

M 6.4 Earthquake likely to cause approx. USD 0.6 bn of loss in Humboldt County, California

22 December 2022

A 6.4 magnitude earthquake jolted the extreme northern coast of California near Ferndale on 20 December in the vicinity of the Mendocino triple junction. The Pacific, North America, and Juan de Fuca/Gorda plates meet in this region. While earthquakes are common in California, M 6.4 are less common and potentially dangerous.

The earthquake has left behind crumbling homes, roads, rupturing utility lines, and bridges with cracks, and has left thousands of residents without running water and electricity. Damages have been reported to power lines and underground utility networks. Humboldt County was declared a state of emergency in response to the earthquake. As per the latest news, at least a dozen people were injured, and two others died in Humboldt County. Additionally, two dozen houses were heavily damaged in the town of Rio Dell.

According to the Pacific Gas and Electric Outage Map, more than 6,500 people were without power in Fortuna. An additional 2,492 people are without power in Ferndale, and another 2,927 people are without power in Rio Dell. Around 79,000 homes and businesses were left without electricity in the aftermath of the earthquake in Humboldt County. Currently, Rio Dell's water system is still not active due to a damaged pipeline network.

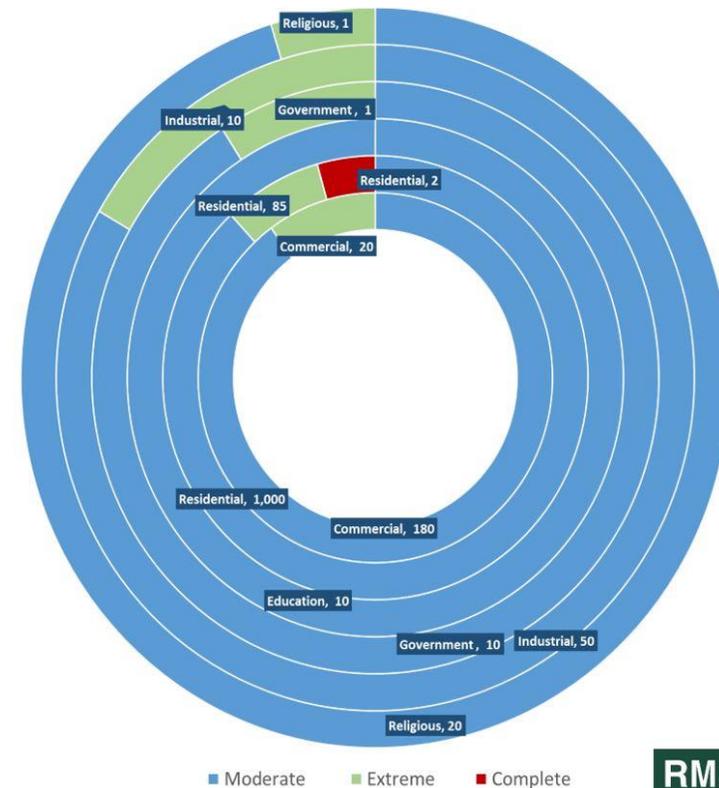
A huge success of the event was that around 3 million people received an early warning on their phones (from USGS ShakeAlert) around 20 seconds before the event.

Impact Assessment by RMSI

RMSI has modeled the impacts of the 6.4 magnitude Earthquake for Humboldt County. In our initial assessment, RMSI estimated that about 1,400 buildings are

damaged, with most of the damages being of a moderate nature. These comprise residential, commercial, industrial, educational, other essential and utility infrastructure buildings. The distribution of the estimated damage as per occupancy type is as under:

