Google Earth Pro

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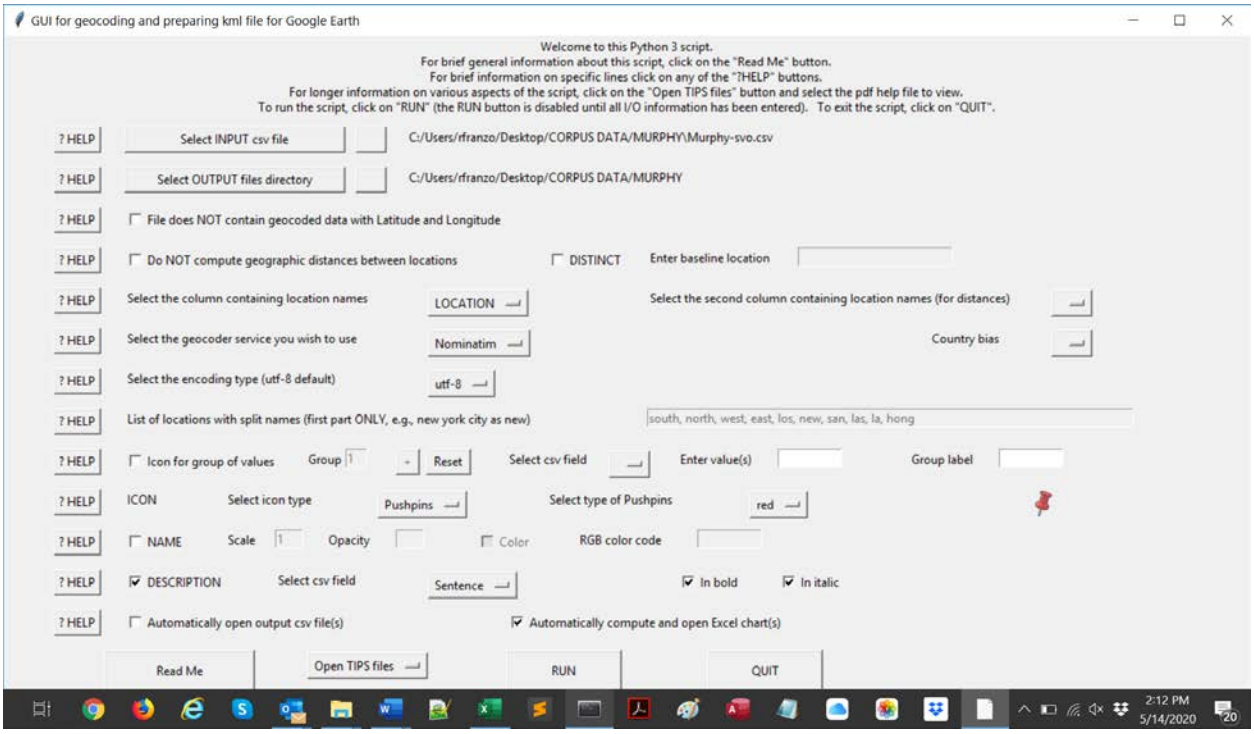
Google Earth Pro: Download

Google Earth Pro (GEP) is a program created by Google that displays geographic data on a map. It can be downloaded for free from the following link: http://www.google.com/earth/download/gep/agree.html. While it is free, GEP does require a license key. If you do not have a key, use your email address and the key GEPFREE to sign in.

The Google Earth Pro GUI

The NLP Suite GUI provides a number of widgets to obtain maps in Google Earth Pro and customize the way the map looks.



Geocoding: The first step toward a map (latitude & longitude)

The first step in making a map is **geocoding**. What does that mean? It means to obtain the waypoints or coordinates required to put a location on a map: **latitude** and **longitude**. No latitude and longitude, no map. Those numbers will look something like this (for Atlanta, Georgia, USA: 33.7490° N, 84.3880° W).

And where do you get those numbers? Well, a Google search for Atlanta latitude will return the answer.

Atlanta / Coordinates

33.7490° N, 84.3880° W

Easy! Not so easy if you a have a hundred or a thousand names to geocode. Thankfully, there are computational tools that make that process easy for bulk location data.

