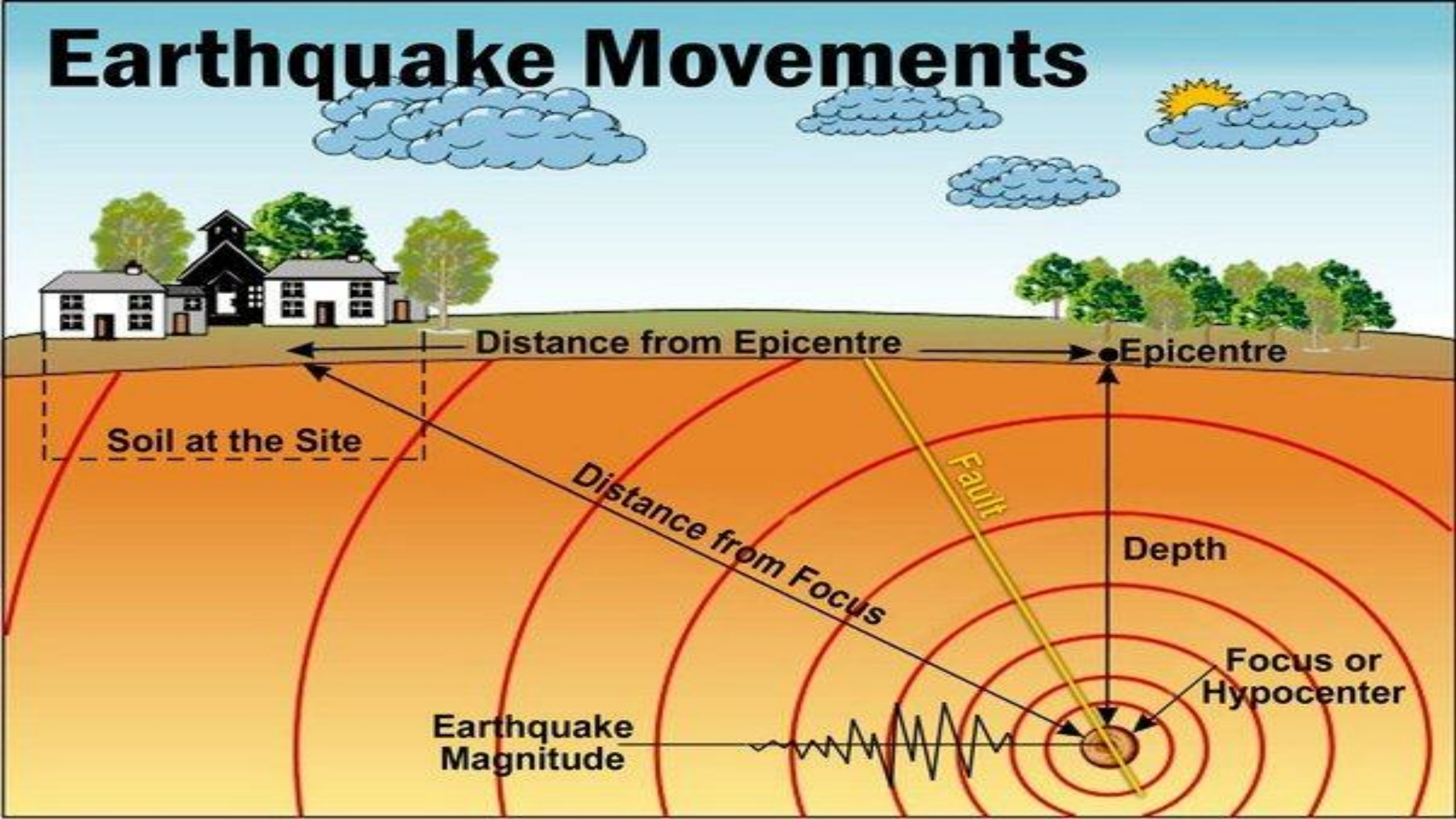
# SEISMIC SENSE

Group 5


Earthquake Movements
Distance from Epicentre
Epicentre
Soil at the Site
Distance from Focus
Fault
Depth
Focus or
Hypocenter
Earthquake
Magnitude

# ABOUT THE QUAKES

**Epicenter** is on the earth's surface directly above the focus where seismic waves originate.

**Richter Scale:** For each increasing magnitude on the Richter scale, the impact of the earthquake becomes 10 times greater in magnitude than the previous one.

