EarthScope Consortium

ANNUAL REPORT 2025

Statement from Board Chair and CEO

The merger that created the EarthScope Consortium, and subsequent efforts to transform our processes, practices, and technical capabilities, were in large part guided by an imperative to win the NSF award for operation of the new National Geophysical Facility (NGF). In 2025, we realized this goal with a 5-year cooperative service agreement that has a budget of over $200 million. This commitment allows EarthScope and our user community the certainty, direction, and resources to transform US geophysics infrastructure. We will expand support to a wider range of disciplines that use geophysical data and instrumentation, advance technologies in data flow and hardware, and substantially widen our workforce development programs.

EarthScope continues to serve other federal agencies, especially NASA and the USGS, by providing advanced hardware, information, and training capabilities that support a wide range of research and operational monitoring. Finally, we continue to expand our commercial and applied products, supporting sensor networks and real-time data for state and local government and the hazards, positioning, and surveying sectors.

All of our successes in the past few years and in the 5-year period to come are built on the foundation of you all, our stakeholders. We are proud to support your investigations of our dynamic planet and products that keep human communities safe and sustainable. We hope you will join us in celebrating and shaping the future of geophysics infrastructure!

— *Gareth Funning, Board of Directors Chair, and Becks Bendick, Chief Executive Officer*

NATIONAL GEOPHYSICAL FACILITY
Operated by EarthScope

Highlights

FIND OUT MORE

1 The last few years have been a time of transition, from the merger to form EarthScope to the start of the NSF National Geophysical Facility. Although pushing ahead in new directions has required a concerted effort, we've also taken moments to look back.

A paper published in July in the journal *Perspectives of Earth and Space Scientists* presents a history of UNAVCO, tracing its origins from a small university GPS consortium in 1984 to its evolution into a world-leading geodetic facility operator.

One component of that story is the geodetic Plate Boundary Observatory—now the Network of the Americas. One of a pair of news articles highlighted some of the scientific developments enabled by this network over the past 22 years, as it grew to extend from Alaska to the Caribbean.

The other story focused on the USArray—another key part of the EarthScope program funded by the U.S. National Science Foundation in 2003. Between 2004 and 2021, seismometers were deployed in more than 2,000 locations, rolling from the West Coast to the East Coast before jumping to Alaska and northwestern Canada. A pool of seismic instruments for localized experiments and a parallel magnetotelluric survey of the contiguous United States were also part of the project. These efforts have produced giant datasets that are still being mined for new insights.

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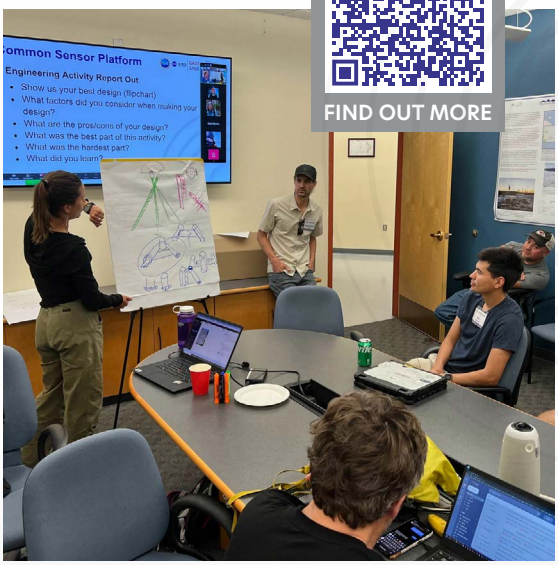


FIND OUT MORE

2

The Common Sensor Project has brought together engineers from across EarthScope's Instrumentation Services to unify and standardize engineering practices and station designs into a modular, scalable platform. In August, a paper published in the journal *Perspectives of Earth and Space Scientists* describes the motivation and outcomes of this project.

Additionally, an interactive station builder tool was publicly released, enabling prospective PIs or students to explore configurations of sensor deployments with power systems.

3

This year's technical short course offerings saw several major developments in service of clearer learning pathways. The first was the construction of a learning management system (Moodle) to host courses in a consistent environment with a focus on aligning course materials and assessment to a course's learning objectives. This also allowed us to issue a new verifiable digital credential and displayable badge to those who successfully complete each course.