The geocoding NLP tool provides two different approaches to geocoding: Nominatim (https://nominatim.org/) and Google Earth Pro (https://www.google.com/earth/versions/#earth-pro). Nominatim in turn relies on the gazetteer OpenStreetMap (https://www.openstreetmap.org/about) a huge freeware database with the world's locations and information about those locations).

Both Nominatim and Google Earth Pro are freeware and global (i.e., they have data for all locations on earth).

Geocoding with Nominatim

Nominatim is a global (i.e., it has data for all locations on earth), freeware tool. However, Nominatim is somewhat spotty in its ability to geocode. It allows 400 or 500 locations to be geocoded at a time; so, you may need to split your input file.

Geocoding with Google Earth Pro

Google is a global (i.e., it has data for all locations on earth), freeware tool (it requires an API key that you obtain from registering; registration is free). Google allows 2500 locations per day. Google may be a better option.
https://developers.google.com/maps/documentation/embed/get-api-key

Displaying locations on a map: The second step

KML: Keyhole Markup Language

Google Earth Pro creates a type of output file called KML (Keyhole Markup Language), a variant of HTML (Hypertext Markup Language (HTML) which is the standard markup language for documents designed to be displayed in a web browser. KML was specifically created to display geographic data in an Earth browser such as Google Earth.

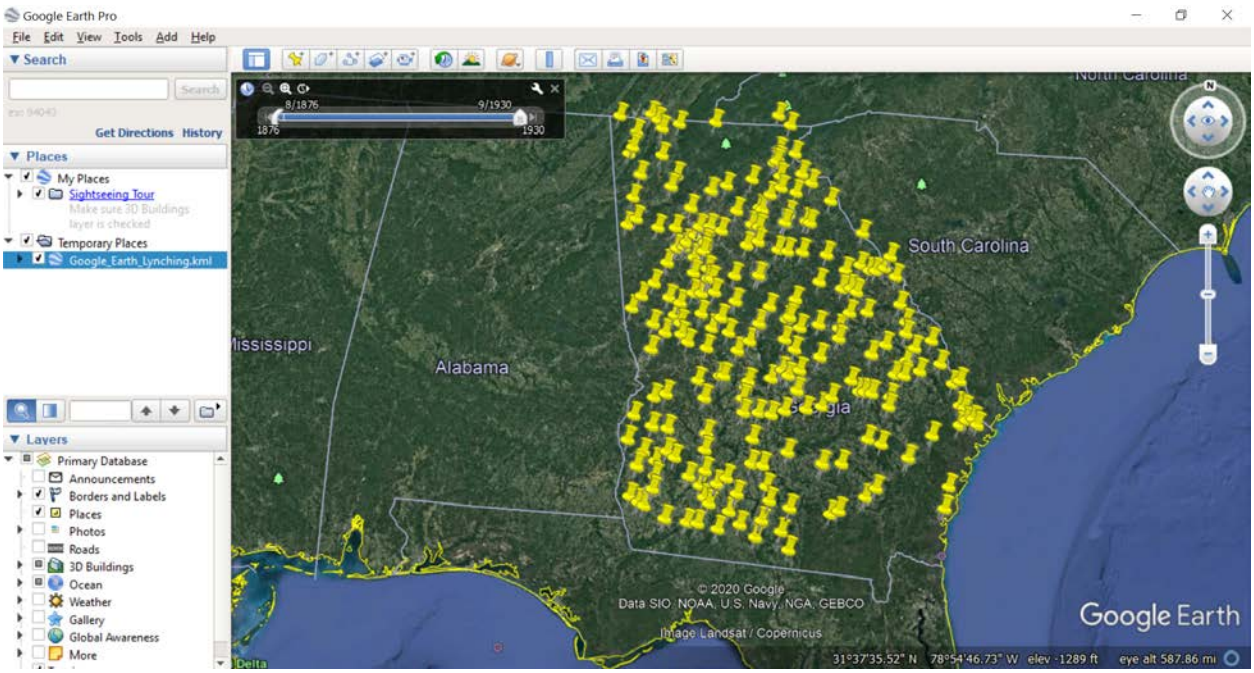
Customizing your map: ICON, NAME, DESCRIPTION

