

CE203: Geospatial Engineering

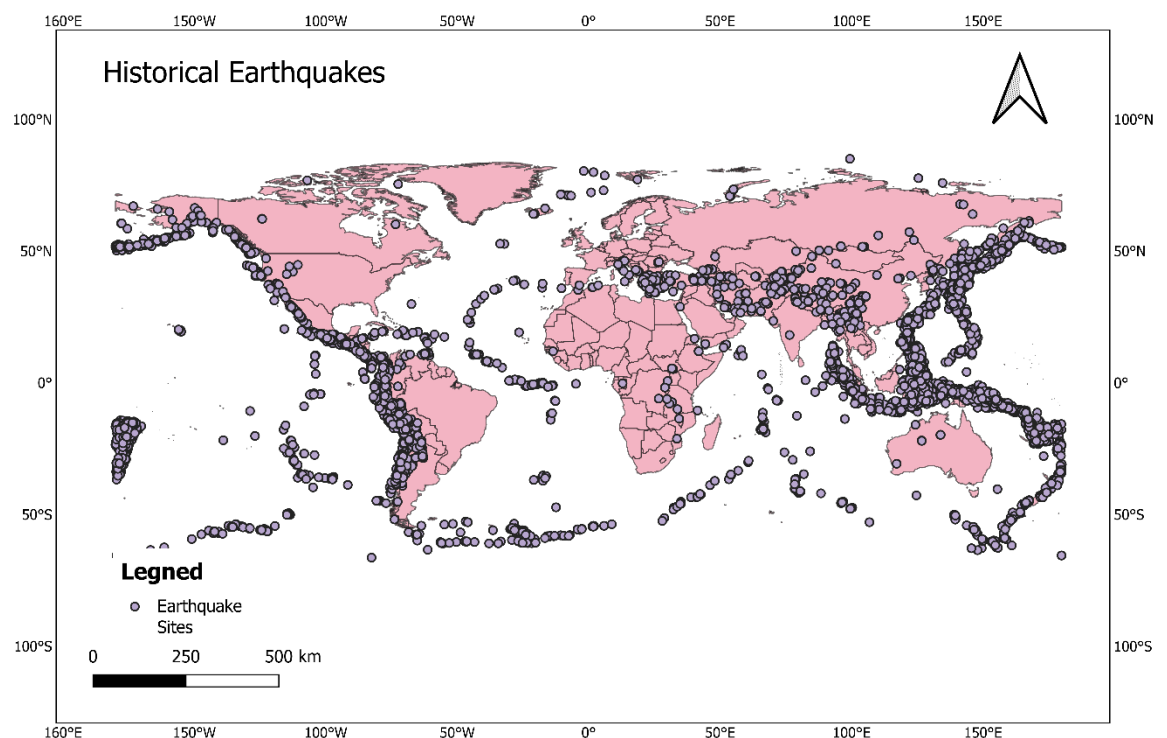
Assignment 2: Mapping Earthquakes

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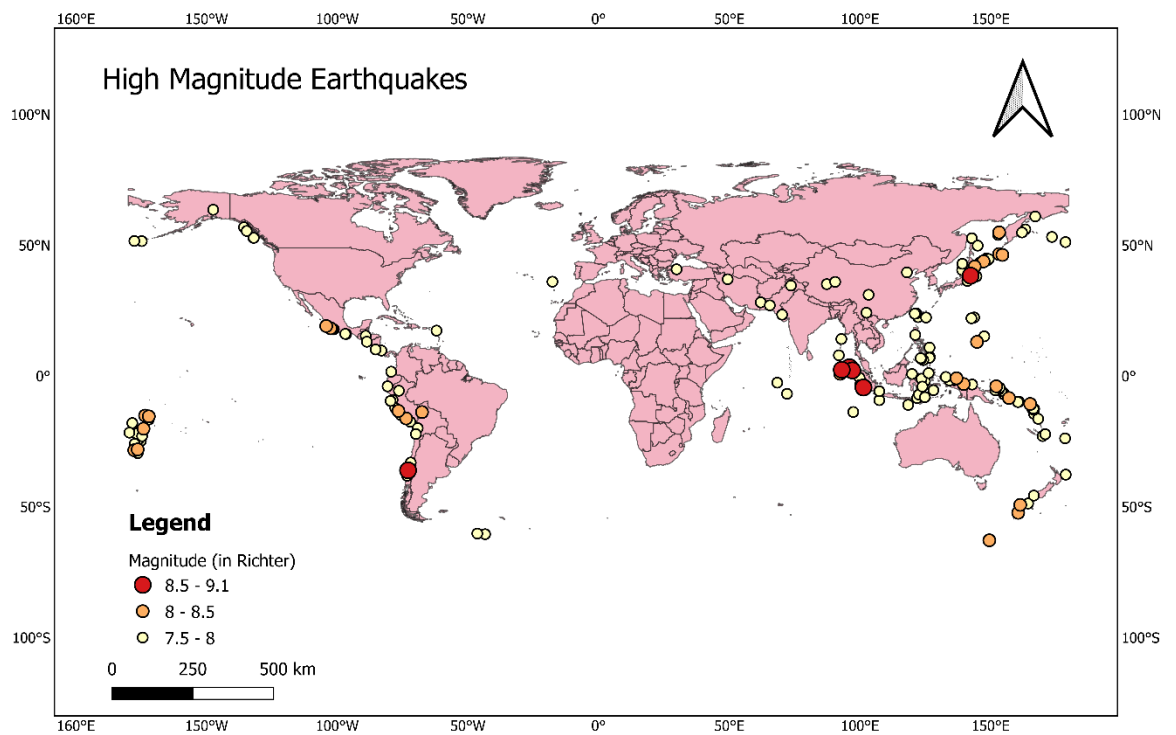
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- **Create a global map highlighting the locations of historical earthquakes. Analyze and identify regions that are highly susceptible to