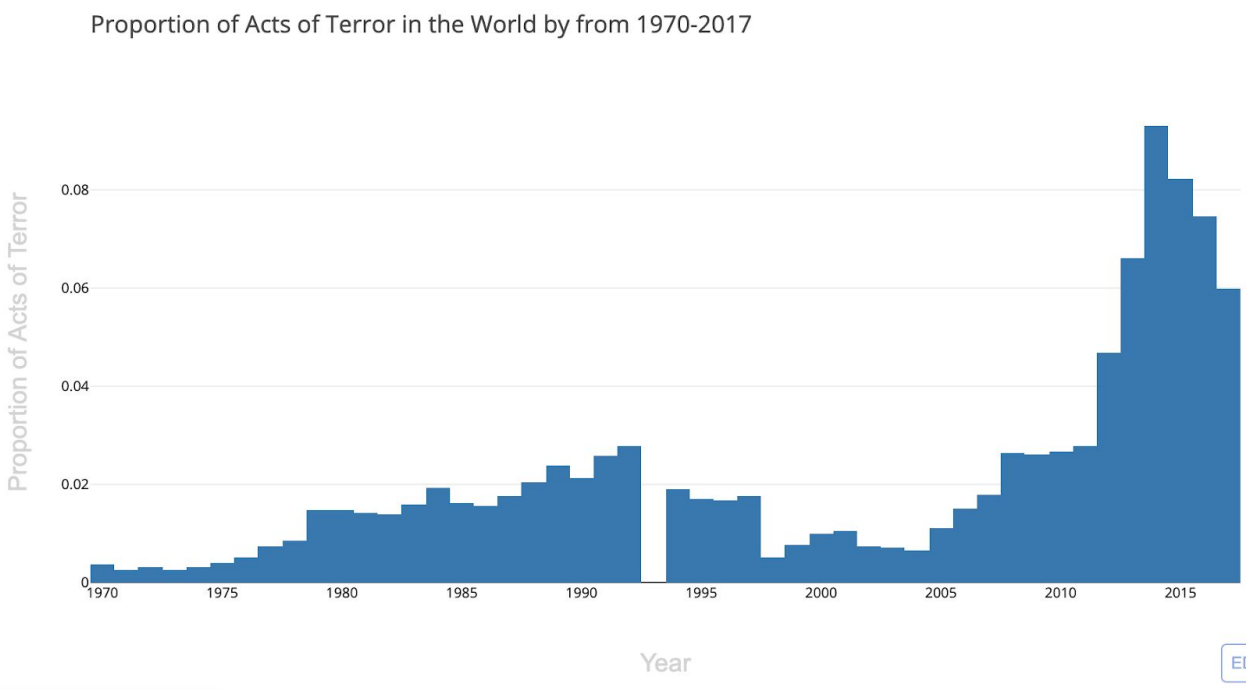
Introduction:

This dataset is information on global terrorist incidents from 1970 to 2017. The dataset is taken from the Global Terrorism Database (GTD), a database maintained by the National Consortium for the Study of Terrorism And Responses to Terrorism (START), a Department of Homeland Security Center of Excellence led by the University of Maryland. This is a rather verbose description - however, it is crucial to understand the source of this data. The State Department directly funded the GTD until 2018, when it abruptly ceased funding. A couple of things are important to keep in mind with regards to possible bias in data. This database is intended to portray global acts of terrorism but is funded by a singular state. As such, 'acts of global and domestic terrorism' are likely defined by the terms, interests, and sympathies of that state. I know this background is not explicitly asked for on the rubric, but I consider this context to be a crucial part of the question of "where I got the data from". For more information on how GTD answers these problems, see here.

All that said: I chose this particular data because I was interested in, broadly, race and geopolitics. I initially was interested in looking at the rise of white supremacy in America over the past couple of decades. This data was a little hard to find for a couple of reasons: 1. White supremacy is differently defined for different people/organizations, 2. Not many organizations collect this kind of data, and 3. White supremacy is not necessarily a discrete event and as such it does not easily lend itself towards documentation. I found this terrorism database while reading an article about the rise of white supremacist acts of terror in America and thought it would be interesting to place acts of white supremacist terror within the larger context of global acts of terror. On a grander scale: I wanted to find out how we could better understand America's position as a victim of acts of terror, domestic or international. What were America's greatest threats of terroristic acts? From whom do these threats come? How do these compare to other countries in other parts of the world? All of these were guiding questions for my visualization exploration.

