



Development of generic earth observation based snow parameter retrieval algorithms

Results in Brief

Forecasting floods in Finland

A hydrological model and data assimilation algorithm for the Finnish flood forecasting system which analyses the accuracy of real time runoff forecasts in a boreal zone has been completed.



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The ENVISNOW project has used data for the development, validation and operation of multi-sensor and multi-temporal snow parameter retrieval algorithms for regional as well as global mapping. This has helped to satisfy the requirements of hydrology users as well as heightened the understanding of the way in which microwaves and light interact with snow

and ground cover. As a result, innovative algorithms which employ complementary features of both optic and radar sensors have been designed.

The key factors are snow cover area, snow water equivalent, snow wetness and snow surface temperature. Signature data and models were advanced in the retrieval algorithms and joined with airborne, space-borne and in-situ data. The resulting products have been included in updated hydrological models in order to improve the accuracy of runoff prediction.

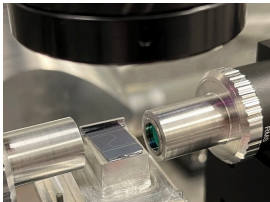
The hydrological model and data assimilation algorithm for the Finnish flood forecasting system (SYKE-WSFS) was completed in 2004. The effect of the snow cover area (SCA) observations on forecast accuracy was examined through forecasts during the spring of 2003-2005 both with and without SCA observations. Simulated flood forecasts were compared in 14 different discharge measuring points.

The developed method has been employed in the Finnish operational hydrological forecasting system SYKE-WSFS since spring 2005. The real time flood forecasts are designed for all of Finland including cross-boundary watersheds and cover over 1 200 points on lakes and rivers.

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ENVISNOW

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