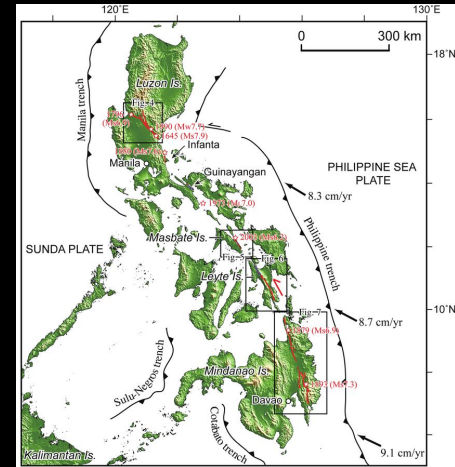




Mindanao Great Earthquake Impact History

By: James Niere

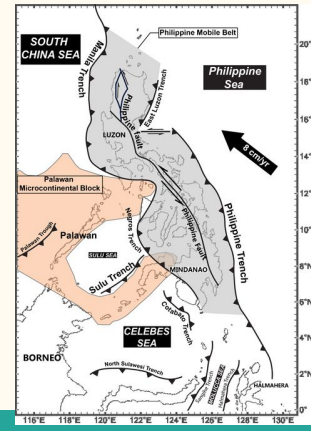
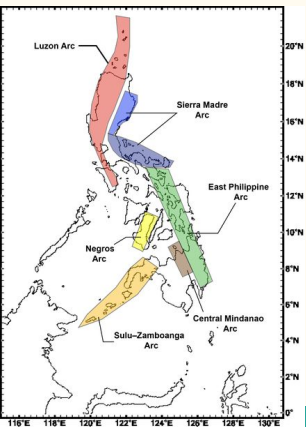


Goals:

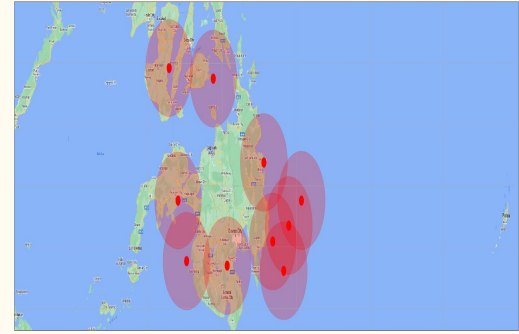
- Why Mindinao?
 - It is an island in the Philippines (as it is known for natural disasters) that is surrounded by a large body of water (explore the activity of strong earthquakes in an island like landscape)
- Use data analysis to correlate the location of the tectonic plates in relation to the higher magnitudes of the Earthquakes (1970-2022)
- Explore the impact of strong Earthquakes 6.7 (Upper echelon of the 6 number on the Richter scale (for time and simplicity we will focus on 6.7 as the minimum magnitude))

Arc Regions of Mindanao (Within the Philippine Sea Plate)

- Philippine Sea Plate is the main tectonic plate within the South region of the Philippines
- West side of Mindanao contains the Cotabato, Negros, Sulu Trench
- Central region Contains Negros Trench
- East side Mindanao is in proximity to the Philippine Trench



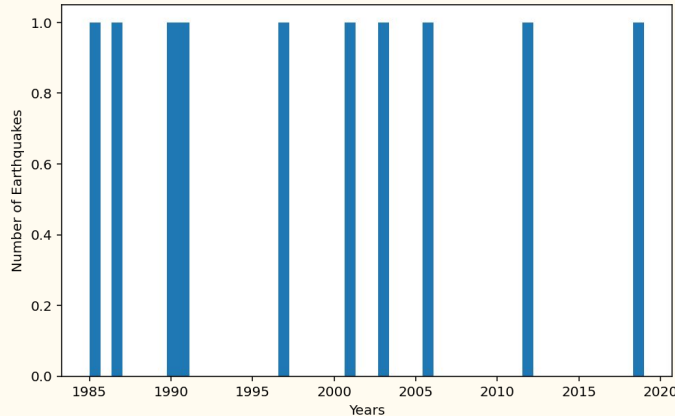
Mindanao Earthquakes (6.7-6.9)



