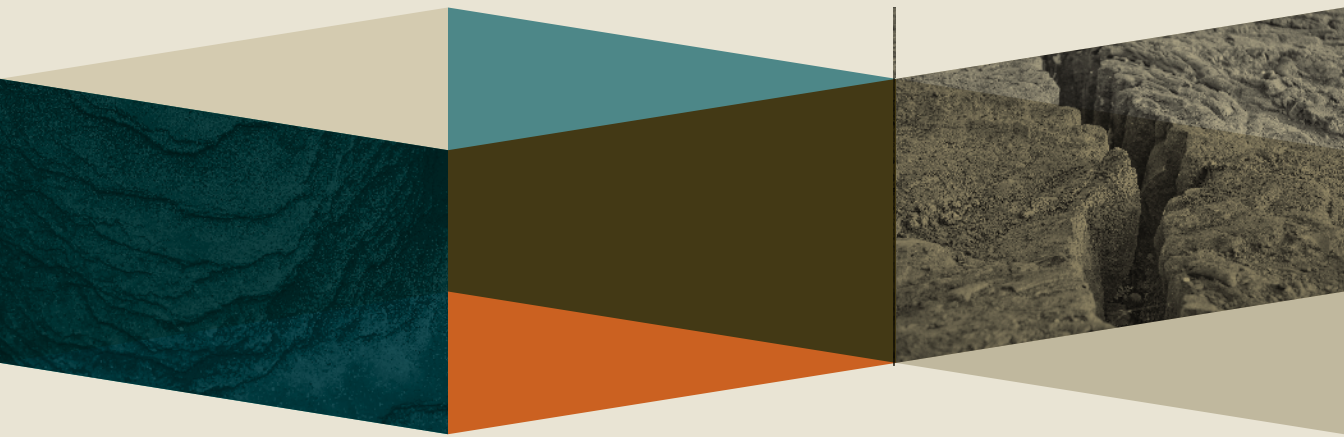




# Advancing Earthquake Science Worldwide



**2020 Annual Awards Ceremony**

**28 APRIL • ALBUQUERQUE, NEW MEXICO**



SSA Board

Officers

- Susan Hough, *President*
- William R. Walter, *President-Elect*
- Peter Shearer, *Past President*
- Peggy Hellweg, *Secretary*
- Mitch Withers, *Treasurer*

Board of Directors

- Sergio Barrientos (2020)
- Margaret Boettcher (2021)
- Xyoli Pérez-Campos (2021)
- Heather DeShon (2022)
- Doug Dreger (2021)
- Christine Goulet (2020)
- Kuo-Fong Ma (2022)
- Meghan S. Miller (2022)
- Kate Scharer (2020)
- John Townend (2022)



Message from the President  
Celebrating Growth and  
New Opportunities

Today SSA presents its highest honors—the Charles F. Richter Early Career Award, Frank Press Public Service Award and Harry Fielding Reid Medal—to Marine Denolle, Brian Tucker and Karen Fischer.

These members have done exemplary work in support of the Society’s mission—advancing earthquake science for the benefit of society. Their outstanding accomplishments offer inspiration to our entire community. They remind us all to continue pushing the boundaries of knowledge.

As you continue to push those boundaries, know that SSA is here to help.

The report that follows in these pages highlights the newest pathways to professional support that SSA now provides to our growing community.

SSA has just expanded its Global Travel Grant program, which now helps both student and early-career members exchange information with their peers near and far. A redesign of our two journals is bringing more seismic information to readers, with more specialization and new ways to share knowledge. We’re looking forward to exchanging new ideas at a brand new, topical SSA meeting, on seismic tomography, that we’ve added to our

offerings this fall. Through our advocacy work, including new briefings on Capitol Hill, the Society is reminding U.S. policymakers why your work makes a difference and needs ongoing federal support.

The past year has been one of growth and new opportunities for SSA, and the reason is you.

