo-hazards such as floods, landslides and avalanches. The maps are used by the Norwegian avalanche forecasting service, which is currently in a test phase. The service will be operational by winter 2012/2013.