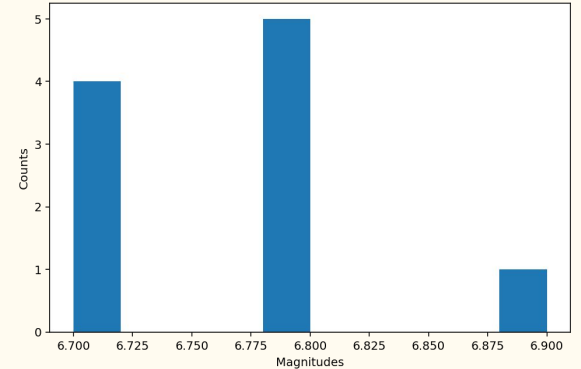
Observations:

- Earthquakes of these magnitudes are concentrated on the east side of Mindanao (along the East Philippine Arc, align the Philippine Trench)
- Total of 11 Earthquakes (Most notable Davao Del Sur Earthquake (6.9), 2019)

1970-2022 Bar Graph of Magnitudes Between 6.7 and 6.9 For Mindanao, South Phillipines



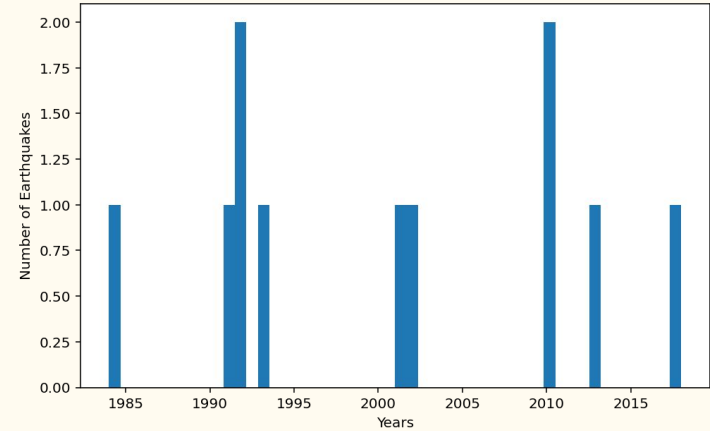
Histogram of Magnitudes in Mindanao, South Phillipines Between 6.7 and 6.9 (1970-2022)



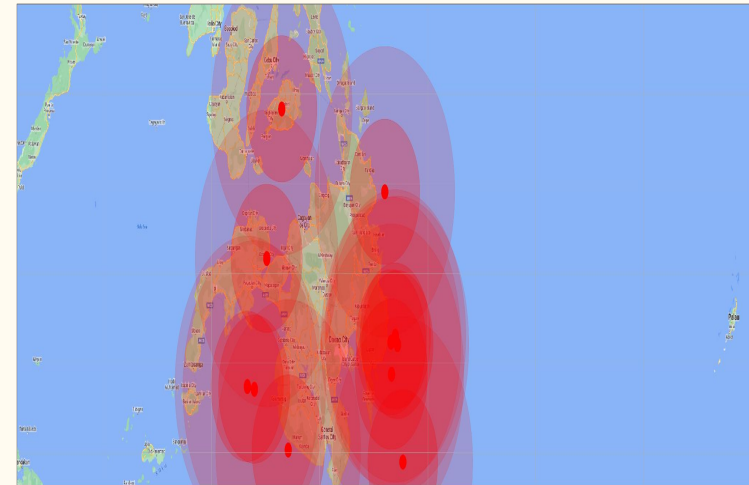
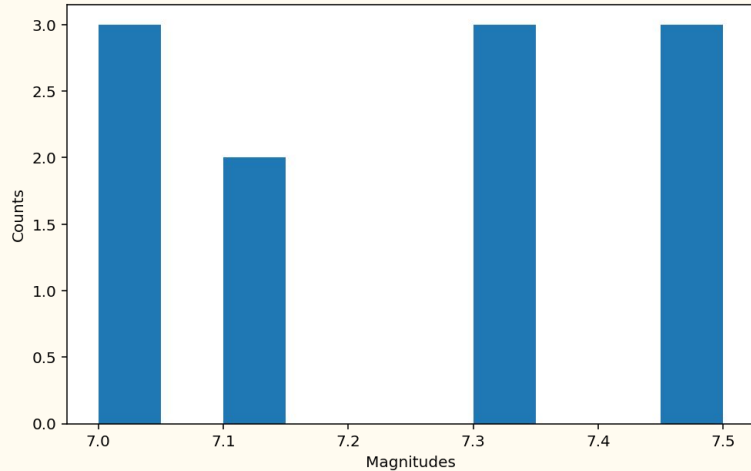
Mindanao Earthquakes (7.0-7.5)

