

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



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Type: **Poster presentation**

Performance of a Standardized Soil Moisture Index based on the ESA-CCI soil moisture product for assessing agricultural drought in India

Soil moisture (SM) represent one of the most suitable indicator to assess agricultural drought, which occur when there is not enough SM to support crop production. Many studies have promoted the use of SM data from surface/hydrological models and more recently, from active and passive microwave sensors to assess agricultural drought conditions. In particular, remote sensing SM products are increasing in availability and allow to observe the Earth surface including human processes. The focus of this work is to investigate how much information satellite-based observations of SM retain about crop production respect to land surface model SM estimates and rainfall observations. ESA CCI SM product from 1981 was here used to obtain the Standardized Soil Moisture Index (SSI) for assessing agricultural drought impacts over the districts of Maharashtra and Karnataka States in India. In order to integrate drought analysis with crop phenology, crop yield anomalies of maize and wheat for every district were compared with SSI CCI. The analysis was then extended to the SSI calculated using reanalysis SM estimates from MERRA-2 and a ground-based Standardized Precipitation Index (SPI). This study highlighted the higher capacity of SSI-CCI respect to other indices in estimating yield reduction during drought events.

Which session would you like to present in?

1. Impacts of hydrological uncertainty, hydrological forecasting and modelling

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