

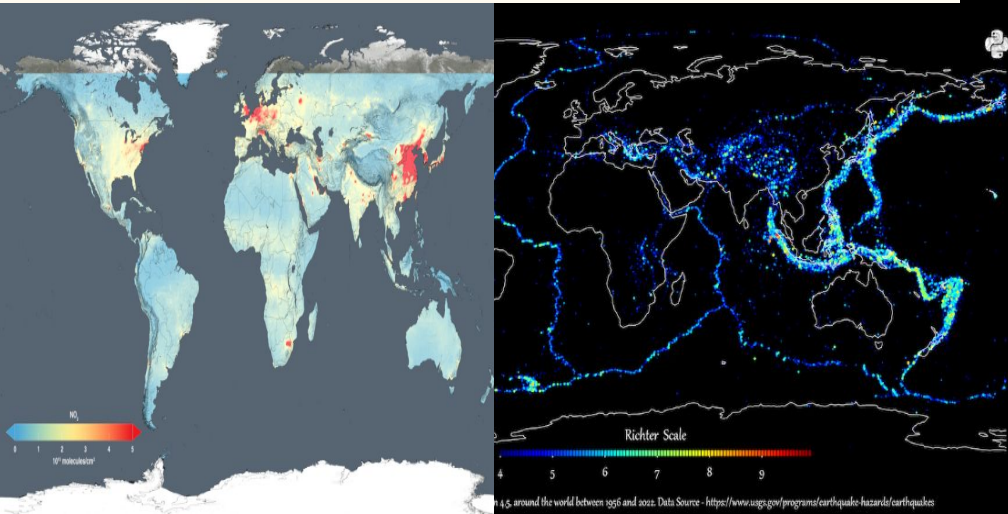
Tell Us a Special Climate Story!

Exploring the Relationship Between the Climate Emissions and Seismic Activity!!

**By Hajar Kaddouri(DataScience),
Marouane Kaddouri(CyberSecurity),
Zakaria Chaoui(WebDev)**

Hypothesis

Do Seismic Events Influence Emissions?



- As we face the global climate crisis, it's critical to understand how both natural and human-made activities affect the planet's atmosphere.
- Our analysis investigates whether earthquakes could cause spikes or drops in emissions.
- We explore this through data on seismic events and emissions from 2015 to 2020.

Emissions

- Sourced from NASA's CO₂

Gathering the Data

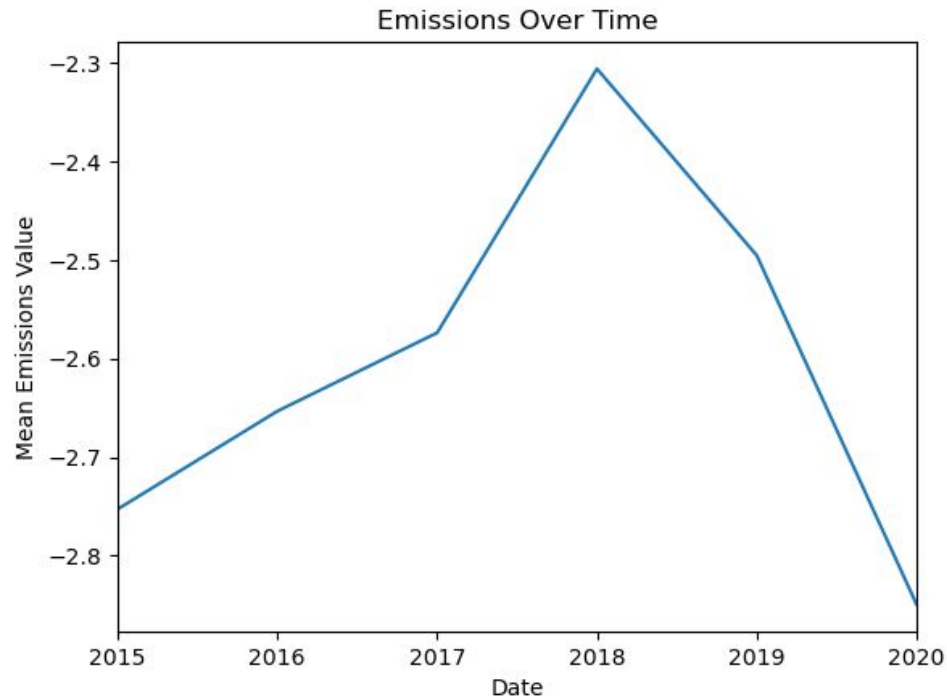
	Longitude	Latitude	Value	Date
0	-179.5	89.5	-9999.0	2015-01-01
1	-178.5	89.5	-9999.0	2015-01-01
2	-177.5	89.5	-9999.0	2015-01-01
3	-176.5	89.5	-9999.0	2015-01-01
4	-175.5	89.5	-9999.0	2015-01-01

