

ShakeAlert® in the Family of ANSS Earthquake Information Products

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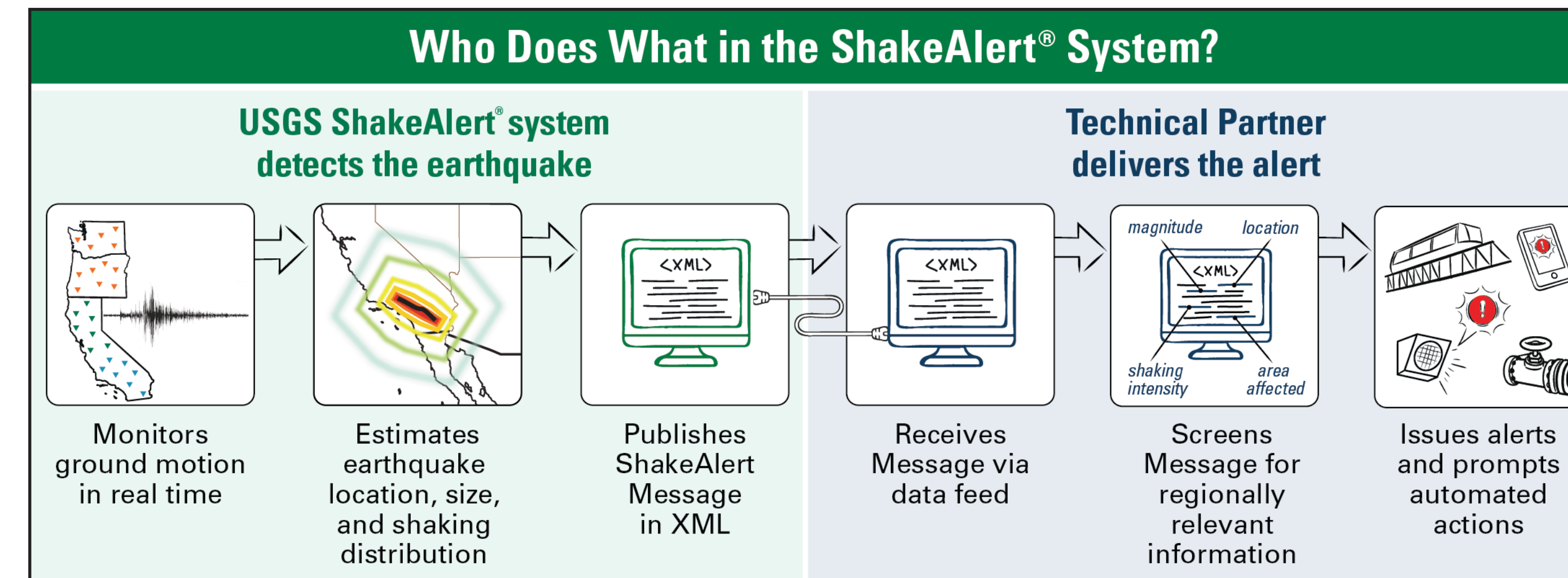
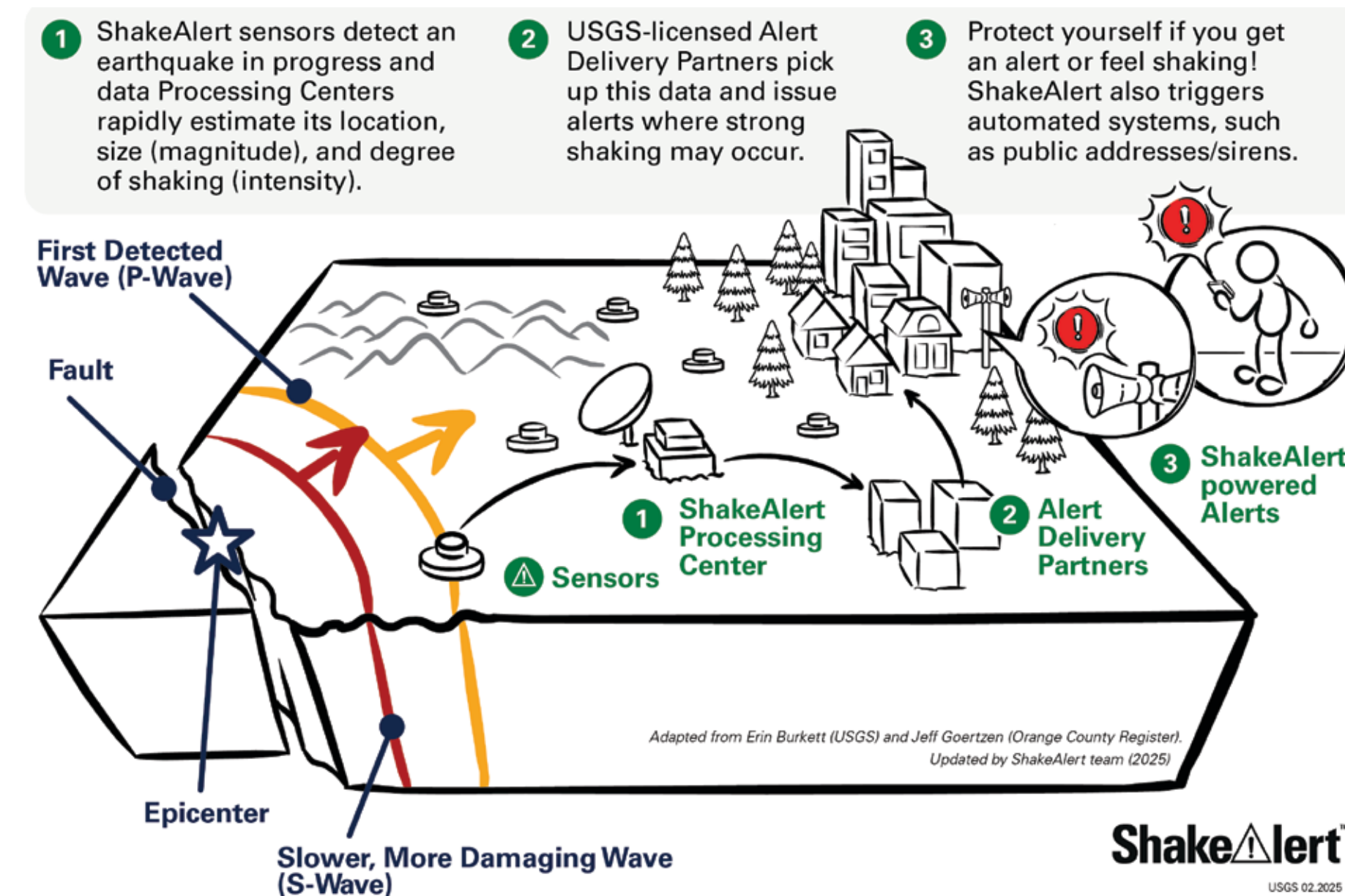
glotto@uw.edu

