

CASE STUDY FIT 5145

IDENTIFYING PATTERNS AND FORECASTING
EARTHQUAKES IN INDONESIA

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33619611

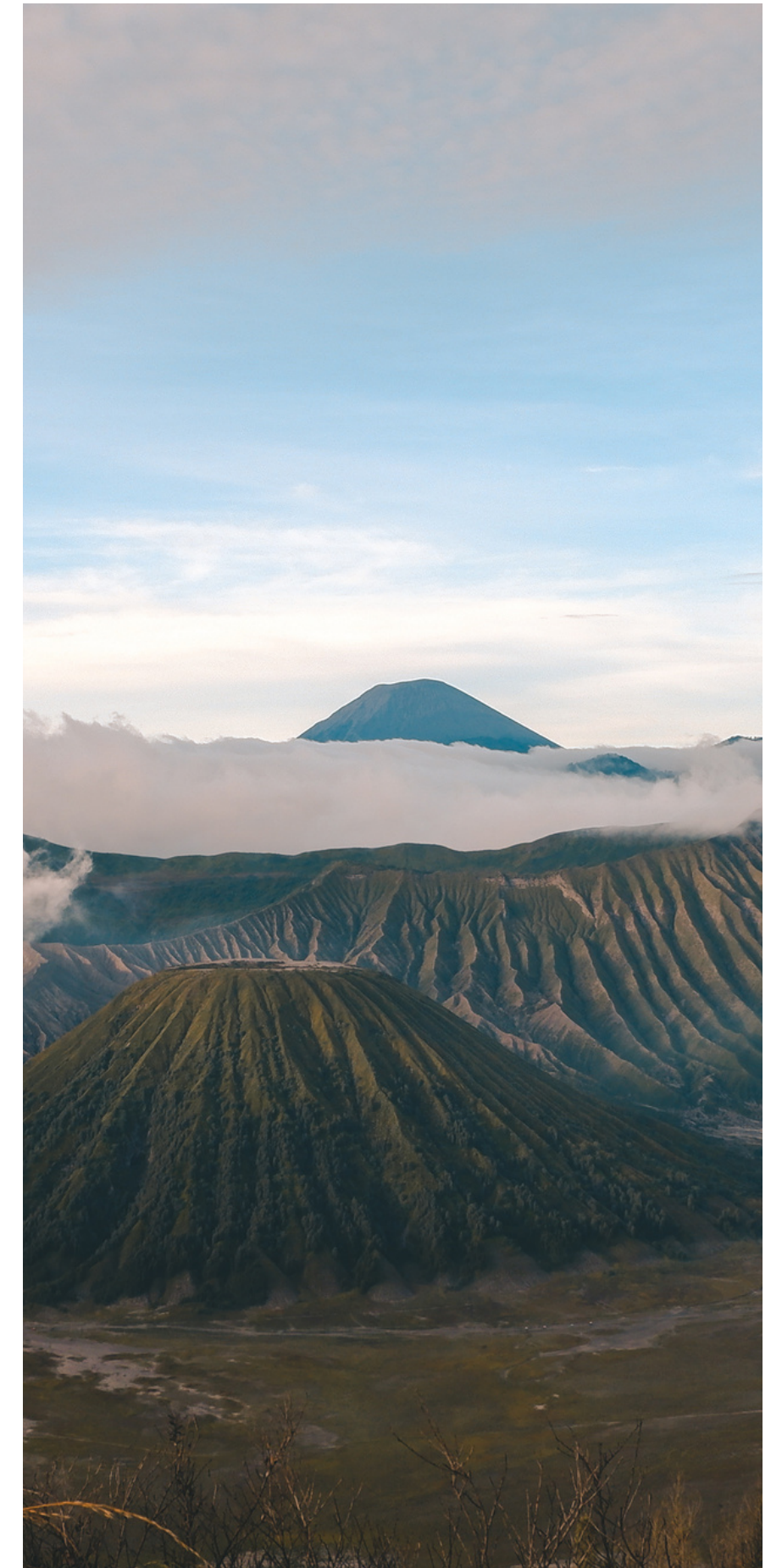


WHY EARTHQUAKE

One of the major natural disasters in the world
An on going problem that still needs solution

