Drought-Data-Science-Project

**Project Title **

1. Drought data analysis for San Joaquin County

Name(s) of individual or team members

1. Team Members: Chase Krogh, Jack Lei, Isaias Torres

Short 1-2 sentence summary

1. The goal of our analysis will be to identify drought condition variations over time and we will be focusing on San Joaquin County and see how the drought will affect the vegetation and the residents.

Problem statement, question(s) and/or objective(s)

1. Problem Statement: San Joaquin County has been in an emergency drought since April 21st, 2021. All Census Block Groups in this county have

been severely affected by extreme drought conditions.

2. Questions: What insights can the analysis of NDVI, NDWI & EVI Landsat imagery offer us in regards to changes in drought conditions over time?

Datasets you will use (with links, if available)

1. MODIS/Terra Vegetation Indices (NDVI/EVI): https://modis.ornl.gov/cgi-bin/sites/site/?network=AMERIFLUX&network_siteid=US-xSJ&product=MOD13Q1
2. MODIS/Terra+Aqua Burned Area (Burned Area): https://modis.ornl.gov/sites/?id=us_california_sierra_san_joaquin_experimental_range
3. GIS Data for San Joaquin County: http://sjmap.org/GISDataDownload.htm

Tools/packages you'll need

1. Jupyter Notebook: Geopandas, Plotty Express, Rasterio
2. ArcGIS, QGIS

Planned methodology/approach

1. We will map the drought conditions in California by producing NDWI & NDVI maps and analyzing them for correlations. Important variables will be precipitation, temperature, vegetation, and additional geographic factors that contribute to a warming climate and reduced rainfall.

Expected outcomes

1. We anticipate identifying correlations between a lack of precipitation & worsening drought conditions as well as correlations with increasing temperatures and the degradation of vegetation in San Joaquin county.

Any other relevant information, images/tables, references, etc.
References