



## **Global drought outlook by means of seasonal forecasts**

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Droughts are naturally occurring phenomena which are caused by a shortage of available water due to lower than normal precipitation and/or above normal evaporation. Depending on the length of the droughts, several sectors are affected starting with agriculture, then river and ground water levels and finally socio-economic losses at the long end of the spectrum of drought persistence. Droughts are extreme events that affect much larger areas and last much longer than floods, but are less geared towards media than floods being more short-scale in persistence and impacts. Finally the slow onset of droughts make the detection and early warning of their beginning difficult and time is lost for preparatory measures.

Drought indices are developed to detect and classify droughts based on (meteorological) observations and possible additional information tailored to specific user needs, e.g. in agriculture, hydrology and other sectors. Not all drought indices can be utilized for global applications as not all input parameters are available at this scale. Therefore the Global Precipitation Climatology Centre (GPCC) developed a drought index as combination of the Standardized Drought Index (SPI) and the Standardized Precipitation Evapotranspiration Index (SPEI), the GPCC-DI. The GPCC-DI is applied to drought monitoring and retrospective analyses on a global scale.

As the Deutscher Wetterdienst (DWD) operates a seasonal forecast system in cooperation with Max-Planck-Institute for Meteorology Hamburg and University of Hamburg, these data are also used for an outlook of drought conditions by means of the GPCC-DI. The reliability of seasonal precipitation forecasts is limited, so the drought outlook is available only for forecast months two to four.

Based on the GPCC-DI, DWD provides a retrospective analysis, near-real-time monitoring and outlook of drought conditions on a global scale and regular basis.