



**Seismological Society of America**

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**Richards honored for groundbreaking career in public service, research**

*Worked extensively on non-proliferation and deep-Earth research*

Throughout his career, Paul Richards has advanced the understanding of seismology and established himself as one of the most influential voices in observational and theoretical seismology.

The textbook Richards co-authored with Keiiti Aki, “Quantitative Seismology,” is still in print. It has been a standard in geophysical education since its first publication in 1980, and his groundbreaking work on the structure and motion of the Earth’s inner-core brought deep-Earth research to the forefront of popular science as well as to the attention of specialists.

Richards, the emeritus Mellon Professor of the Natural Sciences of Columbia University, will be honored with the Seismological Society of America’s Reid Medal in recognition of his contributions to science and society. He has worked at the Lamont-Doherty Earth Observatory since 1971.

Early in his career, Richards put forth the full-wave theory for construction of synthetic seismograms, which laid a foundation for waveform modeling to study Earth structure. This theory quantified tunneling, whispering galleries, and other wave-propagation phenomena of importance in seismology.

He retained his strong interest in the deep interior, and in 1983, proposed the early idea of detecting the motion of the Earth’s core using repeated seismic sources. The ideas came to fruition in 1996 when, together with Xiaodong Song, Richards discovered seismological evidence that the inner core of the Earth rotates eastward with respect to the mantle and crust. In 2005, using high-quality waveform doublets, Richards and co-authors confirmed the temporal change of waves through the inner core by about a 10th of a second per decade.

Apart from his scientific research, Richards has used seismology to work for the betterment of society. Since the mid-1980s, his work has focused on the use of seismological methods to study nuclear weapon test explosions and their implications in politics and science. Richards’ work has examined how tests are detected, identified and



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located as well as the size of the explosions – issues that are critical in evaluating present or prospective arms-control treaties.

Richards' strong interest for nuclear disarmament and non-proliferation has led to him serving on national committees advising on the monitoring of the Comprehensive Test Ban Treaty (CTBT). For two years he was a visiting scholar at the U.S. Arms Control and Disarmament Agency, contributing to national reports on treaty verification problems. Richards' continuing commitment in this area has included seminar visits to many universities and colleges and the establishment of a regular course on Weapons of Mass Destruction at Columbia University.

At the CTBT negotiations in Geneva in 1994, Richards presented an expert's paper for the United States, on monitoring issues associated with this treaty. In 2000, Richards worked on a National Academy of Sciences panel that issued a 2002 report on "Technical Issues Related to the Comprehensive Nuclear Test-Ban Treaty."

In the March 2009 issue of Scientific American, Richards and Won-Young Kim co-authored "Monitoring for Nuclear Explosions" and concluded that, "Detection of a test of a nuclear weapon has become so effective and reliable that no nation could expect to get away with secretly exploding a device having military significance."

SSA is an international scientific society devoted to the advancement of seismology and its applications in understanding and mitigating earthquake hazards and in imaging the structure of the earth. Founded in 1906 in San Francisco, the Society now has members throughout the world representing a variety of technical interests: seismologists and other geophysicists, geologists, engineers, insurers, and policy-makers in preparedness and safety.

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