



Repurposing of open data through large scale hydrological modelling – hypeweb.smhi.se

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Hydrological modelling demands large amounts of spatial data, such as soil properties, land use, topography, lakes and reservoirs, ice and snow coverage, water management (e.g. irrigation patterns and regulations), meteorological data and observed water discharge in rivers. By using such data, the hydrological model will in turn provide new data that can be used for new purposes (i.e. re-purposing).

This presentation will give an example of how readily available open data from public portals have been re-purposed by using the Hydrological Predictions for the Environment (HYPE) model in a number of large-scale model applications covering numerous subbasins and rivers. HYPE is a dynamic, semi-distributed, process-based, and integrated catchment model. The model output is launched as new Open Data at the web site www.hypeweb.smhi.se to be used for (i) Climate change impact assessments on water resources and dynamics; (ii) The European Water Framework Directive (WFD) for characterization and development of measure programs to improve the ecological status of water bodies; (iii) Design variables for infrastructure constructions; (iv) Spatial water-resource mapping; (v) Operational forecasts (1-10 days and seasonal) on floods and droughts; (vi) Input to oceanographic models for operational forecasts and marine status assessments; (vii) Research.

The following regional domains have been modelled so far with different resolutions (number of subbasins within brackets): Sweden (37 000), Europe (35 000), Arctic basin (30 000), La Plata River (6 000), Niger River (800), Middle-East North-Africa (31 000), and the Indian subcontinent (6 000). The Hype web site provides several interactive web applications for exploring results from the models. The user can explore an overview of various water variables for historical and future conditions. Moreover the user can explore and download historical time series of discharge for each basin and explore the performance of the model towards observed river flow. The presentation will describe the Open Data sources used, show the functionality of the web site and discuss model performance and experience from this world-wide hydrological modelling of multi-basins using open data.