



Global database of meteorological drought events from 1951 to 2016

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Drought affects every year a large number of people and its impacts are difficult to be quantified because the effects can last for years after its termination. This study analyzes meteorological droughts, evaluated using two indicators, the Standardized Precipitation Index (SPI) and the Standardized Precipitation-Evapotranspiration Index (SPEI), computed at various time scales. As input data, we used monthly precipitation from the Global Precipitation Climatology Centre (GPCCv7) and potential evapo-transpiration (PET) from the Climate Research Unit dataset (CRUTSv4.00) of the University of East Anglia. For each indicator, computed at global scale at high spatial resolution (0.5°), we obtained time series for each grid point, country, and region from 1951 to 2016 and we derived the meteorological drought events for each country and region. Overall, we detected more than 4,500 events at country level according to SPI-3 and SPEI-3 and more than 1,900 according to SPI-12 and SPEI-12. To each event, we assigned start/end month and year, duration, severity, intensity, peak, average area involved, and maximum extension. We classified droughts into sub-categories and ranked the 50 biggest droughts of the last six-and-a-half decades. As validation, we found evidence in literature for 96% of them. From this database, which will be part of the Global Drought Observatory (GDO) of the European Commission's JRC, many results can be extracted, such as global trends of drought frequency, severity, and intensity. We plan using this global database to investigate drought impacts in the recent past.