

Status of Canada's Earthquake Early Warning Project

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In 2019, Natural Resources Canada began the development of a national Earthquake Early Warning (EEW) system in areas of Canada with moderate to high seismic risk, to provide seconds to tens of seconds of warning before strong shaking arrives. Interoperability with the United States' EEW system is assured through use of the United States Geological Survey's ShakeAlert® software and sharing of data between the two countries. Alerts to the public in Canada will be disseminated using Canada's National Public Alerting System (NPAS/AlertReady).

Geographical coverage and density of sensors was informed by assessment of seismic risk in Canada as well as by modelled system triggering and warning times, resulting in an optimized sensor spacing of 20 km near communities. System performance has also been assessed using recent earthquakes with the current, partially installed, EEW network, together with the higher-latency Canadian National Seismograph Network, as a proxy for regional coverage.

The EEW system will be operational in 2024, with current efforts for system readiness directed towards continuing station installations, software development, testing, cyber security measures, implementation of alerts through NPAS, technical partner engagement, and public education. Future endeavours will include assessment of potential expansion into other regions of Canada and possible integration of Global Navigation Satellite System data from the Western Canada Deformation Array.

