



Development of a seasonal risk outlook for basin-level drought management

Johannes Hunink (1), Nicky Stringer (3), Albrecht Weerts (2), Raed Hamed (1), and Jeff Knight (3)

(1) FutureWater, Cartagena, Spain (j.hunink@futurewater.es), (3) Met Office, Reading, United Kingdom, (2) Deltares, Delft, Netherlands

Climate model-based seasonal forecasts are increasingly skilful and have the potential to inform basin-level drought management if communicated correctly. The uncertain and probabilistic information needs to be tailored in such a way that it is digestible and understandable for end-users in an organization like for example a river basin authority responsible for enforcing drought mitigation measures.

We developed a winter seasonal risk outlook bulletin for the Segura River Basin authority, giving them information about the next three months on precipitation and streamflow anomalies. The goal was to co-design and test a climate service with the Segura river basin authority that provides ready-to-use information for drought risk management.

The system relies on climate model-based forecasts of the NAO to resample the historical rainfall dataset. Then, these realizations are simulated through a hydrological model (SPHY) that was calibrated using historical streamflow data. Initial conditions are retrieved from the ECMWF EFAS system, and historical runs are forced with EOBS. The hydrological model runs on the FEWS system and calculates probabilities of above normal, near normal and below normal categories for both discharge and rainfall conditions for the winter period 2018-2019.

The information has been communicated by means of monthly bulletins tailored to the needs of the end-user. The final result has been assessed to be of great value by the river basin authority offering a promising route for the transfer of such knowledge into operational practice. This work has been carried out within the H2020 project IMPREX (www.imprex.eu).