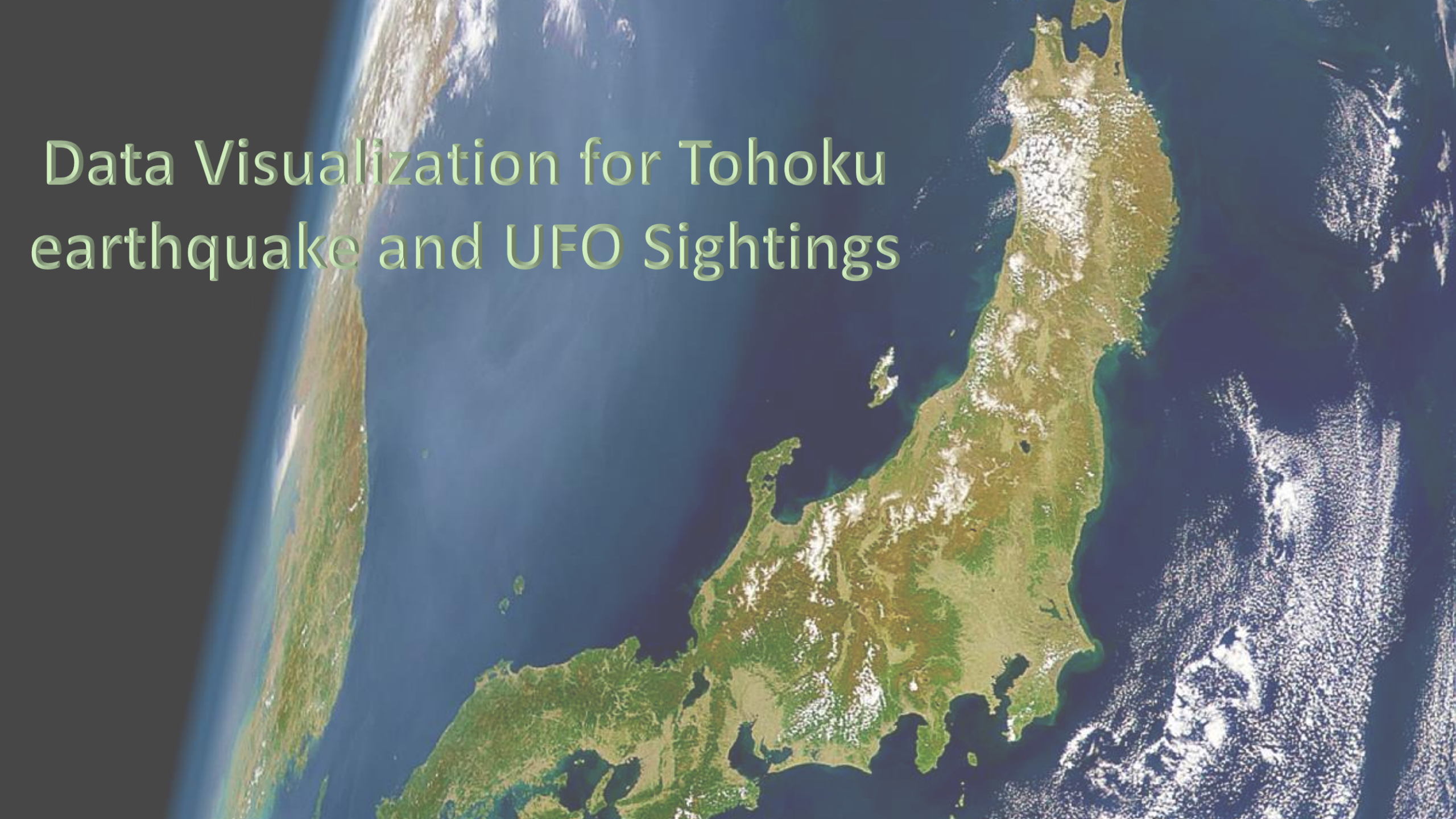
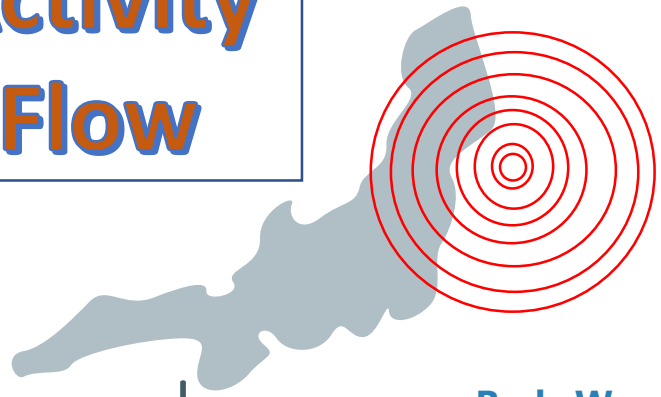