WHY INDONESIA

I'm from Indonesia
Located in Pasific Ring of Fire
Indonesia has the total of 76 active Volcanoes



BUSINESS MODEL

01 Analysing and predicting the potential damage of a future earthquake

02 Analysing and predicting the potential cost of damage

03 Analysing the potential location of earthquake base on the number of earthquakes.

04 Analysing the power of the earthquake to determined and predict the power of potential earthquake on a certain area



KEY ACTIVITIES AND CHALLENGES

1	Collecting	A
2	Cleaning	C
3	Analysing	T
4	Visualizing	I
5	Categorizing and Clustering	V
6	Engineering	I
7	Presentating	E
		S

C		
H		
A	1	Data Gathering
L		
L	2	Data Analysis
E		
N		
G	3	Machine Learning
E		
S		

D A T A S E T



Earthquake

Volcanoes

Maps

Earthquake Data

100.000+ Data of earthquake information gather from 2008 acquired from BMKG

Volcanoes Data

Data of volcanoes around the world

Map Data

Longitude and latitude information of maps in the world

4 V'S OF BIG DATA

Velocity

Speed of acquiring, analysing and process the data.

Veracity

An accurate number of strength and location of an earthquake

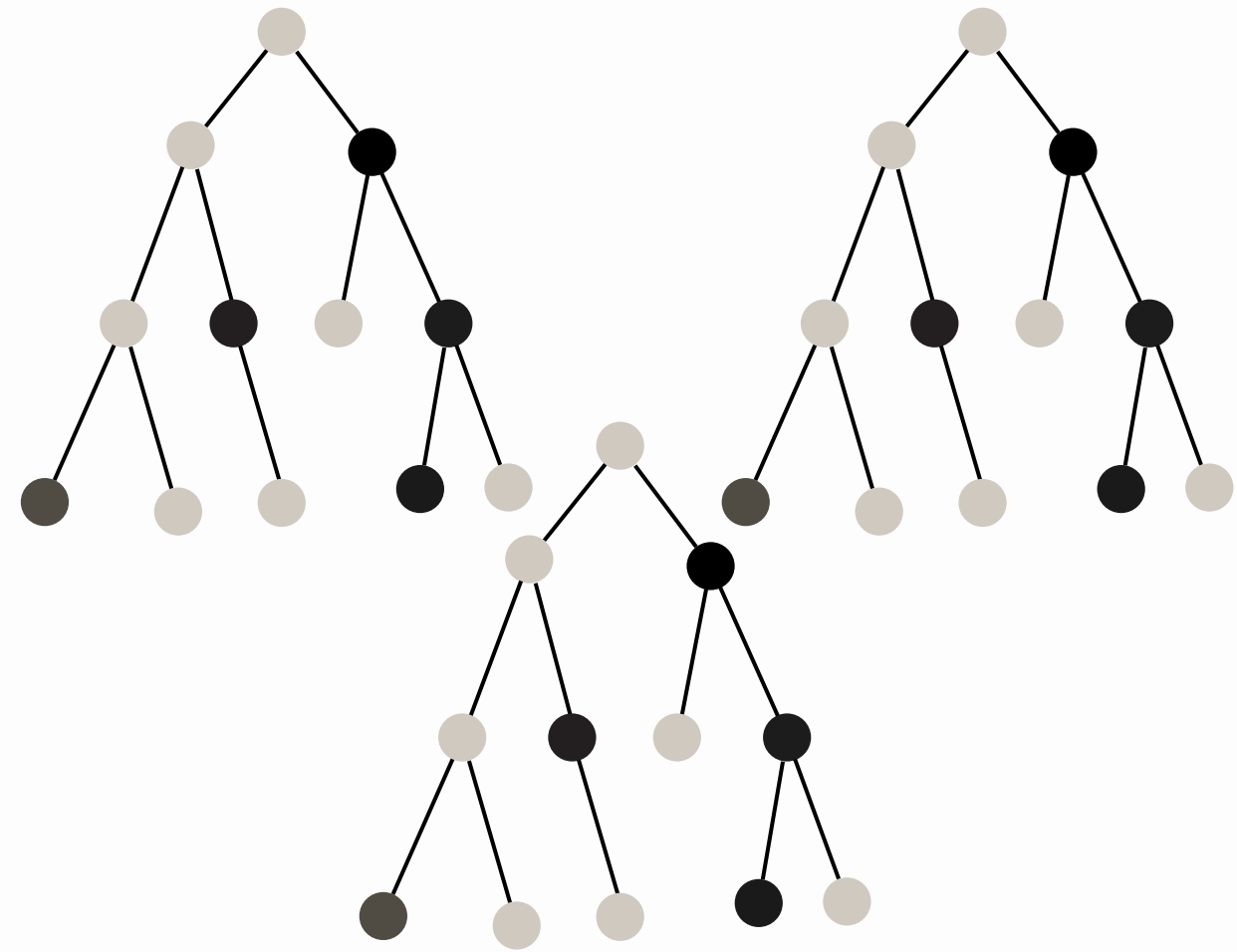
Volume

An accurate number of strength and location of an earthquake

Variety

A large number of data and showing a lot of information about a variety earthquake