Histogram

So, to start: the simplest plot. A histogram of the proportion of terroristic acts over the time period of 1970-2017 (years were one of the few non-discrete variables I had):

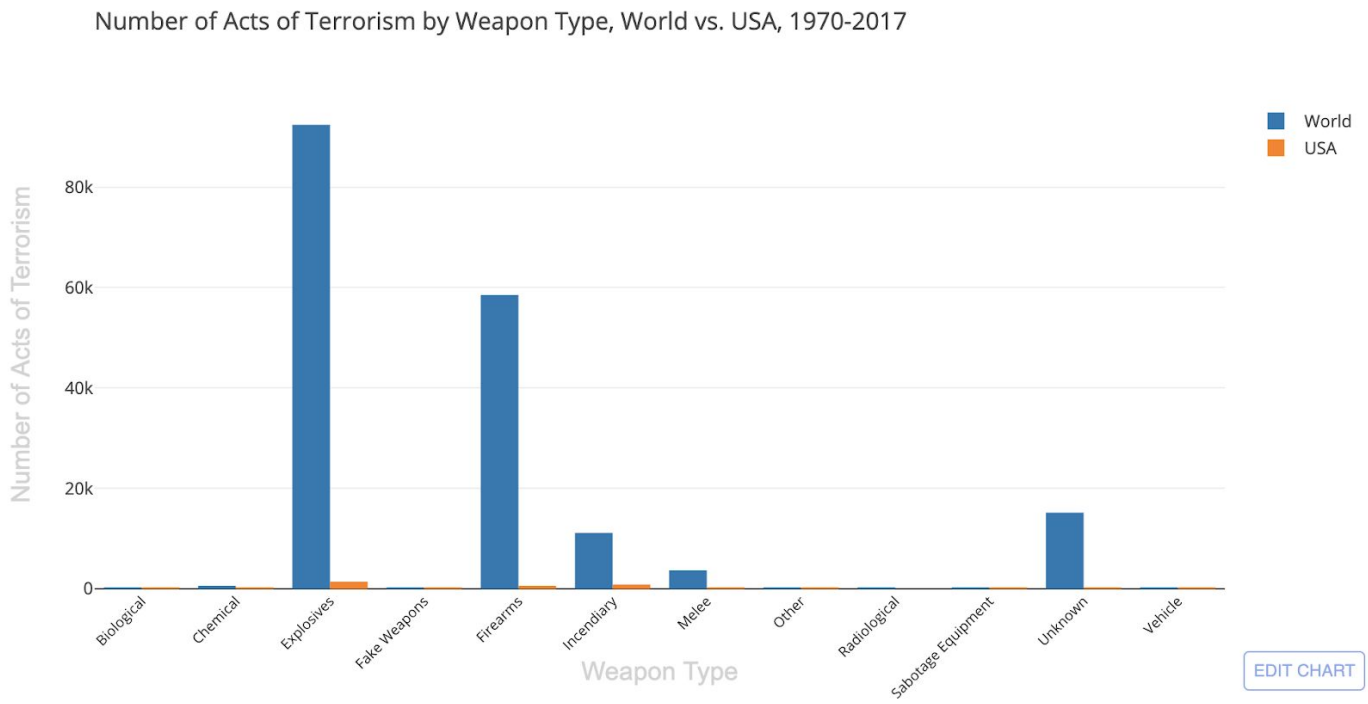


Overall, we can see a distinct, drastic increase in the last decade, with almost 10% of all acts of terrorism from 1970-2017 occurring in 2014.

Notably, 1993 is absent - this is because the data from 1970-1997 was hard-coded on index cards, and the data from 1993 were lost.

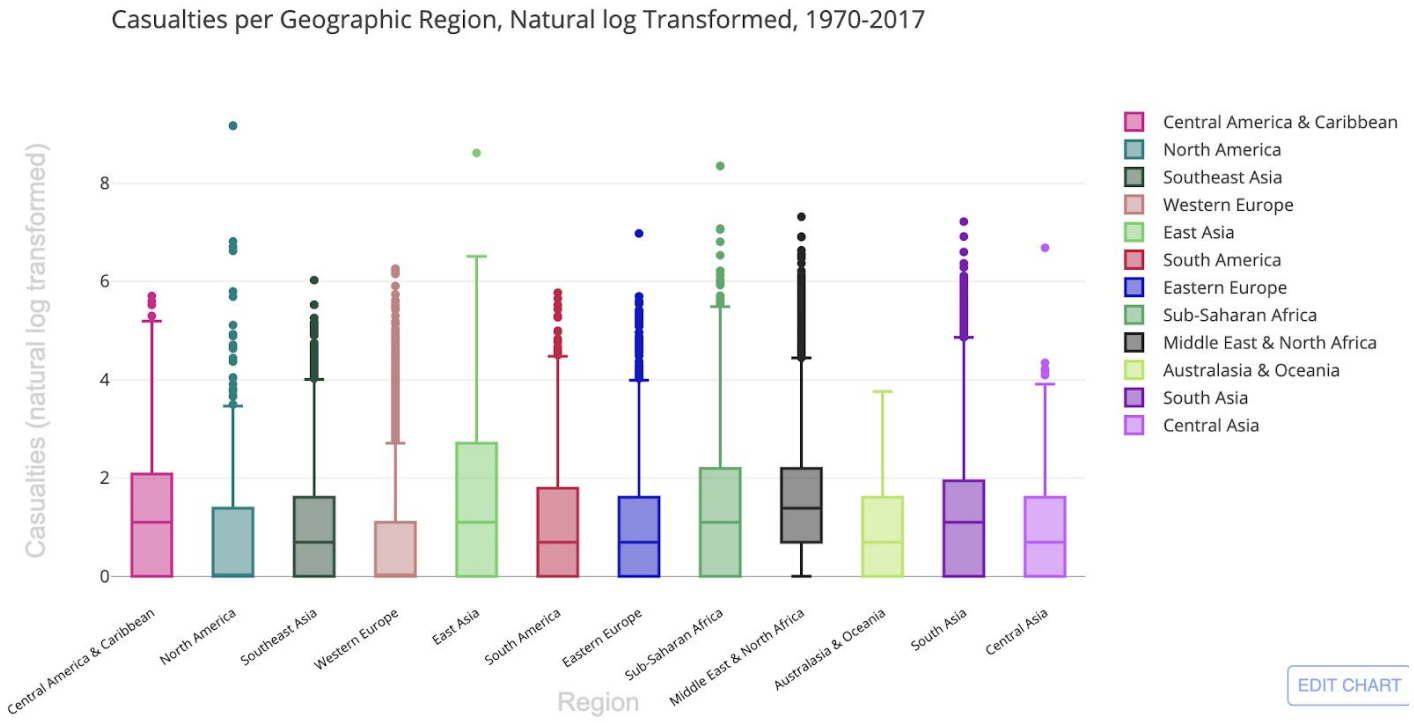
Bar Plot:

