AGU Distributed Sensing Technical Committee

Welcome & Update from the Chairs

Small things matter. As we continue to advance the work of the Distributed Sensing Technical Committee (DS TC), it is wonderful to see all the ways that people contribute to building our community. Sharing ideas, contributing content, making contacts, leading initiatives, or just showing up – it is a reminder that supporting each other can take many different forms. Everything you do – big or small – is another stitch strengthening the fabric of our community. It means a lot when you contribute of your time and talent because truly making this a cross-cutting, interdisciplinary community requires perspectives from all AGU disciplines.

With that in mind, it was incredible to see members from 14 different AGU Sections respond to the Standards and Practices Platform survey sent out last month (results are reported later in the newsletter). The Community Science and Public Education sub-committee is also initiating a new Standards and Practices Handbook, which will be yet another great opportunity to get involved. And you will have many cross-disciplinary options for sharing your knowledge and expertise at AGU26 given the dedication of our members who submitted ten proposals for sessions, Town Halls and workshops.

Momentum is growing around our interdisciplinary community! Let's each commit to continuing to do the small things – whatever that may be in your own circumstance – that will weave us into an interdisciplinary fabric that is not only beautiful, but also strong enough to support and hold us together.

See you at our next community meeting on May 13!

Stephen Moysey (Chair) & Emily Elhacham (Co-Chair)
AGU Distributed Sensing Technical Committee (DS TC)

Join us for our next DS TC Community Meeting

Wednesday, May 13, 2026

10:00AM Pacific Time US

The link was distributed to the DS TC email list.

AGU26 Planning Update

AGU26 is shaping up to be a busy year for the distributed sensing community in San Francisco! Through the hard work of many people, six session proposals were submitted and are under review, including four MacGyver Sessions proposed in different Sections (Near Surface Geophysics, Hydrology, Space Physics & Aeronomy, and Science & Society). In addition, the DS TC is sponsoring proposals for two Town Halls and two workshops.

In addition to the regular sessions, we are working with AGU Open Science to organize a second year of Exhibit Hall Tours. Please consider leading one of these tours as it was a fabulous experience for everyone last year.

Finally, we are exploring an opportunity to have the DS TC support a hackathon during AGU to let everyone showcase their novel vision for how to collect, use, visualize or engage people in Earth Science data. If you are interested in being involved in this effort, please reach out to Stephen Moysey (moysey18@ecu.edu).

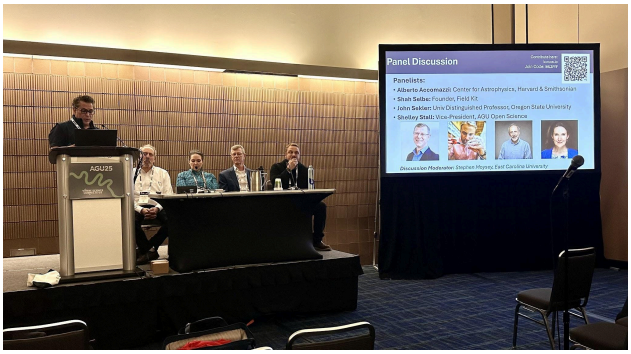
Abstract submissions for AGU26 will close on Aug.5, so start thinking about what you will submit today!

Report on AGU25 Science Exchange

SE23B: Advancing Community Collaboration Across AGU Sections to Support the Advancement of Distributed Sensing Instrument, Data, and Software Standards and Practices in the Earth and Space Sciences

Tuesday (Dec.16), 2:15-3:45PM, New Orleans Convention Center, 343

The Science Exchange session held during AGU25 was a great success! The session started off with Alberto Accomazzi (Harvard/Smithsonian), Shah Selbe (FieldKit), John Selker (OSU), and Shelley Stall (AGU) sharing their deep experience in building shared resources for communities – both of the scientific and broader variety. There were 25-30 participants in the session who built on these perspectives through a discussion on what actions we can take to meet the current needs of the Distributed Sensing community.



Three key priorities were identified from the discussion:

1. strengthening interdisciplinary collaboration,
2. advancing the use of cross-cutting, scalable sensing technologies, and
3. developing shared standards and best practices across the earth and space sciences.

The use of digital platforms, such as Discord, was specifically identified as a means to support informal social engagement and support building an inclusive community. The importance of building on existing knowledge and resources was also emphasized. Across all themes, a strong emphasis emerged around interoperability, FAIR data practices, benchmarking, open repositories, and cross-disciplinary standards development.

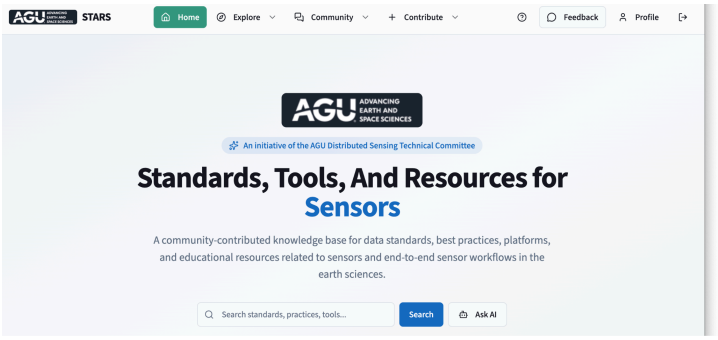
All three priorities center on communication and knowledge sharing across AGU Sections. As a result of this discussion, we have focused on knowledge sharing around Standards and Practices as a key theme for this year's Committee activities, which has led to the platform survey and Standards and Practices Handbook activities. The goal is to share our community's progress in these areas by AGU26.