high-magnitude earthquakes. Discuss the relationship between these regions and tectonic plate boundaries.**

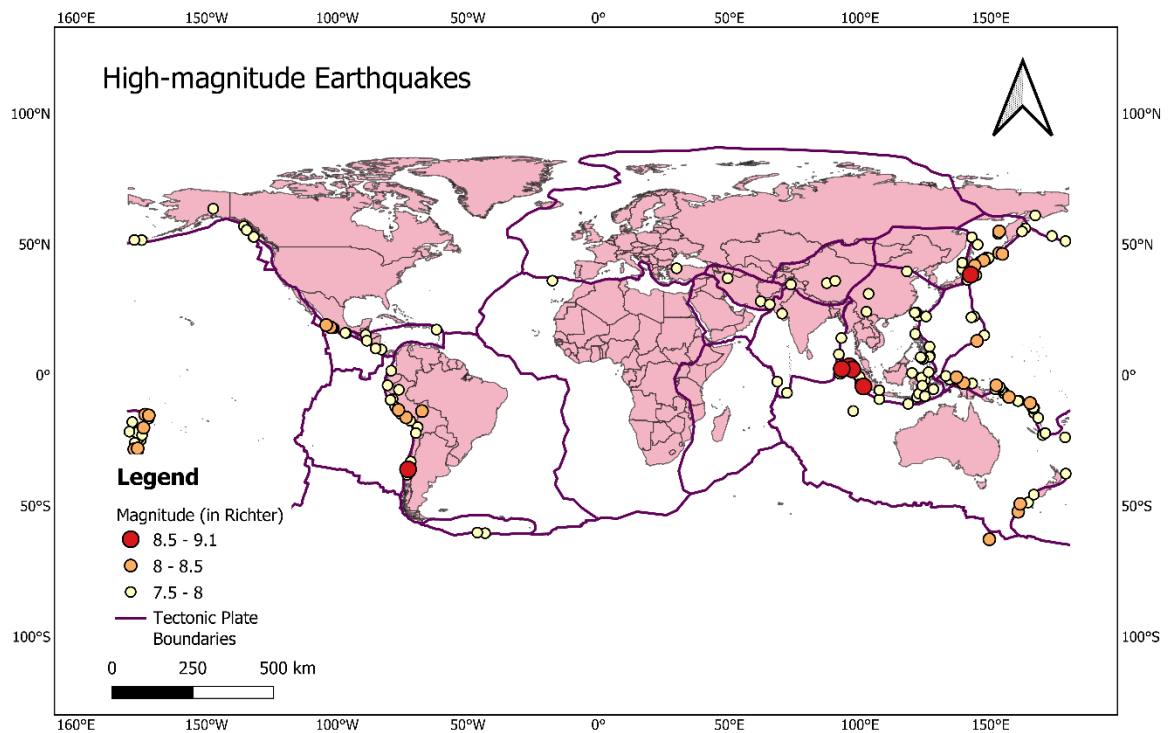
To create a global map for historical earthquake locations, first I have imported the world map having country boundaries and the earthquake data in QGIS software. Then extracting a map by creating a “New Print Layout” and then save png file.