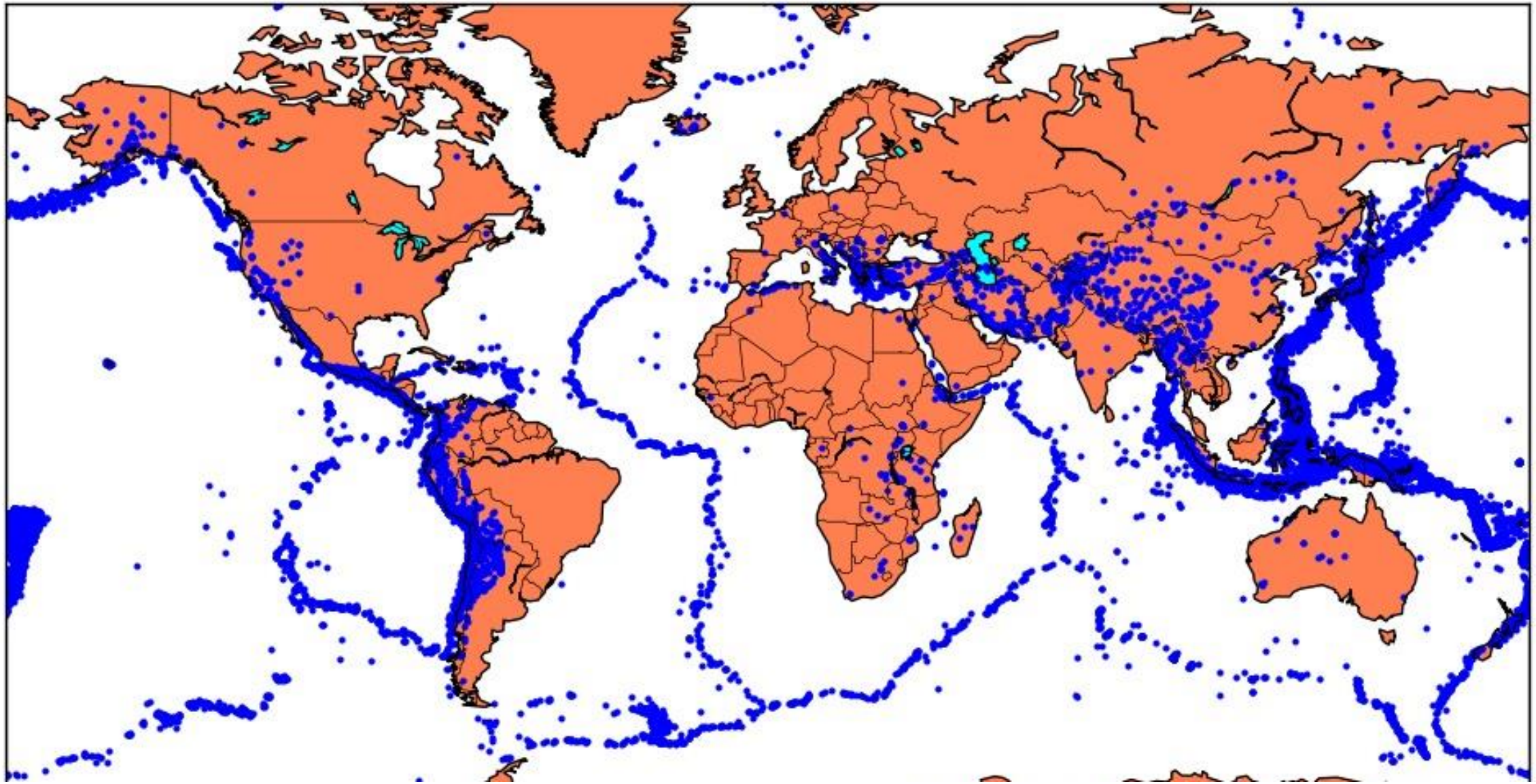
**Depth of focus** is the point within the earth where seismic waves originate; it is centered on the part of the fault that has the greatest movement. When the focus of the earthquake is shallower, which is nearer to the earth surface, the seismic waves reach the earth surface faster and with greater energy.