The NLP Suite geocoder_Google Erath Pro GUI has several widgets that allow the user to customize the way a map looks via the following GEP settings: **icon, name, description.**
icon types can be selected by the **values of a specific field**; e.g., an icon for the value "mob" of the simplex "Name of collective actor" and another icon for the value "police";

1. The **name** to be displayed on every nameplace;
2. The **description** to be displayed when clicking on any icon.

ICON

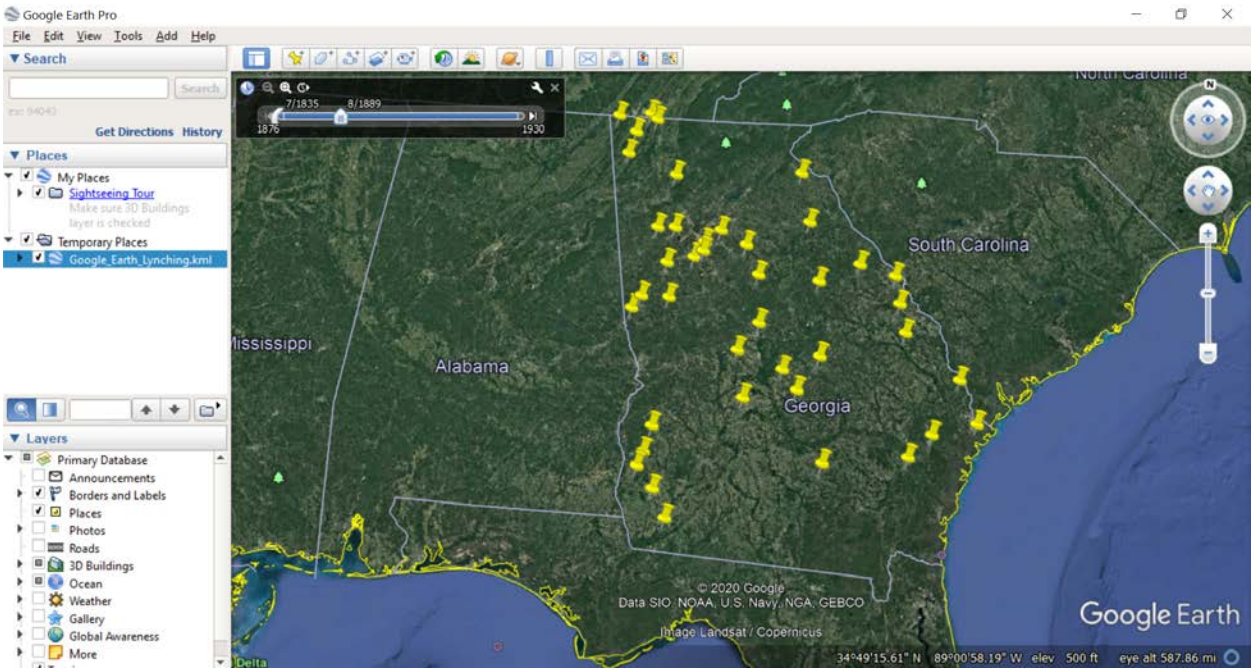
The *icon* setting allows you to choose from a number of icons, which will mark the coordinates you are plotting on the map. The default icon is the red pushpin. There are 6 types of icons available: directions, paddles (teardrop), paddles (square), pushpins, shapes, and other icons. Clicking on one of the types will bring you to a list of all the icons available for that type, which you can then select. To see all of the icons, you can check this website:
http://kml4earth.appspot.com/icons.html



