Analysis of Earthquake Data

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About the Data Set

This data set was obtained from the US Geological Survey and it represents the period from 2023-08-25 to 2023-09-24

In this analysis we will focus on depth, magnitude, location, time and type of earthquake

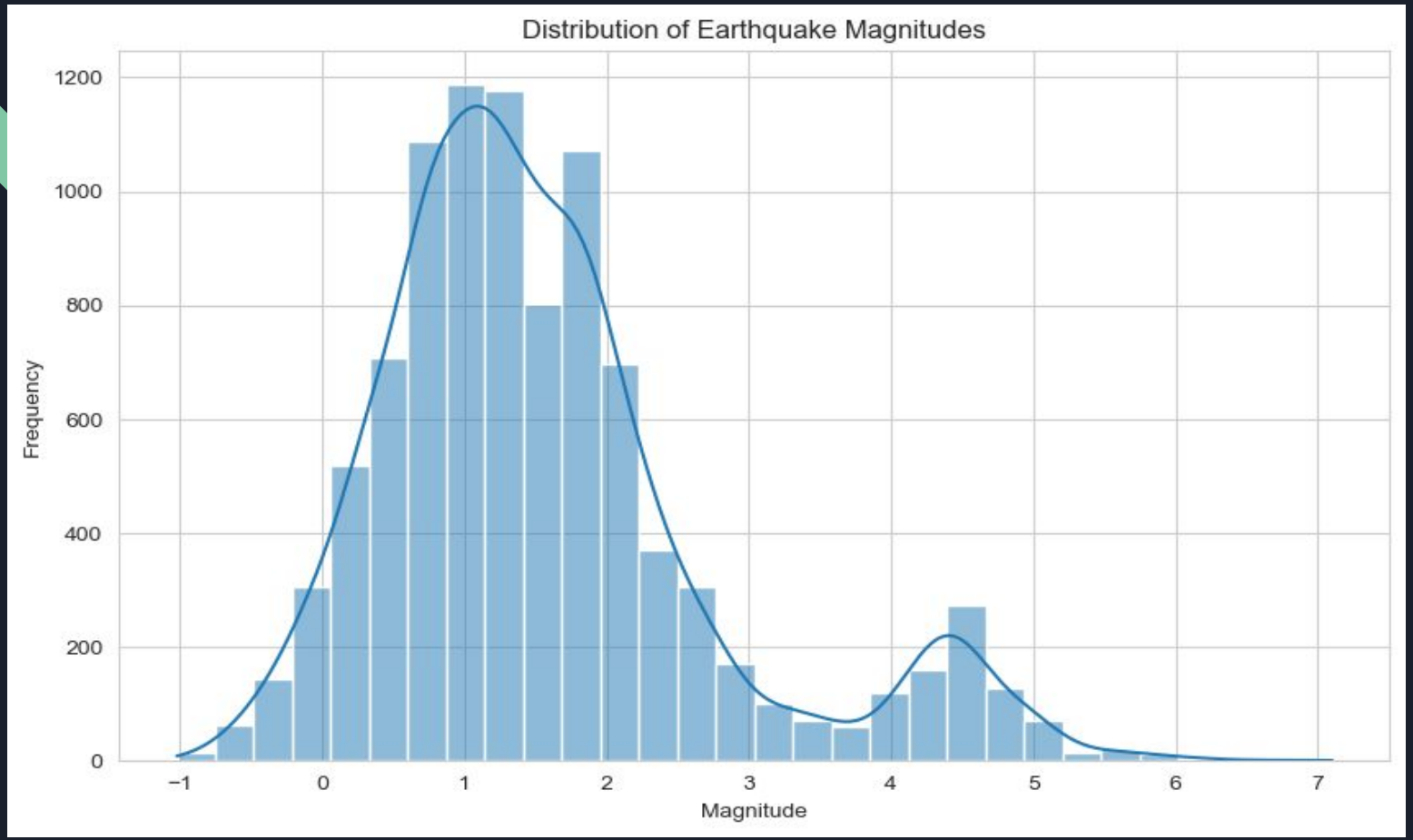
Distribution of Earthquake Magnitudes

Magnitude is the strength of the earthquake, higher magnitudes are more destructive.

Negative magnitudes represent small quakes

The majority of the earthquakes in this data set were between 0 and 2 with a small cluster between 4 and 5.