By looking at the “Attribute Table” (by Right clicking on the layer) of the earthquake data we can clearly see that the data represents the different magnitudes ranging from 6 – 9.1. For identify the regions that are highly susceptible to high-magnitude earthquakes I have considered the range 7.5 to 9.1 (referencing the [material](#)). To represent the data I updated the properties of the earthquake layer and in “Symbology” section classify the data by magnitudes and classified the legends by colour and size. Here is the extracted image after doing all the classifications.

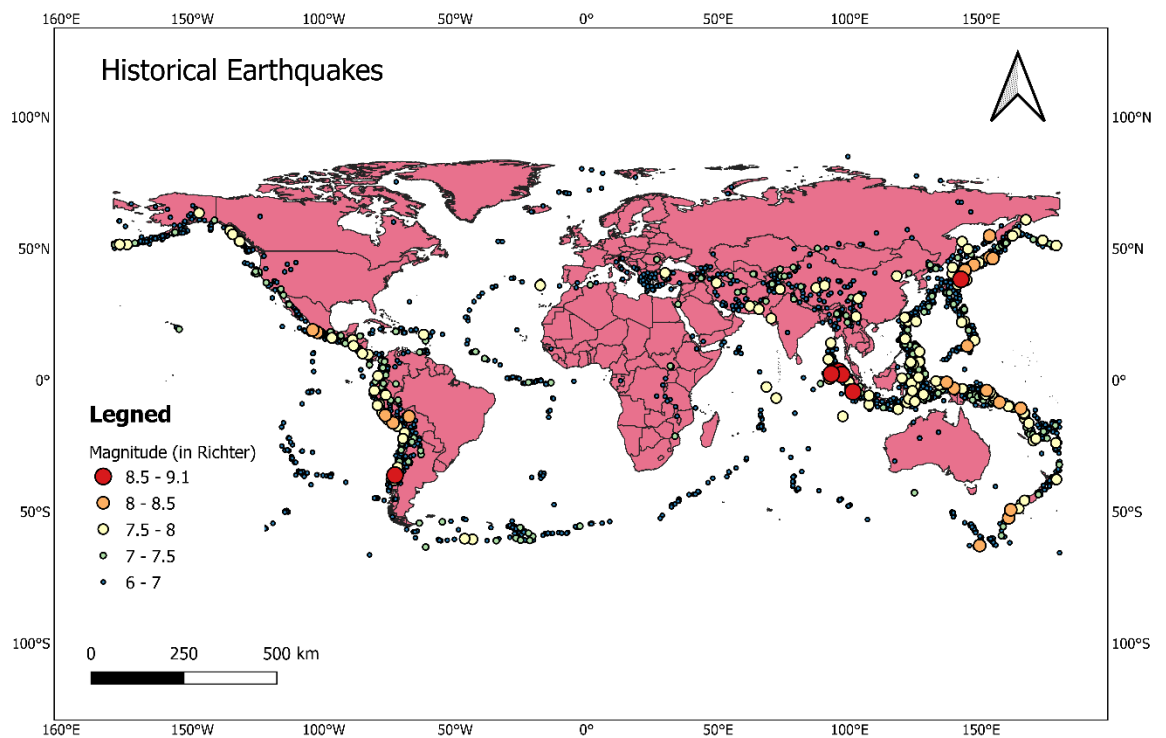


After adding the Tectonic Plate Boundaries file, we can clearly see that the epicentre of most of the earthquakes are located around the Tectonic Boundaries. The below attached image depicts the relationship between these regions and tectonic plate boundaries.