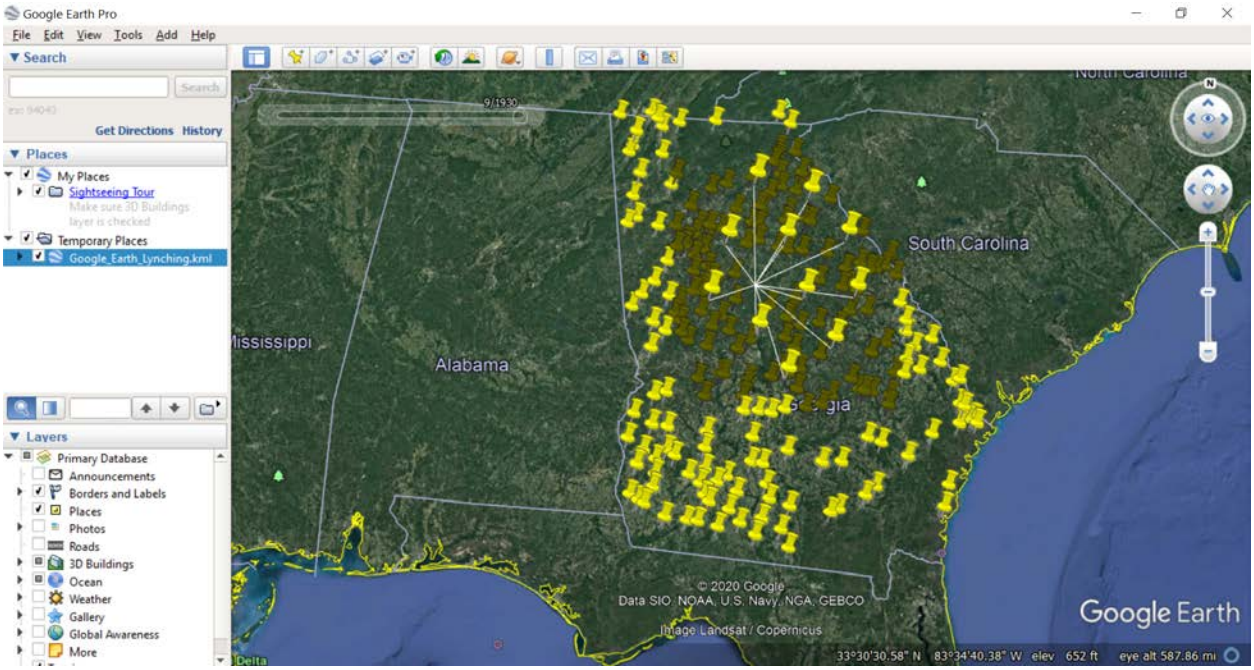
The figure above displays yellow pins for lynching events that occurred in Georgia, USA, between 1875 and 1935.