As we celebrate our esteemed colleagues today, I’d like to offer thanks to every member for their continued commitment to our mission. Thank you for your volunteer work, for your research and for your career advice to members at the start of their careers. On page 20 we also offer our deepest gratitude for your generous gifts that have helped us once again to advance our science and protect public safety.

It has been an honor to serve as your president.

  
**Susan Hough**  
*President*



# 2019 Awards

## Marine Denolle

Assistant Professor,  
Harvard University



### CHARLES F. RICHTER EARLY CAREER AWARD

*This award honors outstanding contributions to the goals of the Society by a member early in her or his career.*

SSA honors Marine Denolle with the Charles F. Richter Early Career Award for her important contributions to developing synthetic seismograms that can be used for ground motion predictions for future earthquakes, with particular applications to how seismic waves behave in sedimentary basins.

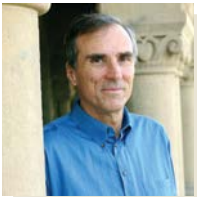
Her paper published in the journal *Science* in 2014 described how she deployed instruments along the San Andreas Fault in the San Geronio Pass in California, to test whether sedimentary basins near San Bernardino might funnel seismic energy from the San Andreas Fault into the Los Angeles basin. Her conclusion, that the Los Angeles metro area could be threatened by this type of ground motion, informed the U.S. Geological Survey seismic resilience plan with Los Angeles.

The study, among others, shows that Denolle is an exceptional seismologist due to her grasp of the entire scientific process, her colleagues said in their nominations of Denolle for the award.

*The Joyner Fund provides the financial support for the Richter honorarium.*

## Brian Tucker

Founder, GeoHazards  
International



### FRANK PRESS PUBLIC SERVICE AWARD

*This award honors outstanding contributions to the advancement of public safety or public information relating to seismology.*

SSA honors Brian Tucker with the Frank Press Public Service Award for his efforts to make the world's most vulnerable communities safer from earthquakes and other natural hazards. His nonprofit GeoHazards International, with local and international partners, has developed earthquake scenarios and seismic safety action plans, retrofitted schools, improved the seismic safety of hospitals, mapped landslide hazards, designed and promoted vertical tsunami evacuation parks, and initiated the local manufacture of "School Earthquake Desks."

"While many of us in the seismological community can justifiably claim that the science and products we've produced will lead to safer cities and potentially save lives or reduce other losses over the long-term, few can point to specific cases where communities have benefitted directly from our efforts; Brian Tucker can," said seismologist David Wald in nominating Tucker for the award.

Photo: © John D. and Catherine T. MacArthur Foundation- used with permission

## Karen Fischer

Professor, Brown University



### HARRY FIELDING REID MEDAL

*This award honors outstanding contributions in seismology or earthquake engineering.*

SSA honors Karen Fischer with the Harry Fielding Reid Medal for her pioneering research on Earth's upper mantle structure and dynamics, the structure and evolution of continental lithosphere, and the dynamics of subduction systems.

She conducted groundbreaking research on the boundary between the lithosphere and the asthenosphere. She is widely recognized for her contributions to characterizing seismic anisotropy which have helped to identify and analyze patterns of mantle flow beneath continents and in subduction zones, where one tectonic plate moves underneath another. Her work in subduction zones has established evidence for three-dimensional asthenospheric flow.

Fischer is "an outstanding seismologist who has conducted many observational and modeling studies of the Earth's seismic structure, illuminating dynamic mantle-flow processes in subduction zones, near the core-mantle boundary, and at the base and within the continental lithosphere," said Professor Donald W. Forsyth, who nominated Fischer for the medal.

→ To learn more about the  
nominating process, visit  
[seismosoc.org/awards](https://seismosoc.org/awards)



# 2020 Honors



## Julian J. Bommer

Senior Research Investigator,  
Imperial College London

---

### WILLIAM B. JOYNER MEMORIAL LECTURE

Julian J. Bommer has worked for more than 30 years at the interface between seismology and earthquake engineering as both a researcher and practitioner.

