

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



Contribution ID: 71

Type: **Poster presentation**

Preparing for SWOT data assimilation in a coupled atmosphere-surface-hydrology-hydrodynamics prediction system

Environment and Climate Change Canada (ECCC) is the lead federal department for a wide range of environmental issues. ECCC's programs focus on minimizing threats to Canadians, in particular through the use of weather and water forecasts, issued using coupled numerical models. Six-day streamflow forecasts are currently issued twice daily on a 1-km grid for all tributaries of two of the largest rivers in Canada: the Nelson and the St. Lawrence rivers. A 2D hydrodynamic model also provides water level and surface current forecasts for the St. Lawrence river itself. The hydrological model is weakly coupled to the atmospheric model through the Canadian Land Data Assimilation System (CaLDAS), which can be used to initialize the soil, vegetation and snow state variables shared by both models. With the upcoming launch of the Surface Water and Ocean Topography (SWOT) mission, ECCC is looking for opportunities to improve its water forecasts. Three strategies are envisioned and discussed: (1) assimilation of water level data in its lake models, (2) development of empirical tide models in estuaries, and (3) evaluation of non-stationary hydrodynamic model predictions. Canada's planned contributions to SWOT post-launch calibration activities are also highlighted.

Which session would you like to present in?

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Track Classification: H SAF and HEPEX joint workshop on "Satellite inspired hydrology for an uncertain future"