

Capstone #3 Project Proposal

Problem Statement:

Create a model that can predict future drought levels based on time-series soil and weather data. This information would be used to help predict wildfire danger.

Context:

All around the world drought and wildfires are damaging the lives and property of many people. The western United States is now host to catastrophic wildfires that haven't been witnessed in recorded history. Unfortunately, climate scientists warn that this is the "new normal". Being able to predict wildfire risk can be extremely helpful for communities, businesses, fire management crews, and many others to help plan and prepare as we continue into this "new normal".

Criteria for Success:

Successful create of model in 2 weeks.

Scope of Solution Space:

This project will be successful if I am able to accurately predict future drought levels based on past soil and drought/weather data.

Constraints:

One of the most important features in the dataset 'Score' is representative of the drought level on a scale of 0-5, and is continuous. This feature is the target feature. This number was collected weekly, while the rest of the data was collected daily. One of the biggest constraints that I can foresee at this point in the project will be handling that discrepancy.

Stakeholders:

Wildfire and drought affect everyone. Food production, property value, health, business, and more are at stake with this environmental crisis.

Data Sources:

The data for this project was obtained from the NASA Langley Research Center (LaRC) POWER Project funded through the NASA Earth Science/Applied Science Program.

The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration.

This dataset utilizes the Harmonized World Soil Database by Fischer, G., F. Nachtergaele, S. Prieler, H.T. van Velthuisen, L. Verelst, D. Wiberg, 2008. Global Agro-ecological Zones Assessment for Agriculture (GAEZ 2008). IIASA, Laxenburg, Austria and FAO, Rome, Italy.