His Joyner lecture, delivered at the 2020 SSA Annual Meeting, focuses on the impact of small-magnitude earthquakes, of both tectonic and anthropogenic origin, on the built environment and how the risk associated with such events can be quantified and mitigated.

*Awarded by the Earthquake Engineering Research Institute and SSA, the lectureship honors William B. Joyner’s career at the U.S. Geological Survey and his commitment to continuing communication and education at the interface between research findings of earthquake science and the practical realities of earthquake engineering.*





# Growing Stronger Together

→ The 2019-2020 year has been one of new opportunities for the SSA community.

Our Society has grown in size and expanded our reach. We’ve added a new meeting and new content to our peer-reviewed journals. We’ve found new ways to tell the world why seismology matters.

During the past year SSA has provided members with a record number of travel grants to attend meetings focused on our science—our Annual Meeting as well as others hosted by organizations around the globe.

We’re helping our scientists and engineers exchange more seismic knowledge than ever before. Together we’re creating more opportunities to protect public safety and advance earthquake science worldwide.



Global Travel Grant Recipient Waheed G. Akande (University of Aberdeen) at left receiving a souvenir from Co-Chair Farokh Parsizadeh at the 8th International Conference of Seismology and Earthquake Engineering in Tehran, Iran.

## More Time with Your Colleagues

At SSA we’ve always known that face-to-face communication advances science. Our members proved it once again at the 2019 Annual Meeting.

Last year, our community of scientists and engineers gathered in Seattle to exchange seismic knowledge. They asked and answered one another’s research questions. They offered and received career advice. Together, they explored the very future of seismology.

SSA continues to welcome an increasing number of attendees to our annual gatherings—24 percent more in the past year alone. Thanks to the generosity of our donors, we also welcomed a record 21 travel grant recipients to the 2019 meeting. All attendees, whether it was their first or 21st meeting, had the opportunity to learn about emerging tools and technologies in an expanded array of workshops and special interest groups led by their colleagues.

Our time together is incredibly valuable—for networking, for collaborating and for learning. We don’t want anyone to have to miss an opportunity to connect with their peers, so we’ve added a childcare option to our 2020 Annual Meeting. We’ve also created more opportunities for members to meet and share their work with one another. Abstracts just opened for an additional SSA meeting, “Seismic Tomography: What Comes Next?” (9–11 October 2020 in Toronto, Ontario).



“The intimate setting in which to discuss my research and hear about other investigations and experiments from other scientists was so valuable.”

—ISABEL HONG, Ph.D. candidate at Rutgers University and 2019 Annual Meeting Travel Grant recipient



Conference attendees showcase and discuss their research during the conference.

# Meetings Matter

When a change in policy at the U.S. Geological Survey (USGS) restricted attendance by its scientists at large scientific conferences, SSA raised its collective voice in protest. We surveyed our members and publicized their concerns.

**THE GOAL** ▶ Remind the USGS that we host the world’s primary technical conference on seismology, a necessary part of the collaborative process that leads both USGS and SSA to meet its shared vision and purpose.

# More Support for the Next Generation

We want to do all we can to support our student and early-career members—the scientists and engineers who will create the future of earthquake science.

How can we support their research? Connect them with their dream jobs? Help them share their knowledge with the wider scientific community?

These are a few of the questions we continue to ask the members of our community who are just beginning their work in seismology. In recent months SSA has conducted surveys and established an Early-Career and Student Advisory Task Force. Comprised of students and others at the start of their careers (including four past Richter Awardees), the group is exploring the networking and mentoring needs of these members and how we might assist them with the professional pressures they face.

As always, if there is a meeting where our members want to present their research, SSA strives to get them there. Once again, we subsidized registration, travel and accommodation costs for all attendees of the 2019 Seismology Student Workshop at Columbia University’s Lamont–Doherty Earth Observatory—the only student-focused and student-led seismology and tectonophysics workshop in the country.

In February, SSA expanded its Global Travel Grant program, previously for students only, to welcome early-career member applicants. Launched in 2018, the program has already helped 14 student members network and present their research at meetings hosted by other scientific organizations around the globe.