MODELING STRATEGIES

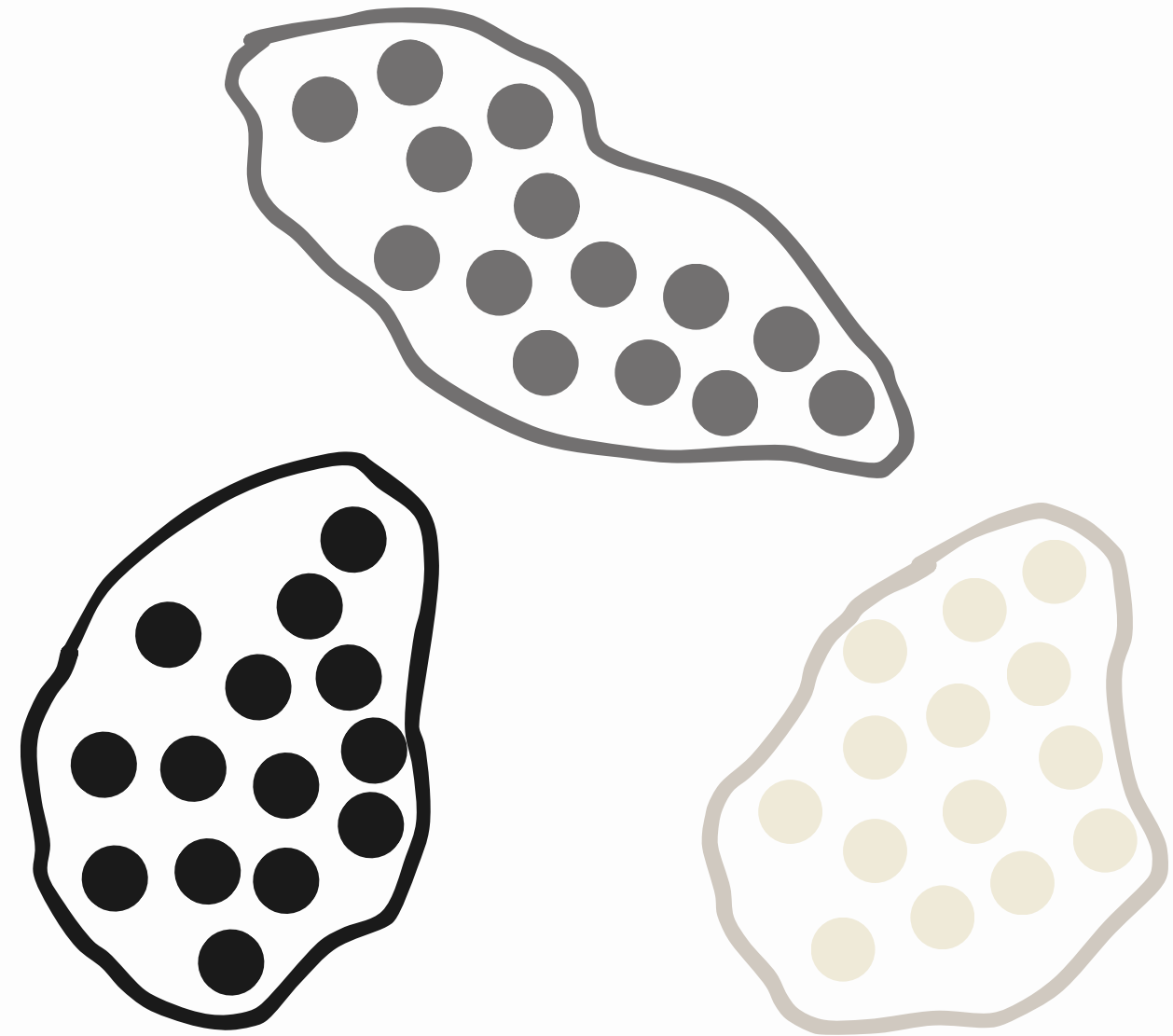


Random Forest

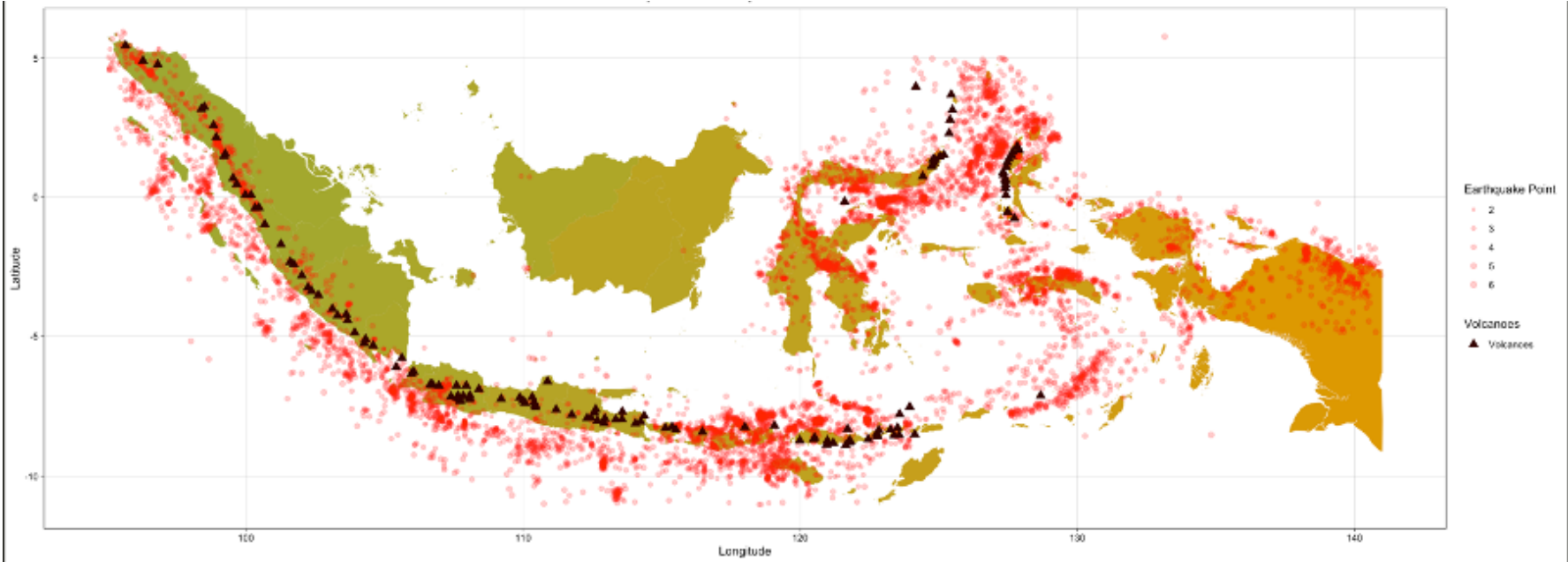
To predict the possible earthquake strength and the possible location of the earthquake based on the data that have been acquired