Next is a bar plot. Here I have plotted the number of terroristic acts by weapon type for the world compared to the US:



Here, we can see that explosives and firearms are the most common weapons used overall by far, which makes sense. Interestingly, the second most common ‘weapon’ used in the USA is incendiary devices rather than firearms. This could shed some light on the current gun ownership debate in the US.

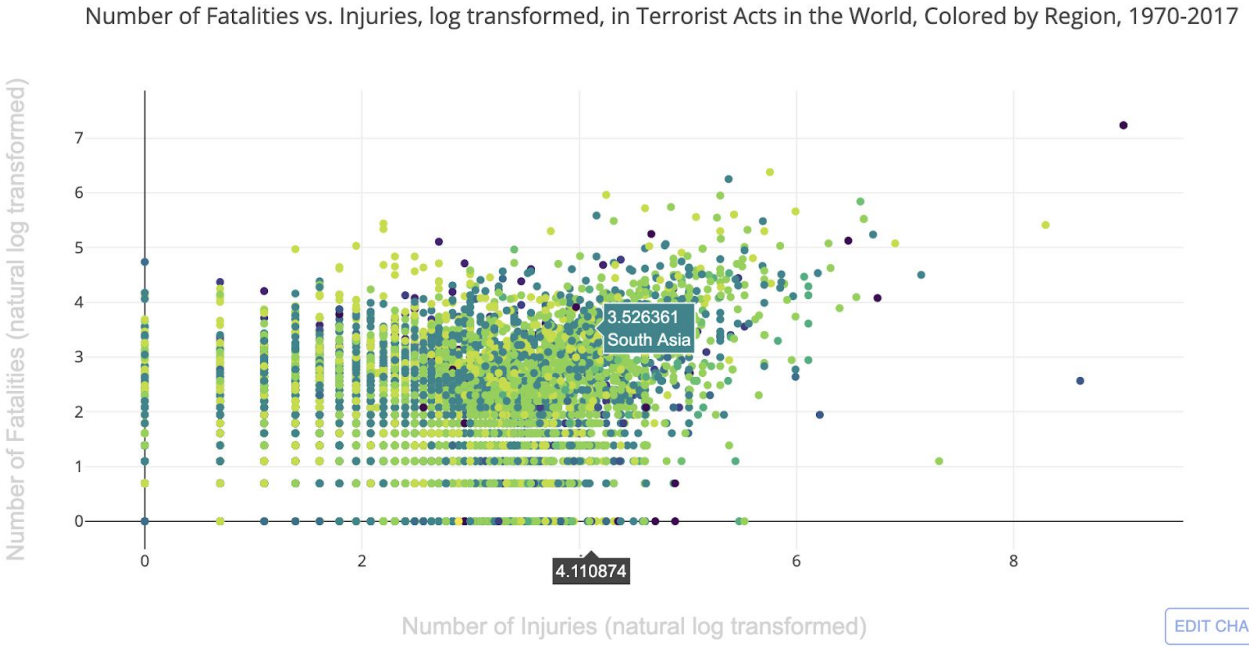
Box Plot:
I wanted to look at some summary statistics for the number of casualties per region (as defined by the dataset).



As can be seen, the Middle East/North African, Sub-Saharan, and South Asian regions had the highest median number of casualties due to terrorist attacks.

Scatter Plot:

Next, I plotted the number of fatalities to number of injuries.