Soon more members will be booking their travel for scientific conferences around the world this fall—travel they might not have been otherwise able to afford.



“My first scientific talk as a student was at the 2008 SSA Meeting in Santa Fe, and I was immediately welcomed in and introduced to some of the great seismological minds; I was floored that these researchers were taking the time to talk to me as a graduate student.”

—ANNEMARIE BALTAY, Research Geophysicist, USGS





Accomplishing Our Global Mission

SSA's Global Travel Grant recipients—14 as of January 2019—are the embodiment of our mission: **advancing earthquake science worldwide.**



63%  
SSA members  
live/work in the U.S.



37%  
SSA members  
live/work outside the  
U.S.

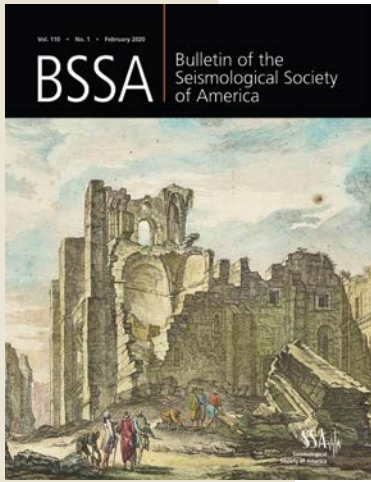


50/50  
Half of SSA authors  
live in U.S. and half  
live overseas



“The SSA Global Travel Grant is special among other grants. Not many professional societies provide you with the means to attend other meetings, especially ones in other countries. This grant recognizes the importance of sharing science across political borders. It helped me widen my professional network and even sparked potential collaborations on future projects. SSA is a society that is truly giving back to its community.”

— LEAH SALDITCH, Ph.D. student, Northwestern University, on her 2019 Global Travel Grant, which helped her attend the International Colloquium on Historical Earthquakes & Paleoseismology Studies in Barcelona, Spain



1,300

Number of institutions at which  
our readers are based

43

Number of countries  
our readers live in

## More Reasons to Read and Publish with Us

When your work is published in SSA's journals, you can be confident that it will reach the wider scientific community. Our audience spans well beyond SSA's nearly 3,000 members. We're read by readers at more than 1,300 institutions in 43 countries.

Reading these articles has never been a more inviting experience; and sharing them with colleagues near and far has never been easier. SSA rang in the new year with a full redesign of both journals, offering more content, more specialization and new ways for authors and readers to share that information. We're adding an ORCID ID connection, and we've enhanced our citation and printing capabilities.

With *BSSA* Editor-in-Chief Thomas L. Pratt and *SRL* Editor-in-Chief Allison Bent at the helm, these journals continue to highlight the latest events, technology and basic research that shape our understanding of seismology.

“I published my first research paper in the *Bulletin of the Seismological Society of America (BSSA)* and have long valued the quality and professionalism of the *SSA* journals.”

— PETER SHEARER, professor of geophysics at Scripps Institution of Oceanography

### TOP DOWNLOADED ARTICLES IN 2019

#### BSSA

Generalized Seismic Phase Detection with Deep Learning

Do Injection-Induced Earthquakes Rupture Away from Injection Wells due to Fluid Pressure Change?

Historical Earthquakes of the Eastern Sunda Arc: Source Mechanisms and Intensity-Based Testing of Indonesia's National Seismic Hazard Assessment

#### SRL

A Python Library for Teaching Computation to Seismology Students

Machine Learning in Seismology: Turning Data into Insights

Strong-Motion Observations of the 2017 Ms 7.0 Jiuzhaigou Earthquake: Comparison with the 2013 Ms 7.0 Lushan Earthquake



### SPECIAL ISSUES

#### BSSA

##### 2020 Special Issues

- » 2019 Ridgecrest Earthquake Sequence
- » Observations, Mechanisms and Hazards of Induced Seismicity

