

# Nuclear Test Detection

## An Overview

Jacob Bates

UC Merced

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# Research Question

How do Detection Systems Differentiate Nuclear Tests from Other Natural Geologic or Atmospheric Events?

# Simple Answer

- For Atmospheric and Underwater Tests, it's Easy
- For Underground Tests, it Takes More Work

- Travels Much Longer Distances due to Longer Wavelength
- Produced by Many Natural and Technological Processes
  - Volcanoes
  - Tides
  - Rocket Launches
- Nuclear Tests Produce Substantially More Intense Infrasound than Anything
- Detected by a Global Network of Ground-Based and Underwater Listening Stations

# Underground Tests

- Must be Detected Seismically
- A M6.5 Earthquake Produces about 2,000 Kilotons, most Tests are less than 200 Kilotons
- Relies on Detecting Irregularities

**Kiloton** Equivalent of the Output of  $10^6$  kg of TNT, or  $4.184 \times 10^{12}$  J

# Questions?