Geophysical Research Abstracts
Vol. 19, EGU2017-9997, 2017
EGU General Assembly 2017


# Near realtime corrections of meteorological forcing data to initialize hydrological forecasts

Peter Berg, Jafet Andersson, Berit Arheimer, and David Gustavsson
SMHI, Hydrology Research Unit, Norrköping, Sweden (peter.berg@smhi.se)

The required observed meteorological forcing data for running global and regional hydrological simulations are often not available at high enough temporal resolution. The WATCH forcing data (WFDEI; Weedon et al., 2010) provided global data at a 0.5 degree resolution where a reanalysis simulation was scaled to fit with monthly mean observations. This allowed for setting up distributed hydrological simulations across the world, with much reduced biases for which the hydrological models are sensitive. However, the WFDEI is not maintained with continuous updates and currently ends in 2013. Hydrological forecasts are sensitive to the initial state, especially in slow responding catchments with a large snow fraction. Therefore, bias adjusted meteorological forcing data is required to derive this state before forecasts can be made. We therefore made a new implementation based on the WATCH-method, which we call GFD (Global Forcing Data). It takes a reanalysis simulation and adjusts the bias with some monthly mean meteorological data. For the climatological period 1979—2013, it is very similar to WFDEI by using ERA-Interim reanalysis, and the main exception is that it uses updated observations for the whole period. Thereafter, it uses various other sources of global observations to continue the adjustments until the end of the reanalysis data, which are updated with a three month delay. Updates until the end of the last month are then performed using the operational deterministic forecasts of ECMWF, which are using a newer model version than ERA-Interim. Here, we present the GFD-method together with analyses of added value for hydrological forecasts with the HYPE model in the Arctic and various other regions of the world.