- As shown before higher concentration in the East region along the Philippine trench
- Most notable Earthquake (Davao Oriental, 7.1 Magnitude (2021))

1970-2022 Bar Graph for Magnitudes 7.0-7.5 For Mindanao, South Philippines

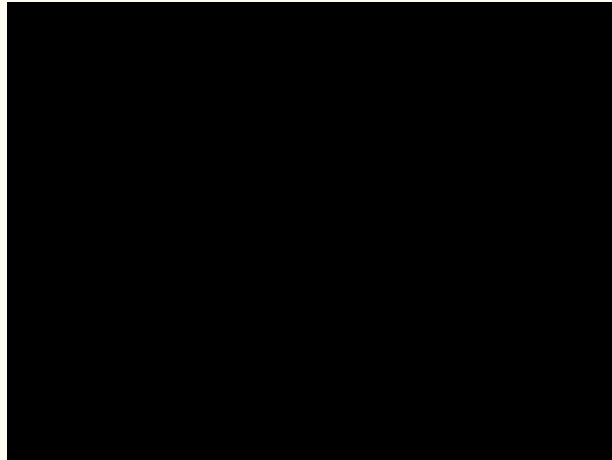


1970-2022 Bar Graph for Magnitudes 7.0-7.5 For Mindanao, South Philippines



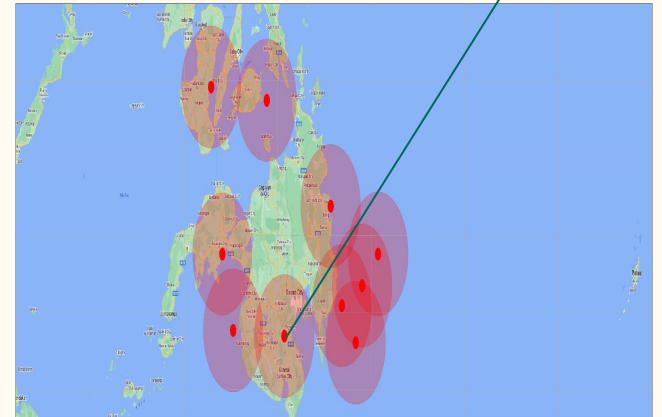
Animation (7.0-7.5)

- Landscape could not draw properly
- Only plotted points for these Earthquakes
- Plotted points represent distribution of Earthquakes for magnitudes 7.0-7.5



One of Mindanao's Biggest Earthquakes (Davao Del Sur)

- The centralized location for this Earthquake occurred here (on the south edge of Davao Del Sur)
- 31,832 suffering some damage (property, casualties, deaths, etc). 397 schools and 62 health facilities were damaged in Davao del Sur
- Schools alone needed an estimated 1.9 billion pesos (37 million dollars) for school reconstruction alone



Conclusion

- The east region of Mindanao contains the most amount of high magnitude Earthquakes
- Most of the Earthquakes that occur not only in Mindanao but in the Philippines are concentrated along the Philippine trench (out of code scope) (lined up with my data for the region of Mindanao)
- Citizens on the east side of this region (and the Philippines) should be cautious as the most casualties and deaths due to Earthquakes in this region
- Most costly in these areas when Earthquakes occur (east region near the Philippine Trench)

References

https://en.wikipedia.org/wiki/2019_Davao_del_Sur_earthquake#:~:text=A%20total%20of%205%2C973%20houses,Sur%2C%20Sarangani%20and%20North%20Cotabato.

https://en.wikipedia.org/wiki/Subduction_tectonics_of_the_Philippines

<https://www.ndtv.com/topic/philippines-earthquake>