National Environmental Public Health Tracking Network
Standard Precipitation Evapotranspiration Index (SPEI) Metadata

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Background	The Standardized Precipitation Evapotranspiration Index (SPEI) is an extension of the widely used Standardized Precipitation Index (SPI). The SPEI is designed to take into account both precipitation and potential evapotranspiration (PET) in determining drought. Thus, unlike the SPI, the SPEI captures the main impact of increased temperatures on water demand. Like the SPI, the SPEI can be calculated on a range of timescales from 1-48 months. At longer timescales (>~18 months), the SPEI has been shown to correlate with the self-calibrating PDSI (sc-PDSI). If only limited data are available, such as temperature and precipitation, PET can be estimated with the simple Thornthwaite method. In this simplified approach, variables that can affect PET such as wind speed, surface humidity and solar radiation are not accounted for. The dataset includes one-month SPEI values for every contiguous US county and the District of Columbia monthly from 1895-2016. The dataset has been compiled to estimate wetness and dryness of a particular area. This is important for the agriculture as well as health sectors. The data can be used to examine local and national trends in drought information.
Data Values	Range from -3 (dry) to +3 (wet). 0 indicates normal conditions. Missing data is noted as -99.99.
Geographic Scale & Scope	Data includes all counties in the lower 48 states plus the District of Columbia.
Time Period	January 1, 1895 – December 31, 2016. Known to be accurate as of time period end date.
Raw Data Processing	Data were downloaded from the National Oceanic and Atmospheric Administration (NOAA) server and were originally provided as monthly values at a 5km grid. Distance weighting functions were applied to constrain the drought values to a specific US county. No data were lost or omitted during calculation. All data that were available were used. Data will be updated on an ad hoc basis, when necessary.
Additional Information	Vicente-Serrano, Sergio M. & National Center for Atmospheric Research Staff (Eds). Last modified 18 Jul 2015. "The Climate Data Guide: Standardized Precipitation Evapotranspiration Index (SPEI)." Retrieved from https://climatedataguide.ucar.edu/climate-data/standardized-precipitation-evapotranspiration-index-spei. Vicente-Serrano, Sergio M., Santiago Beguería, Juan I. López-Moreno, 2010: A Multiscalar Drought Index Sensitive to Global Warming: The Standardized Precipitation Evapotranspiration Index. J. Climate, 23, 1696–1718.