

A Little Bit More About Drought Indices

The Handbook of Drought Indicators and Indices (Svoboda, et al., 2016) provides a good overview of indicators and indices, where different indices are categorized according to the difficulty to implement them.

A simple index can be calculated from a single climatic variable. For example, the calculation of SPI only requires monthly precipitation as its input. The complicated indices require more climatic inputs and more complicated steps in their calculation. For instance, the SPEI and RDI both require PET as the input that may need more climatic variables as inputs such as solar radiation, wind, relative humidity, temperature, soil moisture, etc.

Some indices are modified to produce new indices for some specific purpose (e.g. Agricultural Standardised Precipitation Index and Effective Reconnaissance Drought Index), where the variable transformation might be a necessary step. For example, transform monthly total precipitation into effective precipitation.

Besides the indices available in Climate Insights, we maintain an algorithm library to calculate more drought indices from the simple to the complicated. For example, the precipitation-based indices are generally considered as the simplest indices because they are calculated solely based on long-term rainfall records that are often widely available. The widely used precipitation-based indices include:

- Decile Index (DI)
- Hutchinson Drought Severity Index (HDSI)
- Percent of Normal Index (PNI)
- Z-Score Index (ZSI)
- China-Z Index (CZI)
- Modified China-Z Index (MCZI)
- Rainfall Anomaly Index (RAI)
- Effective Drought Index (EDI).

The above indices are not available in Climate Insights but can be provided as an offline service.