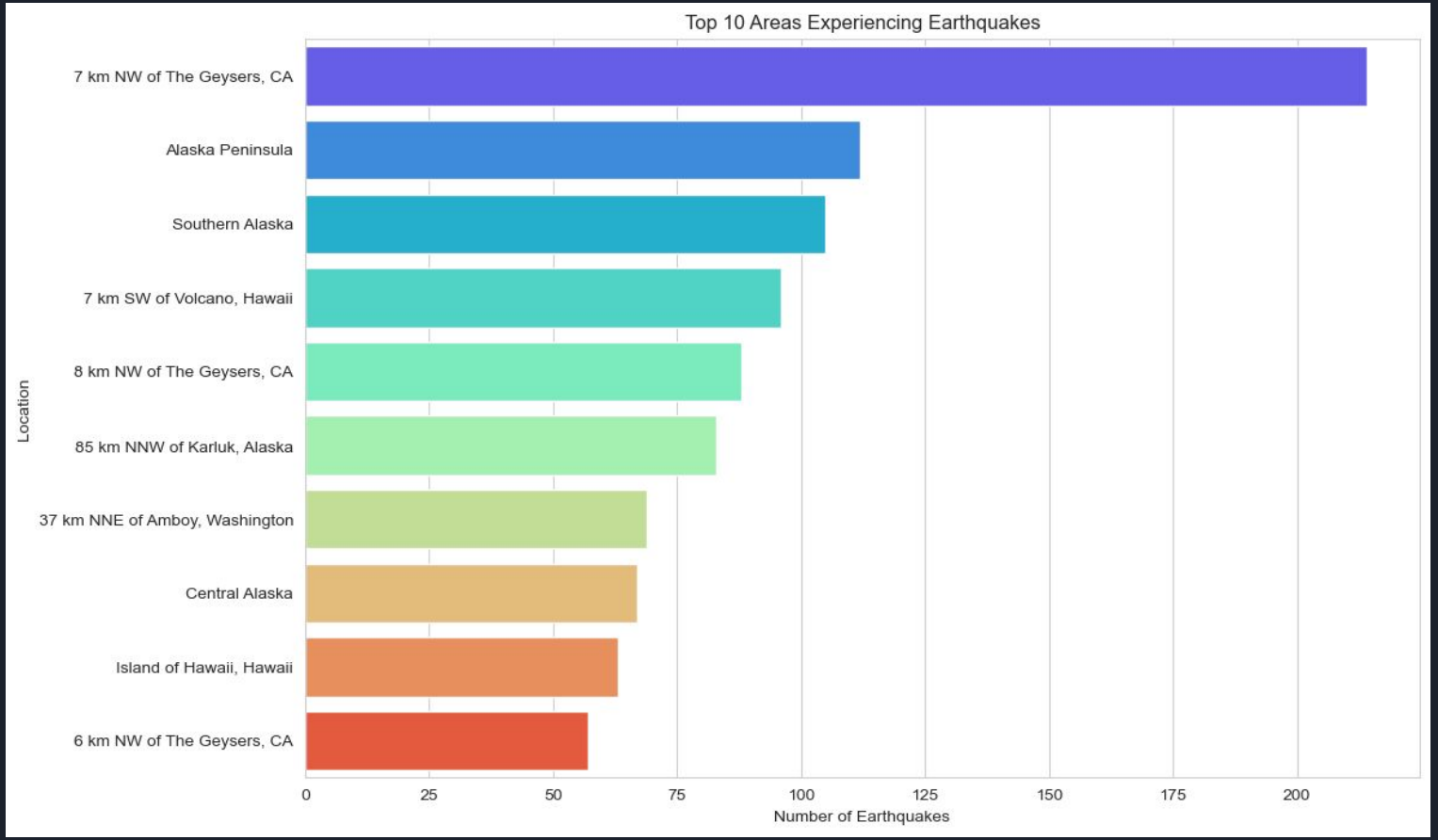
The highest magnitude recorded in this time period was 7.1


Distribution of Earthquake Magnitudes
Frequency
1200
1000
800
600
400
200
0
−1
0
1
2
3
4
5
6
7
Magnitude

Top 10 Locations Experiencing Earthquakes

Some locations in Hawaii and along the west coast: Alaska, California and Washington

