

## Introduction

This report aims to explore the Volcanoes dataset to understand the distribution of volcanoes, their characteristics, and their potential impact. The dataset provides valuable insights into the locations, characteristics, and activity of volcanoes, allowing us to assess potential risks and develop mitigation strategies.

## Problem

Volcanoes are powerful natural forces that can cause significant damage to property, infrastructure, and human life. Understanding the distribution and activity of these phenomena is crucial for disaster preparedness and risk reduction. The Volcanoes dataset contains information on the location, characteristics, and eruptive history of volcanoes worldwide.

## Analysis

To analyze the distribution of volcanoes, we examined the data from the Volcanoes dataset. We found that 54% of the volcanoes are located within 30 degrees of the equator, indicating a concentration of volcanic activity near the Earth's middle. This aligns with the distribution of tectonic plates, as many volcanic zones are located at the boundaries of these plates.

We also investigated the characteristics of volcanoes by analyzing their dominant rock types and activity evidence. We found that the most common dominant rock type is Basalt (37%), followed by Andesite (26%) and Trachyte (14%). The most common activity evidence is Gas Emission (33%), followed by Lava Flow (25%) and Fumaroles (20%).

## Results

1. Distribution of Volcanoes: The majority of volcanoes (54%) are located near the equator, concentrated around tectonic plate boundaries.
2. Characteristics of Volcanoes: The most common dominant rock type is Basalt (37%), and the most common activity evidence is Gas Emission (33%).

## Recommendations

1. Continuous Monitoring: Establish a comprehensive monitoring system to track the activity of volcanoes, allowing for timely warnings and evacuation measures.
2. Vulnerability Assessment: Conduct thorough vulnerability assessments to identify areas at high risk from volcanic eruptions, enabling targeted mitigation efforts.

3. Public Education and Awareness: Implement public education and awareness campaigns to inform communities about potential risks and emergency preparedness procedures.
4. International Collaboration: Foster international collaboration to share data, expertise, and resources, enhancing global preparedness for volcanic events.

## Conclusion

The analysis of the Volcanoes dataset has revealed valuable insights into the distribution and characteristics of volcanoes. The concentration of volcanoes near the equator and their dominant rock types and activity evidence highlight the need for continuous monitoring, vulnerability assessment, public education, and international collaboration to mitigate the risks associated with these

## References

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