

EQLocate:Grid Search Basic Mode

Students use a computer model and real data to find the location of an earthquake. They analyze seismograms for P-wave arrival times; seismograms are from student-selected seismic stations. The earthquake's location is estimated by comparing observed and modeled data across a grid. Through an iterative process, they refine the location and compare their results to USGS solutions to evaluate accuracy. Students practice in the Guided Mode and then move to Explore Mode to locate additional events in a much more modern method than the S-P paper and pencil method.

Learning Objective:

Students will be able to

- Analyze actual seismic data to locate an earthquake.
- Explain how this process is similar to how earthquakes are actually located.

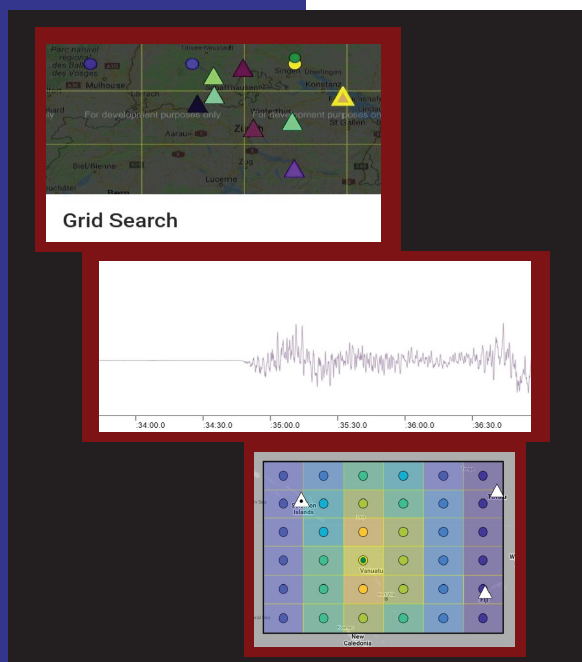
Steps

Step 1: **Hook** - Ask "How do seismologists pinpoint where an earthquake happened?"

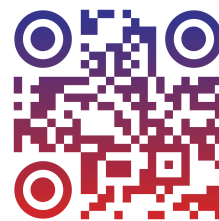
Step 2: **Guided Mode** - Students follow prompts to learn the steps and reasoning for the process.

Step 3: **Explore Mode** - Students choose an earthquake, make a location estimate and compare against the USGS solution.

Step 4: **Students Explain** - Students describe the process used in this model and how it is similar to the actual earthquake location method.



- Answers students give throughout the process can be downloaded and turned-in for credit.
- Bring in a discussion about science practices - iteration, comparison, and reasoning with evidence/data.
- NGSS: MS-ESS2-2, MS-PS4-2, HS-ESS2-1, HS-PS4-1, Developing and Using Models, Cause and Effect, Stability and Change



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