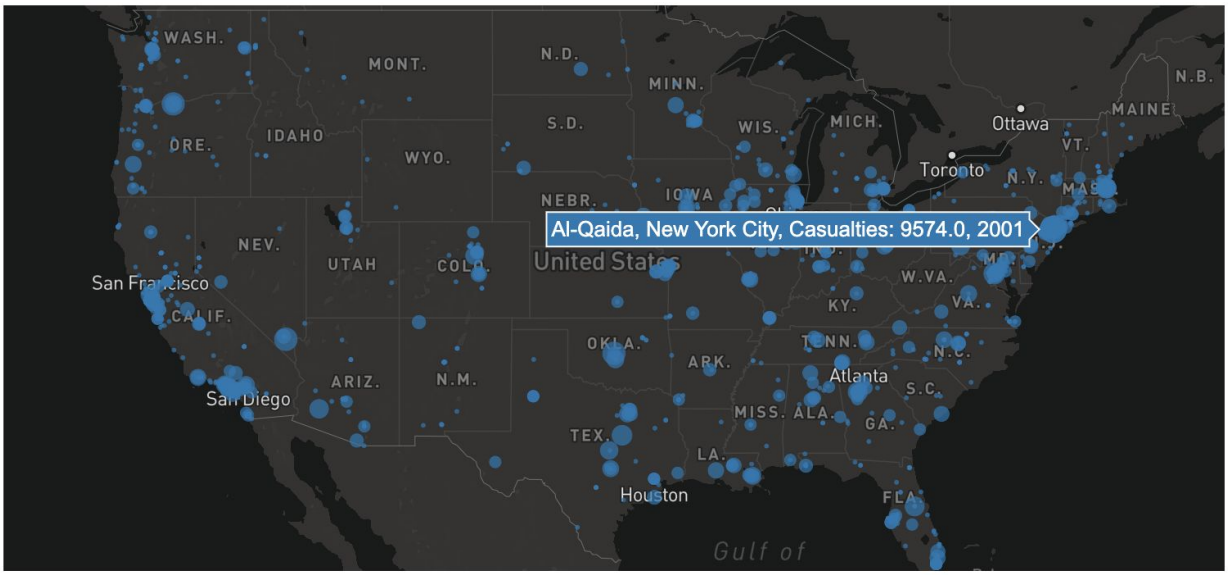


As you can see, region is displayed on hover. Generally speaking, there were more injuries as a result of terrorist attacks than fatalities, which makes sense. Additionally, you can really see that the majority of attacks take place in a couple of regions (MENA, South Asia, Sub-Saharan Africa) - these regions are also the regions with the highest median casualty count from terrorist attacks.

Bubble Map:

Next is a bubble map of the history of terrorist attacks in the US from 1970-2017.

Terrorist Attacks in the US, Sized by # of Casualties, 1970-2017

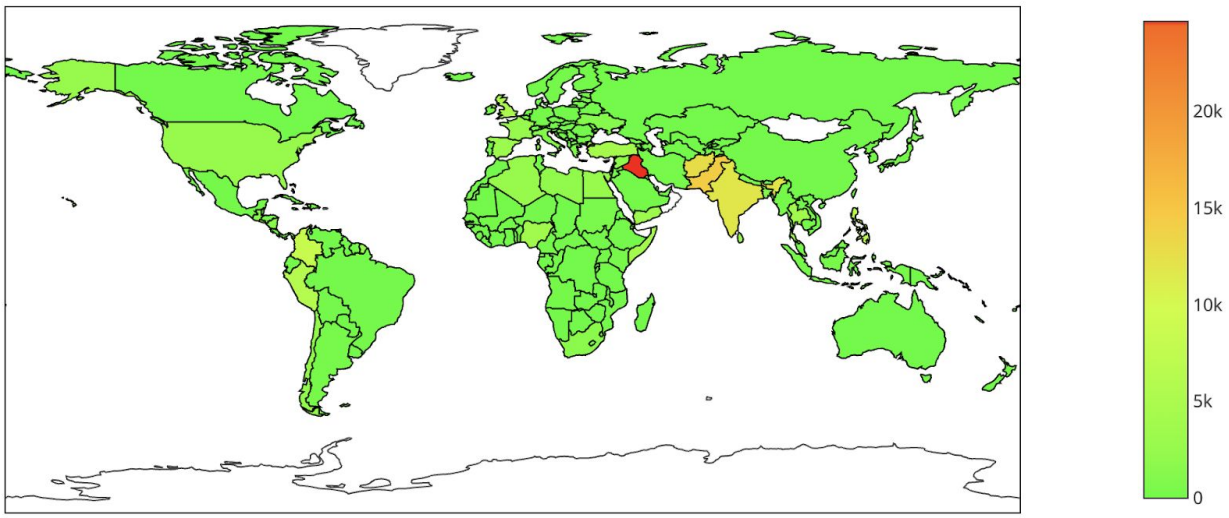


On hover, you can see the group, the city, the number of casualties, and the year. The terrorist attack in the US with the greatest number of casualties is, as expected, 9/11. This is the deadliest terrorist attack in history in the world.

