

The **Forschungszentrum Jülich (FZJ) experimental water resources bulletin (eWRB)** gives a **regular seasonal update** on the **current state and the upcoming potential evolution of terrestrial near-surface water resources**. The eWRB is an open access research data product for an expert environmental sciences and stakeholder audience as well as the interested public.

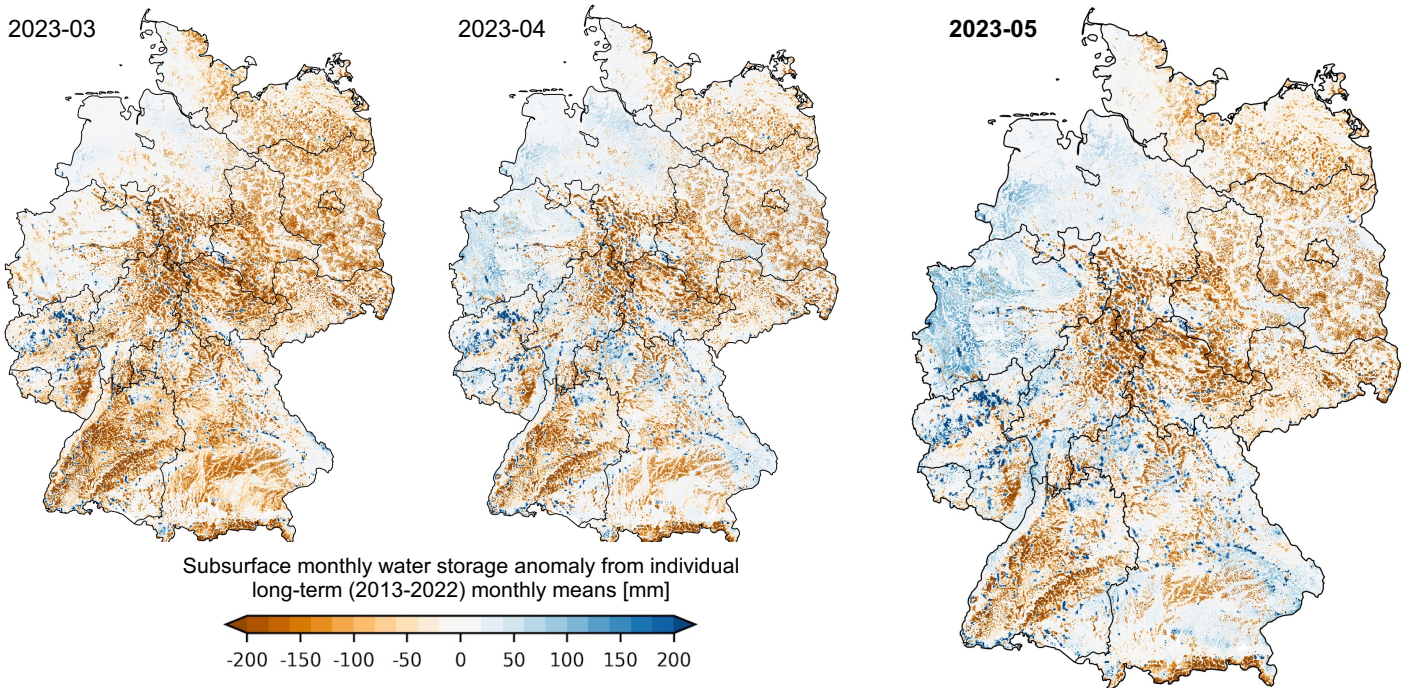


Fig. 1: **Monthly anomalies of total subsurface water storage for the past season** with respect to long-term monthly means from 2013-2022 in **mm water column** for the upper 60m of the subsurface. Data: Hindcasts from ParFlow/CLM simulations with ECMWF HRES atmospheric forcing.

State and possible developments: June has been very dry, along with sunshine, wind, and high temperatures. This caused a rapid decrease in the (partly recovered) subsurface water storage, known as flash drought. Negative anomalies of subsurface storage are expected for summer and autumn, based on a 50-member ensemble forecast initialized on 2023-06-01.