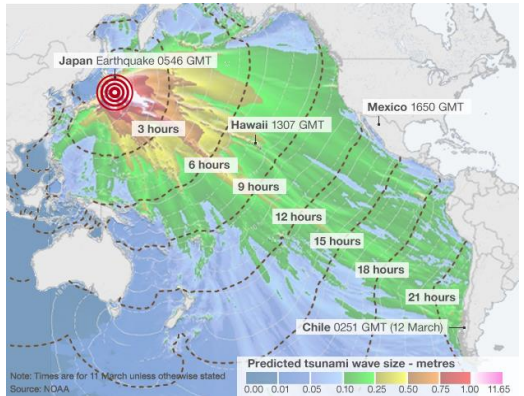
Data Visualization for Tohoku earthquake and UFO Sightings

Activity Flow



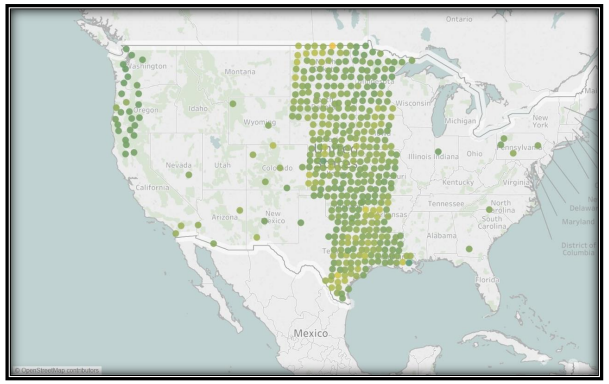
Japan Earthquake

On March 11, 2011, a magnitude-9 earthquake shook northeastern Japan, unleashing a savage tsunami. The effects of the great earthquake were felt around the world, from Norway's fjords to Antarctica's ice sheet. Tsunami debris has continued to wash up on North American beaches years later



Body Waves

Body waves from the earthquake are traversed from Japan to United States

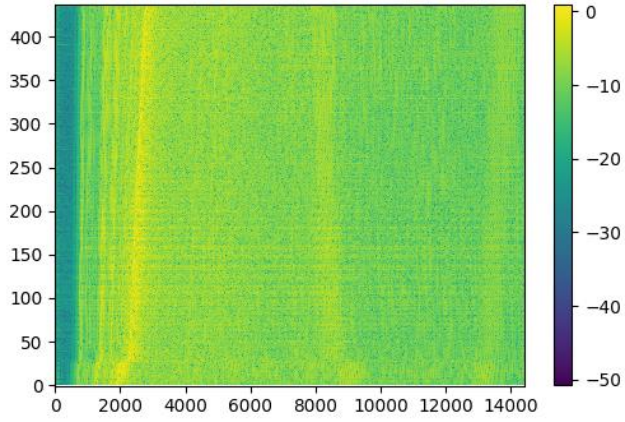


Transportable Array

A dense grid of seismometers stationed across the United States called the Transportable Array Transportable Array (TA). Sound waves registered on TA seismometers can tell if earthquakes happen, where mining blasts occur, when storms thunder overhead, or whether a train passed near a seismic station. There are 400+ such stations are active

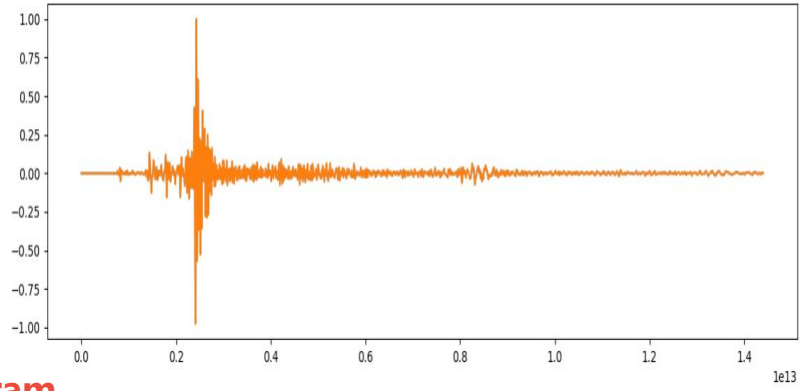
Spectrogram

The Spectrogram is the representation of the magnitude provided by each station for 4 hours. It provides the important information about energy spikes for the particular period of time



