## Improving Earthquake Prediction with **Artificial Intelligence and Machine Learning**

# Seismic Data Pipeline

- Satellites serve two main purposes: 1. Monitor TEC content in atmosphere 2. Communication hub between drones, seismographs
- Drones gather data from locations where traditional stations are not feasible
- Ground sensors from ShakeAlert stations can send information through ground and satellite

Expand model training using data from a generative adversarial network



Four autoencoder machine learning models are used to first predict the phase of the waveform then predict



## **Timeline to Deployment**

 Refining machine learning solution Test communications between geophone drones and ground stations

 Communication lines between NASA, USGS, others Worker training to utilize detection system Rigorous evaluation of hardware in the pipeline

 Test the new system to ensure integration •Final setup of software and system integration

 Build pipeline at data processing centers Sensor replacement for aerial communications Continuous monitoring for security vulnerabilities