Earthquake

- IRIS Earthquake Browser

	Longitude	Latitude	Value	Date
2260	-79.5	83.5	1.956606e-07	2015-01-01
2261	-78.5	83.5	6.236824e-08	2015-01-01
2262	-77.5	83.5	1.843677e-07	2015-01-01
2263	-76.5	83.5	6.893937e-07	2015-01-01
2264	-75.5	83.5	6.770272e-07	2015-01-01

The Analytical Process

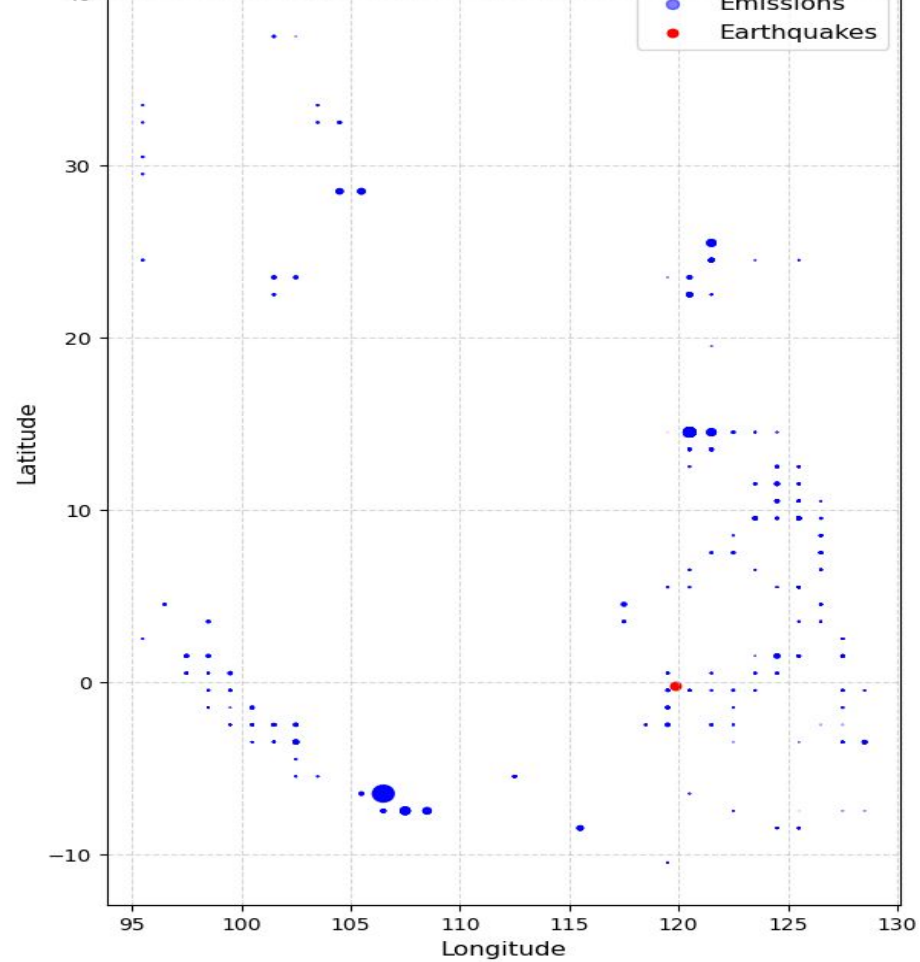
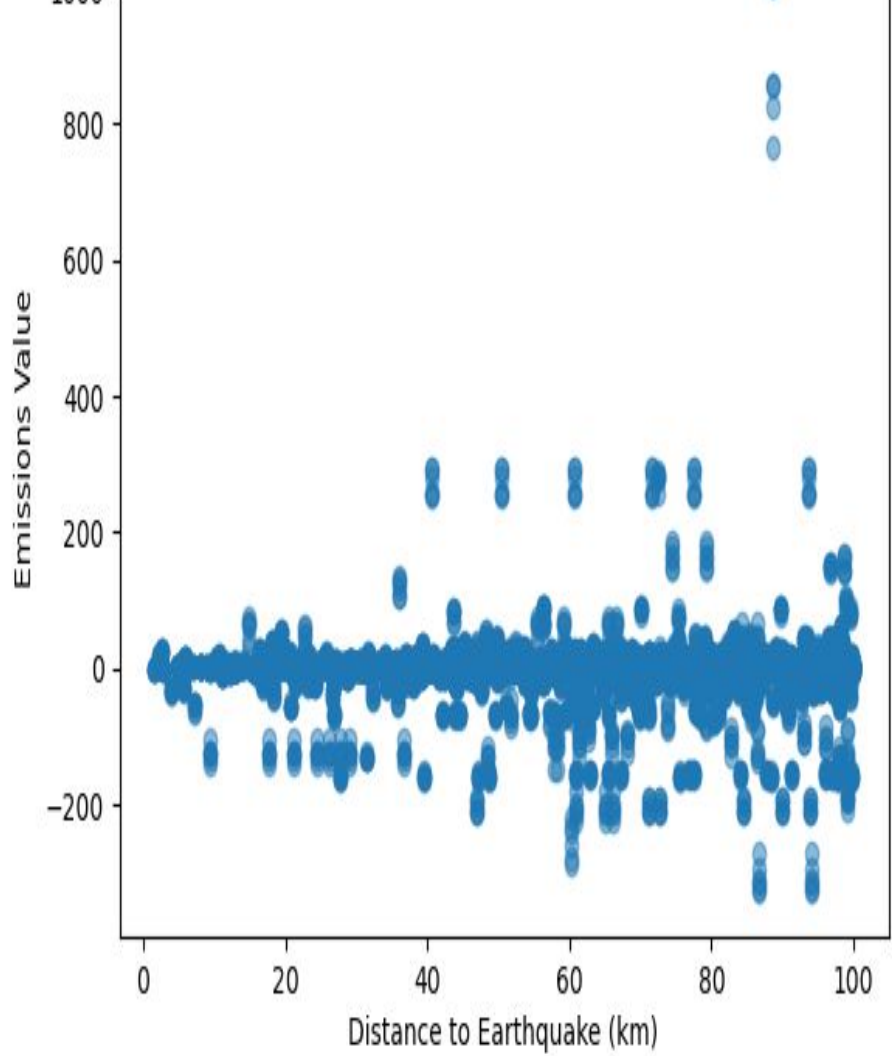