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What is ShakeAlert?



The **ShakeAlert** Earthquake Early Warning System uses a heartbeat of data to rapidly characterize earthquake magnitude, location, and intensity.



Learn how to connect to ShakeAlert:



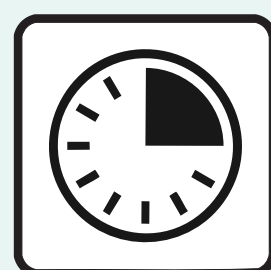
Or visit ShakeAlert.org

Meet the family

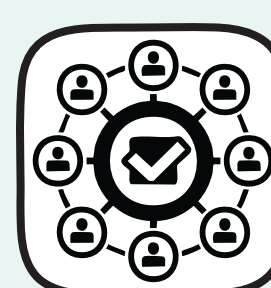
Product overview



Publishing timeline



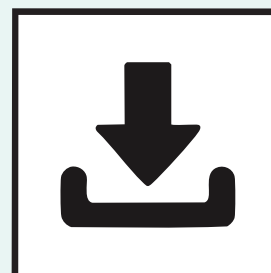
Uses for ShakeAlert partners



Sample snapshot



Access and download

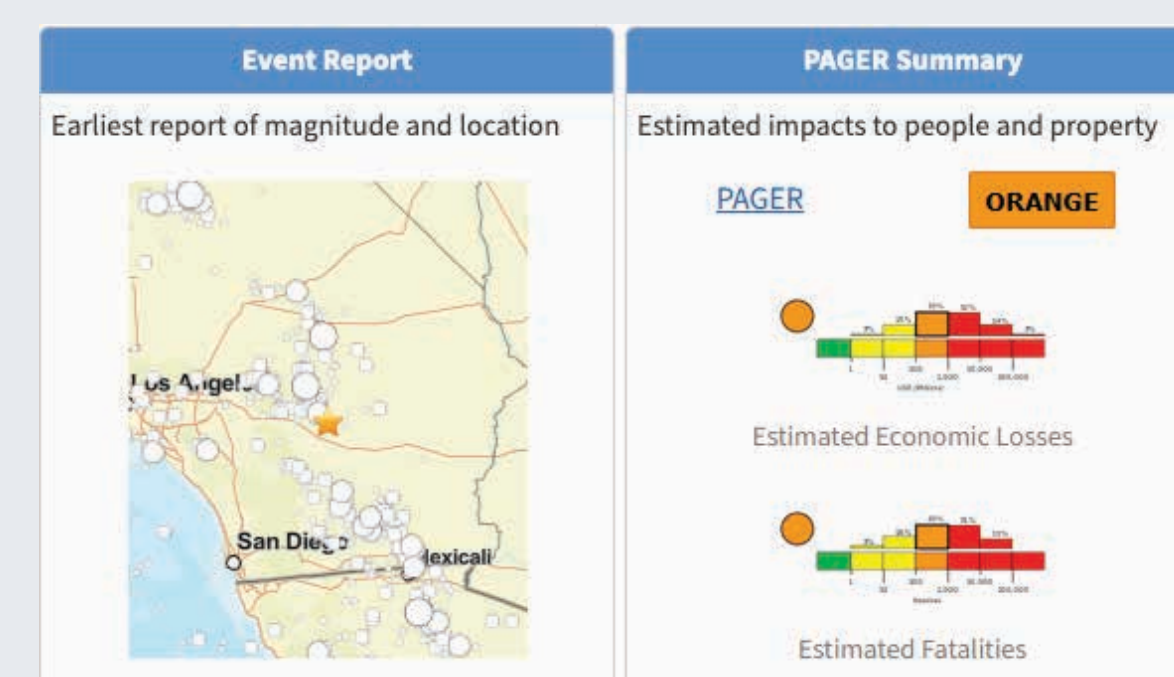


Earthquake Notification Service

A subscription service that sends automated emails or SMS messages **several minutes after** earthquakes happen. Earthquake Notification Service (**ENS**) is not a substitute for **ShakeAlert**.

Information for earthquakes in the U.S. is generally available within 5 minutes; information for earthquakes elsewhere in the world is generally available within 20 minutes.

ShakeAlert partners can use notifications from **ENS** to confirm or update their understanding about earthquakes that were previously detected by **ShakeAlert**.



Individuals can subscribe to **ENS** or manage their account here: earthquake.usgs.gov/ens/login.

Contact: ensadmin@ens.usgs.gov

Aftershock Forecast

After an earthquake of M4+ (contiguous US), this product estimates the number of aftershocks and the **probability of subsequent earthquakes**.

The first forecast is released ~20 minutes after the mainshock occurs. More updates follow for several days and months.

ShakeAlert Technical Partners can use the **Aftershock Forecast** product to proactively set expectations for future **ShakeAlert**-powered alerts.

