Earthquake Detection and Early Warning Multi-Source

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Earthquake Warning Reality

USGS ShakeAlert operates across western U.S.; JMA EEW operates across Japan; emerging similar systems in Mexico, Taiwan, and Turkey. Each system integrates seismometers, GPS-derived ground motion, accelerometer networks, and emerging crowdsourced sensing.

Cross-system coordination and emerging crowdsourced-sensor integration face structural challenges.

Multi-Source Substrate

Each contributing source (USGS-class, university-network, building-mounted accelerometer, emerging smartphone-class crowdsourced sensor) contributes credentialed observations. Cross-network correlation operates through declared federation.

Emerging real-time AI-augmented detection integrates through declared admissibility.

Earthquake Warning Trajectory

Emerging crowdsourced-sensing integration, emerging international warning-system coordination, emerging multi-hazard cascade integration all benefit from architectural multi-source substrate.