



**US Army Corps
of Engineers®**
Engineer Research and
Development Center

Strong-Motion Instrumentation Program (SMIP)

Description

The Strong-Motion Instrumentation Program (SMIP) supports dam safety through specifying, installing, and inspecting seismic monitoring instrumentation on Corps structures and analyzing recorded events and network performance. Additionally, it provides a measure of project performance and builds a database for earthquake research.

The Corps and the U.S. Geological Survey (USGS) initiated coordination on strong-motion instrumentation in the 1970s and, since 1978, ERDC experts have been responsible for installing and maintaining approximately half of the Corps' instruments located in the central and eastern United States. The Corps-USGS arrangement is still in effect today, with the USGS providing field maintenance for instruments west of the Rocky Mountains.

Capabilities

SMIP personnel install and maintain Corps instruments, maintain records of instrument servicing and locations, review instrument locations and type to ensure conformance with Corps policy, process and analyze records, and report events to Corps Districts.

Supporting Technology

SMIP preliminary data and records collected during strong-motion events are processed and analyzed. Corps earthquake data are also provided to the USGS for inclusion in its catalog of strong-motion records.

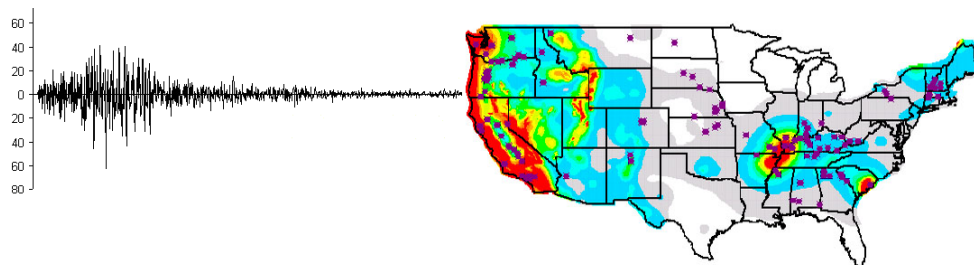
Preliminary reports of SMIP data collected during recent strong-motion events are available online from the [ERDC Geotechnical and Structures Laboratory](#). For example, the magnitude 2.1, 2.2, and 2.3 Evans, GA, earthquakes on January 18, 2005, triggered Corps instruments at Strom Thurmond Dam, the magnitude 3.3 earthquake on March 22, 2005, triggered an instrument at Coffeetown Lock and Dam, AL, and instruments at Success Dam were triggered by the Parkfield and Keene, CA, earthquakes of September 28-29, 2004.

Benefits

A total of 127 Corps projects, located in 31 States, are instrumented. The instruments in operation comprise 1,278 accelerograph channels (732 or 57 percent of which are digital), 39 peak recording accelerographs, and 38 seismic alarm devices. This technology continues to enhance the safety of Corps structures and provides data for research to improve the seismic safety of structures.

Point of Contact

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SMIP stations superimposed on seismic hazard map of 0.3-sec spectral accelerations exceeding 0.1 g for a return period of 3,000 years