

Open Seventeen – HydroHub Challenges

Global Hydrometry Support Facility (WMO HydroHub)

Prediction of river flow in data-poor areas

Challenge Proposal #6

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Today, ground-based measurements of river flow are critical for the management of water as a resource, disaster management and to prevent armed conflicts. However, in many countries in the world - especially in the most vulnerable – local measurements of river flow are often not available.

One solution to the lack of those measurements could be to use satellite observations and numerical weather forecasts or a combination of both to predict river flow with no need for local measurements. Another possible approach would be to include information derived from crowd-sourcing projects or other relevant “ground-truthing” activities.

Our challenge to you is to demonstrate that such improved estimates of in-situ river flow observations can be achieved by analyzing patterns in a data-rich area like the Danube via a mix of satellite data, numerical weather predictions and machine learning techniques and to transfer the findings to data-poor areas, such as the Zambezi River basin, to improve local predictions of river flow.

In your work you will be supported by a team of experts from the European Weather Centre who will also give you access to the necessary data and tools. We hope that the solution you develop will improve flood and drought warnings. The solution could, potentially, be introduced into the Copernicus Emergency Management Service.