



May 2, 2003

- Sunday Sections**
- A&E
 - CareerBuilder
 - Travel & Explore
 - Viewpoints

- Weekly Features**
- Food & Drink
 - House & Home
 - Movie Preview
 - Wheels
 - Yes

- Communities**
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 - Chandler
 - Gilbert
 - Mesa
 - Scottsdale
 - Tempe
 - North / Central Phoenix
 - Northeast Phoenix
 - South Phoenix
 - Glendale / Peoria
 - Southwest Valley
 - Sun Cities / Surprise

- 7-Day Archive**
- Sunday
 - Monday
 - Tuesday
 - Wednesday
 - Thursday
 - Friday
 - Saturday

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Quake-warning system to be unveiled today

Mark Sappenfield
 Christian Science Monitor
 May. 2, 2003 12:00 AM

SAN FRANCISCO - When the "Big One" strikes, seismologist Richard Allen likes to think that Southern California will be prepared. Today, he will announce that scientists are ready to create the most sophisticated earthquake-warning system in the country's history.

If implemented, the system would transform the way everyone from factory workers to commuters responds to damaging temblors. Power plants would be able to shut off. Schoolchildren could take cover.

There is, however, one important asterisk: The alerts would go out only seconds before a quake hit.

After decades of study dedicated to predicting earthquakes days or months ahead of time, such an achievement might seem inconsequential. But in a time of interconnected networks and "smart buildings" that can instantly counteract fault shifts with computer-controlled hydraulics, even a few seconds could dramatically improve public safety.

The early-warning system, laid out in today's issue of *Science*, is possible because of the nature of earthquakes. When a quake begins, it convulses the rock with two waves. The faster wave, called the P-wave, causes little damage. Its slower partner, the S-wave, is what topples buildings.

By studying three earthquakes in California, Allen and Hiroo Kanamori of the California Institute of Technology determined how data from the P-wave can accurately predict the severity of the S-wave.

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