Choropleth (Storyline):

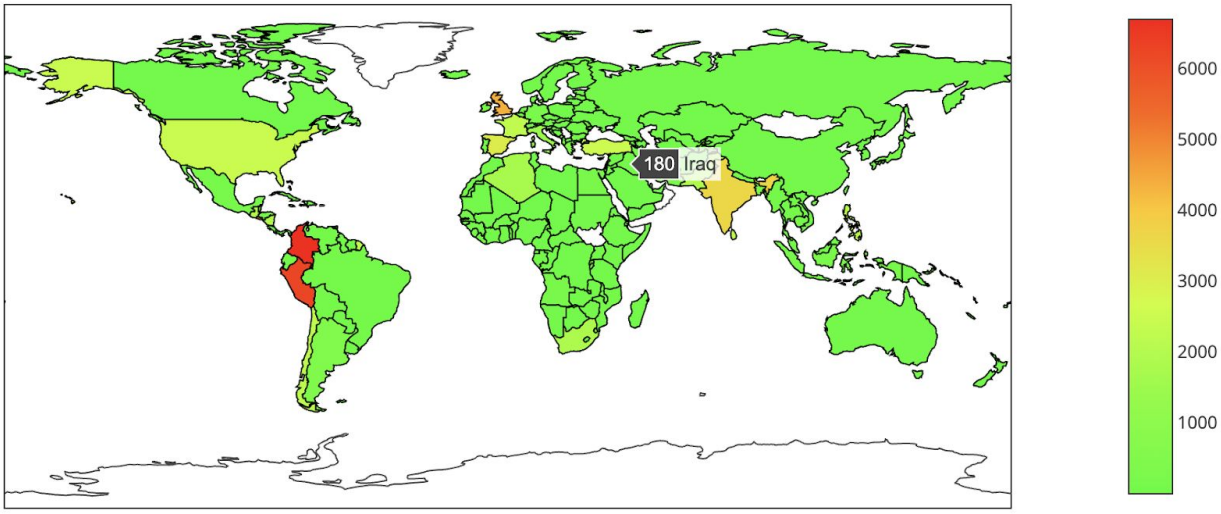
This choropleth is fairly straightforward. This gives a good idea of which countries and regions of the world are most heavily hit by terrorist attacks. This does **not** give the whole picture. Usually, non-domestic terrorism does not come to mind when the term terrorism is brought up. Still, there are useful insights to be drawn from this choropleth - useful enough to do additional choropleths split by time periods.

Number of Terrorist Attacks per Country, 1970-2017



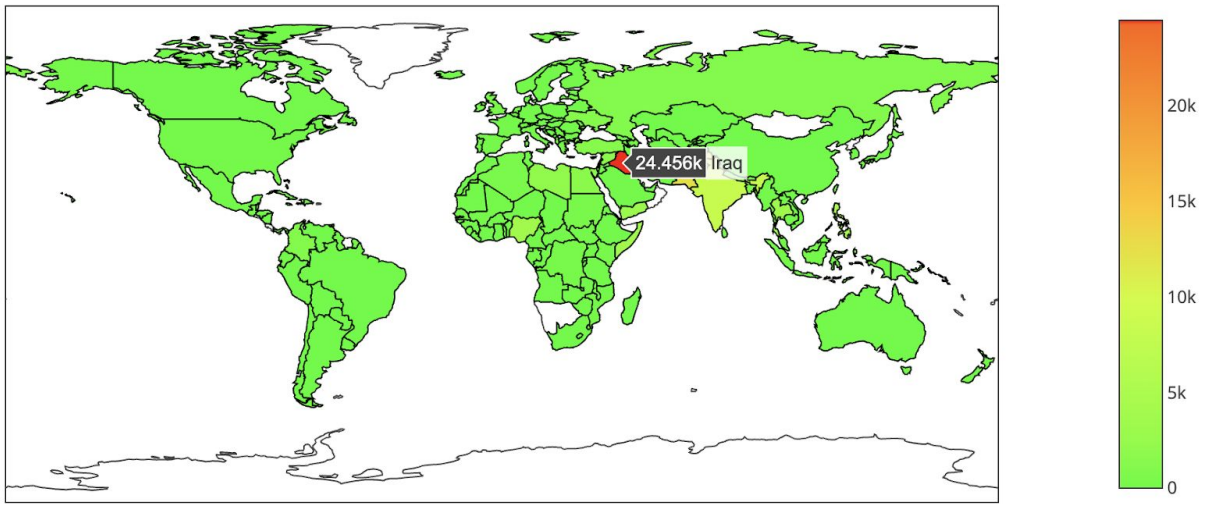
We see here that Iraq is the only country in the 20K region of terrorist attacks. Multiple countries in South Asia are in the 10-15K range. We see that the US is in the upper end of the 0-5K range. How could Iraq be such a strong outlier? This is a classic case of how data contextuality is crucial.

Number of Terrorist Attacks per Country, 1970-2002 (Pre-Iraq War)



Here is a choropleth from the years 1970-2002, before the start of the Iraq War. Here we see Iraq saw less than 1000 terrorist attacks (180 to be exact). The country with the highest number of terrorist attacks in this period is Colombia, with around 6,800.