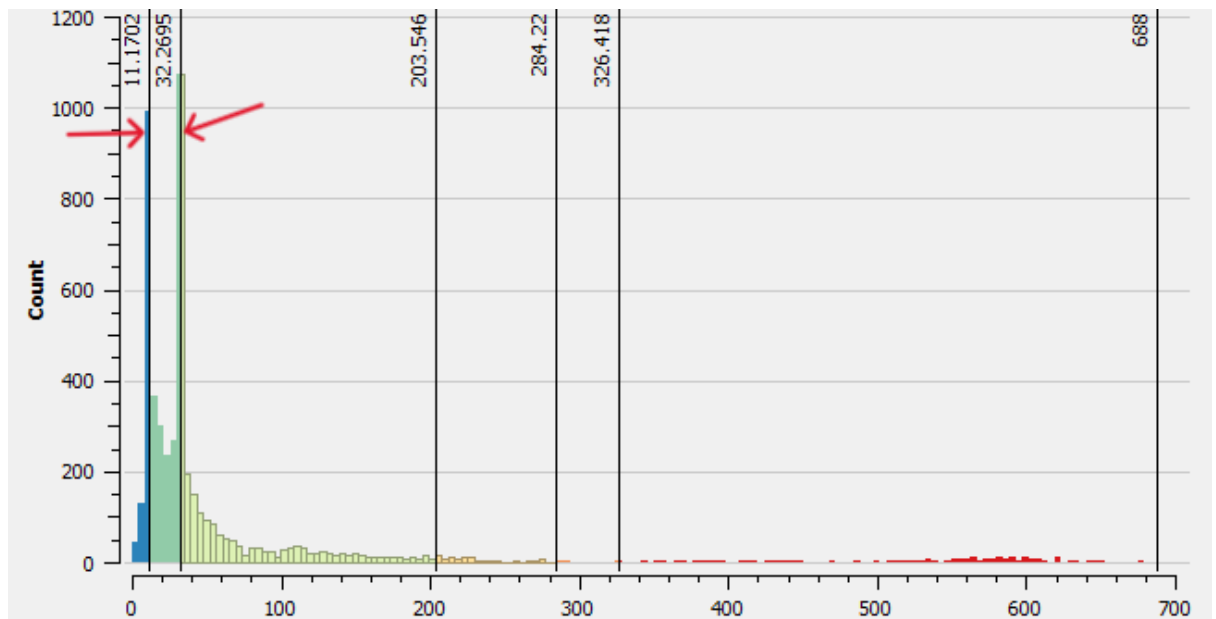
- **Develop a map showcasing the magnitude of historical seismic activities worldwide.**

For this part I just extended the range of magnitudes (till the whole given range) in the map showing high-magnitude earthquakes. The below is the map showcasing the magnitude of historical seismic activities worldwide.

