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EOS-104

4/5/18

Project Design Proposal

1. Project Idea

My idea for my project is to assess avalanche risk in Rocky Mountain National Park and produce a risk guide based on location and time of year. Avalanches are a threat in the park during just about every month of the year, especially in the winter, spring, and early summer. This project is of interest to me as an avid skier and outdoorsman who spent a summer living next to the park.

1. Data

The National Park Service has extensive GIS data on its parks, including Rocky Mountain National Park:

<https://romo-nps.opendata.arcgis.com>

This data includes boundaries, elevation, trails, vegetation, campsites, geology and much more. It seems like a good starting point for my data collection.

I also hope to compile data on popular winter recreation areas. That could include backcountry ski descents, ice climbing routes, winter hiking, and more. Although I hope to analyze the whole park, it would be good to highlight these features because they are the most popular. There probably isn’t a single GIS source for this data, but I think it will be well documented because the park is such a popular place for a variety of outdoor activities.

I also want to look for any documentation of past avalanches in the park. If a dataset with past avalanches exists, it would not be complete because most of the park is unmonitored wilderness, but it would be a good addition to my analysis and a way to check my results.

Finally, I want to find data on snow pack depths throughout the park. I know that data exists for the average snow-free date for each campsite in the park, so that will be a starting point.

1. Analysis

I have several ideas for what factors I want to include in my risk analysis. Slope, vegetation, and snow pack all play a role in avalanche risk. Tying these factors together with proximity to trails, campsites, and other popular recreation areas would create an interesting analysis. I will need to do some research on avalanches to figure out what factors I want to include and if I want to weight them.

Some more complex ideas that I had include:

* risk based on sun and wind exposure
* creating a tool to assess risk that could be applied to any area with the same types of inputs