Distribution of affected exposure by occupancy type



Earthquake Advisory



RMSI Analysis for Humboldt County, California, USA

Estimated Exposure to be affected

≈ 1,100 Residential

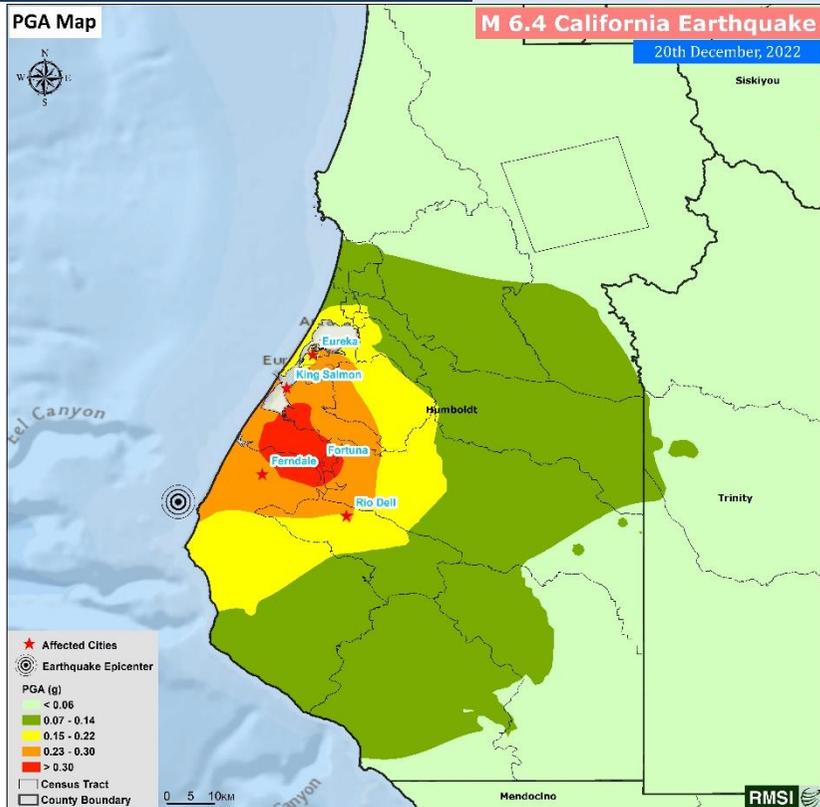
200 Commercial

30 Educational Building

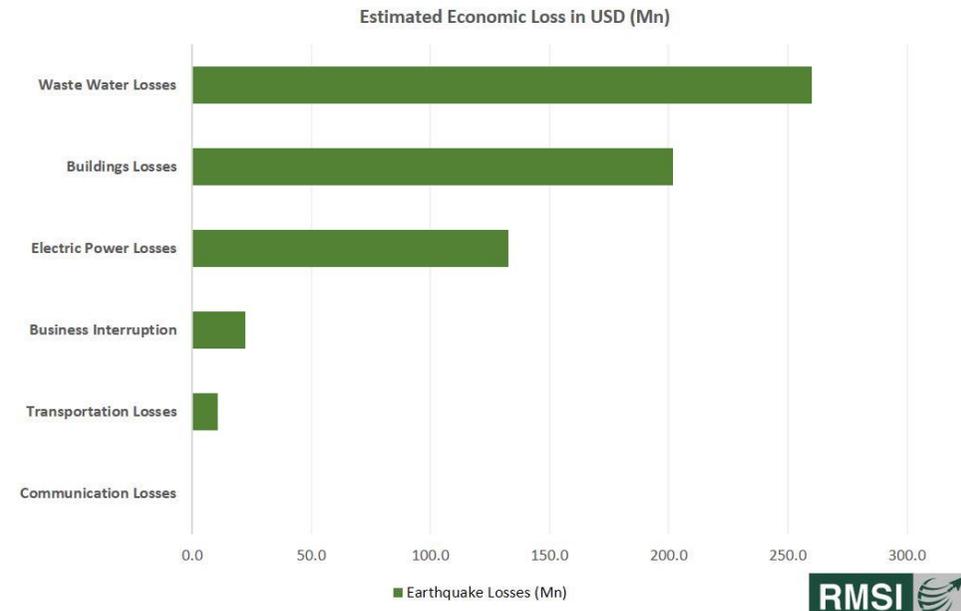
< 50 Government Building

< 100 Religious Place

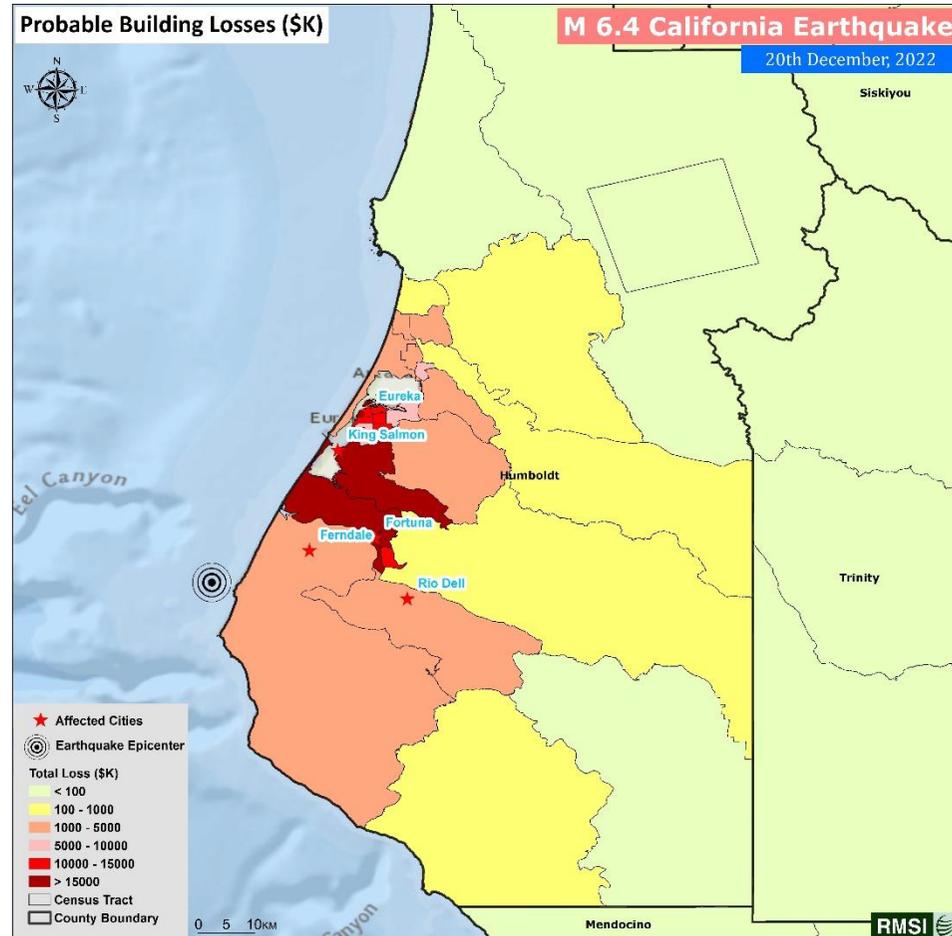
160 Industrial Building



- Our calculation shows an approx. USD 130 mn losses to Electric Power infrastructure.
- Total Economic Loss is estimated to be less than 1 bn due to M 6.4 earthquake. The distribution of economic losses is given below:



Distribution of Probable Building Losses by M 6.4 California Earthquake



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