

Member Institution Data

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| Logo or Photo of Institute in jpg format | |
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| Contact Person Name and Position: | Mr. Mark Benthien |
| E-mail: | benthien@usc.edu |
| Name of Institute: | Southern California Earthquake Center (SCEC) |
| Address: | University of Southern California 3651 Trousdale Pkwy #169, Los Angeles, CA 90089 |
| Institute e-mail: | scec@usc.edu |
| Institute webpage URL: | www.SCEC.org |
| <p>Outline</p> <p><i>We study why and how earthquakes occur, evaluate their effects, and help societies prepare to survive and recover.</i></p> <p>The Southern California Earthquake Center (SCEC) was founded as a Science & Technology Center on February 1, 1991, with joint funding by the National Science Foundation (NSF) and the U. S. Geological Survey (USGS). SCEC graduated from the STC Program in 2002 and has since been funded as a stand-alone center under cooperative agreements with both agencies, and additional support from other agencies, private foundations, and public utilities.</p> <p>The SCEC community comprises one of the largest research collaborations in geoscience, with more than 1000 active participants on SCEC projects, more than half which participate in SCEC's Annual Collaboration Meeting. SCEC is organized as a consortium of "core institutions", which commit sustained support, and a much larger set of "participating institutions", which join through requests initiated by scientists who wish to participate in</p> | |

SCEC.

SCEC's core research program is investigator-driven and open to anyone who is willing to submit a qualified project plan for peer review. The core resources are allocated through an annual planning process that involves input from the entire SCEC community, as well as counsel from an external [Advisory Council](#) and the sponsoring agencies. About two-thirds of the SCEC science budget goes to students and early-career scientists engaged in investigator-initiated research. The roster changes constantly as new people and institutions become involved. The Center's working groups, workshops, field activities, and annual meeting enable scientists to work together over sustained periods, building "deep collaborations" and strong interpersonal networks that promote intellectual exchange and amplify the support for students and early-career scientists. SCEC encourages colleagues with creative ideas about earthquakes to formulate them as hypotheses that can be tested collectively. Researchers with new hypotheses are quickly brought together with experts who have observational insights, modeling skills, and knowledge of statistical testing methods.

A Reliable and Trusted Partner

SCEC is a reliable and trusted partner that works with other organizations to reduce earthquake risk and promote societal resilience to earthquake disasters. SCEC engages earthquake engineers through joint projects with the [Pacific Earthquake Engineering Research \(PEER\) Center](#), the [California Earthquake Authority](#), and the [Pacific Gas & Electric Company](#), and also directly through its active [Earthquake Engineering Implementation Interface \(EEII\)](#).

The SCEC [Communication Education and Outreach \(CEO\)](#) program manages the statewide [Earthquake Country Alliance \(ECA\)](#), which now comprises more than 200 partner organizations and coordinates the [Great California ShakeOut](#), involving more than 10 million Californians each year in practicing and improving their earthquake safety. Through CEO efforts sustained by the SCEC core program and funded additionally by [FEMA](#) and other agencies, [ShakeOut](#) has expanded beyond California to all U.S. states and territories as well as to Canada, Japan, New Zealand, and a growing number of other countries.

The CEO program leverages SCEC research in developing mechanisms to promote community preparedness and resilience, including publications such as *Putting Down Roots in Earthquake Country*, installation of "[Quake Catcher Network](#)" sensors in schools and museums, and the development of curricular materials. Partners in its K-14 Education Initiative include [IRIS](#), [UNAVCO](#), [EarthScope](#), [USGS](#), and [CGS](#). One of SCEC's broadest and deepest impacts is the highly successful [Summer Undergraduate Research Experience \(SURE\)](#) and [Undergraduate Studies in Earthquake Information Technology \(USEIT\)](#) intern programs, which have graduated since 1994 more than 600 undergraduates, including many

women and underrepresented minority students.

An International Leader

SCEC is an international center that inspires interdisciplinary collaborations, and it involves many scientists from other countries. Many leading foreign universities and research organizations are enrolled as [participating institutions](#), and others are involved through the [Collaboratory for the Study of Earthquake Predictability \(CSEP\)](#) and [Collaboratory for Interseismic Simulation Modeling \(CISM\)](#), bilateral memoranda of understanding, and multinational collaborations, such as the [Global Earthquake Model \(GEM\)](#) program. The SCEC program is heavily leveraged by contributions by the foreign participants who are supported through their own institutions.

A brief description of Research Interests, Achievements and Challenges:

SCEC coordinates fundamental research on earthquake processes using Southern California as its principal natural laboratory. This research program is investigator-driven and supports core research and education in seismology, tectonic geodesy, earthquake geology, and computational science. The SCEC community advances *earthquake system science* through three basic activities: (a) gathering information from seismic and geodetic sensors, geologic field observations, and laboratory experiments; (b) synthesizing knowledge of earthquake phenomena through physics-based modeling, including system-level hazard modeling; and (c) communicating our understanding of seismic hazards to reduce earthquake risk and promote community resilience.