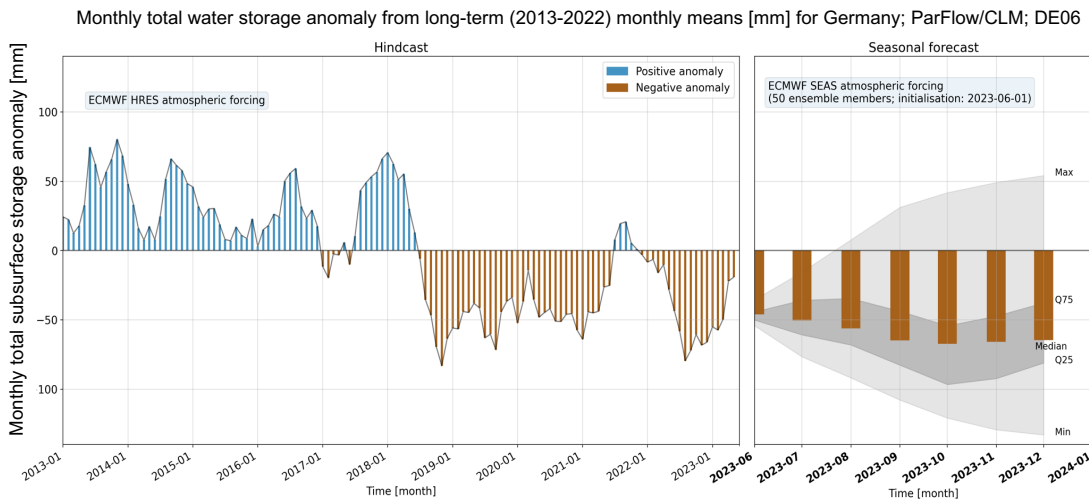
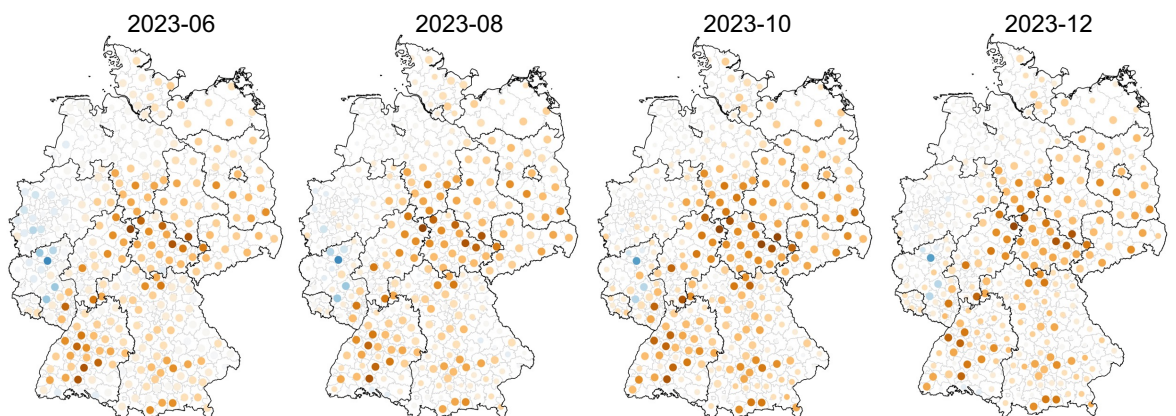


Fig. 2: **Past evolution of monthly total subsurface storage anomalies as spatial means for Germany** from 2013-Jan to 2023-May as simulated at 611m resolution with the ParFlow/CLM (www.parflow.org) integrated hydrological model based on daily forecasts driven by ECMWF HRES deterministic atmospheric forcing ("hindcast"), and 7-months forecast from 2023-Jun to 2023-Dec based on ECMWF SEAS 50-member ensemble ("seasonal forecast").

Fig. 3: **Seasonal forecasts (2023-Jun to 2023-Dec)**; mean of subsurface water storage anomalies from 50-member ParFlow/CLM ensemble (initialized on 2023-06-01), ECMWF SEAS seasonal ensemble prediction driven. Dots: NUTS-3 level administrative regions; dot size: proportional to how many members agree in their sign.



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Updates

The FZJ Water Resources Bulletin information products are prototypical scientific products, that are part of a knowledge transfer towards practical real-world applicability. The forecast products are generated in a quasi-operational mode, i.e., they are not part of an official forecasting service. Nevertheless, the FZJ Water Resources Bulletin project team attempts to provide a forecast at the beginning of each meteorological season, within reason.

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