Ring of fire

Pacific Ring of Fire is the most active seismic region the world .

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# Hypothesis: Pacific region of Ring of Fire is the most active region in the world

Ring of Fire along the pacific region is the most seismically active region.

# Introduction

Project 2 is a team activity and is the key deliverable consists of API data pulls, storing and analyzing the data, and completing analysis and data visualization to gather insights into the chosen topic.

We decided to gain insights into Pacific Ring of Fire data. This is world’s most active seismic region. We want to deep dive into data analysis and gain insights on different dimensions of the data via data visualization. This will help in understanding the seismic activity data and help world community in preparation of this unforeseen and difficult to predict activity.

# Project requirements:

Data Visualization with

* + - MongoDB
    - JS library – MapTalks, better ability to zoom in and out on maps
    - Number of records > 10000
    - User driven inputs/interactions
    - Minimum 3 views

# Data Gathering and Exploration

* Data gathering from Earthquake API Data (source: earthquake.usgs.gov)
* Data Exploration
  + - Date dimension – we will group the data in week as a date dimension
    - Region Dimension – these regions are South America, North America, ANZ, Pacific Asia and Non Pacific
    - Magnitude of Seismic Activity – we may be able to group the data into mild, medium and severe activities but we have decided not to do so
    - Tsunami Warning – this will be yes or no (binary) value data
* MongoDB repository in Thick Server
* Challenge:
  + Data is limited for past 4 weeks – so we are gathering data daily to gain maximum number of records.

## **Data Retrieval and data manipulation**

* Manipulating data to show specific regions, tsunami warnings and magnitude.
* Determined and defined the regions for use case as - North America, south America, Asia Pacific, Australia NZ and other.
* Aggregation of data by date and significance was allotted to defining regions and filtering on magnitude.

# Conclusion

Our sample size is greater than 10000 occurrences and events. This is a good representative sample size for understanding the Ring of Fire data from location, time, magnitude and oceanic tsunami activity. Data analysis validates the hypothesis that Pacific Ring of Fire is the most seismic region in the world.

However, recent earthquakes in non-pacific regions especially in Iran and Pakistan also point out that number of Seismic activities is not the only predictor for the severity of the earthquakes. If there is any relationship exist then it may suggest that more seismic activity may result in less severity of seismic activity. This will need further exploration and study.