A full report from the Science Exchange is available.

DSTC Online Community Platform for Sharing Standards and Practices

Checkout the platform prototype at agustars.lovable.app

The Standards and Practices Subcommittee has been quietly working away at finding standard operating procedures, standards documents, best practices, and other documentation of methods in our field to make life easier and data quality better for those of us doing distributed sensing work. We recently sent out a survey to the broader technical committee to ask about your interactions with standards and standards documents to support planning for a digital platform. We're in the process of reviewing that survey and summarizing its outcomes. At the next meeting we'd like to discuss these and find out what directions we can go in to help the most participants.



We are working on a full report, but the survey revealed that there is more interest in sharing resources than for supporting communication, though both of these functionalities were perceived to be of value to the community. Topics of interest were broad, but the two strongest were: (i) applications of sensors and sensor networks, and (ii) data standards, management, and accessibility. The types of content that were identified as being of most value to share through the platform included formal standards and practices as well as educational materials, but both should be shared through the lens of implementation and personal experience using mechanisms like videos, blog posts, and discussion boards. Several good examples of existing platforms were shared, including: EnviroDIY, Oceans Best Practices, The Cave Pearl Project, and the OPEnS Lab.

What does this mean?

The DS TC platform needs to:

- Prioritize sharing standards and learning content as a primary function
- Support communication between members as a secondary function
- Focus on making standards and practices accessible to both practitioners and novices
- Enable users to easily contribute and find relevant content
- Be a friendly, welcoming, and usable tool that is accessible to a wide range of users

Please visit the prototype platform at agustars.lovable.app to create a profile and contribute recommended standards and best practices, educational materials, or other information that you think would be of value to share with the community. We request your feedback about this platform to help us continue to evolve what will best meet the needs of our community. You can provide feedback to the committee by email or by simply clicking the “Feedback” button on the AGU STARS platform.

New CSPE Initiative: Distributed Sensing Handbook for the AGU Community

The DS TC Community Science and Public Education (CSPE) Group is launching a new collaborative initiative to develop a Distributed Sensing Handbook for the broader Earth and space science community.

Distributed sensing is increasingly used across disciplines such as hydrology, seismology, atmospheric science, ocean science, and cryosphere research. To help make these tools

and approaches more accessible, the handbook will serve as a concise, cross-disciplinary introductory resource featuring practical examples from different AGU sections.

The handbook is intended to:

- Support public education and outreach efforts
- Help early-career researchers get started with distributed sensing
- Enable researchers to learn DS tools and approaches outside their primary discipline

The project will be developed through a community-driven model, with contributors from different AGU sections helping lead chapters aligned with their expertise. Each chapter will be concise and practical, highlighting key sensing equipment, common methods, and real-world applications. We plan to begin with Distributed Sensing in Hydrology, followed by future chapters based on member expertise and interest.

We warmly invite DS TC members and the broader AGU community to participate by sharing feedback, suggesting chapter topics, or volunteering to contribute to future chapters.

Whether you are an experienced researcher, practitioner, educator, or early-career scientist interested in distributed sensing, we welcome your ideas and involvement in building this resource for the community!

Community Photos

East Carolina University scientists install and configure environmental monitoring equipment in the field, showcasing hands-on teamwork in deploying instrumentation. East Carolina University/Alex Manda, Char'Rese Finney

LoRaWAN sensors deployed by East Carolina University scientists as part of an environmental monitoring system. Credit: East Carolina University/Alex Manda, Char'Rese Finney

Behind-the-scenes look at recent East Carolina University fieldwork in Hyde County, where their team spent a full day maintaining environmental monitoring equipment and collecting high-precision data—excavating soil moisture sensors, replacing a CTD sensor, retrieving logger and tilt sensor data, recording manual water levels, and surveying elevations—all in support of the Environmental Sensors & Data Networks (ESDN) initiative at East Carolina University to better understand local water dynamics. For live action video, see https://www.youtube.com/watch?v=iw9eruNJVqs
Credit: Boris Dessimond

Community Announcements & Opportunities

Call for Critical Zone papers!

Frontiers in Water will be issuing a 2026 special collection on "Utilizing Well-Instrumented Critical Zone Sites: Infrastructure, Data Integration, and Advancements in Earth System Research." This collection invites papers from the international critical zone community that document different sensing and sampling systems deployed to make observations of processes, fluxes, and perturbations that span different temporal and spatial scales across varying landscapes and environments. We are particularly interested in leveraging novel systems and procedures capable of measuring a broad range of subsurface and ecosystem properties. Contact Diego Frankel water@frontiersin.org with any questions. The deadline is May 29, 2026.