Step 1: Filtered earthquake data by magnitude (≥ 5) and specific regions of interest.

Step 2: Mapped emissions data close to seismic events.

Step 3: Analyzed changes in emissions **30 days before and after** major earthquakes.

Step 4: Visualized patterns and relationships between seismic events and emissions.



Case Study

Key Insight: Emissions spikes were observed after some major seismic events, particularly in areas with

industrial activity.

Challenges Faced

Data Sparsity, Time Lag:

Complexity of Relationships

- `coordinates (120.1775, -1.7144)`
At the beginning we detected :The approximate region is: Southeast Asia
- `Exactly Indonesia: The coordinates (120.1775, -1.7144)` are located in Indonesia (likely in the Sulawesi)
- Indonesia, situated along the Pacific Ring of Fire, is prone to both seismic activity and emissions from industrial processes and deforestation.
- We analyzed earthquakes and emissions in Indonesia and found correlations between large earthquakes and emission changes.

Conclusion:

What Does This Mean for the Climate?

- **Key Finding:** Seismic events, especially in regions like Indonesia, seem to have an impact on emissions.
- These findings suggest that monitoring seismic zones could offer early warning signs of potential emission spikes.
- These findings can cost less than machine learning models .
- More research is needed to further explore how seismic activity might be linked to long-term climate change trends.