Dynamic maps

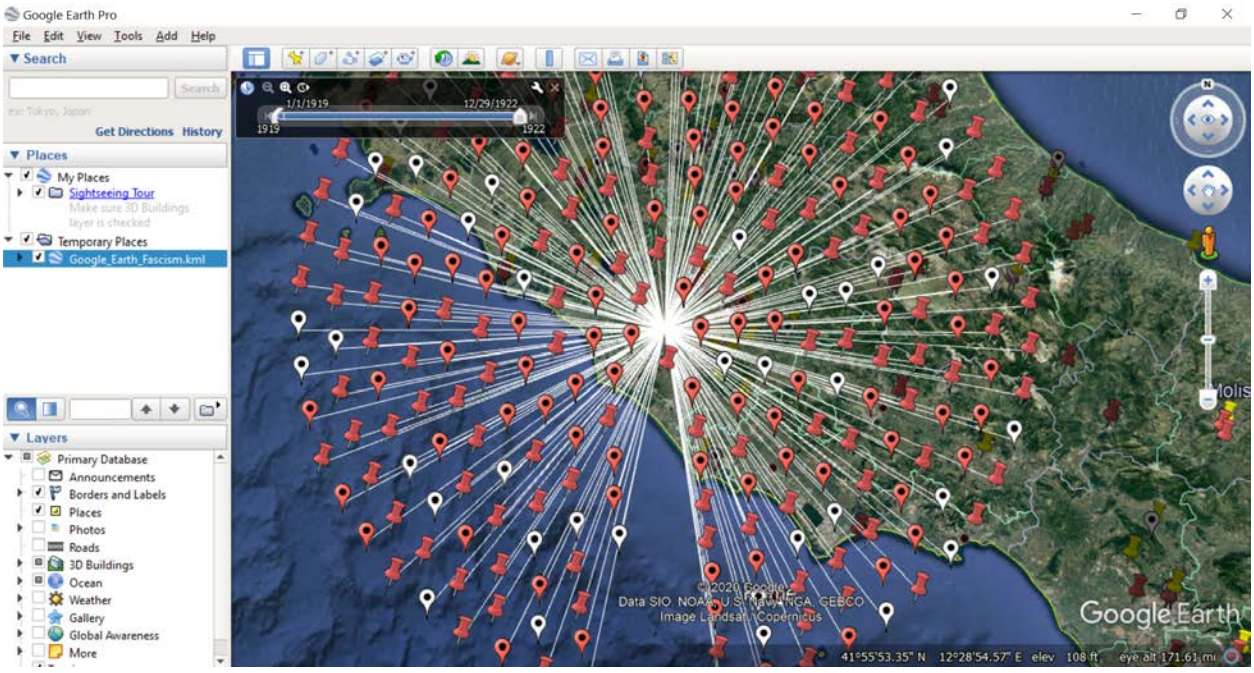
Notice the bar on the top, left-hand side of the figure. If your data contains a time stamp, you can slide the time bar left-right to move back and forth in time. By 1935 (previous figure) lynching events had just about covered the entire map of Georgia. They were still relatively rare in 1889.



When you click on a pin characterized by multiple events for that location, you will get a star display like in the figure below.



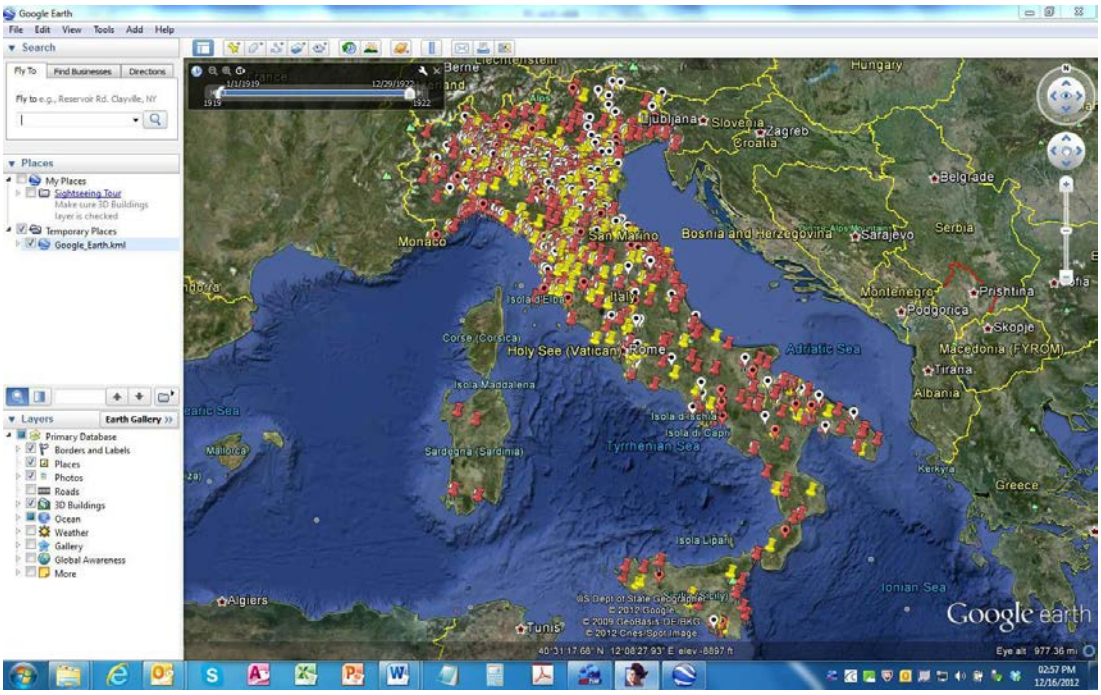
Even far more impressive the display of conflict and violent events in Rome during the period 1919-1922 of the rise of Italian fascism.