Number of Terrorist Attacks per Country, 2003-2017 (Post-Iraq War)



EDIT CHART

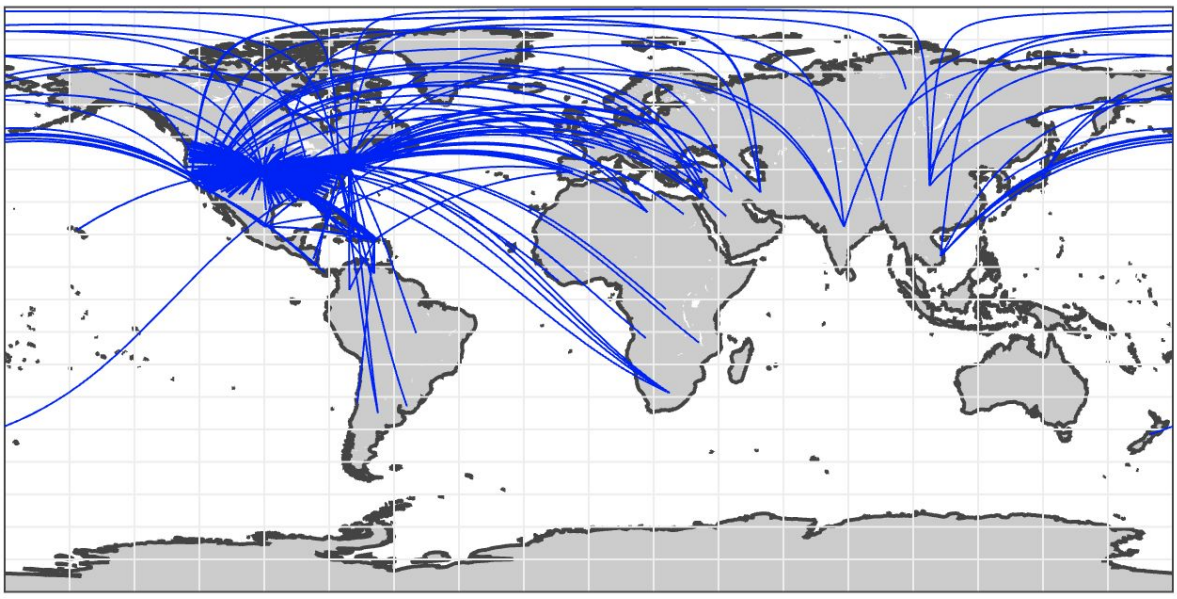
This is a choropleth from the years 2003-2017, after the Iraq War began. We see here the stark shift in number of terrorist attacks post-Iraq War. Nearly all of the terrorist attacks that took place in Iraq happened during and after the Iraq War; so many, in fact, that Iraq just swallows up that end of the color spectrum.

Just looking at the data, it is easy to see that Iraq has experienced the most terrorist attacks. That said, without consulting history, it would be hard to explain why almost all of the terrorist attacks in Iraq happened beginning in 2003. This is a classic case of using domain knowledge and critical thinking skills to augment your data.

Connection Map:

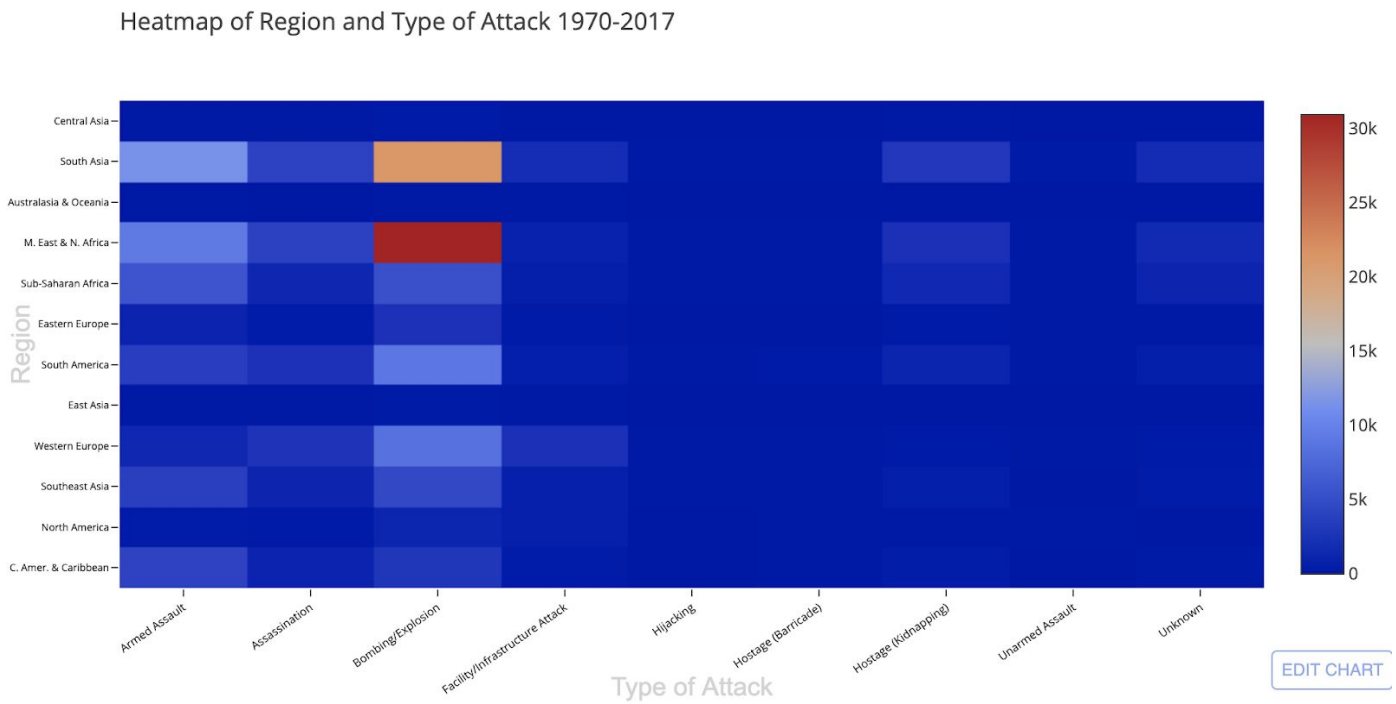
For the connection map, I plotted the nationalities of targets in the US. Most of the targets in the US were US nationals, as expected, but I thought it would be interesting to see the global representation.