#### SRL

##### 2019 Focus Sections

- » 6 February 2018 Mw 6.4 Hualien, Taiwan, Earthquake
- » Machine Learning in Seismology
- » Subduction Zone Processes in the Americas

##### 2020 Focus Sections (as of March 2020)

- » 2018 Anchorage, Alaska Earthquake
- » Regional Seismic Networks in North America
- » Historical Seismograms
- » Data Mine: 2019 Ridgecrest, California Earthquake Sequence
- » Past and Present of Historical Earthquake Data and Research
- » Earthscope: Alaska and Canada



# More Connections on Capitol Hill

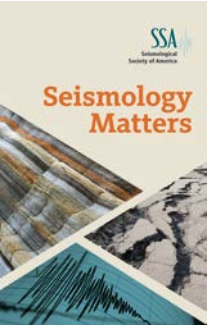
The daily work of our members helps protect American lives and infrastructure. That’s the message SSA continues to carry to Washington, D.C. It’s the message that our 2019 student Geo-CVD travel grant recipients brought to members of U.S. Congress last September. And the message that our senior scientists hammered home in the educational briefings we hosted on Capitol Hill during the past year.

In February 2019, SSA members Karianne Bergen, a postdoctoral fellow at Harvard University, and Zachary Ross, a postdoctoral scholar at the California Institute of Technology, led a briefing for policymakers on Machine Learning in Seismology. Government officials learned more about how artificial intelligence and machine learning tools can help improve earthquake detection, allowing for increased preparedness.

In June 2019, SSA members Herb Wang, a professor emeritus at University of Wisconsin-Madison, and Nate Lindsay, a Ph.D. student at University of California, Berkeley, led a briefing titled “Can You Hear It Now?”—a reference to the seismic potential of fiber optic networks to pick up vibrations from their surroundings.

This past February, two additional SSA members—University of Oregon Professor Diego Melgar and Yale University Professor Jeffrey Park— stressed the importance of monitoring seafloor seismic activity, not only to increase our understanding of earthquake science, but also to identify seismic risk areas and better prepare communities to address the hazard.

We’ve worked hard to establish and maintain an open channel of communication with U.S. policymakers because it’s critically important that we are on the same wavelength. SSA offers solid science to help inform their decisions related to a range of issues key to the nation’s safety, security and economic prosperity, including those that affect global nuclear test monitoring, earthquake and tsunami early warning programs, and oil and gas operations.



In recent months, we’ve created a new brochure that shares the information Washington needs to know, facts like for every dollar spent on earthquake mitigation efforts, about \$10 are saved in response and rebuilding costs. Through dozens of “At Work” member profiles, we’ve continued to show U.S. decision makers and

the rest of the world exactly how our Society advances earthquake science one member at a time.

# More Members

When it comes to advancing science, there is strength in numbers. Today SSA is stronger than ever. In 2019 our community welcomed 203 more members than 2018. Our early-career membership is up 61.8 percent, growing from 89 members in 2018 to 144 members in 2019.



**61.8%**  
Increase in 2019  
early-career  
membership

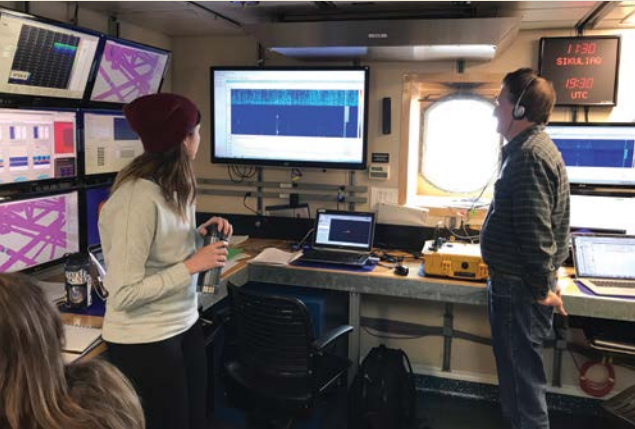


“Federal investment is key to earthquake science research and its applications because there are no comparable private funders.”

