**ESS162 Lab 6: CA wildfires**

**You can work alone or with one other person**

**Goals this week:**

We’ve been working thus far with datasets that were prepared for this class. In this lab you’ll be working with a couple of data sets related to wild fire that you will directly download from the web. You will initially download, open and convert/export these files using ArcGIS. You will then analyze these converted files in Excel and Google Earth

The key datasets are available from <https://frap.fire.ca.gov/> Mapping, GIS data

1. Fire Perimeters (Zip)
2. Fire Threat (Zip)

**Tools, steps and commands**

Download files and unzip

ArcMap

Add data firep19\_1 and fthrt14\_02

Add the NAIP image as we did last week (from USDA)

Fire layer – open attribute table and take a look

Fire layer – symbology, unique values, year, add all values, green to red scheme

Arctoolbox, Conversion tools, Excel, Table To Excel

Input Table fire19\_1, Output file Fire\_history

Arctoolbox, Conversion tools, to KML, Layer to KML

Just turn on fthrt14\_02 and zoom out and center over all CA, creation of KML file (output image properties size of returned image should be 10240)

Just turn on fire19 and zoom out and center over all CA, repeat creation of KML file (size of returned image should be 1024)

Google Earth

Download and open your kmz files and check out UCI

Excel

Open your firehistry excel file.

There may be additional info you need in the ArcGIS attribute table, such as the code for causes

Calculate annual burned area

Create a time series of years

=SUMIF(B:B,"="&U3,M:M), where B:B is the year of the fire, U3 is the year you’re looking for, and M:M is the area burned (GIS acres)

Use a similar strategy to look at the relative importance of the various causes of fire

Other useful commands are averageif and countif

Use filter to look at the time series of total area burned vs arson fires vs lightning fires

**Writeup**

What is the closest UCI has come to burning according to the FRAP data set? Include Google earth images and information on the fire (date, ignition, etc).

What is the most likely fuel path to UCI? How could a wildfire reach UCI? Was the nearest fire to UCI heading on this path? What stopped it? Include images.

How has the total area burned annually changed in CA? Include graphs or tables for this and the following questions

What are the main causes of wildfire in CA?

Has the change in total burned area over time been caused by a) an increase in the average area of a fire, or b) an increase in the number of fires?

How did the causes of fire shift from 1980-2000 to 2000-2017?