A new asynchronous course, Introduction to the Generic Mapping Tools for Geophysics, was also launched—the first step toward on-demand training modules that can support other courses and onboarding for tools like new cloud data systems.

FIND OUT MORE

4

The RESESS, Geo-Launchpad, and Student Career internship programs included 31 interns this year. RESESS and Geo-Launchpad interns worked with mentors at a number of institutions, including New Mexico Tech, Caltech, the University of Texas at Austin, and the USGS Cascades Volcano Observatory, while Student Career interns worked directly with EarthScope staff.

Use the QR code below to learn more about the 2025 interns.

FIND OUT MORE

FIND OUT MORE

5

During the Antarctic field season, EarthScope staff worked at Mt. Erebus to download data and swap in some fresh batteries, and to make major upgrades to the network. Going into the season, there were three perimeter stations and four near the summit. A fifth summit station has now been installed, and the other four were replaced with new components.

The final tally on batteries hauled around by helicopter? About 14,000 pounds.

6

One of the enticing prospects driving our migration to cloud-native data archives is the removal of barriers. Certain things simply are not feasible for extremely large datasets in a traditional data center—such as applying a machine learning algorithm to the entire archive.

A pilot effort with one large research group did just that, using machine learning to generate a new earthquake catalog based on over a petabyte of seismic waveform data. The project provided a critical opportunity for EarthScope to learn more about how to facilitate this sort of processing and build out some of the required data infrastructure.

FIND OUT MORE

By the Numbers

October 2024–September 2025

462
NOTA engineer field maintenance visits

6,932
Seismic, MT, and GPR instruments supplied for
160
PI experiments

2,612
Applicants accepted in technical courses

>7.2 million
YouTube and TikTok video views

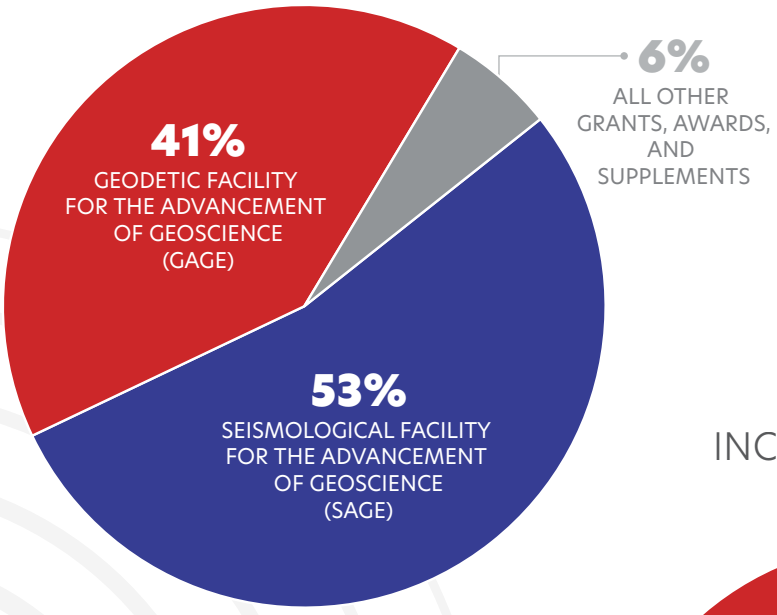
218 terabytes
New geophysical data archived