—SSA’S 2020 “SEISMOLOGY MATTERS” PUBLICATION

“SSA has connected me to my seismology peers, which has had the biggest impact on my career. Not only do these people inspire me in my own work, but I have been able to connect with them on issues outside of research.”

—AMANDA PRICE, Ph.D. candidate, Washington University in St. Louis, Missouri



Amanda Price and Doug Wiens monitoring the deployment of seismometers as part of the Alaska Amphibious Community Seismic Experiment.



# Annual Meeting Travel Grant Recipients

## 2020 SSA Annual Meeting Travel Grant Recipients

Each of the students listed below received free registration to the 2020 Annual Meeting as well as a cash stipend for travel expenses. SSA is grateful to our members and friends who gave generously to the Society's Kanamori Fund, General Fund and Student Travel Grant Fund, which makes these grants possible.

### STUDENT TRAVEL GRANT

- » Joshua D. Boschelli, Saint Louis University
- » David Bruce, Central Washington University
- » Kaitlynn Burkhard, Michigan State University
- » Francisco Chacon, National Autonomous University of Mexico
- » Sofia Cubillos, Universidad Nacional de Colombia
- » Elizabeth R. Curtiss, Central Washington University
- » Jianhua Gong, MIT/WHOI Joint Program
- » Somak Hajra, Wadia Institute of Himalayan Geology
- » Ekaterina Kazachkina, National Autonomous University of Mexico
- » Alexis Klimasewski, University of Oregon
- » James S. Neely, Northwestern University
- » Angie D. Ortega Romo, The University of Oklahoma
- » Colin Pennington, The University of Oklahoma
- » Marlon D. Ramos, University of Michigan
- » Hwanwoo Seo, Ulsan National Institute of Science and Technology
- » Heather R. Shaddox, University of California, Santa Cruz
- » Ziqi Zhang, University of Rochester

### INTERNATIONAL TRAVEL GRANT

- » Gregory P. De Pascale, Universidad de Chile
- » Julien Thurin, Université Grenoble Alpes - ISTerre

### EUROPEAN SEISMOLOGICAL COMMISSION/SSA TRAVEL GRANT

- » Iaria Dreossi, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS

### 2020 PUERTO RICO EARTHQUAKE SEQUENCE TRAVEL GRANT

- » Edwin O. Irizarry Brugman, University of Puerto Rico, Mayagüez
- » Margarita M. Solares-Colón, University of Puerto Rico, Mayagüez



# Thank You to Our Donors

The Society is grateful to all who gave generously in 2019 to help advance our mission.

## INDIVIDUAL DONORS

Anonymous  
Albert Aguilar  
Sean Ahdi  
Sinan Akciz  
Jon Ake  
Charles Ammon  
Douglas Anderson  
Rasool Anooshehpour  
Walter Arabasz  
Ralph Archuleta  
Ramon Arrowsmith  
Richard Aster  
Manochehr Bahavar  
Muawia Barazangi  
Lauren Barker  
Nicholas Beeler  
Allison Bent  
Gregory Beroza  
John Berrill  
Kelvin Berryman  
Oliver Boyd  
Christopher Bradley  
Lawrence Braille  
Rich Briggs  
Tom Brocher  
Neil Broderick  
Benjamin Brooks  
Roland Burgmann  
Paul Burton

Ashly Cabas  
Eric Chael  
Joanne Chan  
John Cipar  
John Collins  
Graham Cook  
Vernon Cormier  
Stephen Crane  
Kevin Cristiano  
Anthony Crone  
Robert Crosson  
Timothy Dawson  
Steven Day  
Gregory De Pascale  
Andrew Delorey  
Lorinda Dengler  
Heather DeShon  
James Dewey  
Tzvetan Dilov  
Eva Dokter  
Luis Donoso  
Douglas Dreger  
Christopher DuRoss  
Utpal Dutta  
John Egan  
William Ellsworth  
Bob Engdahl  
Michael Fehler  
Aileen Fell  
Edward Field

