

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



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Precipitation measurements for hydrological applications

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The measurement of precipitation across the Earth's surface is complex due to the vagaries in the occurrence and intensity of precipitation, together with the variations in the temporal and spatial distribution of precipitation across the global. The physical nature of precipitation necessitates that the observation, sampling and reporting of precipitation is adequate for the resulting end user and their applications, which are in turn constrained by engineering and technology.

This paper provides an overview of precipitation measurement techniques, with particular reference to their use in hydrological applications. Gauge measurements provide the most direct measure of precipitation, although the temporal and spatial sampling vary greatly. Weather radars (where available) provide spatial maps of precipitation with frequent/regular sampling, although ultimately are calibrated against gauge data. Gauges and radars are essentially confined to global land surfaces: satellite observations are capable of providing precipitation measurements on a global basis. Techniques have been devised to extract precipitation from these observations and presently provide precipitation measurements of up to 10km every 30m.

The relative importance and accuracy of the different sources and products at different spatial and temporal resolutions will be assessed. The paper will conclude by providing an insight into future measurements of precipitation.

Which session would you like to present in?

1. Remote sensing, hydrological modelling and data assimilation

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