Line Plot

Line Plot provides the magnitude range of each station for 4 hours




CHINA
RUSSIA
Sapporo
ONAGAWA NUCLEAR PLANT
EPICENTER
8.9 magnitude quake
NORTH KOREA
Pyongyang
Sea
of
Japan
Sendai
FUKUSHIMA #1
NUCLEAR PLANT
Seoul
JAPAN
SOUTH
KOREA
Yellow Sea
Tokyo
FUKUSHIMA #2
NUCLEAR PLANT
Nagoya
Kyoto
Chiba
Hiroshima
Osaka
TOKAI NUCLEAR PLANT
Fukuoka
Pacific
Ocean
200 miles
East China Sea

438

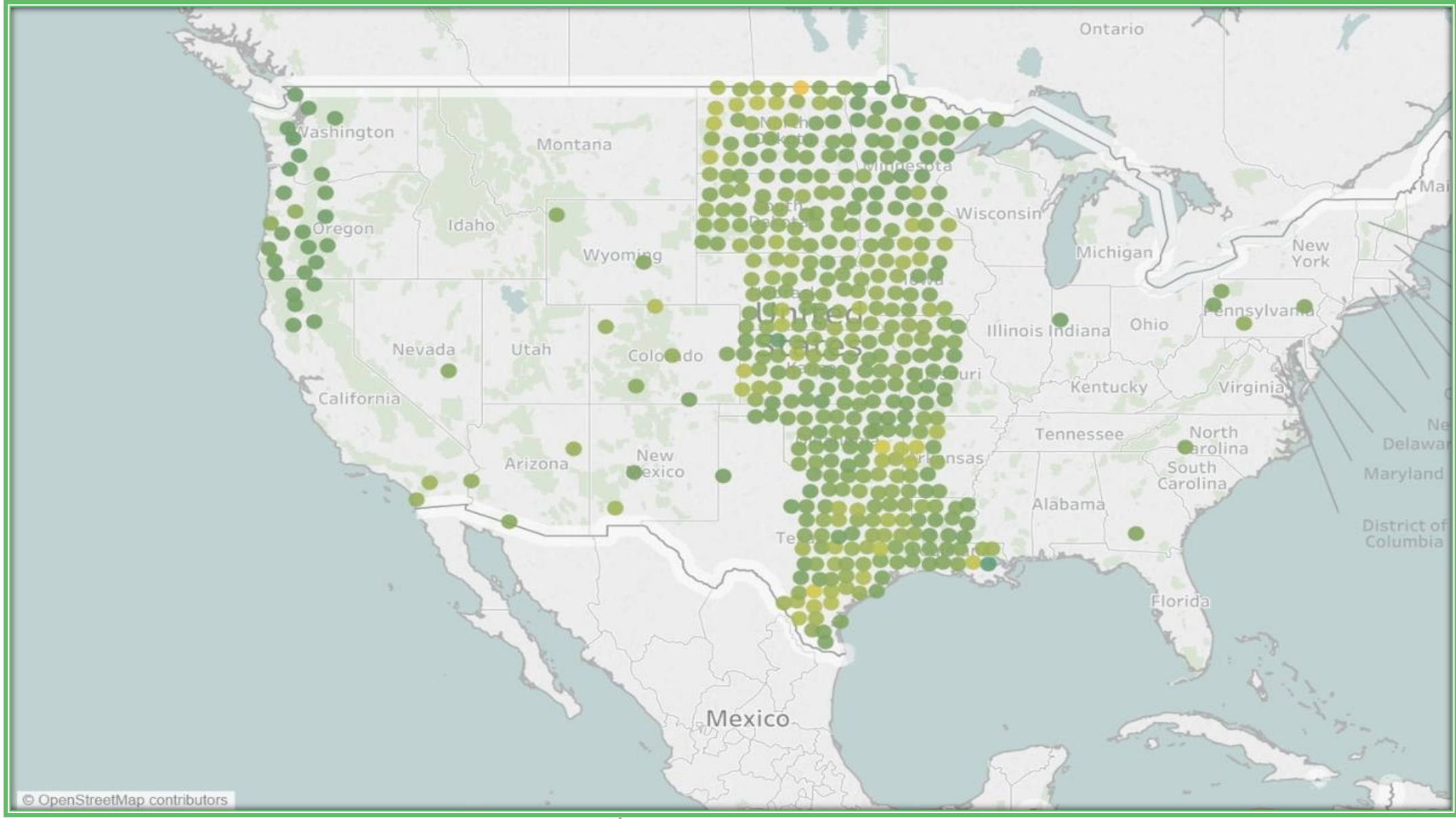
Seismic activity was captured by 438 stations in Transportable Array