John Filson  
Delphine Fitzenz  
Claudia Flores  
Joao Fontiela  
Adrianne Ford  
Donald Forsyth  
Bill Foxall  
Carmine Galasso  
Lind Gee  
Matthew Gerstenberger  
Hafidh Ghalib  
Jeffrey Given  
Chris Goldfinger  
Nick Gregor  
Katherine Guns  
Annabel Haendel  
Matthew Haney  
Thomas Hanks  
Kathryn Hanson  
Jeanne Hardebeck  
James Harris  
Ruth Harris  
Johanna Hartog  
Robert Hatcher  
Robert Hawman  
Koichi Hayashi  
David Heeszel  
Eric Hetland  
Austin Holland  
Leigh House

Izzat Idriss  
Bryan Isacks  
Katsuhiko Ishibashi  
Miaki Ishii  
David Jackson  
Alan Jones  
Thomas Jordan  
James Kaklamanos  
Edward Kausel  
Sharon Kedar  
Katherine Kendrick  
Brian Kennett  
George Klimkiewicz  
Keith Knudsen  
Keith Koper  
Albert Kottke  
Kayla Kroll  
Richard Kromer  
Ittai Kurzton  
Jerome Kutliroff  
Vic Lamanuzzi  
Thorne Lay  
Ronan Le Bras  
Donald Leavy  
Alanna Lester  
Alan Levander  
Ting Lin  
Joe Litehiser  
Joe Litehiser  
Dunya Liu

Leland Long  
John Louie  
Philip Maechling  
Peter Malin  
Stephen Malone  
Ben Mason  
Timothy McCrink  
Marcia McLaren  
Robert Mellors  
Mark Meremonte  
Andrew Michael  
Morgan Moschetti  
Akram Mostafanejad  
Yosio Nakamura  
Hidemori Narahashi  
Kseniia Nepeina  
Guust Nolet  
Edmundo Norabuena  
David Norris  
Robert Nowack  
Adrien Oth  
Robert Page  
Kristine Pankow  
Christos Papaioannou  
Jeffrey Park  
Howard Patton  
James Pechmann  
Xyoli Perez-Campos  
William Phillips  
Eugenio Polanco Rivera

→ Interested in making a gift to SSA? Visit [seismosoc.org/give](https://seismosoc.org/give)

Robert Powell  
William Prescott  
Enrico Priolo  
Richard Quittmeyer  
Mircea Radulian  
Robert Reinke  
Paul Richards  
Adam Ringler  
D. Rivers  
Adrian Rodriguez-Marek  
Jorge Roman-Nieves  
Stephanie Ross  
Linda Rowan  
Larry Ruff  
Eric Sandvol  
William Savage  
Anshel Schiff  
Lisa Schleicher  
Nicholas Schmerr  
David Schwartz  
Craig Scrivner  
Emel Seyhan  
Anjana Shah  
Peter Shearer  
Yang Shen  
Richard Sibson  
Tim Sickbert  
David Simpson  
Paul Spudich  
Yuri Starovoit  
Seth Stein

Christopher Stephens  
J Stepp  
Michael Stickney  
Gerardo Suarez  
Fumiko Tajima  
Brian Terbush  
Amanda Thomas  
Stephen Thompson  
Hrvoje Tkalcic  
M Nafi Toksoz  
Nino Tsereteli  
Michael Tsesarsky  
Elizabeth Vanacore  
Christa Von Hillebrandt-Andrade  
Marianne Walck  
William Walter  
Joachim Wassermann  
Craig Weaver  
Ray Weldon  
Ray Wells  
Rodney Whitaker  
Lorraine Wolf  
Jiakang Xie  
Xiao-Bi Xie

CORPORATE SPONSORS/  
DONORS

REF TEK®, a Trimble Brand







Seismological Society of America  
400 Evelyn Avenue, Suite 201  
Albany, California 94706-1375

510-525-5474 • [info@seismosoc.org](mailto:info@seismosoc.org)

**[seismosoc.org](http://seismosoc.org)**