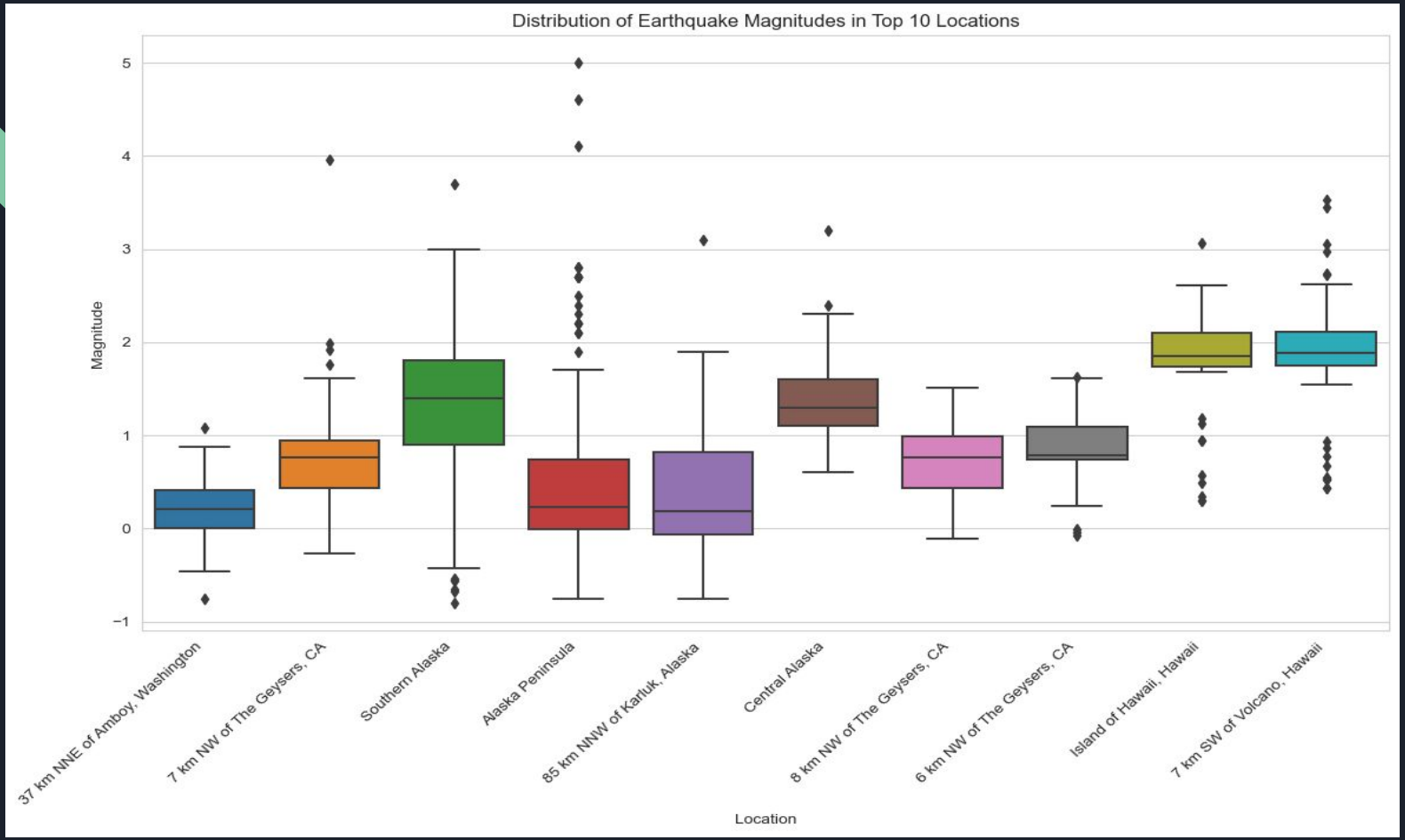
7 km northwest of The Geysers, California experienced over 200 events, while the next highest, the Alaskan Peninsula, experienced less than 125.


Top 10 Areas Experiencing Earthquakes
7 km NW of The Geysers, CA
Alaska Peninsula
Southern Alaska
7 km SW of Volcano, Hawaii
8 km NW of The Geysers, CA
85 km NNW of Karluk, Alaska
37 km NNE of Amboy, Washington
Central Alaska
Island of Hawaii, Hawaii
6 km NW of The Geysers, CA
Location
0
25
50
75
100
125
150
175
200
Number of Earthquakes

Magnitude in Top 10 Locations

The distribution of magnitude in the top 10 locations experiencing earthquakes is also around 0-2.

