

Predicting Earthquakes with AI

An earthquake is a natural hazard resulting from the movement of tectonic plates, releasing energy in the form of seismic waves. This geological phenomenon causes the ground to shake and is considered one of the deadliest natural disasters.

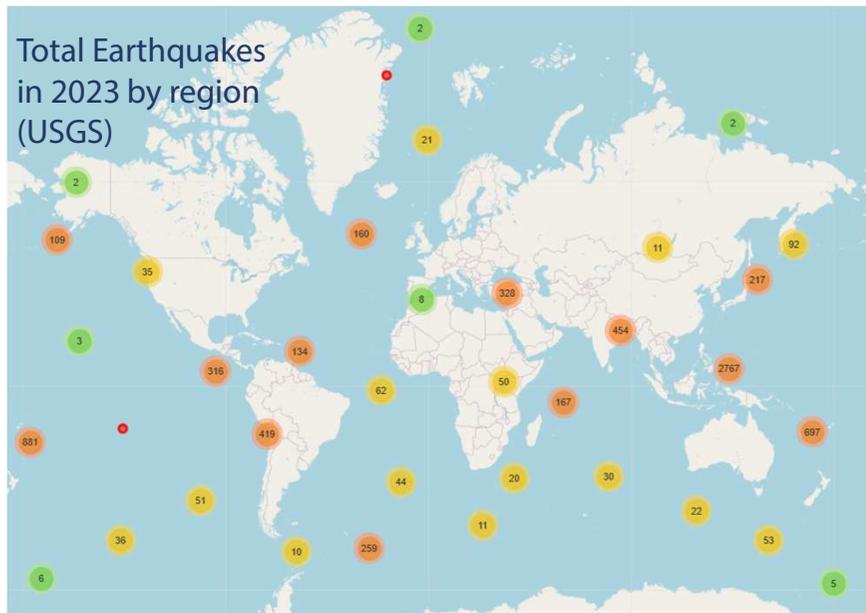
Importance of Predictions

- Early Action and Evacuation
- Resource Mobilization
- Strategic Policies
- Infrastructure Resilience
- Risk Assessment and Insurance
- Community Preparedness
- Search and Rescue Planning
- International Collaboration
- Economic Impact Reduction

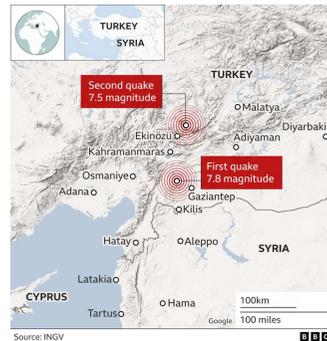
L'Aquila

In 2009, L'Aquila faced a devastating earthquake, resulting in over 300 casualties.

- Six scientists and a government official were sentenced to six years for criminal manslaughter for their alleged failure to communicate potential risks adequately.
- This case highlights the intricate challenges of earthquake prediction.



Significant Earthquakes in 2023



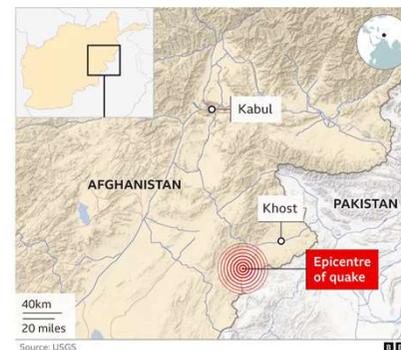
February 2023: Turkey-Syria doublets claimed 59,259 lives, making it the deadliest earthquake of the year.



September 2023: Morocco's historic quake claimed 3000 lives.



October 2023: Afghanistan's earthquake causing 1400 fatalities.



Objective

My project is dedicated to contributing to the advancement of earthquake prediction models. Leveraging neural network models, particularly Long Short-Term Memory (LSTM) algorithms, the project aims to analyse historic seismic data. The goal is to enhance understanding of seismic patterns to meet criteria of valid earthquake predictions. The flow chart below is a brief overview of my methodology.

Valid Prediction Must Include

- 1.Date Time
- 2.Location
- 3.Magnitude

Could Also Include

- Depth of the Earthquake
- Climate Data
- Topography and Geological Features
- Population Density

Should

- Reach an acceptable level of accuracy
- Be presented in an accessible format for non-professionals