Different pins for different types of events

The NLP GUI allows you to use different pins for different types of events (as found in the values of a field in the input csv file). Thus, you could use the following icons to achieve the following results on mapping events for the rise of Italian fascism:
http://maps.google.com/mapfiles/kml/pushpin/red-pushpin.png

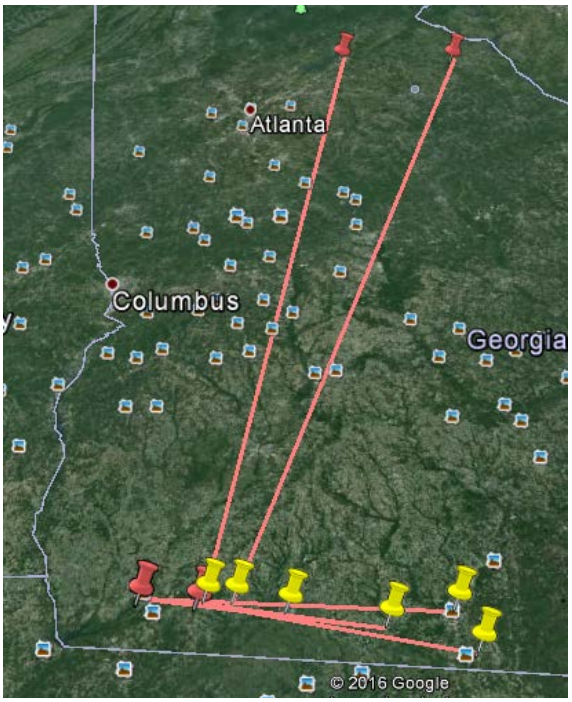
to mark conflict by fascists http://maps.google.com/mapfiles/kml/paddle/wht-circle.png
to mark violence by fascists http://maps.google.com/mapfiles/kml/pushpin/ylw-pushpin.png
to mark violence by socialists http://maps.google.com/mapfiles/kml/paddle/red-circle.png
to mark conflict by workers



Drawing Paths

OPTION NOT CURRENTLY AVAILABLE!

you can draw paths (lines that appear on the map linking points) between any two locations connected by specific values.

