CIS 5270 PROJECT



Analysis of the United States Drought Problem

By -:

Atinder Paul Singh

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**Objective of the Study**

The objective of the study here is to analyze the drought problems in different states of United States. The analyzing will be done using R Studio and visualization will be done as well. By this we can analyze the situations that are arising in the different states due to the drought with different kind of visuals and understanding.

**Dataset Format**

Both the used files are in .csv format (Comma Separated Values).

**Information of Project Topic**

The topic data includes two files i.e Us Droughts and County Information.

**File 1: US Drought.**

The data contains weekly observations about the extent and severity of drought in each county of the United States. The dataset contains the following fields:

* **releaseDate**: when this data was released on the USDM website
* **FIPS**: the FIPS code for this county
* **county**: the county name
* **state**: the state the county is in
* **NONE**: percentage of the county that is *not in drought*
* **D0**: percentage of the county that is in *abnormally dry conditions*
* **D1**: percentage of the county that is in *moderate drought*
* **D2**: percentage of the county that is in *severe drought*
* **D3**: percentage of the county that is in *extreme drought*
* **D4**: percentage of the county that is in *exceptional drought*
* **validStart**: the starting date of the week that these observations represent
* **validEnd**: the ending date of the week that these observations represent
* **domStatisticFormatID**: seems to always be 1

**File 2: County Info**

This file contains physical size information about each county. This file contains the following fields:

* **USPS**: United States Postal Service State Abbreviation
* **GEOID**: FIPS code
* **ANSICODE**: American National Standards Institute code
* **NAME**: Name
* **ALAND**: Land Area (square meters) - Created for statistical purposes only
* **AWATER**: Water Area (square meters) - Created for statistical purposes only
* **ALAND\_SQMI**: Land Area (square miles) - Created for statistical purposes only
* **AWATER\_SQMI**: Water Area (square miles) - Created for statistical purposes only
* **INTPTLAT**: Latitude (decimal degrees) First character is blank or "-" denoting North or South latitude respectively
* **INTPTLONG**: Longitude (decimal degrees) First character is blank or "-" denoting East or West longitude respectively

Retrieving some articles on the current situation of the drought are as follows.

“Large parts of the U.S. are in for a drought of epic proportions in the second half of this century, scientists warn in a new study that provides the highest degree of certainty yet on the impact of global warming on water supplies in the region.The chances of a 35-year or longer "megadrought" striking the Southwest and central Great Plains by 2100 are above 80 percent if the world stays on its current trajectory of greenhouse gas emissions, scientists from NASA, Columbia University, and Cornell University report in a study published Thursday in the new open-access journal [*Science Advances*](http://scienceadvances.org/).” Brian Clark Howard (2015, February 12th). Worst Drought in 1000 years predicted for American West. National Geographic. Retrieved from <http://news.nationalgeographic.com/news/2015/02/150212-megadrought-southwest-water-climate-environment/>

“Pretty much every state west of the Rockies has been facing a water shortage of one kind or another in recent years.  California's is a severe, but relatively short-term, drought. But the Colorado River basin — which provides critical water supplies for seven states including California — is the victim of a [slower-burning catastrophe](http://www.propublica.org/series/killing-the-colorado) entering its 16th year. Wyoming, Colorado, New Mexico, Utah, Nevada, Arizona and California all share water from the Colorado River, a hugely important water resource that sustains 40 million people in those states, supports 15 percent of the nation's food supply, and fills two of largest water reserves in the country.

The severe shortages of rain and snowfall have hurt California's [$46 billion agricultural industry](http://www.cdfa.ca.gov/CDFA-History.html) and helped raise national awareness of the longer-term shortages that are affecting the entire Colorado River basin. But while the two problems have commonalities and have some effect on one another, they're not exactly the same thing. “ *by*[Amanda Zamora](http://www.propublica.org/site/author/amanda_zamora/), [Lauren Kirchner](http://www.propublica.org/site/author/lauren_kirchner/) and [Abrahm Lustgarten](http://www.propublica.org/site/author/Abrahm_Lustgarten/) (2015, June 25th). California’s Drought is part of a much bigger water crisis. *ProPublica*. Retrieved from <https://www.propublica.org/article/california-drought-colorado-river-water-crisis-explained>

Dataset Retrieved from <https://www.kaggle.com/us-drought-monitor/united-states-droughts-by-county> .

**3 Questions on the Topic**

1. Which states suffer abnormally dry conditions and moderate conditions.
2. Which states suffer severe droughts in terms of Square Meters with Date feature.
3. Which states suffer extreme and exceptional droughts in Square meters/ Square Miles with Longitude and Latitude.