

# **QuakeFinder Mission:**

SAVE LIVES BY FORECASTING EARTHQUAKES

Since 2005, QuakeFinder has been collecting high-resolution magnetic field data from an international array of terrestrial sensors.

Analysis of array data has shown increases in magnetic field energy days to weeks prior to earthquakes.<sup>†</sup>

## Challenges

- Every year, earthquakes kill and injure thousands of people and cause billions of dollars in damage.
- Unlike modern hurricane or tornado warnings, current earthquake forecasts provide only seconds of warning or decades of probability, limiting their usefulness.
- Algorithm advancements depend on numerous observations of earthquakes by the array.
- This work requires financial support. Limited funding has hindered advancement in short term earthquake forecasting research.

### Solutions

- QuakeFinder is actively researching short term earthquake forecasting. Accurate forecasts can help to reduce injuries, deaths, and damage.
- Short term forecasts based on QuakeFinder's analysis would enable many effective responses, from pre-positioning supplies to evacuation.
- Expansion of the QuakeFinder sensor array will increase the accumulation of earthquake observations.
- With additional funding and research partners, QuakeFinder will improve accuracy to produce actionable forecasts.

QuakeFinder seeks funding and partners to continue research, expand the array, improve instrumentation, and refine the algorithms to forecast earthquakes.

QuakeFinder is a Humanitarian Research & Development Project of



QuakeFinder acknowledges the contributions of university partners and the following sponsors:



† These statistically significant results have been submitted for publication and are currently in peer review.

QuakeFinder Array

- 160 Stations
- 6 Countries
- 8 Sensors per Station
- Data Archive >75TB

#### Why Electromagnetics?

 There are indications that electromagnetic data contains earthquake precursors.

 Historically, earthquake forecasting research has focused on seismic data.

#### Not Just Earthquakes!

QuakeFinder sensor data can also benefit:

- Solar Storm Research
- Power Grid Management
- Lightning Detection
- Human Activity Monitoring
- Magnetotelluric Exploration