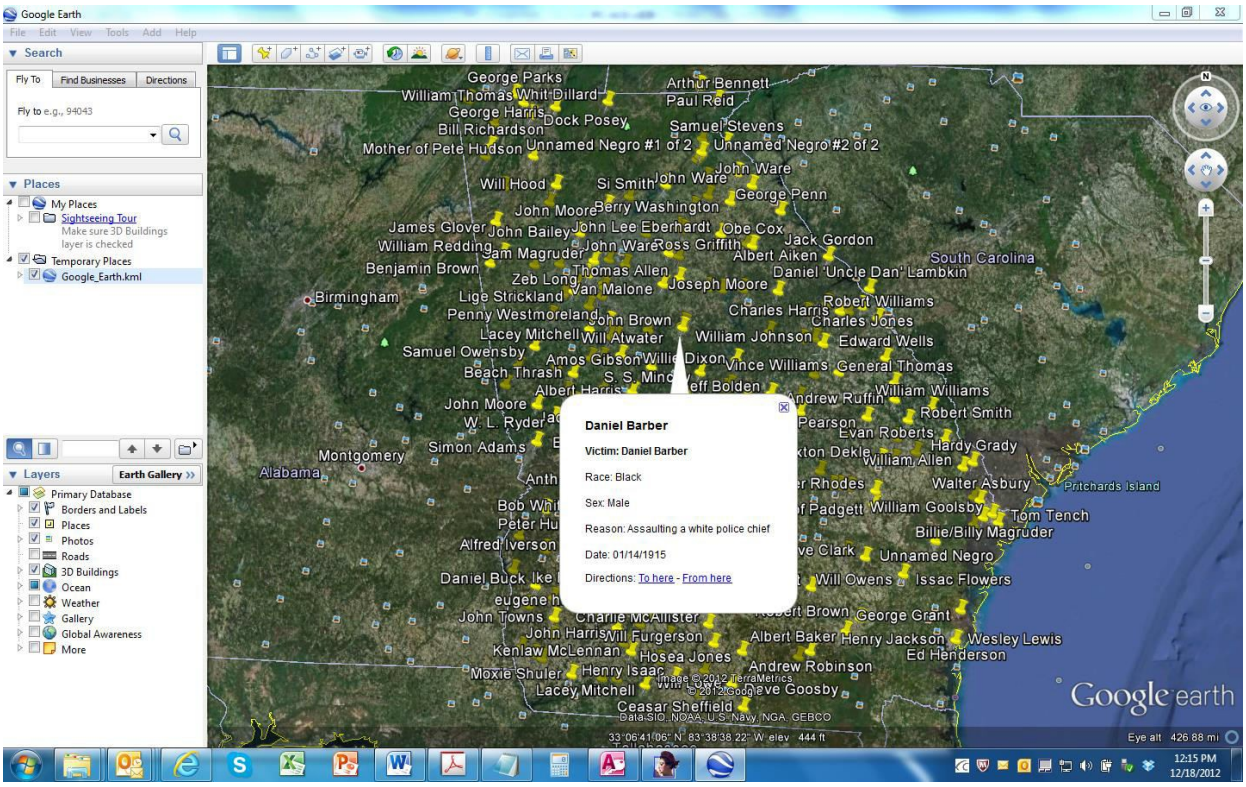


NAME

The *name* setting allows you to give labels to each point in the set of coordinates you are plotting, which will appear on the map.

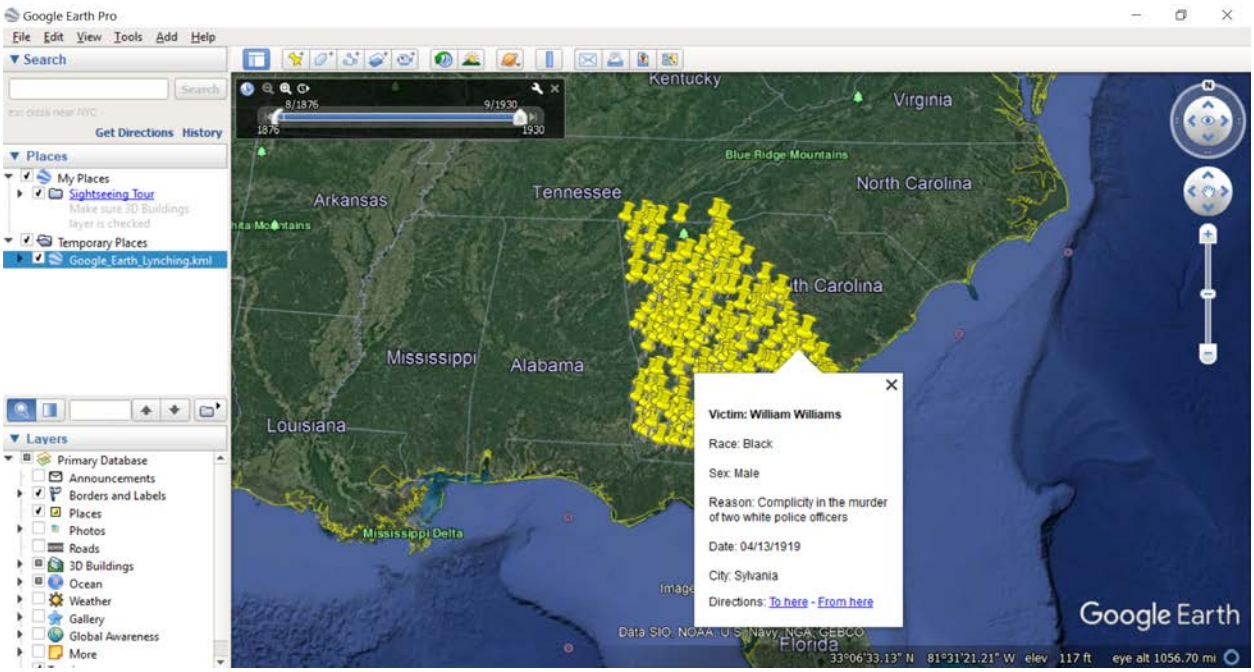
Caveat

If you only have a handful of pins on a map, it is convenient t have the location names displayed on the map. But… if your map displays many locations, the map can get **very** busy!