DFOS/DAS Community: share papers, small findings, and field notes

From ayush@lightscline.com: Hey everyone, I started a Reddit community for DFOS / DAS (Distributed Fiber Optic Sensing).

Goal: A Open low-friction, friendly place to share anything related to DFOS including new papers (with quick takeaways), small findings/interesting signals that aren't "paper-worthy", ideas, methods, debugging, field notes (noise sources, coupling,

preprocessing, QA/QC, event detection, etc.), requests for collaborators/datasets/tooling or anything really.

Light self-promo is allowed, but readers should derive value from the content (new rules).

Why Reddit:

- Posts are readable without an account
- Search/discovery is strong, and LLMs tend to index Reddit content, so discussions become easier to find later

If you work with DAS/DFOS (subsea, energy, civil, geophysics, security, smart city—anything), you're welcome at https://www.reddit.com/r/DFOS/

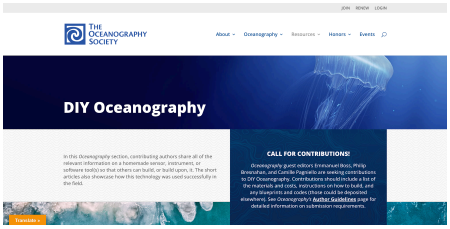
Stroud Center Hosts DIY Learning Hub

Stroud Water Research Center develops open source, do-it-yourself environmental hardware and hosts an open data portal. EnviroDIY is a community for DIY environmental science and monitoring that hosts Q&A forums for data loggers and sensors plus project blogs contributed by users. The certified open source Mayfly Data Logger and an extensive Modular Sensors library for Arduino-compatible devices are core to EnviroDIY. Any web-connected data logger can share data via POST request to the Monitor My Watershed Data Sharing Portal. This easy-to-use, open source data portal hosts billions of data records from contributors around the world. Check out how EnviroDIY and Monitor My Watershed can help you on your DIY journey, and join thousands of users as we celebrate over 15 years of open source innovation:

- https://www.envirodiy.org/
- https://monitormywatershed.org/browse/

Consider the *DIY Oceanography* section of *Oceanography* for your ocean sensor manuscripts!

Phil Bresnahan, one of our DS TC members, recently joined Oceanography as an Associate Editor of the DIY Oceanography section. In this Oceanography section, contributing



authors share all of the relevant information on a homemade ocean sensor, instrument, or software tool(s) so that others can build or build upon it. The short articles also showcase how this technology was used successfully in the field. Please consider this section for future manuscript submissions or reach out to Phil (bresnahanp@uncw.edu) if you think your work may be a match or learn more online at https://tos.org/diy-oceanography.

Distributed Sensing Researcher Profile: Marshall Worsham

Dr. Marshall Worsham is a postdoctoral researcher in the Climate & Ecosystem Sciences Division at Lawrence Berkeley National Laboratory. He is an interdisciplinary ecologist studying how high-elevation forests are responding to emerging climate and disturbance pressures using methods in field observation, remote sensing, dendrochronology, and biometeorology. Marshall earned his PhD in Energy and Resources from the University of California, Berkeley. He also holds an MPhil in political theory from the University of Oxford and a B.A. in political science from Davidson College.

Marshall investigates how landscape properties interact to shape forest structure and function in subalpine systems. By mapping canopy structure at the plant level using full-waveform LiDAR, he has found that patterns of snow accumulation and melt are closely associated with spatial variation in forest characteristics. He also uses tree rings to understand how landscape features have buffered trees from climate extremes in the past, and the extent to which this buffering may be eroding under unprecedented warming and drying. He maintains a network of soil moisture, snow-depth, and atmospheric sensors stratified along gradients of elevation, radiation, and soil texture to quantify water movement through the root zone. His work incorporates machine learning to integrate data across spatial and temporal scales. Together, these efforts advance understanding of forest dynamics, providing land

managers and modelers with actionable information as climate change accelerates in mountainous regions.

Most recently, Marshall has been completing a study evaluating the sensitivity of subalpine forest evapotranspiration (ET) to soil water potential and vapor pressure deficit (VPD) based on data from his distributed soil moisture and atmospheric sensors. Marshall also served as a co-lead for the 2025 Colorado Headwaters Ecological Spectroscopy Study. The multimodal campaign integrated an imaging spectroscopy and LiDAR acquisition with an intensive field sampling effort that captured observations of vegetation composition, foliar traits, forest demography, and subsurface geophysics. Data from the campaign are supporting an emerging body of work that will improve understanding of ecological responses to water stress in the Upper Colorado River system.

Want to suggest a researcher profile or have a new publication you'd like us to feature? Reach out to the Student and Early Career Subcommittee via Evan King (e_king@mit.edu).

Get involved!

Everyone in the distributed sensing research community across all AGU sections is invited to get involved in the DS TC!

- Post announcements & resources to the email group
- Volunteer as a liaison between with your home section or other committees
- Submit newsletter or social media suggestions

DS TC Website Updates

We updated and expanded the DS TC website to include

- Community calendar,
- Newsletter archive,
- Photo Gallery,
- Researcher Profiles,
- DS TC Bluesky RSS feed, and
- Much more!