Nationalities of US Targets



Heatmap:

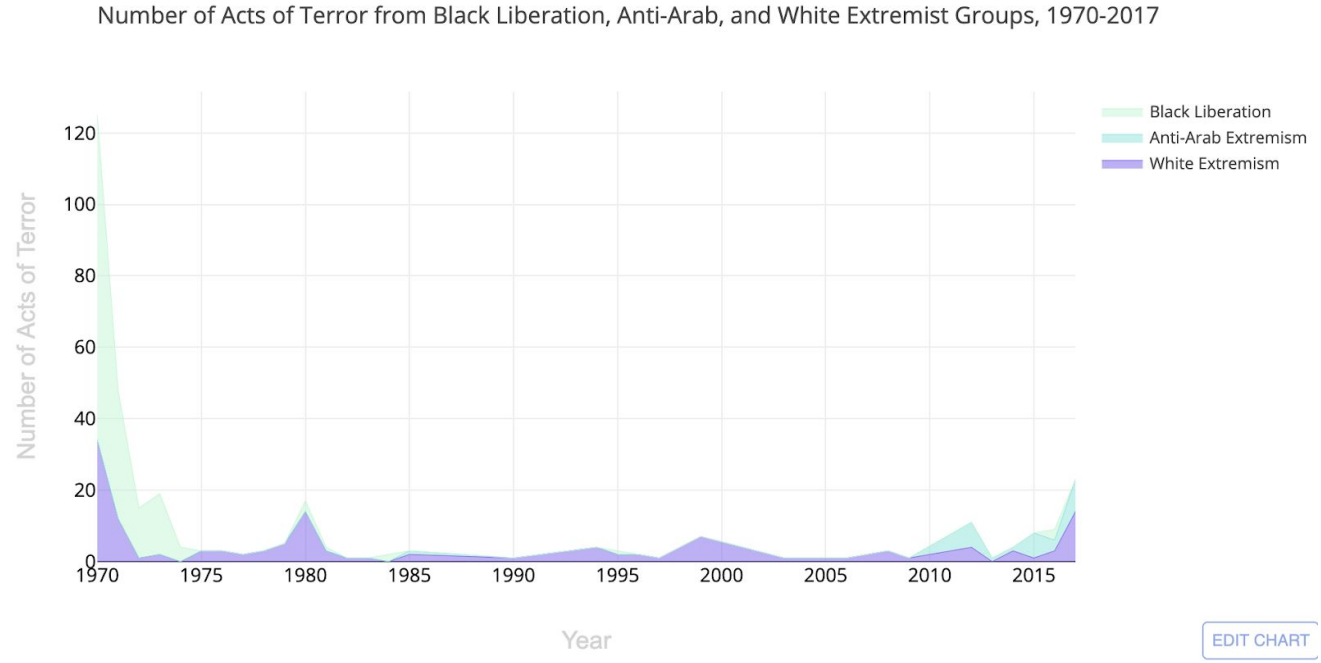
Here we see the relationship between types of attacks and regions of the world:



As can be seen, bombing/explosions are generally the most common types of attacks, especially in the Middle East & N. Africa and South Asia regions. Unarmed assaults and hijacking and hostage (barricade) are low across all regions.