26

There are in total 26 stations before the sharp shift in the captured magnitudes

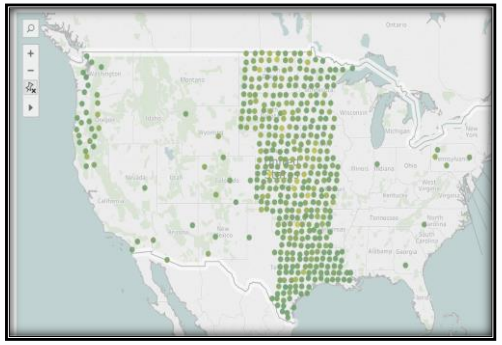
2000

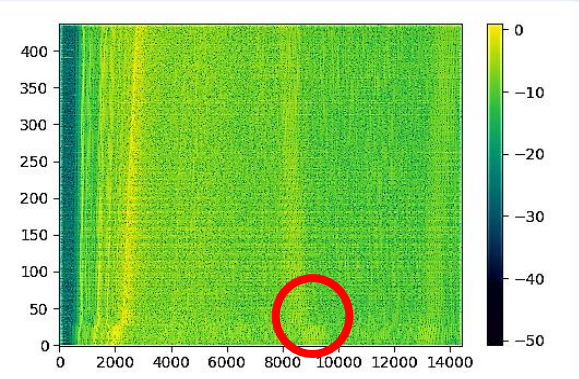
When completed, nearly 2000 locations will have been occupied during this program.



- The map shows 438 active stations from transportable array in the United States

Sudden right shift in the spectrogram due to collision of the waves traversing from the opposite side





8000 sec

Spectrogram shows magnitude of captured signals over the duration of 4 hours for all stations

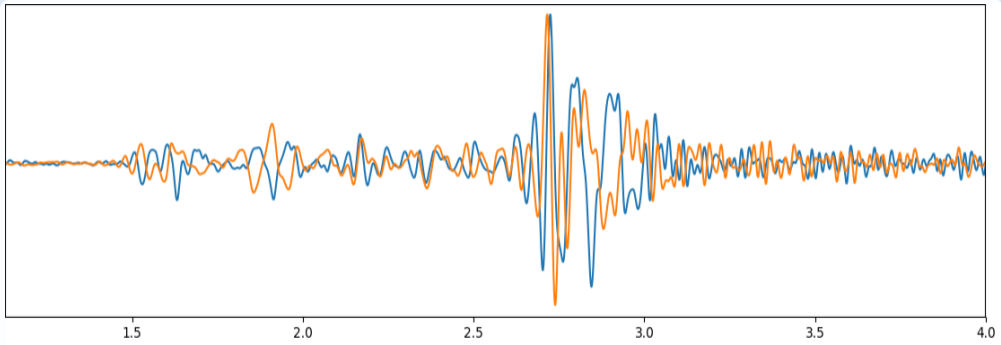
The Japan Earthquake is special in it's own way that the next earthquake occurred around the circumference of the earlier

Special Event

The mirror pattern which we can observe in the spectrogram is the reason of surface waves across the earth colliding with each other

Mirror Pattern

The time is peak time for the energies released by the earthquake and hence the magnitude of the waves captured by the seismograms are on the