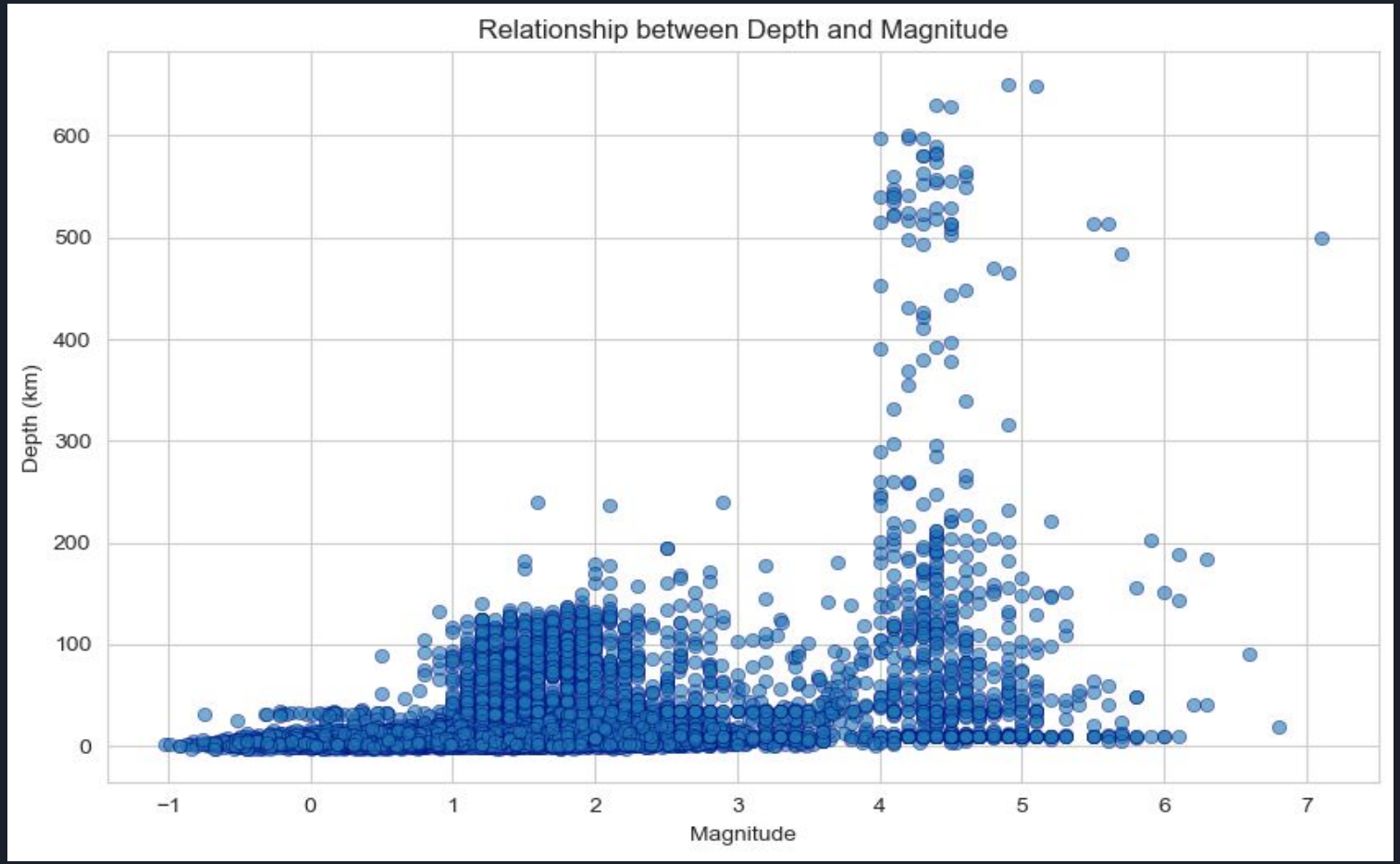
The locations in Hawaii tended to experience earthquakes at the higher end of this range.


