

A map of Colombia showing the distribution of fires. Numerous red circles of varying sizes are scattered across the country, indicating fire locations. The circles are more densely packed in the eastern and southern regions. The map includes labels for various cities and natural parks. A small horizontal bar with green and orange segments is located in the top left corner.

Tracking fires worldwide

March 9th

Juliana Aguilar

Lucía Delgado

Jorge Quintero



Goal

- Provide an interactive platform that allows fire tracking around the globe with updated information.
- Identify fires that are within a certain radius of human settlements.



Why is this useful?

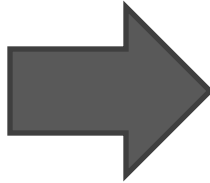
- Provide an easy way to visualize fires detected by satellites at the country level.
- Track population displacement involving village burning in conflict zones.
- Identify fires close to human settlements to prevent and better allocate resources to stop wild fires.



Structure

Daily updated fire data
from NASA

Human settlements
raster data



MAP

Feature Selection:

Country
Time Frame
Fire Confidence

Additional information:

Ratio of Area with human settlements
within a radius r around the fire

Fires data

(data_downloader.py)

- Built a soup
- Downloaded and stored daily data
- Created a file dictionary to be used later

Table from NASA website

	MODIS 1 km	VIIRS 375 m
World	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
Alaska	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
Australia and New Zealand	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
Canada	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
Central America	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
Europe	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
North and Central Africa	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
Russia and Asia	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
South America	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
South Asia	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
South East Asia	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
Southern Africa	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗
USA (Conterminous) and Hawaii	24h 🔗 48h 🔗 7d 🔗	24h 🔗 48h 🔗 7d 🔗

Source: earthdata.nasa.gov

Global Human Settlements

- Cuts raster data for each country
- Overlaps with fire data set
- Takes mean settlement values in a buffer around each fire



Maps

- Select data for a given country, time frame and confidence

GeoPandas, Cartopy

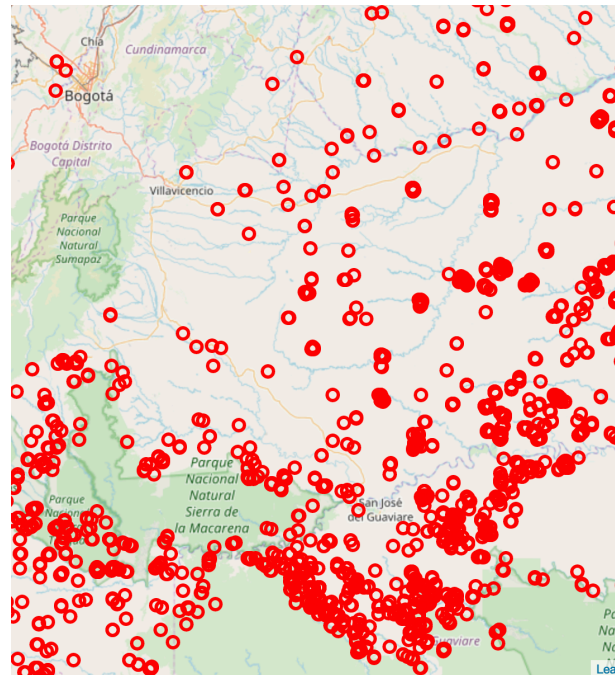
- Generate interactive map (html)

GeoJson, Folium

- Use Django to display maps

Django, GeoDjango, Leaflet

Example of fire map (Colombia)





Results

- Updated fire maps at the country level.
- Identification of fires close to the human settlements for Colombia.