17
New staff onboarded

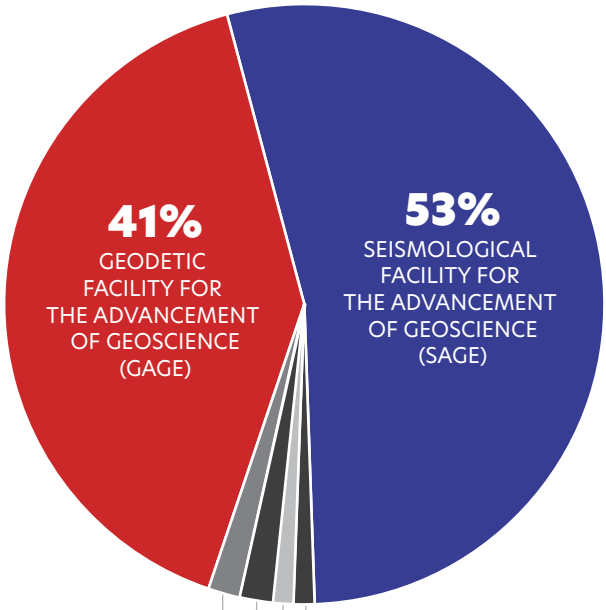
572
Digital credentials awarded

Financials

INCOME BY AWARD
$45,785,685



INCOME BY SOURCE
$45,785,685



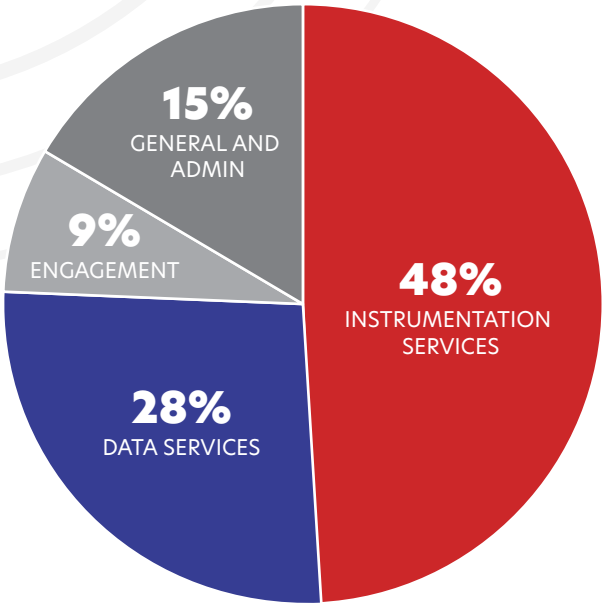
2% OTHER NSF

2% COMMERCIAL

1% INVESTMENT

1%
- OTHER FEDERAL AGENCIES
- AGENCY FOR CLIMATE DATA KLIMADATASTYRELSEN
- CAL TECH
- CALEDISON
- CARLETON COLLEGE
- COLORADO STATE UNIVERSITY
- CONCORD CONSORTIUM
- LAND INFORMATION NEW ZEALAND
- LAWRENCE LIVERMORE NATIONAL LABS
- OHIO STATE UNIVERSITY
- SOLANO COUNTY
- UNIVERSITY OF CALIFORNIA BERKELEY
- UNIVERSITY OF CALIFORNIA SAN DIEGO
- UNIVERSITY OF CALIFORNIA SANTA CRUZ
- UNIVERSITY OF COLORADO BOULDER
- UNIVERSITY OF DURHAM
- UNIVERSITY OF MICHIGAN
- UNIVERSITY OF TEXAS
- UNIVERSITY OF WISCONSIN MADISON
- YUROK TRIBE

EXPENDITURES BY PURPOSE
$44,947,907



Community Contributions

2,800
VOLUNTEER HOURS

Members of the Board and Advisory Committees volunteered a combined 2,800 hours of their time meeting between October 2024 and September 2025.

Please consider volunteering for the Board or Advisory Committees to serve as a liaison to the EarthScope and the NSF NGF facility user community. Visit our website for nomination information.

EARTHSCOPE BOARD OF DIRECTORS

The Board of Directors serves as nonprofit governance to EarthScope Consortium.

Gareth Funning (Chair), University of California, Riverside
Geoff Abers (Vice Chair), Cornell University
Zachary Eilon (Secretary), University of California, Santa Barbara
Paul Winberry (Treasurer), Central Washington University
Ruth Aronoff, Furman University
Greg Beroza, Stanford University
Kristel Chanard, Institut de physique du globe de Paris
Colleen Dalton, Brown University
Nate Lindsey, FiberSense
Beatrice Magnani, Southern Methodist University
Andrew Newman, Georgia Tech
Susan Owen, NASA Jet Propulsion Laboratory/Caltech

ADVISORY COMMITTEES

INTEGRATION AND INNOVATION ADVISORY COMMITTEE

The Integration and Innovation Committee investigates possible new strategic opportunities for EarthScope Consortium on topics such as emerging applications and technologies, leading practices in science support, and/or new or major revenue source.