DESCRIPTION

The *description* setting allows you to format descriptions, which will appear in a balloon upon clicking a point on the map. You can choose what you want to display and whether or not to bold or italicize the text.



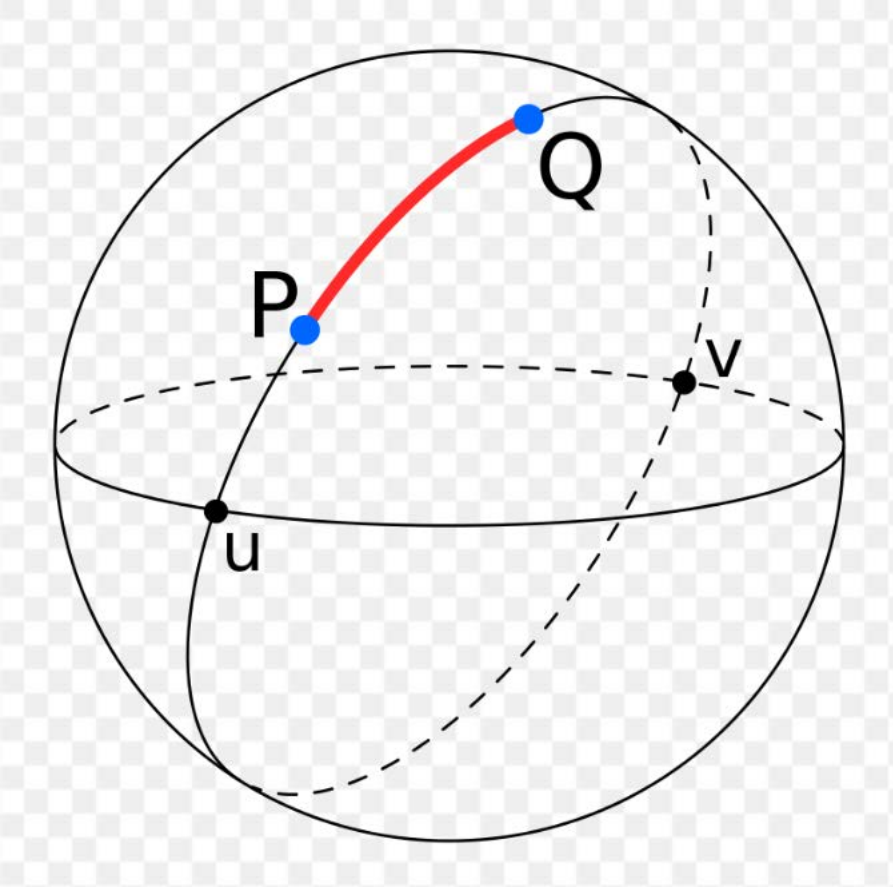
Computing Distances

The geocoding GUI allows you to compute distances between locations. Distances can also be computed from a fixed location (e.g., the distance from Paris of all locations listed in a csv file). Distances are computed in kilometers and miles along the surface of the earth, by either *geodesic* distance or by *great circle distance*. The two types of distances – geodesic and great circle – are typically used as synonyms, but geopy keeps them separate.

The NLP Suite uses the Python geopy library for computing distances (https://geopy.readthedocs.io/en/stable/#module-geopy.distance).

Geodesic distance provides the shortest path along the surface of an ellipsoid between two points on the surface.

Great-circle distance uses a spherical model of the earth, using the mean earth radius as defined by the International Union of Geodesy and Geophysics.



Great-circle distance between point P and Q (illustration taken from https://en.wikipedia.org/wiki/Great-circle_distance).