Magnitude (M) of aftershock	within 1 Day	within 1 Week	within 1 Month	within 1 Year
M 7 or higher	1 in 90,000 chance of 1 or more	1 in 10,000 chance of 1 or more	1 in 3,000 chance of 1 or more	1 in 400 chance of 1 or more
M 6 or higher	1 in 5,000 chance of 1 or more	1 in 1,000 chance of 1 or more	1 in 300 chance of 1 or more	2% chance of 1 or more
M 5 or higher	1 in 900 chance of 1 or more	1 in 100 chance of 1 or more	3% chance of 1 or more	25% chance of 1 or more
M 4 or higher	1% chance of 1 or more	7% chance of 1 or more	27% chance of 1 or more	69% chance of 1 or more
M 3 or higher	33% chance of 1 or more	53% chance of 1 or more	Expected about 3	Expected about 23

Real-time GeoJSON feeds, including **Aftershock Forecast** data, are available here: earthquake.usgs.gov/earthquakes/feed/v1.0/geojson.php.

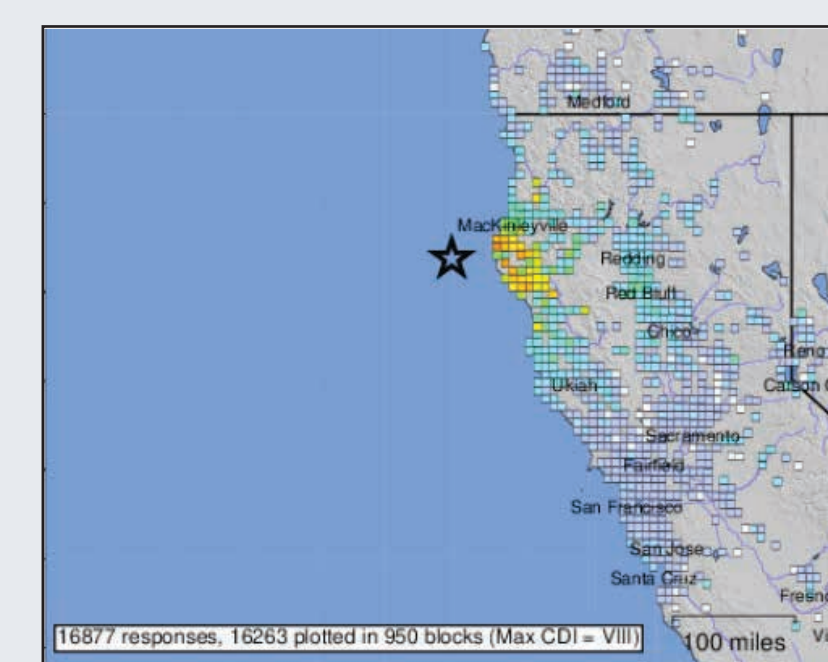
Contact: aftershocks@usgs.gov

Did You Feel It?

A community science tool that **collects information from people who felt an earthquake** and creates maps that show the intensity of shaking experienced. Intensities are used to refine **ShakeMap**.

Individuals can fill out a **DYFI** report anytime they feel shaking. The first responses come within minutes and often thousands of reports arrive within the first hour of a major earthquake.

DYFI reports have an optional section with questions about EEW. Emergency managers and **ShakeAlert** technical partners can encourage individuals and end-users to submit **DYFI** reports.



To view results from **DYFI**, select the "Did You Feel It?" card on a USGS event page. Download maps and other **DYFI** data under the Downloads tab.

