

Seismic early warning from a low-cost accelerometer network in Almaty

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Abstract

Almaty sits in one of the most seismically active regions of Central Asia, and the national network is designed for accurate catalogues rather than for the seconds of warning that matter to a hospital or a school. We describe a network of 120 low-cost accelerometers installed in university and municipal buildings across the city, and the detection algorithm that runs on them. On 37 recorded events above magnitude 3.5 the network issued a first alert on average 2.8 seconds after the P wave reached the nearest node, with two false alerts over eleven months, both traced to construction work. We report the siting rules that produced this false alert rate, the cost per node, and the failure behaviour of the network when a fifth of the nodes are offline.

Keywords

seismic early warning; sensor networks; edge computing; Almaty

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