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The HYPE Open Source Community

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The Hydrological Predictions for the Environment (HYPE) model is a dynamic, semi-distributed, process-based, integrated catchment model (Lindström et al., 2010). It uses well-known hydrological and nutrient transport concepts and can be applied for both small and large scale assessments of water resources and status. In the model, the landscape is divided into classes according to soil type, vegetation and altitude. The soil representation is stratified and can be divided in up to three layers. Water and substances are routed through the same flow paths and storages (snow, soil, groundwater, streams, rivers, lakes) considering turn-over and transformation on the way towards the sea.

In Sweden, the model is used by water authorities to fulfil the Water Framework Directive and the Marine Strategy Framework Directive. It is used for characterization, forecasts, and scenario analyses. Model data can be downloaded for free from three different HYPE applications: Europe (www.smhi.se/e-hype), Baltic Sea basin (www.smhi.se/balt-hype), and Sweden (vattenweb.smhi.se)

The HYPE OSC (hype.sourceforge.net) is an open source initiative under the Lesser GNU Public License taken by SMHI to strengthen international collaboration in hydrological modelling and hydrological data production. The hypothesis is that more brains and more testing will result in better models and better code. The code is transparent and can be changed and learnt from. New versions of the main code will be delivered frequently. The main objective of the HYPE OSC is to provide public access to a state-of-the-art operational hydrological model and to encourage hydrologic expertise from different parts of the world to contribute to model improvement. HYPE OSC is open to everyone interested in hydrology, hydrological modelling and code development – e.g. scientists, authorities, and consultancies.

The HYPE Open Source Community was initiated in November 2011 by a kick-off and workshop with 50 eager participants from twelve different countries. In beginning of 2013 we will release a new version of the code featuring new and better modularization, corresponding to hydrological processes which will make the code easier to understand and further develop. During 2013 we also plan a new workshop and HYPE course for everyone interested in the community.

Lindström, G., Pers, C.P., Rosberg, R., Strömqvist, J., Arheimer, B. 2010. Development and test of the HYPE (Hydrological Predictions for the Environment) model – A water quality model for different spatial scales. Hydrology Research 41.3-4:295-319