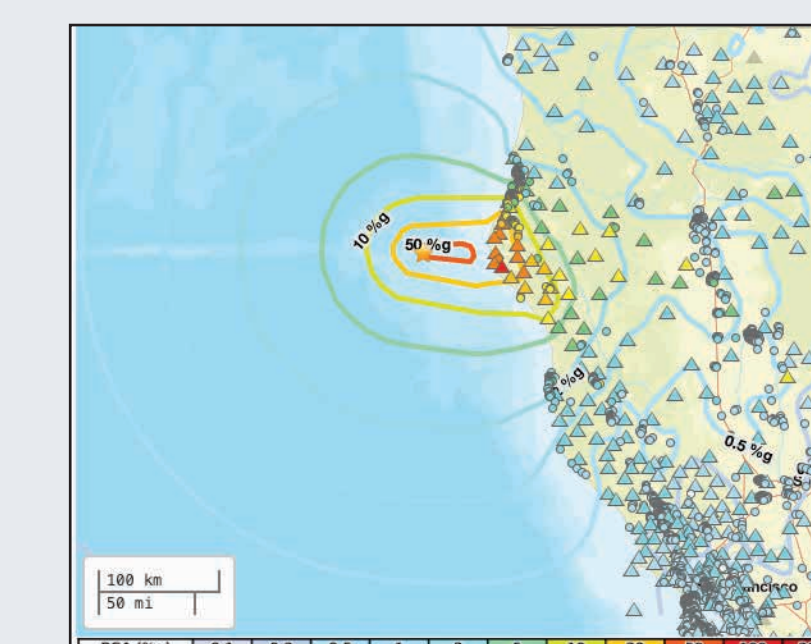
Contact: dyfi@ens.usgs.gov

ShakeMap

ShakeMap® provides **maps of ground motion and shaking intensity**. It uses recorded seismic data and ground motion models to create an estimate of shaking intensity.

ShakeMap is first available within a few minutes after an earthquake is located. It is updated in the hours following the earthquake.

Public and private partners can use **ShakeMap** for post-earthquake response and recovery, as well as for preparedness exercises and disaster planning.



A full **ShakeMap** User Guide, including detailed technical documentation, is available here: usgs.github.io/shakemap/index.html.

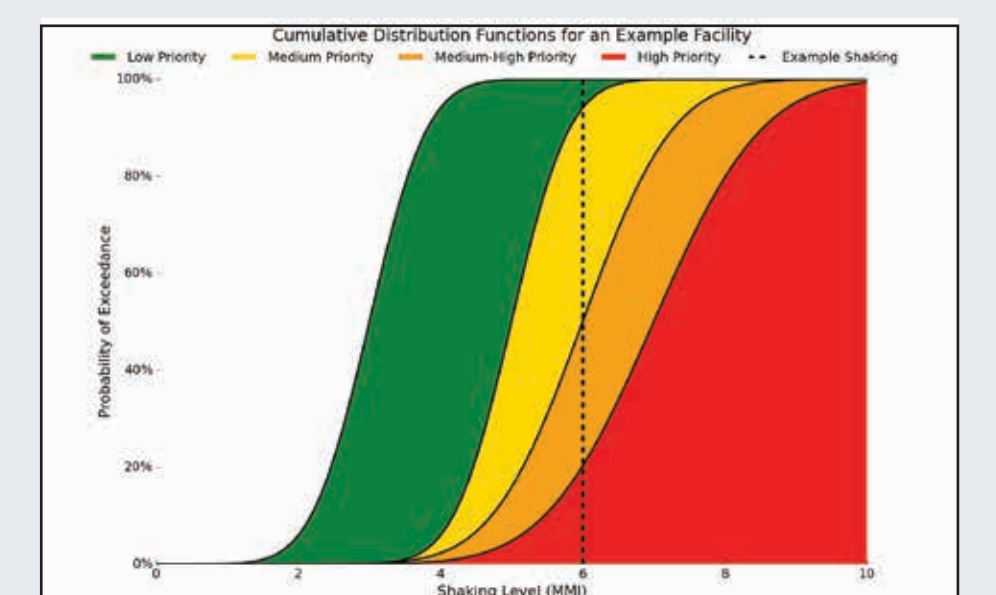
Contact: shakemap@usgs.gov

ShakeCast

ShakeCast® is software that uses **ShakeMap** data to **performs analyses using fragility functions for structures**. It provides early damage assessments, notifications, and reports for critical lifeline operators.

Downloadable for free. Once it is set up by an organization or is hosted by the USGS, **ShakeCast** sends notifications to users in the minutes after a **ShakeMap** is published.

Infrastructure operators and emergency managers can use **ShakeCast** to identify facilities that are most likely to be impacted by an earthquake— and which ones should be prioritized for inspection and response.



A **ShakeCast** wiki is available here: code.usgs.gov/ghsc/esi/shakecast/shakecast/-/wikis/home.

Contact: shakecast-help@usgs.gov

What is ANSS?

The **Advanced National Seismic System (ANSS)** – operated by **USGS** – is a cooperative effort to collect, analyze, and provide earthquake data and information products.

Acknowledgements: Robert de Groot, David Wald, Isaac Pope — U.S. Geological Survey