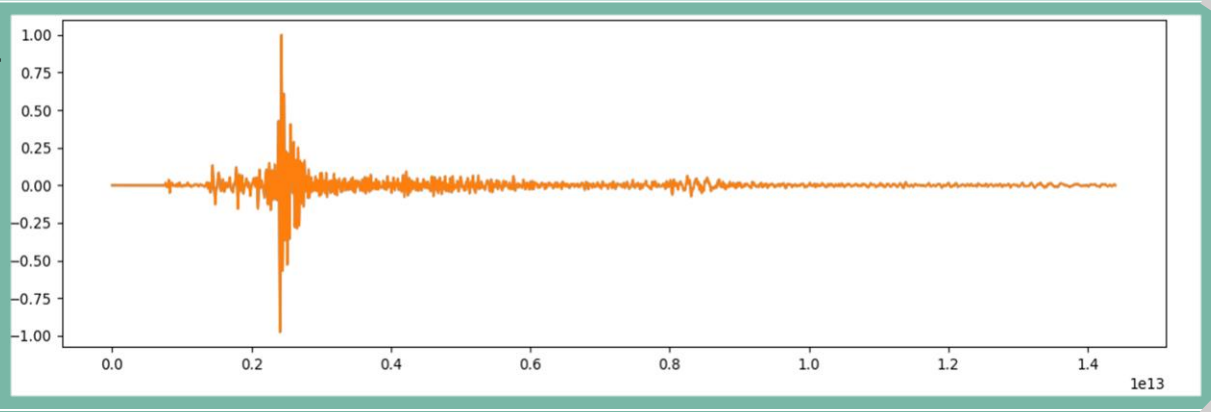


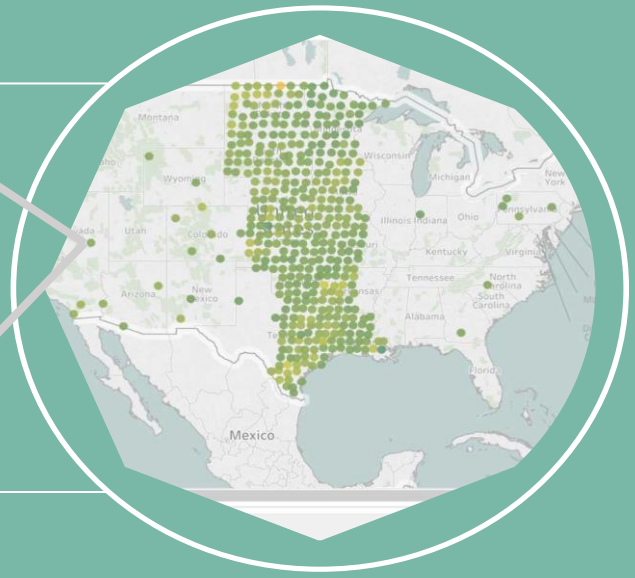
25 to 65 Minutes

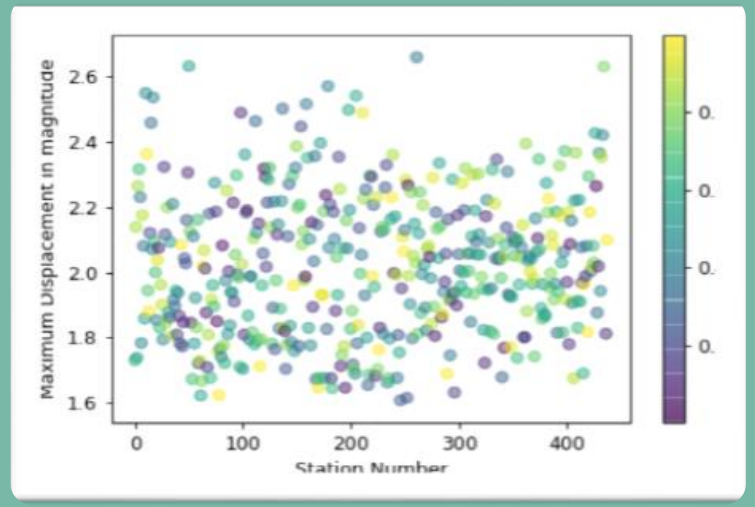
Zoom in of a transportable array station for the time vs magnitude line plot

LINE PLOT

The motion of eachseismometer in each station of transportable array is vertical







Displacement from the motion is important for understanding the intensity of surface waves and magni-

Minimum	Maximum	Mean
1.60779	2.6588	2.0189

DISPLACEMENT SCATTER PLOT

This scatterplot defines the maximum displacement for each station over the time of 4 hours