# EarthScope Consortium

## ANNUAL REPORT 2023

# Statement from Board Chair and CEO

The inaugural year for the EarthScope Consortium has been an exciting and productive one. After our successful legal merger at the very beginning of 2023, we have been working hard to complete the more nuts-and-bolts aspects of the merger while also bringing together our IRIS and UNAVCO colleagues into a single organization, bound together by its core principles and its desire to serve the geophysical community.

Some key highlights from 2023 include the successful move of the instrumentation and related personnel from the UNAVCO Boulder facility to the EarthScope Primary Instrument Center (the EPIC) at New Mexico Tech, the transition of most SAGE and GAGE data operations to the cloud, over 150 new and ongoing PI Instrument deployments, the conversion of 100% of IRIS, UNAVCO, and then NMT-PASSCAL employees to the EarthScope Consortium, and the support for a very successful SAGE/GAGE science workshop and 30+ summer internships.

The staff is especially proud to point out that, throughout the complex merger transition, our operations in support of geophysics science and education never faltered. In operating the SAGE and GAGE facilities and executing more than a dozen other awards and contracts, our performance metrics stayed steady or improved in all areas. Instrument network uptimes didn't change for either the GSN or the GGN, and NOTA uptime improved with many station upgrades, especially in the Caribbean. Access to holdings in the SAGE and GAGE archives had only very minimal disruptions even as they were refactored to cloud-native architecture; latencies for real-time data are down.

As always, a central point of pride for our organization is that it has always been and will always be a Consortium, now with over 170 member institutions and almost 250 affiliate institutions. We have worked hard to establish the GAGE/SAGE Advisory Committee structure that interfaces directly with our Senior Management Team to ensure that the facilities we provide and the prioritizations that we make are in line with the needs of the scientific community we serve. We are also working to broaden the representation of our members and member institutions in our community governance structure. We hope that all of you will consider serving our Consortium, either on the Board of Directors or on any of our Advisory Committees.

The coming year will be a busy one. We have already begun to develop our proposal to respond to the National Science Foundation Request for Proposals for the National Geophysical Facility. We will be reaching out to the community through our Advisory Committees and our Board of Directors to ensure that your voices are heard in this process. Please reach out to any of us if you have questions or suggestions. The EarthScope Consortium is powered by the enthusiasm and dedication of its employees and of the community it serves. We look forward to continuing our work with all of you next year and for years to come.

— Becks Bendick, Chief Executive Officer,
and Lara Wagner, Board Chair

# Highlights


FIND OUT MORE

The primary initiative for the Data Services team is the ongoing migration to cloud data operations. Cloud computing is transforming scientific data processing and analysis, and this new architecture will enable the community to take full advantage of these capabilities. With the closure of the Boulder facility this fall, geodetic data systems were completely migrated out of that data center and into the cloud-a large and complex undertaking. While much of this work has been occurring behind the scenes, the benefits will become increasingly visible to users over the coming months as we reach more milestones.

The Common Sensor Platform project is building a common engineering framework across instrument types. This involves integrating engineering teams as well as physical station components, establishing processes for the new merged organization. Taking the lessons each team has learned over the years, this work will simplify station design and maintenance, while also making it easier to connect multiple sensors in combined systems.

FIND OUT MORE


NASA Jet Propulsion Laboratory's OPERA project is working on a new set of satellite data products for surface water, surface disturbance, and surface displacement. To facilitate calibration of InSAR ground displacement measurements, corner reflectors were deployed next to several NOTA stations along the San Andreas Fault, allowing the JPL team to compare satellite-measured displacement to the GPS/GNSS station data.

FIND OUT MORE



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All our previous summer internship programs continued through the merger, albeit with a couple name changes. The RESESS program supported 8 students, Geo-Launchpad also had 8, URISE had 11, the Student Career Program included 5 interns in instrumentation, science communication, and education, and a special International Undergraduate Internship for Seismology and Geodesy Skills Building program supported 7 more. You can read more about these students and their projects in the News & Features section of our website.

A new Global Seismographic Network station was installed near Jizzakh, Uzbekistan in March—the first station added to the network in several years. This international collaboration is the work of the IDA subaward team at UC San Diego.