K_{mean} Clustering

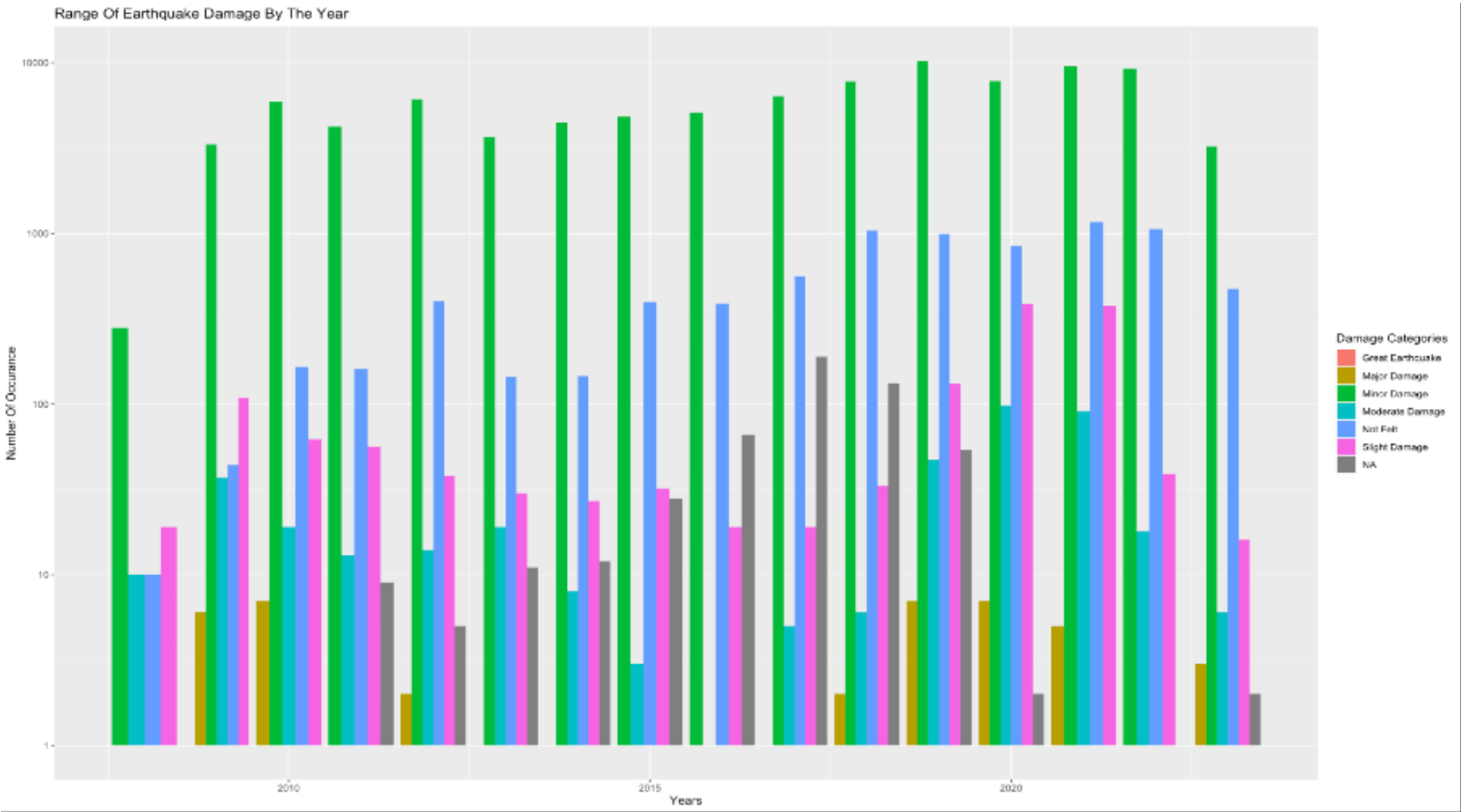
To help classifies the earthquake location and the strength of the earthquake



