US emissions, Natural Disasters and Monetary Impact

**Was there a rise in CO2 emissions in the United States based on the data we can find and collect?**

We were able to collect US emission data going as far back as 1960. Prior to that, we were unsure if CO2 emissions were collected so this set our data date range to be from 1960 to 2016. Within the date range we collected, we were able to determine that there was a steady rise in the CO2 that was being emitted into the atmosphere up until the year 2007. After that, we see a decline in the total amount of the emissions the United States produces each year.

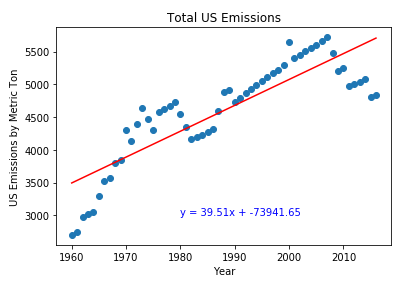


Figure 1-US Emissions by Metric Tons

After we saw the decrease in the US emissions, we then decided to plot global CO2 emissions. There has not been a significant decrease in the overall CO2 being produced by the world. Since the atmosphere is shared by all of the world there is still an increase to total CO2 going into the atmosphere, as seen below.

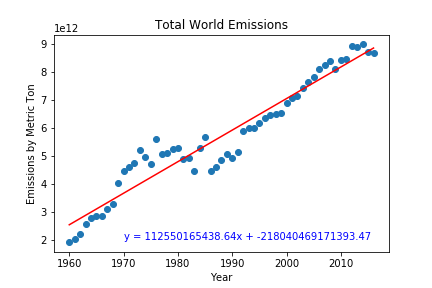


Figure 3- Global Emissions by Metric Tons

**Was there a Rise in Natural Disasters?**

This question became a little trickier to answer because after we started digging into the data more, we learned that up until 1992, the only natural disasters that were recorded were thunderstorms, tornados, and hail. You can see in our graph below, that once the year becomes 1993, we begin our significant rise in natural disasters. This is because the NOAA (National Oceanic and Atmospheric Administration) began recording 44 other natural disasters. This includes disasters such as hurricanes, blizzards, coastal floods and more. As you can see, there is a slight general increase in our events prior to 1992, but then with the new event types, we can see there is general increase in each year until 2012. Due to all of these new event types being added we cannot predict future events based on our current datasets.

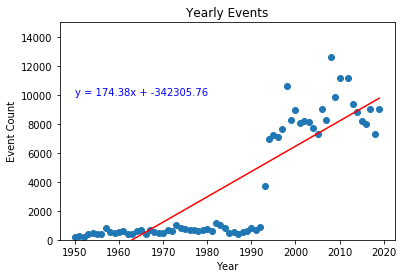


Figure 4-Total Events per Year

**Is There Larger Financial Impact from Storms**

Based on the data we can see in Figures 4, 5 and 6, we can see there is a trend of natural disasters causing more damage. This is the case for both data sets, without the additional 44 event types and with the 44 additional event types. We did compensate for inflation in these graphs because our original data source did not take that into account, and we wanted to confirm that inflation was not skewing the analysis.

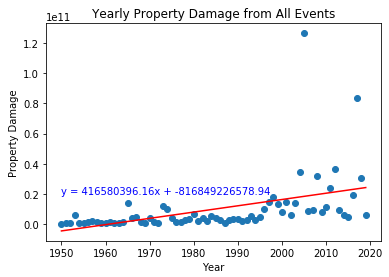


Figure 4-Yearly Property Damage from All Events

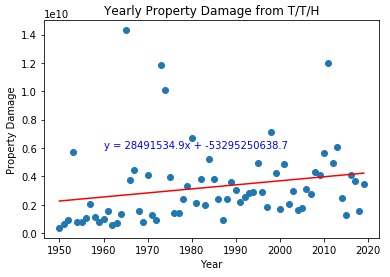


Figure 5-Yearly Property Damage from Tornados/Thunderstorms/Hail

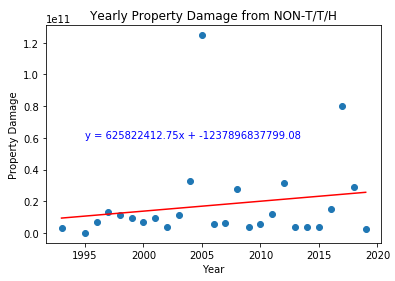


Figure 6-Yearly Property Damage from Non-Tornados/Thunderstorms/Hail

**Can we Predict the Financial Impact of Disasters in the Future?**

With the general trend displayed in figures 4 , 5 and 6 we can hypothesize that this trend that has occurred for the last twenty years will continue. Using the formula displayed on figure 4, we can make estimates for 2025, 2030, and 2035 for all events. As shown below the financial impact will continue to grow and will not change without mitigating circumstances.

|  |  |
| --- | --- |
| Year | Predicted Financial Impact |
| 2025 | $26,726,075,645.06 |
| 2030 | $28,808,977,625.86 |
| 2035 | $30,891,879,606.66 |