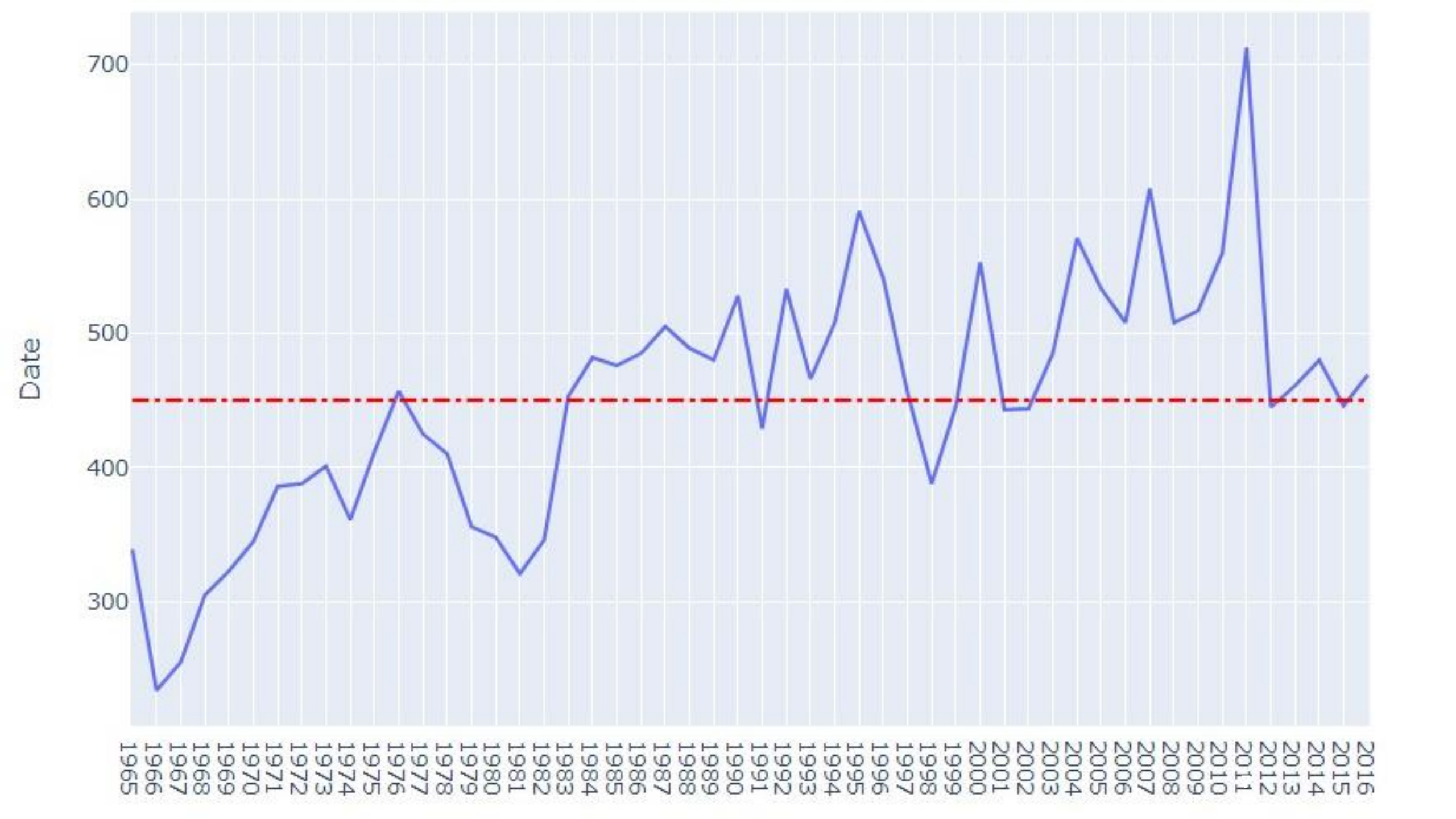
# FACTORS AFFECTING EXTENT OF DAMAGE

- Magnitude of the earthquake
- Proximity to epicenter
- Depth of focus
- Population Density
- Geology
- Time of occurrence
- Level of preparedness

# INDUSTRIES AFFECTED

- Construction and Engineering Firms
- Insurance Companies
