*** 北米連携センター情報***

2014 年 8 月 26 日

●UCB等が開発中の地震早期警報システムが正常に地震を探知。

【Wall Street Journal, 2014/08/25】

地震早期警報システムの開発を進めている UCB（カリフォルニア大学バークレー校）の研究チームは、現在ベータテスト中のシステムが 24 日、カリフォルニアで M6.0 の地震が発生する 10 秒前に警報を出していたことを記録した動画を公開した。

UCB 地震学研究所所長のリチャード・アレン博士によるとシステムは期待通りに機能したとのこと。

早期警報システムが公共化されれば、住民に避難勧告を出したり、自動的に列車の速度を落とす、消防署のガレージドアを開けておくといった対策も可能になるという。

西海岸全域を網羅できる早期警報システムは、UCB 地震学研究所、米国地質研究所、カリフォルニア工科大、ワシントン大が共同開発を進めているもの。

センサを増やすことでより早く地震の兆候を検知できるようにもなるが、システムを構築し、5 年間運用するにはカリフォルニア州だけでも約 8000 万ドルの資金が必要。西海岸全域にシステムを広げるとなると 1 億 2000 万ドルかかるとアレン博士は見積もっている。

カリフォルニア州では昨年、2016 年までの資金源確保を目標に警報システムを構築する州法が制定されているが、州の財政難を理由に一部の議員は一般予算をこのプロジェクトに充てることに消極的だという。

（参考）本件報道記事

Expanding Earthquake Warning System May Help the Public

More Funding Is Needed to Make Program Available

By Zusha Elinson
Aug. 25, 2014 4:46 p.m. ET

An early-warning system being tested by scientists sounded an alarm seconds before a magnitude 6.0 earthquake hit California's wine country Sunday morning, but more funding is needed to make the system available to the public.

Scientists at the University of California, Berkeley, released a video showing a 10-second warning before the quake that caused an estimated $500 million to $1 billion in potential financial loss and injured dozens of people.

The system worked as expected, sending alerts to scientists and public agencies that are beta-testing it, said Richard Allen, director of the Berkeley Seismological Laboratory.

"The real question is, how big do the earthquakes have to get before we get the funding to make this a public system?" he asked.

An early-alert system could give residents time to get to safety, automatically slow trains to avoid derailments and open garage doors at fire stations so they don't get stuck shut, Dr. Allen said.

Mexico City and Japan have such systems. The Berkeley lab is working on a system for the entire West Coast in conjunction with the U.S. Geological Survey, the California Institute of Technology and the University of Washington.

The system works because sensors in the ground in temblor-prone areas detect the first seismic waves emitted by a quake and send an alert before the secondary, and more damaging, waves hit, geological experts explained. Those farther from the epicenter get a longer warning time.

The Berkeley lab got a 10-second warning when the temblor hit at about 3:20 a.m. Sunday, but those closer to the epicenter in Napa Valley would have gotten less time.

The detection time for the quake could have been faster if more sensors were installed in the region, scientists working on the project said. That is something they hope to do when the project is funded.

About $80 million would be required to build out the system and fund its operation for five years in California, or $120 million for the entire West Coast, Dr. Allen said.

California Gov. Jerry Brown signed a bill last year to develop a state system

that calls for funding to be identified by 2016. But there was reluctance among some lawmakers to use the state's general fund to pay for the project because of financial woes, said State Sen. Alex Padilla, who sponsored the bill.

"I'm optimistic that we'll have the funding in place sooner rather than later," he said. "I'm hoping that yesterday's incident is a reminder of the sense of urgency to deploy this system."

Bay Area Rapid Transit, the San Francisco area's main commuter rail system, is one of the agencies testing the system. Alerts received by BART automatically slow its trains to a stop via computer, said Alicia Trost, a BART spokeswoman. Although no trains were running when Sunday's quake hit, the system worked, she said.

"That the computer is slowing the trains down and eliminating human response—every second counts," she said.

In Napa County, injuries were limited because of the size of the temblor and the time it struck. Still, an early-warning system could have sent an alert to people's smartphones and given them time to get to a safer spot, said Dr. Allen.

"I think we would have been able to reduce the number of injuries in that earthquake," he said.

For areas near the quake's epicenter, these warnings are likely more useful for automated processes, such as shutting down trains, than for alerting the general public because of the short time frame, said Chris Goldfinger, an Oregon State University marine geology professor.

"Even in a short time like that you can prevent some pretty disastrous things like train derailment," he added.

Source :
http://online.wsj.com/articles/early-warning-system-in-testing-sounded-alarm-before-quake-1408999597?KEYWORDS=earthquake+

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