**Acquisition**

Brief Overview

In this lesson, you will acquire water security data (WSIM-GLDAS) from the NASA SEDAC website and will also retrieve geoBoundaries data directly from an API. You will learn how to subset data for a region of interest and save subsetted data as a new file.

Objectives:

After completing this lesson, you should be able to:

* Retrieve WSIM-GLDAS data from SEDAC.
* Retrieve geoBoundaries data directly from the API.
* Subset data for a region of interest and time period.
* Plot geospatial data to visualize precipitation deficit patterns.

In this lesson, you learned how to:

* Use libraries such as dplyr and lubridate for temporal subsetting.
* Crop a raster stack with a spatial boundary.
* Write a subsetted dataset to disk.

**Visualization**

Brief Overview

In this lesson, you will acquire water security data (WSIM-GLDAS) from the NASA SEDAC website. You will work with 1-month and 12-month precipitation anomaly datasets to extract and visualize precipitation deficit data through different plotting methods, and identify states that experienced drought. You will also work with population data to perform zonal statistics.

Objectives:

After completing this lesson, you should be able to:

* Subset data for a region of interest and time period.
* Perform data exploration such as making histograms and a time series.
* Plot geospatial data to determine precipitation deficit patterns.
  + Use different plotting functions to make these maps.
* Integrate geoBoundaries and WSIM-GLDAS data for simple analysis.
* Integrate across geoBoundaries, WSIM-GLDAS, and Gridded Population of the World to perform more complex analyses.

In this lesson, you learned how to:

* Download geoboundaries data using the httr::GET() method.
* Identify hotspots of precipitation data and select these hotspots for further analysis by subsetting.
* Extract data from a pixel by using the extract function from the Stars library.
* Perform zonal statistics of population data using the extractexactr library.