

# ShakeAlert Post-Alert Summary

An overview of the performance of ShakeAlert during this event

## Earthquake

M3.3 - 21 miles E of Cloverdale  
ANSS origin (Local): 2019-07-20 08:57:53.3  
ANSS origin (UTC): 2019-07-20 15:57:53.3  
ShakeAlert alert (UTC): 2019-07-20 15:58:04.3  
ShakeAlert Event ID ew3638

## Summary Report

### Speed of Alert:

Initial alert after origin time: 11.0 s  
Final alert update after origin time: 21.1 s

### Magnitude Accuracy:

Initial ShakeAlert: M 3.9  
Final ShakeAlert: M 3.4  
ANSS report: 121 s after origin, M3.2

### Distance From Alert to Reviewed Location

Initial alert: 10.3 km, 6.4 miles W  
Final alert: 2.3 km, 1.4 miles W

### Number of stations reporting

2 within 10 km of epicenter  
38 within 100 km of epicenter  
22 used in final ShakeAlert update

## Performance for Nearby Cities

City	Distance	Warning Time*	MMI*
Cloverdale	21 km	~0 sec	2
Healdsburg	22 km	~0 sec	<2
Clearlake	22 km	~0 sec	<2
Sacramento	113 km	~20.8 sec	<2

**Zone Shaken by S-wave Before Alert: 39 km (24 mi)**

### Footnotes

- 1) \*MMI -- Modified Mercalli Intensity: a scale to measure ground shaking.
- 2) "Warning Time": Time between alert production and arrival of the S-wave at a chosen site.
- 3) For moderate earthquakes, the 'final' alert area may be little changed from the initial.

### Disclaimer

This information is preliminary or provisional and is subject to revision. It is being provided to meet the need for timely best science. The information has not received final approval by the U.S. Geological Survey (USGS) and is provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the information.

To learn more about ShakeAlert, visit [www.shakealert.org/FAQ](http://www.shakealert.org/FAQ)



Figure 1. ShakeAlert earthquake location (black dot). Star is regional network epicenter. Polygon is the predicted outer range for felt ground motion (MMI 2). Red circle is front of peak shaking when the alert was released. Shaking takes 10 s to expand from circle to circle.



Figure 2. Polygons show shaking intensity contours for the final ShakeAlert. Shaking of intensity 3 or less is often not felt. Star shows the regional network epicenter.