Earthquake & Tsunami Analysis Using Python

Introduction

This project analyzes global earthquake data to understand patterns related to tsunami occurrences. The analysis focuses on seismic characteristics such as magnitude, depth, time, and geographic distribution.

Dataset Overview

The dataset contains earthquake records including magnitude, depth, latitude, longitude, year, month, and a tsunami indicator showing whether an earthquake generated a tsunami.

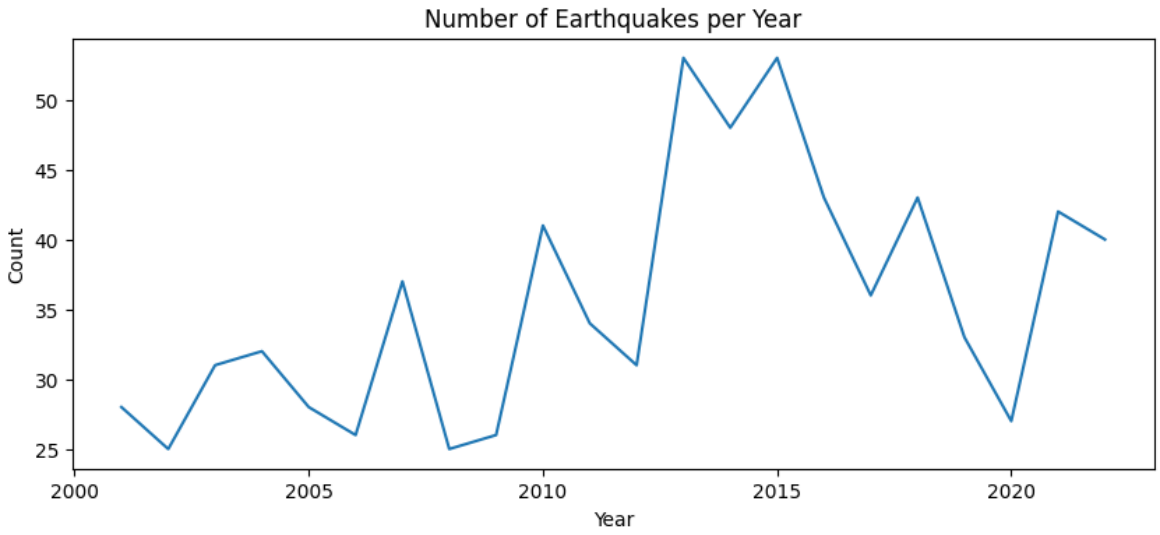
Methodology

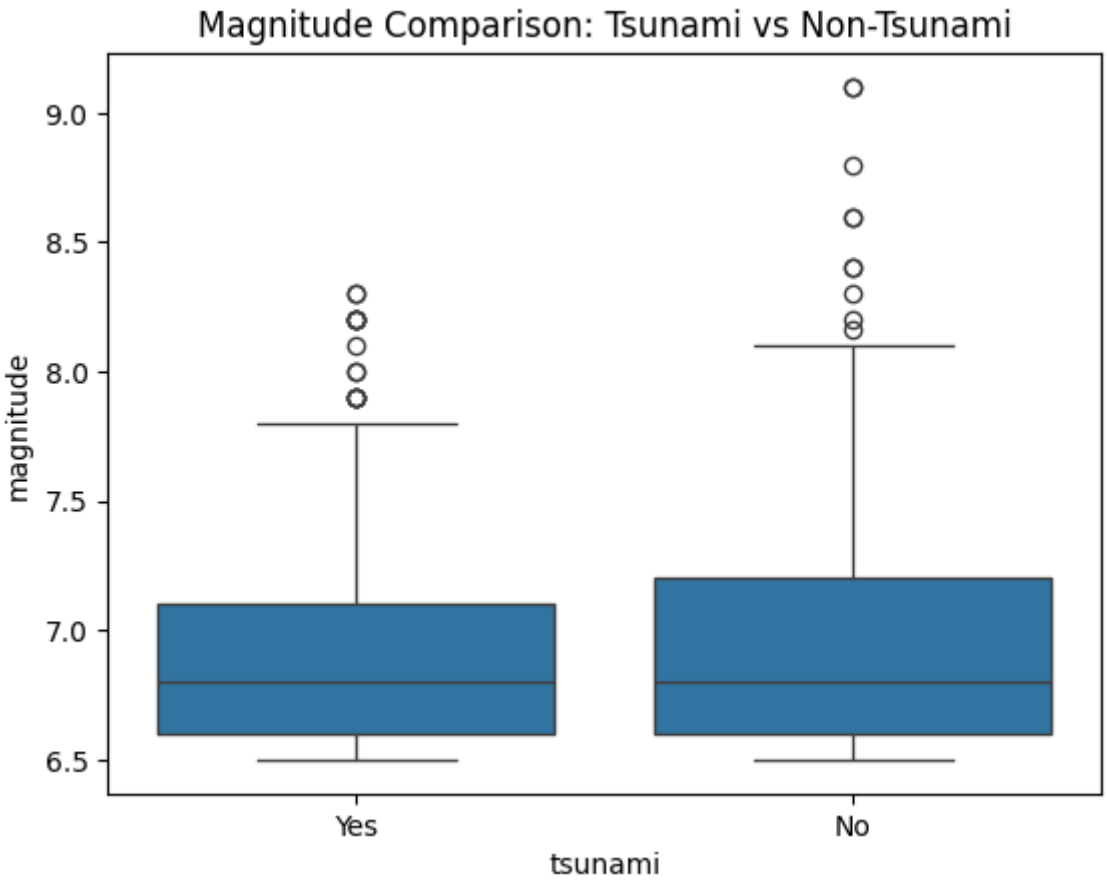
Data cleaning was performed by removing records with missing values in key columns. Feature engineering included categorizing earthquakes based on magnitude. Exploratory data analysis was conducted using time-based trends, comparisons between tsunami and non-tsunami events, and geographic visualizations.