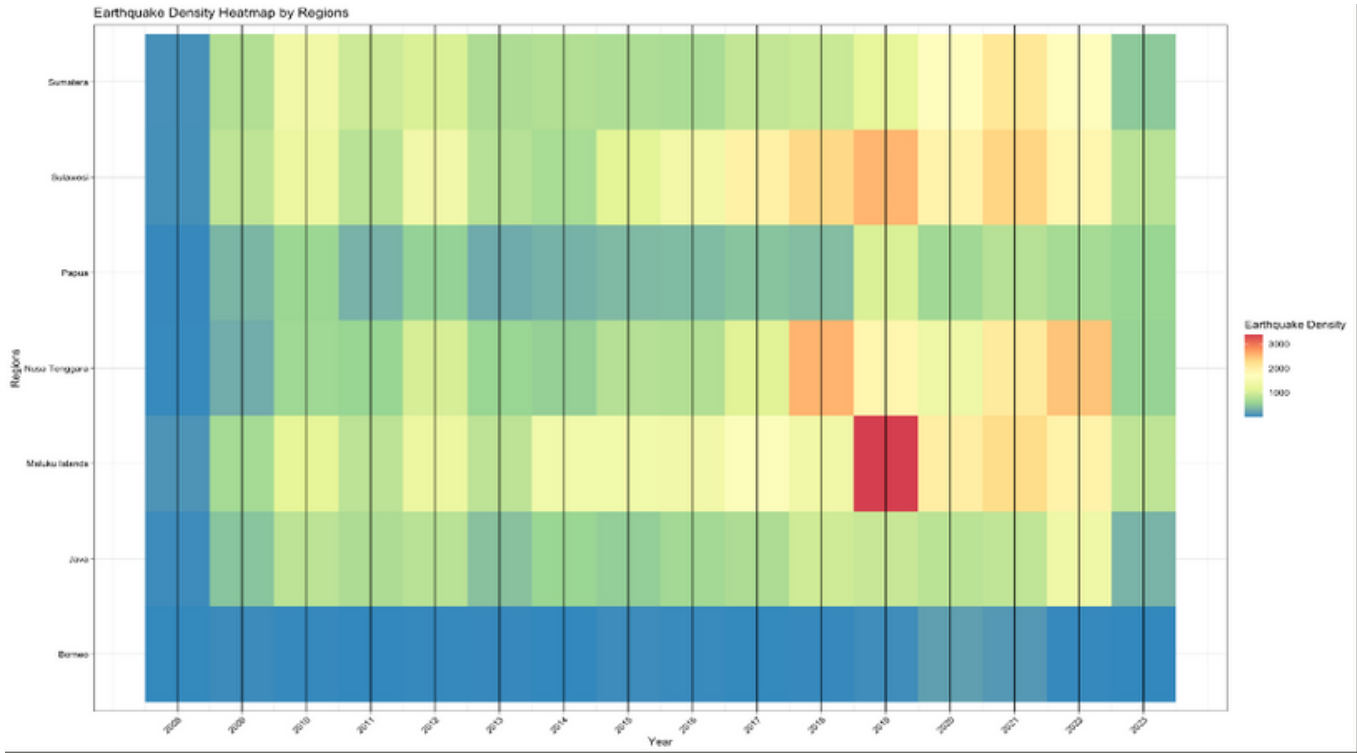
ANALYSIS



Point Map of Earthquake in Indonesia



Range of earthquake damage categorised



Heatmap of earthquakes in indonesia

DATA MANAGEMENT AND GOVERNANCE



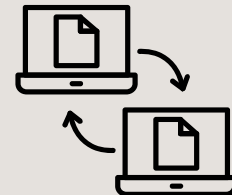
DATA COLLECTION
STANDARDS



DATA PRIVACY



DATA SHARING



DATA
DOCUMENTATION



DATA SECURITY



DATA STORAGE



DATA VERSIONING



DATA ETHICS



DATA COMPLIANCE



Thank you!

ANY QUESTIONS?

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