Team Number:
School Name: YWIC
Area of Science: Environmental Science
Project Title: Modeling Climate Change on the Rio Grande

Problem Definition: Living in New Mexico, the Rio Grande is one of our main sources of water. In order to meet environmental and legal requirements, the river is engineered to meet certain stream flow obligations (via. Elephant Butte, Caballo, and other dams). Upon the advent of climate change, water availability is expected to be impacted drastically. Under future water conditions, will we be able to sustain our current stream flow obligations?

Problem Solution: In order to solve this, we will model a simple water management system. Using past precipitation and reservoir capacity data, we will be able to compute regression models to predict future reservoir capacity. This process will be completed for three dams across New Mexico. With the reservoir capacity, we will be able to run our simulation and determine whether or not the case is sustainable with the given amount of water. In addition to the multiple dams being modeled, we plan on creating several future scenarios for reservoir capacity based on possibly temperature and precipitation outcomes that have been previously created.

Progress to Date: We are currently in the middle of our biggest research push. We've reached out to local experts on the Rio Grande and are deciding which coding language best suits our project. We are in the process of finding the necessary data to complete this project.

Expected Results: As time increases we expect to see a significant decrease in the capacity of the reservoirs. As the amount of water decreases we'll expect an increasingly greater strain on meeting streamflow obligations, until it is deemed unsustainable.

Resources:
- http://www.climate-and-freshwater.info/climate_change/rivers/warm/methodologies/
- http://waterdata.usgs.gov/nwis/uv?site_no=08276500
- http://pure.iiasa.ac.at/4147/
- https://cfpub.epa.gov/surf/huc.cfm?huc_code=13020203
- http://www.geography.learnontheinternet.co.uk/topics/discharge.html

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