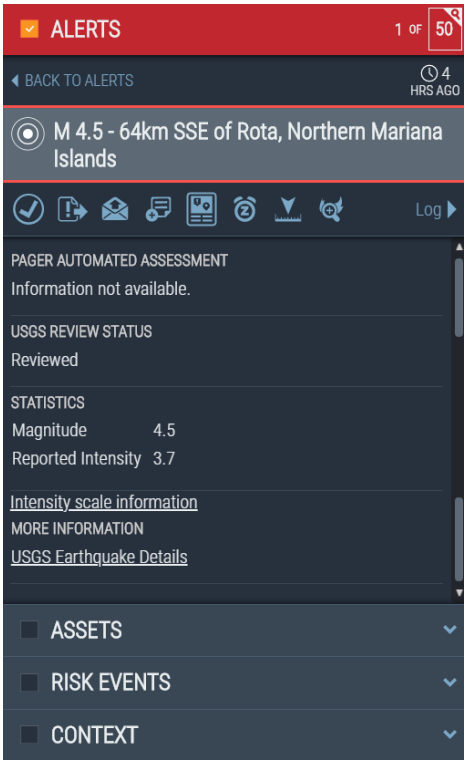
Earthquake Details in VCC

This document details information about the data you will see for earthquakes in VCC. Earthquake data comes from the US Geological Survey, and information in this document is also taken from that organization. More information can be found here: https://earthquake.usgs.gov/.

When you come across earthquake information in Visual Command Center, it's important to understand the details of the alert. This quick guide will describe each section of an earthquake alert details panel.



PAGER AUTOMATED ASSESSMENT

PAGER (**P**rompt **A**ssessment of **G**lobal **E**arthquakes for **R**esponse) is an automated system that produces content concerning the impact of significant earthquakes around the world, informing emergency responders, government and aid agencies, and the media of the scope of the potential disaster. PAGER rapidly assesses earthquake impacts by comparing the population exposed to each level of shaking intensity with models of economic and fatality losses based on past earthquakes in each country or region of the world.

You can read more information from the USGS about this program by downloading this PAGER document.

USGS REVIEW STATUS

The review status is an indication of whether a specialist at the USGS has reviewed the information about the quake. Not all earthquakes are reviewed, particularly if they are in the middle of an ocean or in some unpopulated area.

STATISTICS

Magnitude and **Intensity** measure different characteristics of earthquakes. Essentially, **Magnitude** is the measurable size of the quake, while **Intensity** is how big the quake feels.

- **Magnitude** measures the energy released at the source of the earthquake. Magnitude is determined from measurements on seismographs and uses the Moment Magnitude scale to determine the magnitude (not the Richter scale).
- **Intensity** measures the strength of shaking produced by the earthquake at a certain location. Intensity is determined from effects on people, human structures, and the natural environment.

The correlation between magnitude and intensity is far from total, depending upon several factors including the depth of the hypocenter, terrain, and distance from the epicenter. For example, on May 19, 2011, an earthquake of magnitude 0.7 in Central California, United States, 4 km deep was classified as of intensity III by the United States Geological Survey (USGS) over 100 miles (160 km) away from the epicenter (and II intensity almost 300 miles (480 km) from the epicenter), while a 4.5 magnitude quake in Salta, Argentina, 164 km deep was of intensity I.

MORE INFORMATION

This link, usually at the bottom of the alert details panel, will, when clicked, take you to the information page on the USGS website for that particular seismic event.

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INTENSITY SCALE INFORMATION

The following table from the USGS provides intensities that are typically observed at locations near the epicenter of earthquakes of different magnitudes.

*Note: You can see that the USGS lists the **Modified Mercalli Intensity** scale in Roman numerals, but the "Reported Intensity" in the alert details panel is in Arabic numerals. This is because this is how the USGS sends the information to Visual Command Center, and the Arabic numerals in the details panel should be assumed to correspond to the Roman numerals in the table.*

Magnitude	Typical Maximum Modified Mercalli Intensity	How it feels	
1.0 - 3.0	I	I.	Not felt except by a very few persons.
3.0 - 3.9	II - III	II.	Felt only by a few persons at rest, especially on upper floors of buildings.
		III.	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Idling or stationary automobiles may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4.0 - 4.9	IV - V	IV.	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Idling or stationary automobiles rocked noticeably.
		V.	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
5.0 - 5.9	VI - VII	VI.	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
		VII.	Damage negligible in buildings of good design and construction; slight to moderate damage of well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
6.0 - 6.9	VII - IX	VIII.	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
		IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
7.0 and higher	VIII or higher	X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
		XI.	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
		XII.	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Additional Facts about how Magnitude is Calculated

The Richter scale is not commonly used anymore, except for small earthquakes recorded locally. For all other earthquakes, the Moment Magnitude scale is a more accurate measure of the earthquake size. Both scaling systems use a logarithmic scale where each whole number increase in the earthquake magnitude equates to a minimum 10 times increase in magnitude than the previous number. Click this link for more information about how the USGS measures earthquakes.

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