- Energy sector
- Financial Institutions
- Manufacturing Plants
- Government and Public Safety Agencies




Date
700
600
500
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1965
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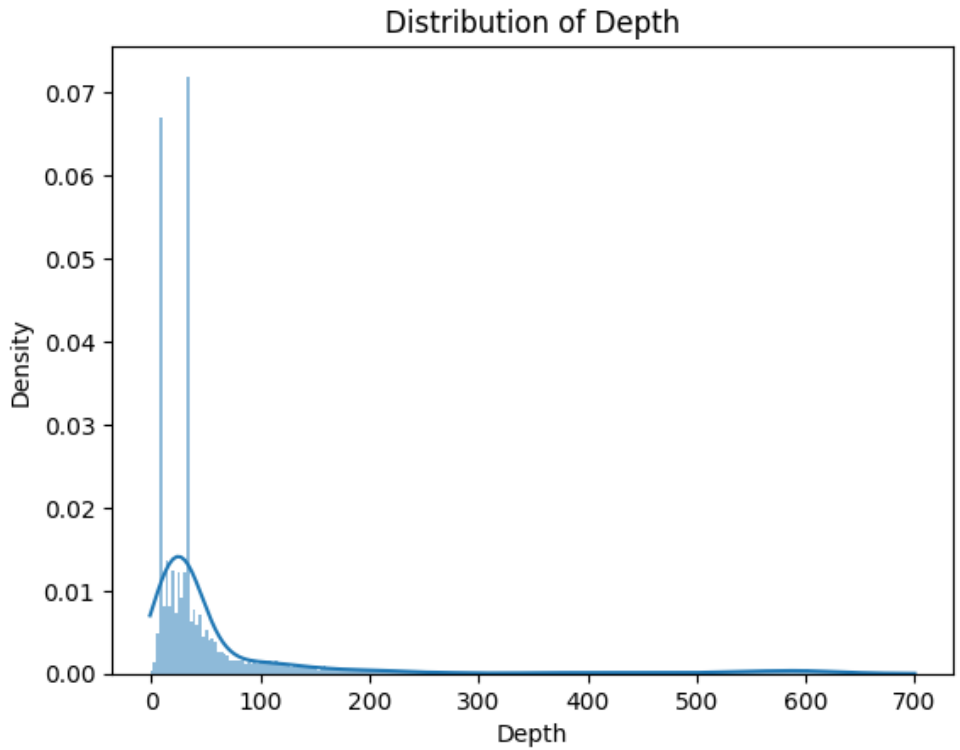
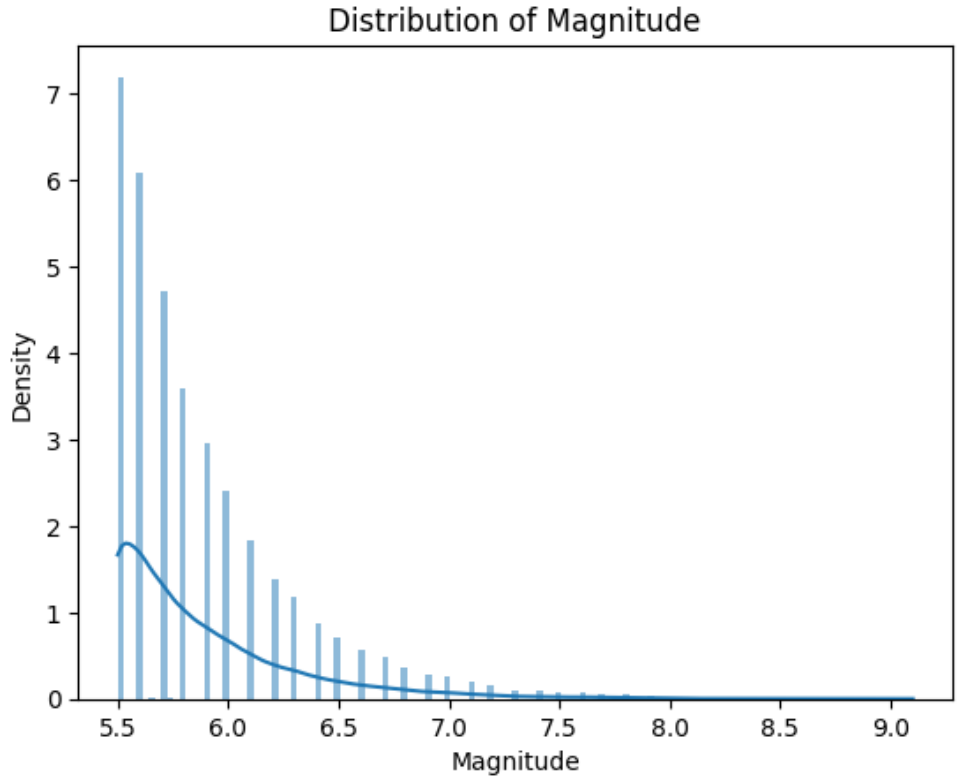

