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Sprint Plan

Week	Purpose	Weekly Tasks and Goals

Week #6
2023-02-27 to 2023-03-03
	• Finish data collection
	• Data cleaning
		• Data collection:
		  - Decide on a study area: Santa Monica Mountains
		  - Decide on study years: 2017, 2018, 2019, 2020, 2021? (Search 2017-01-01 to 2021-12-31, these years have a lot of data)
		• Ensure data is clean and ready for analysis

Week #7 *2023-03-06 to 2023-03-10*	• Finish data cleaning • EDA • Explore Geopandas	• Ensure data is clean and ready for analysis • Understand shape and trends of the data • Learn how to use Geopandas

Week #8
2023-03-13 to 2023-03-17
	• Geopandas
	• Image classification
		• Learn how to use Geopandas
		• Train image classifier on satellite images, look for forest-cement-grassland-water-etc.
		  - Choose some variation of this:
		  - https://www.mrlc.gov/data/legends/national-land-cover-database-class-legend-and-description

Week #9
2023-03-20 to 2023-03-24
	• Prepare data for modeling	• Merge the datasets together:
		  - Satellite images of Santa Monica Mountains from the range of dates specified above
		  - Wildfire locations
		  - Wildfire perimeters
		  - Elevation data is drawn from the digital elevation model layer
		  - There are two weather datapoints for the dataset, so half of the data will be appended to one half of the study area
		  - Extract aspect (N, E, S, W) and append it to each fire event

Week #10 *2023-03-27 to 2023-03-31*	• Run models to predict wildfire	• Hopefully get an output from the model • Then restart the model with tweaked parameters as necessary: - New mesh points (see notes on next page), better data? (satellite imagery, especially higher-resolution climate data)
Week #11 *2023-04-03 to 2023-04-07*	• Run models • Prepare project for presentation	• Run a final model • Clean up project notebooks • Make presentation-quality maps and figures

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Data Wireframe

Point ID	Fire Perimeter/ Geometry 0/1	Forest Cover 0/1	Grass Cover 0/1	Water Cover 0/1	Cement/ Man-made Cover 0/1	__ Cover 0/1	Elevation (m)	Hillslope Aspect	Weather: Temp., Dew point, Humidity, Precip., Solar flux, Wind speed, Wind direction
1	0	1	0	0	0		10	N	
2	1	1	0	0	0		2	N	
3	0	0	1	0	0		200	E	
4	0	0	0	1	0		1000	W	
5	0	0	0	0	1		50	S	
6	1	0	1	0	0		150	S	

Notes
- Make generated points throughout the field site, and extract data from each of the data layers?
  - The points on the map are created to capture weather and land cover two weeks before and after a fire
  - Random points, or regularly spaced grid of points?
- Fire perimeter/geometry will act as the predictor of a fire or not at the location
- Make a reasonable classification system for the land cover with a handful of types to capture most surfaces
  - Follow a scheme like this one:
  - https://www.mrlc.gov/data/legends/national-land-cover-database-class-legend-and-description
- Hillslope aspect is what direction the generated point is facing
- Weather data will get a column for each category
  - Temperature
  - Dew point
  - Etc.