

Introductory Tutorial: Drought Index Portal (DrIP) (Total time = 30 mins)

Useful links DrIP User Guide: Link Cheat Sheet for select drought indices: Link	Other Online Tool for Drought Indices: https://wrcc.dri.edu/wwdt/about.php https://climatetoolbox.org/ https://app.climateengine.com/
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Go to <https://droughtindexportal.colorado.edu/>

Think of a specific drought event between 1980-present. This will help you to select a location and examine specific attributes of time series of different drought indices.

Time Period Selection - For the timeseries

1. Turn ON the DISPLAY OPTIONS tab on the top of the page
2. Go to **Date Range** and select a desired time period. For now, make the full time period selection of **1896-2022**.
(All months of the year are selected as a default. Specific months could also be selected by using the scroll or check box options. We will work with the default option)
3. Click “SUBMIT OPTIONS” — this is important otherwise your selection is not incorporated by the plotting tool below

Plotting and comparing time series of different drought indices for a given location

Location Selection

Let's choose either a county or state/combination of states.

1. For a specific county selection, click on the “County” tab and in the box underneath either write the county name or scroll and select the right county. Alternatively, to select a state or multiple states, click on the “State/States” tab and add your state.
2. Click the UPDATE tab on the right.
3. Your selected region will appear on the spatial plot

Indices Selection, Plotting and Comparing the Time Series

1. Go to the “Drought Index/Indicator” tab to select an index

2. Select SPEI-3 on the left plot and PDSI on the right plot; compare these two plots and examine how the specific drought event that you are interested in is showing up in these two indices. (SPEI-3 = the 3-month Standardized Precipitation-Evapotranspiration Index; PDSI = Palmer Drought Severity Index)
3. *Move your cursor along the time series and identify which month had the most severe drought conditions for the event you are examining*
4. Change the SPEI timescales to six months (SPEI-6) and twelve months (SPEI-12) and compare that to PDSI
5. Next, go back to the “Date Range” selection on the top and select the time period to be 1980-2022, and click SUBMIT OPTIONS
6. Go down to the plots, select SPI-3 on the left plot and EDDI-3 on the right plot. Examine how the drought event, you are interested in, is emerging in these two time series. (SPI-3 = the 3-month Standardized Precipitation Index; EDDI-3 = the 3-month Evaporative Demand Drought Index) *Note that negative values of SPI indicate drought conditions, while positive values of EDDI indicate drought conditions!*
7. Change the SPI and EDDI timescales to 6-months and 12-months and compare the two and the differences across them
8. Under the EDDI time series plot, go to Download Selected Data and download the data. Open the download data in an Excel spreadsheet.

Visualizing Time Series of any drought index in US Drought Monitor Categories

1. We will now visualize the time series of drought indices in USDM categories. Turn ON the “DISPLAY OPTIONS” in the header tab. Go to “Function” and under “Index Values” select “Drought Severity Area” and then click “SUBMIT OPTIONS”. You can now turn OFF “DISPLAY OPTIONS” to have more room to work on the screen.
2. Select SPEI-3 on the left panel and EDDI-3 on the right panel
3. Go to the time series plots at the bottom. These plots are now rendered in US Drought Monitor categories. Notice similarities and differences between the two plots.
4. Hover over these plots and notice values for a particular month in the colored table below.
5. Click “SHOW DSCI” to ON. This will plot a time series of [Drought Severity and Coverage Index](#) on to the plots.
6. Under the SPEI-3 time series plot, go to Download Selected Data and download the data. Open the download data in an Excel spreadsheet.

Spatial analysis of the 2017 Northern Plains drought

1. Go to the “Date Range” selection on the top and select the period to be just 2017 (only year 2017 is selected)
2. Go to Included Months selection in the next line. Click None tab and then select July
3. Click SUBMIT OPTIONS - *July 2017 is now selected*
4. Go to the plots below. Select these five northern plains states: MT, WY, ND, SD, NE. Click UPDATE tab on the right
5. Select SPI-1 on left and EDDI-1 on the right. Compare the two spatial plots
6. Change selection on the left to SPEI-1 and compare to EDDI-1
7. Change selection on the left to PDSI and compare to EDDI-1