Ronni Grapenthin (Chair), University of Alaska Fairbanks
Rick Aster, Colorado State University
Roland Burgmann, University of California, Berkeley
Heiner Igel, Ludwig-Maximilians-Universität München
Jessica Irving, University of Bristol
Stacy Larochelle, Lamont-Doherty Earth Observatory of Columbia University
Harriet Lau, Brown University
Alba Padilla-Rodriguez, Utah State University
Victor Tsai, Brown University
Kristel Chanard (Board Liaison), Institut de physique du globe de Paris

DATA PRODUCTS AND SERVICES ADVISORY COMMITTEE

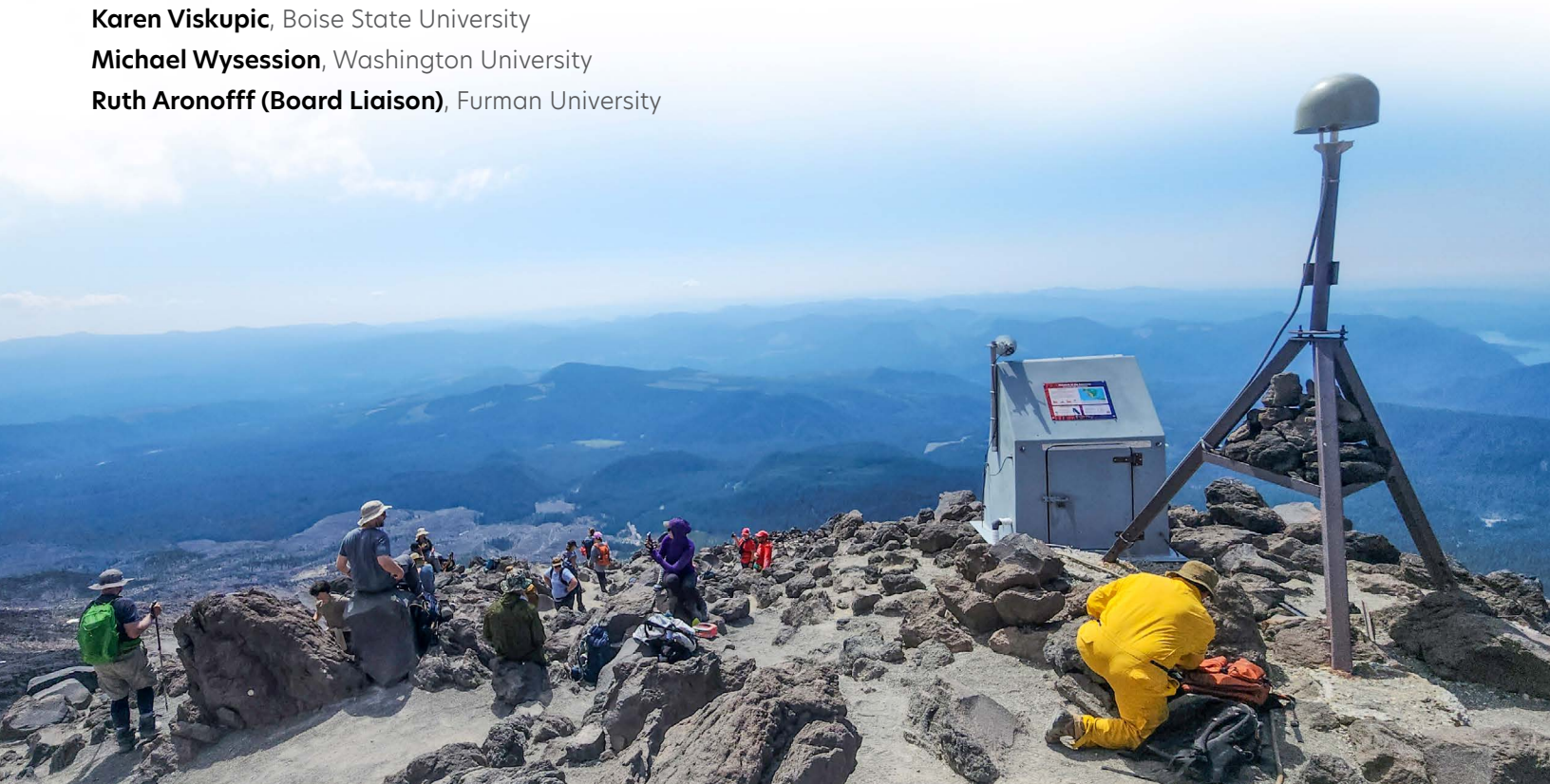
The Data Products and Services Advisory Committee advises on data and metadata distribution, standards, and quality for all geophysical data and data products in EarthScope Consortium's Data Services.