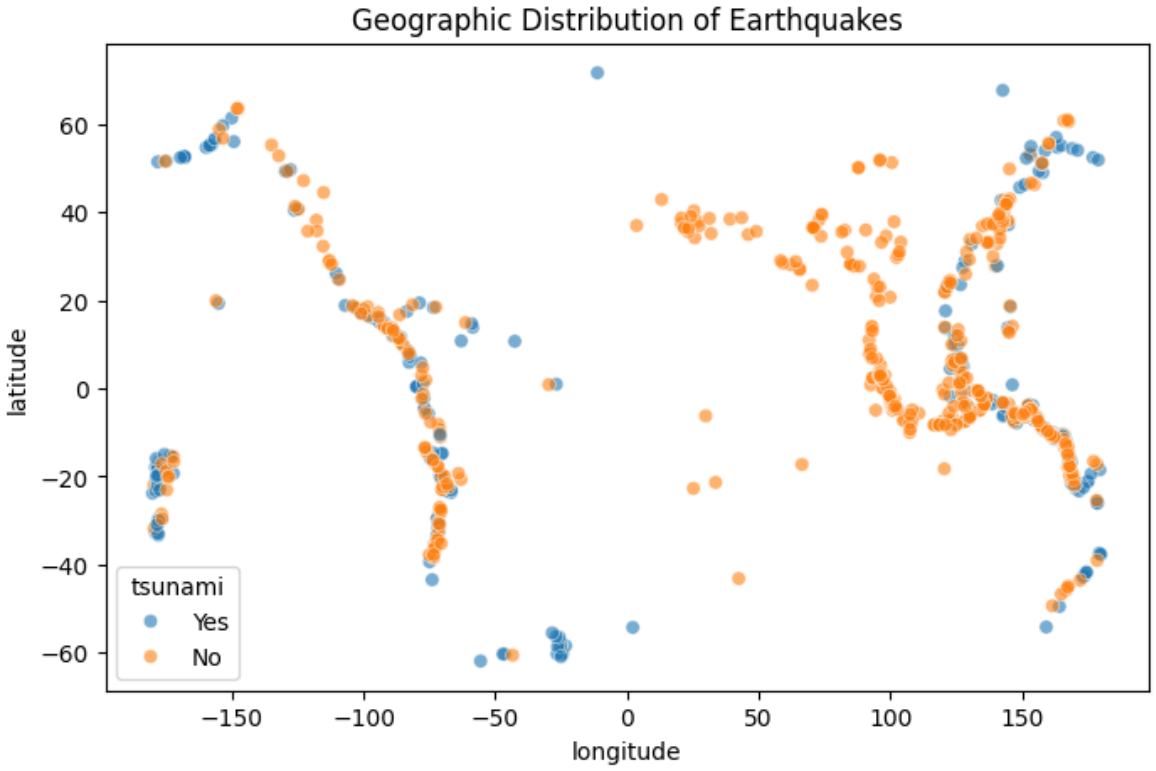
Key Findings

- High magnitude alone does not guarantee tsunami occurrence.
- Shallow earthquakes show higher tsunami association.
- Tsunami events occur in specific geographic zones.

Charts







Conclusion

The analysis highlights that tsunami risk depends on multiple factors rather than magnitude alone. Understanding these patterns can help in improving disaster preparedness and risk assessment.