# By the Numbers

October 2022–September 2023

**468**

NOTA station field engineer maintenance visits

**7,754**

Seismic sensors supplied for 138 PI experiments

**2,025**

Virtual short course participants

**1.35 petabytes**

Geophysical data distributed

**>2.7 million**

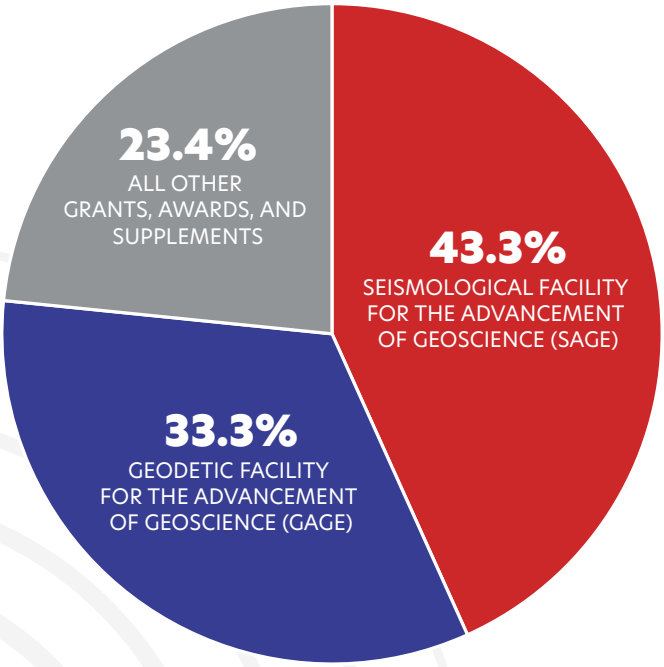
YouTube and TikTok video views

**19**

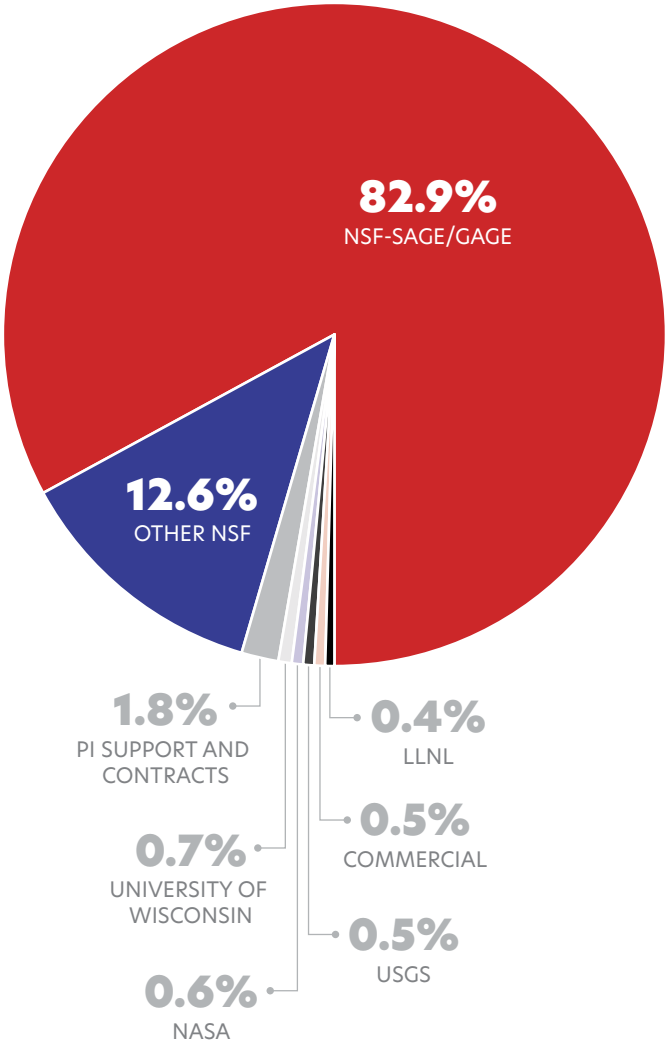
New hires

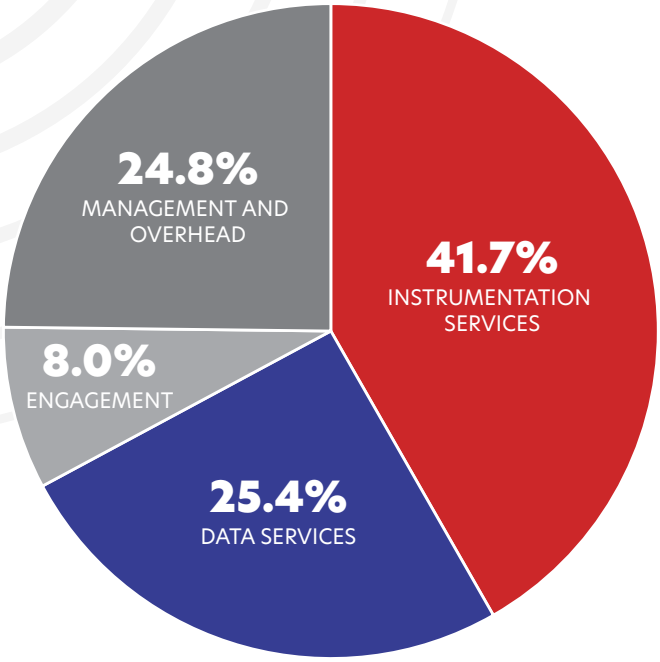
# Financials

## INCOME BY AWARD




## INCOME BY SOURCE




## EXPENDITURES BY PURPOSE


# Community Contributions

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

## EarthScope Board of Directors

**Lara Wagner (Chair)**, Carnegie Institution for Science
**Gareth Funning (Vice Chair)**, University of California, Riverside
**Leigh Stearns (Secretary)**, The University of Kansas
**Brandon Schmandt (Treasurer)**, University of New Mexico
**Kristel Chanard**, Institut de physique du globe de Paris
**Zachary Eilon**, University of California, Santa Barbara
**Jeffrey Freymueller**, Michigan State University
**Paul Lundgren**, NASA Jet Propulsion Laboratory
**Beatrice Magnani**, Southern Methodist University
**Anne Sheehan**, University of Colorado
**Frederik Simons**, Princeton University
**Tonie van Dam**, University of Utah

## Advisory Committees

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

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

**Engagement Activities Advisory Committee**
The EAC advises the EarthScope Consortium Staff and Board of Directors on education, workforce development, outreach, community engagement, inclusion, and representation.

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

**Global Seismographic Network Advisory Committee**
The GSNAC advises the SAGE facility and the USGS on policies to deploy and operate the 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.

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

## earthscope.org

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 the Earth and its physical systems by democratizing access to geophysical observations and practices.

NSF NASA USGS science for a changing world | GAGE SAGE | Operated by EarthScope Consortium