Distribution of Depth
Density
0.00
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0
100
200
300
400
500
600
700
Depth


Distribution of Magnitude
Density
0
1
2
3
4
5
6
7
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
Magnitude

# BUSINESS DECISIONS


• **Target Market Identification:** Focus on sectors affected by seismic activity: Construction, Insurance, Utilities, Financial Institutions, Manufacturing, and Government Agencies.

• **Product Customization:** Offer tailored prediction services and reports specific to each industry's needs.

• **Pricing Strategy:** Implement a tiered pricing model based on the level of detail and frequency of prediction updates.

• **Technology Integration:** Integrate SeismicSense with existing early warning systems and mobile applications to provide real-time alerts.

• **Partnership Development:** Form strategic partnerships with government agencies, research institutions, and industry leaders to enhance data quality and model accuracy.

# MARKETING STRATEGIES

**Content Marketing:** Create blogs, whitepapers, and case studies showcasing SeismicSense's effectiveness.

**Industry Conferences and Events:** Participate in and sponsor relevant events to showcase capabilities and network.

**Webinars and Workshops:** Educate target audiences on earthquake prediction and SeismicSense benefits.

**Social Media Campaigns:** Engage with industry professionals, share updates, and promote success stories.

# PREDICTING MAGNITUDE

## Regression Models

| | |
|---|---|
| Random Forest | **MAE : 0.32** |
| Support Vector | **MAE : 0.29** |
| Gradient Boosting | **MSE: 0.31** |
| Basic Neural Network | **MSE: 5.82** |

# PREDICTING DEPTH

## Regression Models

| | |
|---|---|
| Random Forest | **MAE : 20.04** |
| Support Vector | **MAE : 52.59** |
| Gradient Boosting | MAE : 41.60 |
| Basic Neural Network | MAE : 69.98 |

# Earthquake Magnitude Prediction

Enter the date, time, latitude, and longitude to predict the earthquake magnitude:

Date (MM/DD/YYYY)

09/20/2025

Time

12:00:00

Latitude

-20.58 − +

Longitude

-173.97 − +

Predict

Predicted Earthquake Magnitude: 5.78


# THANK YOU