Angelyn Moore (Chair), NASA Jet Propulsion Laboratory/Caltech
Brendan Crowell, Ohio State University
Frossie Economou, LSST (Vera C. Rubin Observatory)
Mike Floyd, Massachusetts Institute of Technology
Andrew Goodwillie, Lamont-Doherty Earth Observatory of Columbia University
Noel Jackson, University of Kansas
Ved Lekić, University of Maryland
Eric Lindsey, University of New Mexico
Daniel Portner, New Mexico Tech
Greg Beroza (Board Liaison), Stanford University

ENGAGEMENT ACTIVITIES ADVISORY COMMITTEE

The Engagement Advisory Committee advises the EarthScope Consortium staff and Board of Directors on education, workforce development, outreach, community engagement, and representation.

Franz Meyer (Chair), Alaska Satellite Facility, University of Alaska Fairbanks
Zelalem Demissie, Wichita State University
Shannon Graham, The College of New Jersey
Aditya Kar, Fort Valley State University
Nicole LaDue, Northern Illinois University
Ishita Pal, University of Louisiana, Lafayette
German Prieto, Universidad Nacional de Colombia
Karen Viskupic, Boise State University
Michael Wysession, Washington University
Ruth Aronofff (Board Liaison), Furman University



NETWORK INSTRUMENTATION ADVISORY COMMITTEE

The Network Instrumentation Advisory Committee sets priorities for all aspects of network technology, including but not limited to instrumentation for geophysical measurements, geographic network configuration, communications, and power.

John Galetzka (Chair), National Geodetic Survey
Andy Barbour, United States Geological Survey
Ebru Bozdağ, Colorado School of Mines
Sigrún Hreinsdóttir, Earth Sciences New Zealand
Meredith Nettles, Lamont-Doherty Earth Observatory of Columbia University
Kristine Pankow, University of Utah
Weisen Shen, Stony Brook University
Carl Tape (GSNAC Liaison), University of Alaska Fairbanks
Susan Owen (Board Liaison), NASA Jet Propulsion Laboratory/Caltech

GLOBAL SEISMOGRAPHIC NETWORK ADVISORY COMMITTEE

The Global Seismographic Network Advisory Committee advises the NSF NGF (via the Network Instrumentation Advisory Committee) and the USGS on policies to deploy and operate the Global Seismographic Network (GSN), to ensure its integrity and long-term viability, to rapidly disseminate data collected by the GSN, and coordinate GSN linkages with other networks around the world.

Carl Tape (Chair), University of Alaska Fairbanks
Caroline Beghein, University of California, Los Angeles
Ebru Bozdoağ, Colorado School of Mines
Andrew Schaeffer, Natural Resources Canada
Cecily Wolfe, United States Geological Survey
William Yeck, United States Geological Survey
Colleen Dalton (Board Liaison), Brown University

PI INSTRUMENTATION ADVISORY COMMITTEE

The PI Instrumentation Advisory Committee sets priorities and identifies leading practices for project instrumentation, including emerging sensor technologies and applications.

Samantha Hansen (Chair), University of Alabama
Emily Brodsky, University of California, Santa Cruz
Rob Evans (Secretary), Woods Hole Oceanographic Institution
Yuning Fu, Bowling Green State University
Mong-Han Huang, University of Maryland
Shujuan Mao, University of Texas at Austin
Eileen Martin, Colorado School of Mines
Shawn Wei, Michigan State University
Surui Xie, University of Houston
Beatrice Magnani (Board Liaison), Southern Methodist University

EarthScope Consortium is a global community of hundreds of employees and tens of thousands of scientists, scholars, and educators. Our goal is to advance human understanding of Earth and its physical systems by democratizing access to geophysical observations and practices.

earthscope.org

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