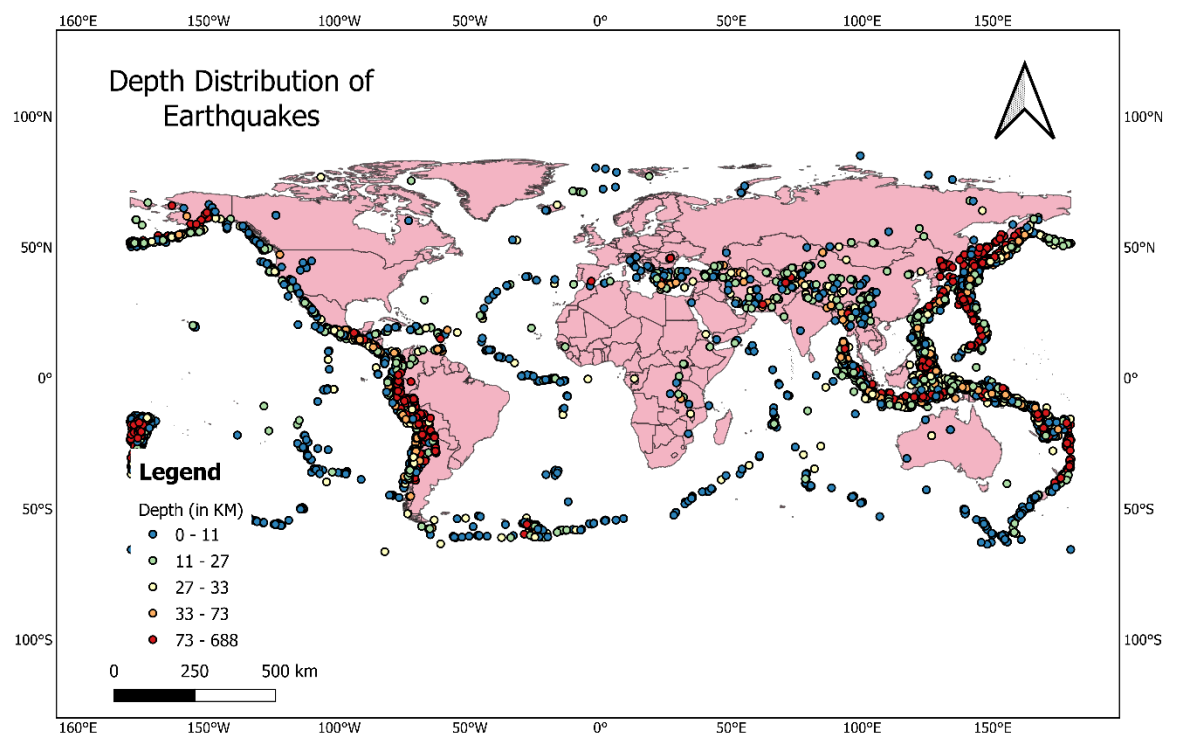


- **What are the common depths at which earthquakes typically occur? Create a map illustrating the depth distribution of historical seismic activities.**

