

# Thinking Globally but Guiding the Local Message for the 1906 Centennial

By Stephanie Hanna

As the pace of events builds toward a crescendo on April 18, 2006, for the Centennial of the Great San Francisco Earthquake, Mary Lou Zoback's work week extends into the weekend and often well into the evening. She is currently regional coordinator for the USGS Earthquake Hazards Program in Northern California and chairs the steering committee of federal, state, local and private partners making up the 1906 Centennial Alliance. In this role, Zoback routinely fields calls and conducts interviews with the news media, speaks at up to four public events per week, attends multiple meetings and recruits new partners to assist in the funding and distribution of new and important products for first responders, decision makers and an interested public.

"It's important to view the 1906 Centennial as an incredible, teachable moment," Zoback explained. "Living in California, we see huge vulnerabilities from earthquakes, both to individuals and to society. The high probability of large, devastating urban earthquakes exposes society to enormous vulnerabilities. So the 1906 Centennial becomes an invaluable opportunity to remind people, 'It will happen here,' and to encourage citizens to push their communities and governments to help them prepare. The Hurricane Katrina disaster, unfortunately, emphasizes that we have to be proactive."

Zoback is a senior research scientist with the USGS Western Earthquake



*"It's important to view the 1906 Centennial as an incredible, teachable moment," says USGS senior research scientist Mary Lou Zoback.*

Hazards Team in Menlo Park, Calif. Her primary research interest is the relationship between earthquakes and stress in the Earth's crust. Areas of recent study include the San Andreas Fault system, the Basin and Range area of the western United States and intraplate regions such as the central and eastern United States.

After the Centennial commemoration in April, Zoback plans to return full time to her research. Her current research interest is in understanding the deformation caused by active fault systems such as that associated with the epicenter of the 1906 earthquake. The geologic evidence and persistent small earthquakes indicate that in this region, the Earth's crust is pulling apart. She would like to determine the likelihood that the next big Bay Area

earthquake will occur in this region and what additional risk and damage might occur from a similar magnitude earthquake that begins either south or north of this area and "steps over" to devastate areas further along the San Andreas Fault.

Early in her career with USGS, Zoback headed the International Lithosphere Program's World Stress Map Project. A team of 40 scientists from 30 countries focused on compiling, standardizing data collection and interpreting geologic and geophysical data on the modern-day stress field. Working by telex and fax between 1986 and 1992, before the advent of the Internet, the team made important discoveries about stresses acting in the interior of the Earth's tectonic plates and producing earthquakes. In recognition of the significance of this and other work, Zoback was elected to the National Academy of Sciences in 1995. She is currently the only USGS member of the NAS and also serves as a member of the NAS Council.

Zoback joined USGS in 1978 after receiving her Ph.D. in geophysics from Stanford University. From 1999 to 2002, she was chief scientist of the Northern California Earthquake Hazards Program. Zoback has served on numerous national committees and panels on topics ranging from continental dynamics and storage of high-level radioactive waste to science education. She is active in several professional societies and served as the president of the Geological Society of America from 2000 to 2001. In 1987, she received the American Geophysical Union's

Macelwane Award for significant contributions to the geophysical sciences by a young scientist of outstanding ability.

When asked what draws her from research to her dedication to public outreach on earthquake hazards and preparedness, Zoback said, "I think it's my personality. When I see problems, I want them to be fixed. The study of geology and geophysics shows us that earthquakes are not random events and that they will happen again where they have happened before, so we must help society be prepared."

Zoback was instrumental in the redesign and recent publication of "Putting Down Roots in Earthquake Country — Your Handbook for the San Francisco Bay Region," an earthquake preparedness guide. This publication by USGS and 11 other partners was published in September 2005 and has already reached nearly a million people and is expected to be translated into Spanish, Vietnamese, Cambodian and Chinese during 2006. [See page 34.]

Zoback is married to a fellow geophysicist, Mark Zoback, a professor at Stanford University and principal investigator on the National Science Foundation San Andreas Fault Observatory at Depth (SAFOD) project. The Zobacks have a grown son and daughter and are residents of Stanford. Combining their love of adventure and common interest in geology, they recently climbed Mount Kilimanjaro in Africa, went trekking in Bhutan and are planning to climb to Macchu Pichu in Peru after the 1906 Centennial activities subside.