Distribution of Earthquake Magnitudes in Top 10 Locations
Magnitude
5
4
3
2
1
0
−1
37 km NNE of Amboy, Washington
7 km NW of The Geysers, CA
Southern Alaska
Alaska Peninsula
85 km NNW of Karluk, Alaska
Central Alaska
8 km NW of The Geysers, CA
6 km NW of The Geysers, CA
Island of Hawaii, Hawaii
7 km SW of Volcano, Hawaii
Location

Relationship Between Depth and Magnitude

Lower depths (below 200 km) tended to experience lower magnitudes

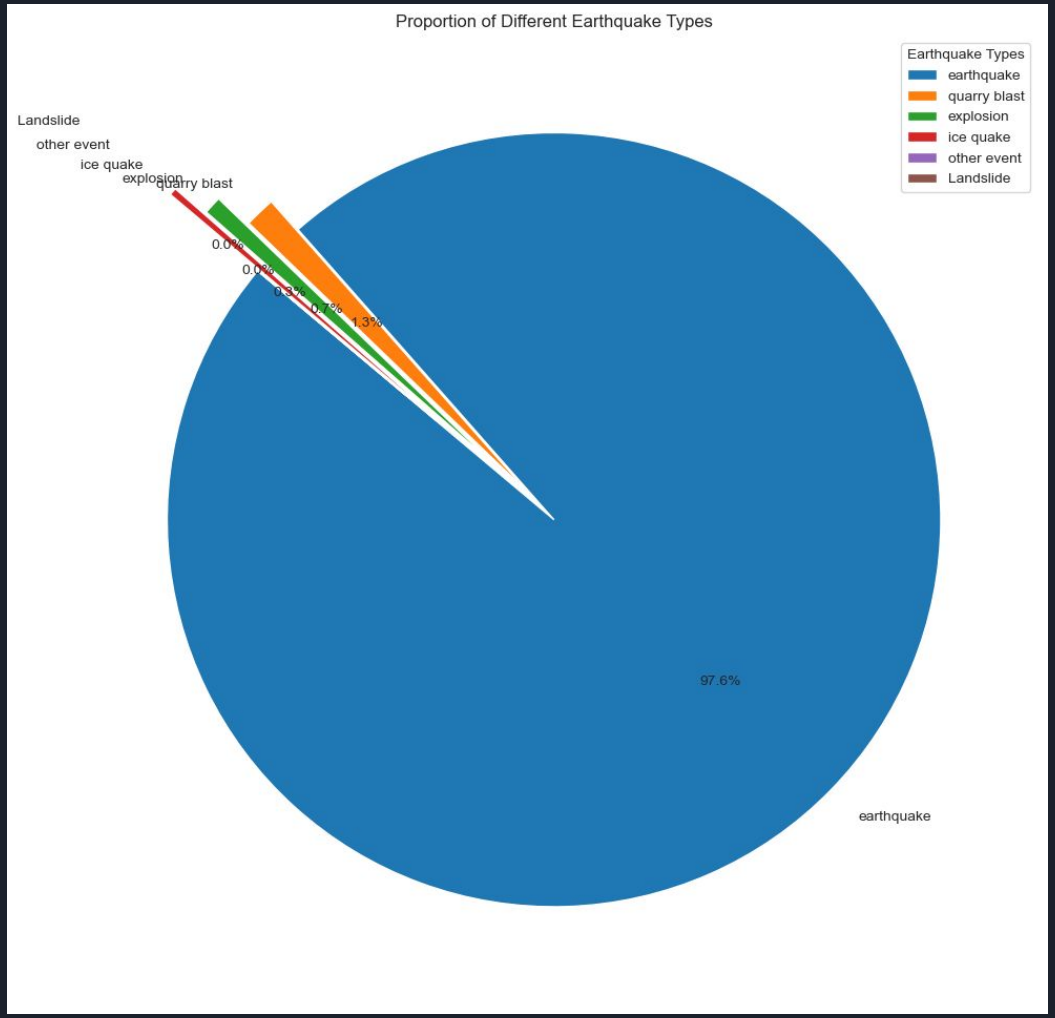
Higher magnitudes had a larger range of depths, from 0 km to over 600 km


Relationship between Depth and Magnitude
Depth (km)
600
500
400
300
200
100
0
−1
0
1
2
3
4
5
6
7
Magnitude

Different Types of Activity

The majority of seismic activity was classified as earthquakes (>97%)