By analysing the depth data of the magnitudes of the earthquakes,

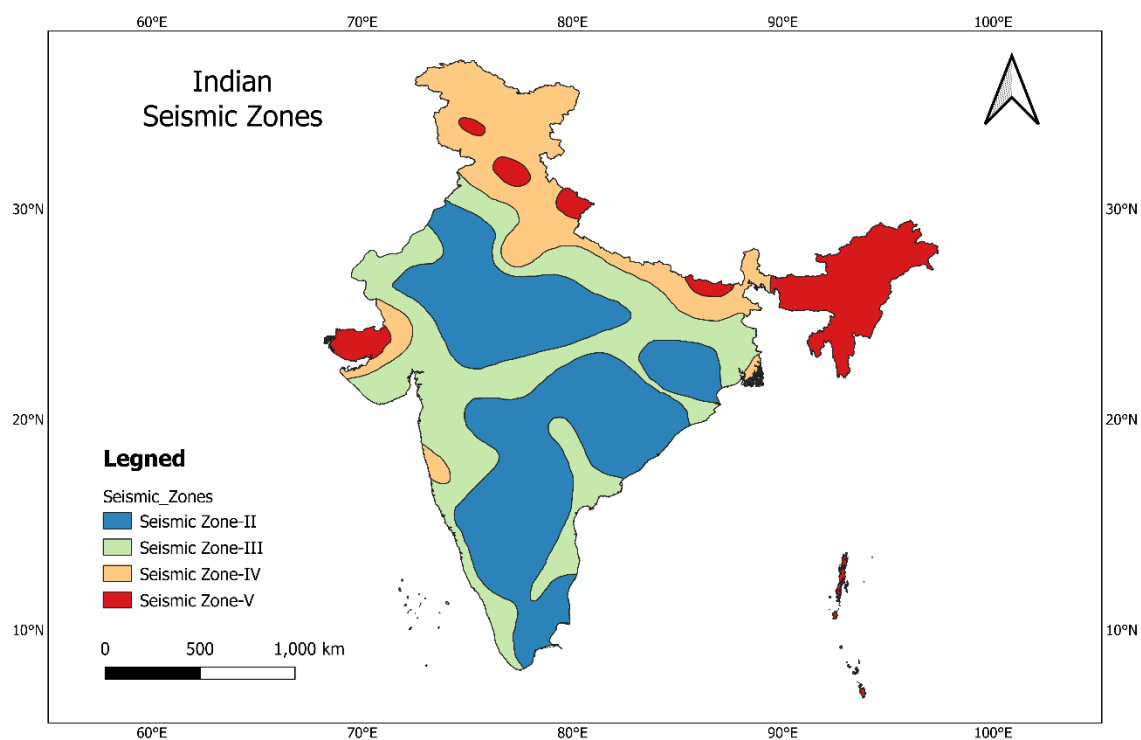


We can see that maximum number of earthquakes originate from the depths between 8 to 12 KM or 26 to 34 KM. Let's now look the global distribution of earthquakes according to death.

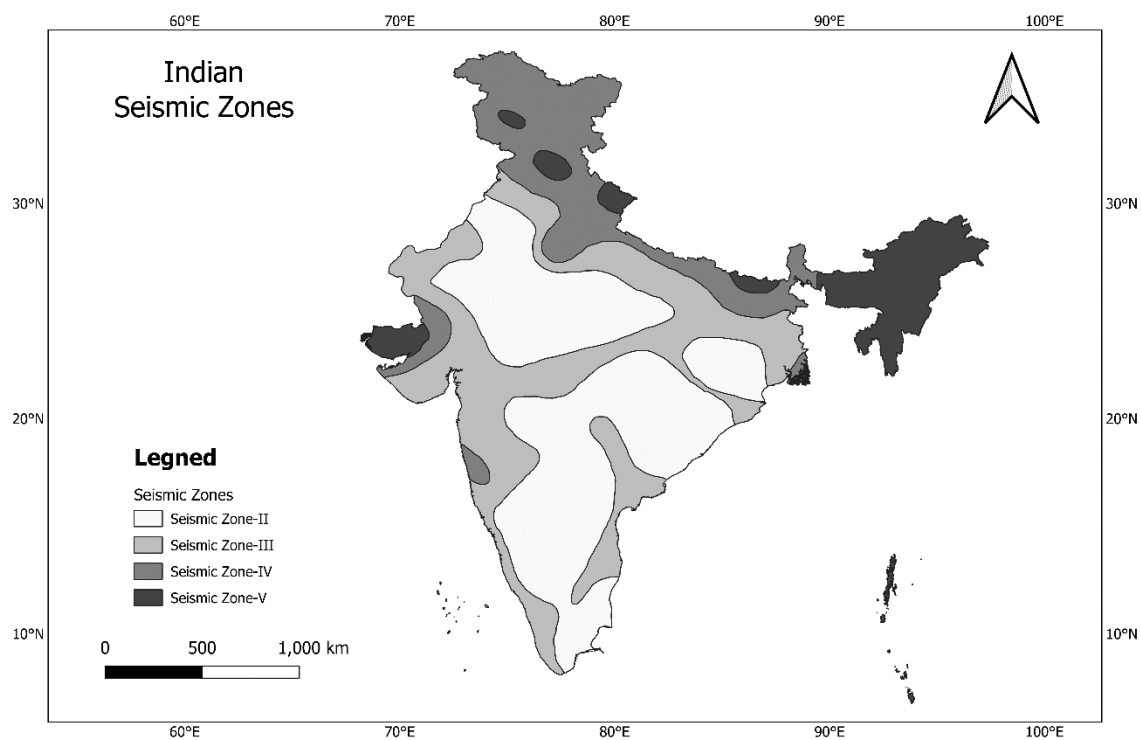


- **Generate a map showing the seismic zones of India. Also, add historical seismic activities that happened in India and nearby regions.**

For creating the map showing the seismic zones of India we import the seismic map and classified the data in different zones.



But for analyzing the historical seismic activities we should use different colours to clearly distinguish between the different legends.



Now importing the csv file and classifying the data on the basis different magnitudes. Below is the map showcasing historical seismic activities that happened in India and nearby regions.

