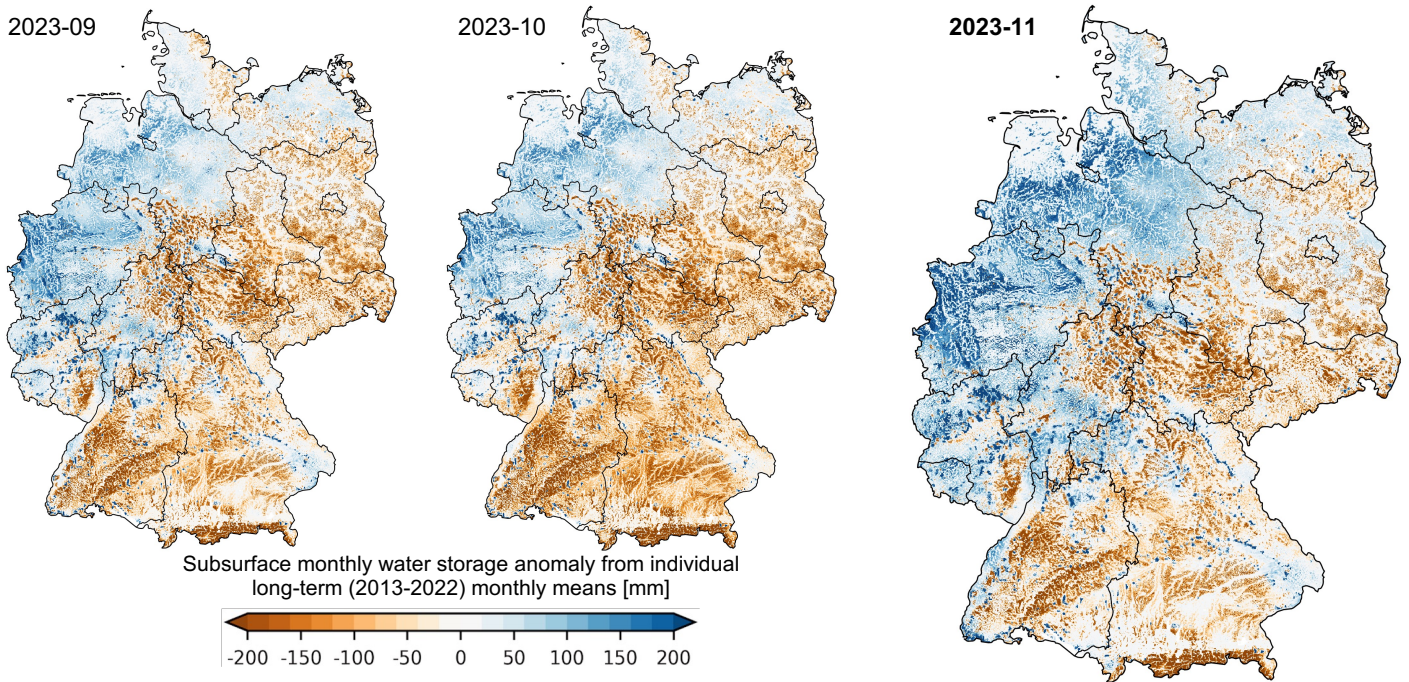
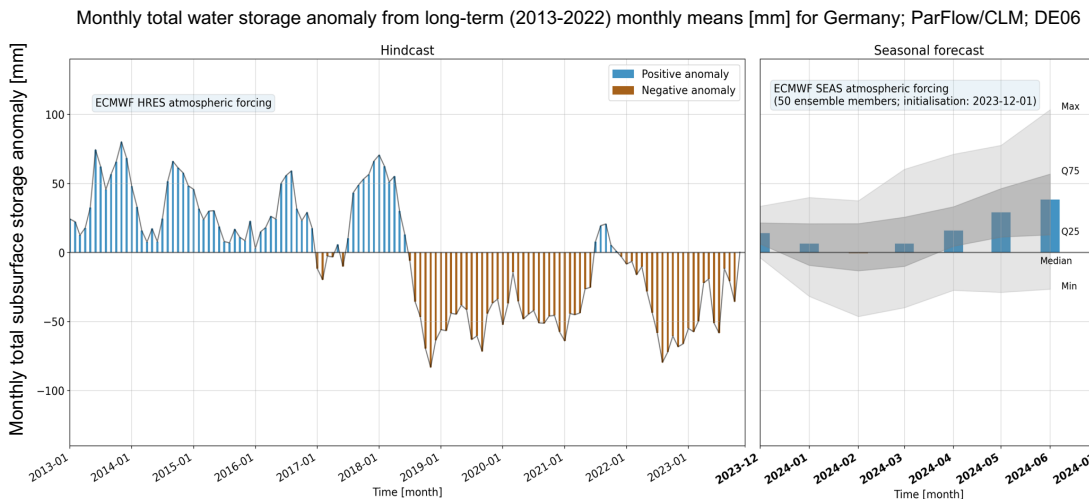


