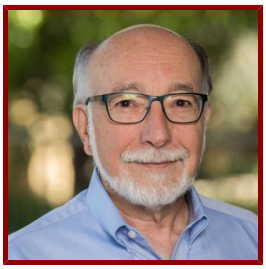
Stanford



William Ellsworth

Professor (Research) of Geophysics, Emeritus

Curriculum Vitae available Online

Bio

BIO

My research interests can be broadly defined as the study of active faults, the earthquakes they generate and the physics of the earthquake source. A major objective of my work is to improve our knowledge of earthquake hazards through the application of physics-based understanding of the underlying processes. As Co-Director of the Stanford Center for Induced and Triggered Seismicity, my students, postdocs and I conduct multi-disciplinary studies into the causes and consequences of anthropogenic earthquakes in a wide variety of settings. I have also long been committed to earthquake risk reduction, specifically through the transfer of scientific understanding of the hazard to people, businesses, policymakers and government agencies. Before coming to Stanford in 2015, I was a research geophysicist at the U. S. Geological Survey in Menlo Park, California for more than 40 years where I focused on problems of seismicity, seismotectonics, probabilistic earthquake forecasting, and earthquake source processes

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Geophysics

ADMINISTRATIVE APPOINTMENTS

- Geophysicist, U. S. Geological Survey, (1971-2008)
- Chief, Branch of Seismology, U. S. Geological Survey, (1982-1988)
- Consulting Professor of Geophysics, Stanford University, (1992-2008)
- Chief Scientist, Earthquake Hazards Team, U. S. Geological Survey, (2002-2005)
- Senior Research Geophysicist, U. S. Geological Survey, (2008-2015)
- Professor (Research), Stanford University, (2015- present)
- Co-Director, Stanford Center for Induced and Triggered Seismicity, Stanford University, (2015-2023)

HONORS AND AWARDS

- Meritorious Service Award, U. S. Department of the Interior (1990)
- Gilbert Fellow, U. S. Geological Survey (1993)
- Fellow, American Geophysical Union (2001)
- Distinguished Service Award, U. S. Department of the Interior (2010)
- EarthScope National Lecturer, National Science Foundation (2012)
- Gutenberg Lecture, American Geophysical Union (2018)
- Harry Fielding Reid Medal, Seismological Society of America (2021)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- President, Seismological Society of America (2007 - 2009)

PROFESSIONAL EDUCATION

- Ph.D, Massachusetts Institute of Technology , Geophysics (1978)
- M. S., Geophysics , Stanford University (1971)
- B.S., Stanford University , Physics (1971)

Teaching

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Trey Knudson, Yifan Yu

Publications

PUBLICATIONS

- **Permeability heterogeneity controls fluid migration and microseismicity evolution in The Geysers geothermal field, California.** *Nature communications*
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- **Stress Evolution and Driving Mechanism of an Induced Earthquake Sequence near Caldwell, Kansas (vol 115, pg 2141, 2025)** *BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA*
  Ries, R., Beroza, G. C., Ellsworth, W. L.
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  Tan, X., Tramelli, A., Gammaldi, S., Beroza, G. C., Ellsworth, W. L., Marzocchi, W.
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- **Overview of the SCEC/USGS Community Stress Drop Validation Study Using the 2019 Ridgecrest Earthquake Sequence** *BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA*
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- **Source Parameter Analysis Using Maximum Amplitudes in the Time Domain** *BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA*
  Knudson, T. C., Ellsworth, W. L., Beroza, G. C.
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  Ellsworth, W. L.
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  Mao, S., Ellsworth, W. L., Beroza, G. C.
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- **Velocity-Based Earthquake Detection Using Downhole Distributed Acoustic Sensing-Examples from the San Andreas Fault Observatory at Depth** *BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA*
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- **Unsupervised Clustering of Seismic Signals Using Deep Convolutional Autoencoders** *IEEE GEOSCIENCE AND REMOTE SENSING LETTERS*
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- **Rapid Earthquake Association and Location** *SEISMOLOGICAL RESEARCH LETTERS*
  Zhang, M., Ellsworth, W. L., Beroza, G. C.
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- **Triggering of the Pohang, Korea, Earthquake (M-w 5.5) by Enhanced Geothermal System Stimulation** *SEISMOLOGICAL RESEARCH LETTERS*
  Ellsworth, W. L., Giardini, D., Townend, J., Ge, S., Shimamoto, T.
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- **Unsupervised Large-Scale Search for Similar Earthquake Signals** *BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA*
  Yoon, C. E., Bergen, K. J., Rong, K., Elezabi, H., Ellsworth, W. L., Beroza, G. C., Bailis, P., Levis, P.
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- **Robust Stress Drop Estimates of Potentially Induced Earthquakes in Oklahoma: Evaluation of Empirical Green's Function** *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*
  Yoshimitsu, N., Ellsworth, W. L., Beroza, G. C.
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- **Managing injection-induced seismic risks.** *Science (New York, N.Y.)*
  Lee, K., Ellsworth, W. L., Giardini, D., Townend, J., Ge, S., Shimamoto, T., Yeo, I., Kang, T., Rhie, J., Sheen, D., Chang, C., Woo, J., Langenbruch, et al
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- **Seismology with Dark Data: Image-Based Processing of Analog Records Using Machine Learning for the Rangely Earthquake Control Experiment** *SEISMOLOGICAL RESEARCH LETTERS*
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