

Satellite inspired hydrology in an uncertain future: a H SAF and HEPEX workshop



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Type: **Oral presentation**

Sequential and variational assimilation of satellite snow data through a conceptual hydrological model in a mountainous catchment

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Analyzing and forecasting the variability of snow is essential for runoff prediction especially in mountainous regions where the optimal operation of reservoirs is important. Remote sensing information has been extensively developed over the last decay with enhanced snow data sets at high resolutions. The implementation of satellite facilities in operational runoff forecasting systems by means of data assimilation provides an improvement in the initial conditions of streamflow forecasts. The snowmelt is the main component of runoff in the Eastern Turkey despite the limited availability of ground snow observations. Therefore, incorporating different DA techniques together with observed discharge and satellite snow data is very crucial in the runoff predictions over the region. The work includes implementation of sequential and variational techniques through a conceptual hydrological model to assimilate H-SAF snow products on snow covered area (SCA) data during the period of 2008-2012. Sequential techniques have been commonly applied to hydrological processes however their application over snow dominated catchments is rather limited. On the other hand, variational techniques have been seldom used. Data assimilation results show a progress in the lead time performance of streamflow forecasts by using perfect forecast data beside an improvement in the forecast skill of modelled snow states.

Which session would you like to present in?

1. Remote sensing, hydrological modelling and data assimilation

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Session Classification: Session 5: Novel hydrological data sources and assimilation techniques