

From drought impact information to impact-based forecasting: progress and setbacks

Compared to other natural hazards' damages, the impacts of drought are often diverse, affecting multiple sectors with different time lags. Research has found more immediate relations of meteorological drought and soil moisture drought to yield losses in rainfed annual crops in the agricultural sector for example, whereas hydrological drought shows variably longer relations to impacts on public water supply or energy production. This system complexity challenges the scenario predictions that are needed for planning and they hamper the forecasting that is needed to initiate mitigation measures. Improving on such prediction tasks demands drought impact data. Impact data can help understand systems and allow developing or validating impact models. This contribution synthesizes more than 10 years of efforts of designing and populating multi-sectorial drought impact databases that can serve a number of tasks in drought risk management. The data have shown differences across Europe in terms of impacted sectors, but achieving an unbiased coverage of data based on text-based reports remains a challenge, even when applying automatic webcrawl tools. Impact based prediction experiments show potential for the development of models within fairly similar impact-regions. Modelling outside the range of training data in space or time is more difficult and more systematic data and adapted methods might be required to improve impact-based forecasting.