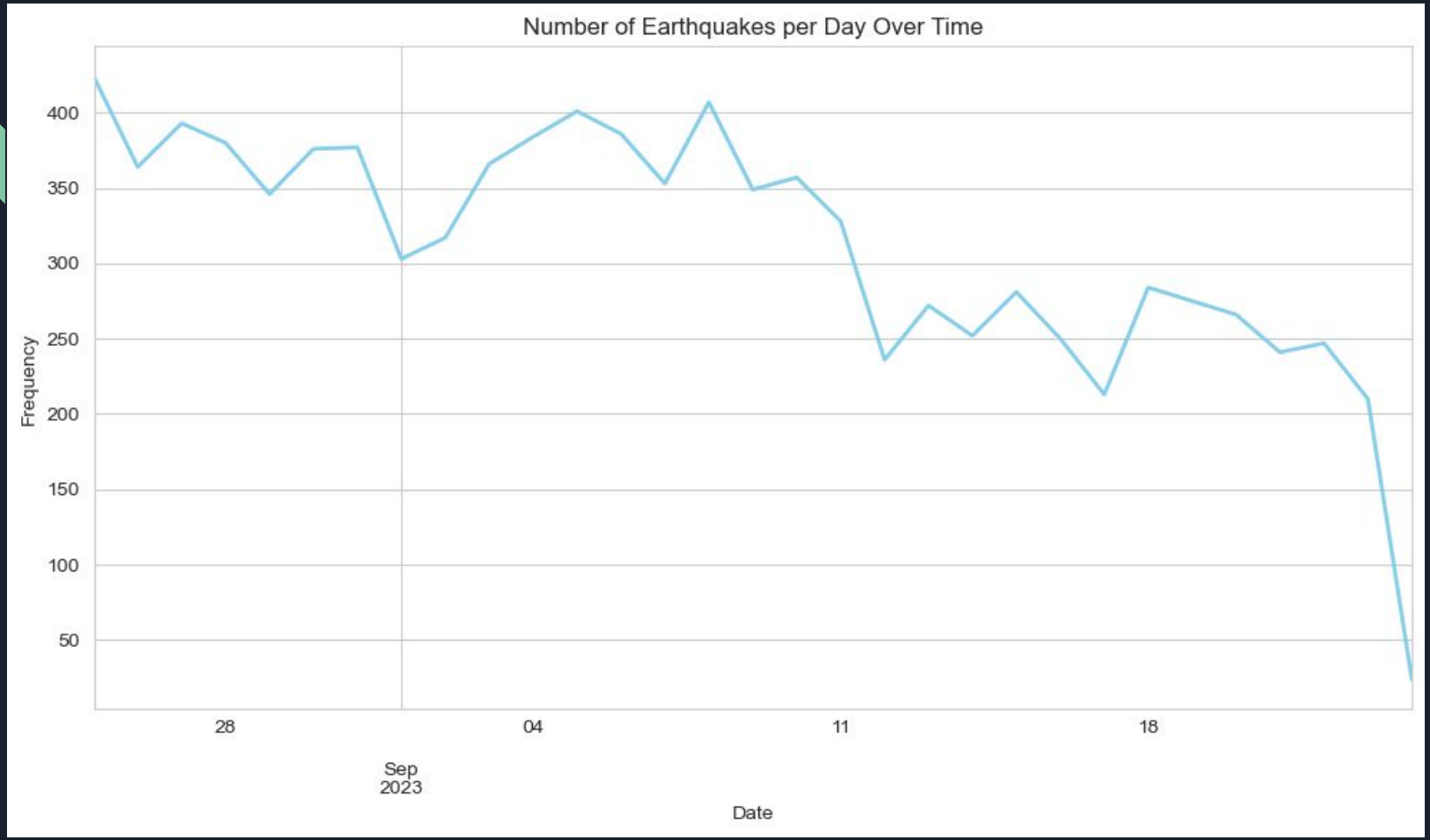
Other types of activity recorded includes: quarry blasts, explosions, ice quakes and landslides.


Proportion of Different Earthquake Types
Earthquake Types
earthquake
quarry blast
explosion
ice quake
other event
Landslide
Landslide
other event
ice quake
explosion
quarry blast
0.0%
0.0%
0.3%
0.7%
1.3%
97.6%
earthquake

Earthquakes Per Day

The number of earthquakes recorded per day ranged between 200 and 400

The average number went down as the month went on.


Number of Earthquakes per Day Over Time
Frequency
400
350
300
250
200
150
100
50
28
Sep
2023
04
11
18
Date