The **Forschungszentrum Jülich (FZJ) experimental water resources bulletin (eWRB)** gives a **regular seasonal update** on the **current state and the upcoming potential evolution of terrestrial near-surface water resources**. The eWRB is an open access research data product for an expert environmental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



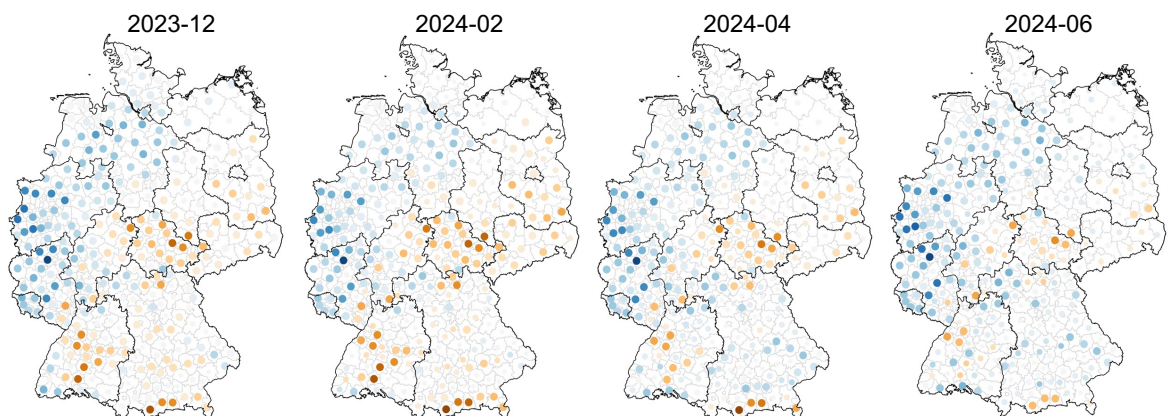
**Fig. 1: Monthly anomalies of total subsurface water storage for the past season** with respect to long-term monthly means from 2013-2022 in **mm water column** for the upper 60m of the subsurface. Data: Hindcasts from ParFlow/CLM simulations with ECMWF HRES atmospheric forcing.

**State and possible developments:** The replenishment of subsurface water storage continued throughout Autumn 2023. Positive subsurface storage anomalies are anticipated for Winter and Spring, especially in the west and north-west of Germany. However, dry conditions might still persist in some regions, as indicated by a 50-member ensemble forecast initialized on 2023-12-01.



**Fig. 2: Past evolution of monthly total subsurface storage anomalies as spatial means for Germany** from 2013-Jan to 2023-Nov 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-Dec to 2024-Jun based on ECMWF SEAS 50-member ensemble ("seasonal forecast").

**Fig. 3: Seasonal forecasts (2023-Dec to 2024-Jun);** mean of subsurface water storage anomalies from 50-member ParFlow/CLM ensemble (initialized on 2023-12-01), ECMWF SEAS seasonal ensemble prediction driven. Dots: NUTS-3 level administrative regions; dot size: proportional to how many members agree in their sign.



# FZJ Experimental Water Resources Bulletin for Germany, usage conditions and disclaimer

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Jülich, 2023-12-14