Stacked Area Graph:

This is a stacked area graph comparing the number of terrorist attacks carried out by certain categories of groups:

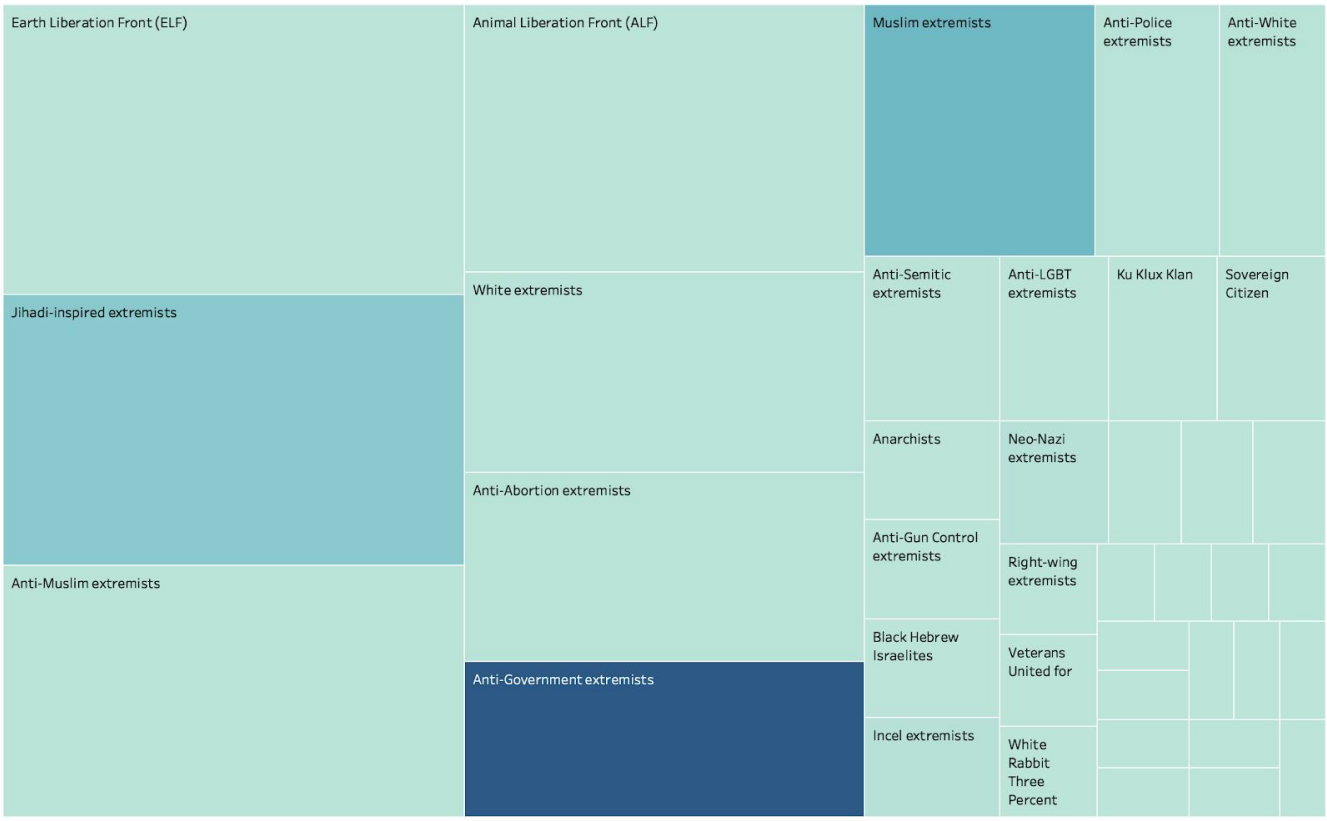


As we can see, black liberation groups were much more popular in the 70s than they are now. White extremist groups have been picking up since 2015, and Anti-Arab extremist groups really started in 2008.

Treemap:

Next is a treemap that displays the proportion of attacks in the US from 2002-2017 per extremist group. This is really where you start to see the differences between different ideological groups. Here we can see the effects of anti-minority hate. Really crucial is the interactive ability, which is kind of lost in the screen capture.

Treemapping of Attacks in US by Group, 2003-2017



Summary:

Overall: Generally, we have seen an increase in terrorist attacks in the world since 1970. It is evident that though the US does see its fair share of terrorist attacks, generally speaking, the global south is most affected by terrorism. The most interesting insight for me was the sharp increase in terrorist attacks in Iraq following the Iraq War - this increase was mostly due to usage of explosives and is the sole reason the Middle East and N. Africa is the region of the world with the highest median of casualties and the highest occurrences of terrorist attacks.

In addition, we were able to see a general upward trend in white extremist and anti-Arab terrorist attacks in the US. Interestingly, despite the debates surrounding gun ownership in America, terrorist attacks using firearms are relatively low. Overall, around the world and including the US, explosives are the most commonly used weapons/attack methods.

What can we conclude from this? The US is not the greatest victim of terrorist attacks - in fact, one could argue that the US, as a major actor in the Iraq War, had a strong part in creating structural and geopolitical instability that led to a huge spike in terrorist activity in Iraq. We can also conclude that though many different types of weapons used in terrorist attacks make it to the news, a majority of attacks are conducted using explosives, including in the US.

Github:
https://github.com/ypk22/msds622_final

Code:
https://github.com/ypk22/msds622_final

Citations:
Data: https://www.start.umd.edu/gtd/
Country to coordinate function:
https://gis.stackexchange.com/questions/212796/get-lat-lon-extent-of-country-from-name-using-python