

2022 ANNUAL REPORT

EARTH SCIENCE INFORMATION PARTNERS



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GRAPHIC DESIGN: ERICA CRUZ

IMAGE ID: AMER0268, NOAA'S SMALL WORLD COLLECTION
LOCATION: ALASKA, AMAKNAK ISLAND, DUTCH HARBOR
PHOTOGRAPHER: MR. TOM WARD NOAA TEACHER AT SEA PROGRAM

“

Be FAIR and CARE. The CARE principles bring a people and purpose orientation to data governance that complements the data-centric nature of the FAIR principles. So the FAIR principles seek to increase data sharing and implementation of the CARE and FAIR principles together should be seen as necessary to allow Indigenous peoples to access, govern, and use their data and to share on their own terms.”

- STEPHANIE RUSSO CARROLL, ASSISTANT PROFESSOR AT UNIVERSITY OF ARIZONA,
OPENING PLENARY:
MOVING BEYOND PRINCIPLES TO PRACTICE - ENGAGING INDIGENOUS COMMUNITIES

FAIR =
FINDABLE
ACCESSIBLE
INTEROPERABLE
REUSABLE

CARE =
COLLECTIVE BENEFIT
AUTHORITY TO CONTROL
RESPONSIBILITY
ETHICS

EARTH SCIENCE INFORMATION PARTNERS (ESIP)



ESIP'S EARTH SCIENCE DATA COMMUNITY MEETS AT THE INTERFACE OF TECHNOLOGY AND NATURE.
(KNOW WHAT THIS SPELLS IN BINARY CODE? TAG US AND SHARE @ESIPFED #EARTHSCIENCEDATA)

WHAT ESIP DOES

ESIP helps members of the Earth science data community find each other across organizations by fostering rich collaborative experiences like meetings and seed funding to further data interoperability.

ESIP holds twice annual meetings, monthly telecons, workshops, and funds ESIP Lab pilot projects. ESIP brings together organizations as partners and is driven by individual volunteers from partner organizations and the broader Earth science data community.



ESIP CELEBRATIONS

- RETURNED TO IN-PERSON GATHERINGS WITH THE JULY MEETING IN PITTSBURGH
- MADE MEETINGS ACCESSIBLE WITH A FULLY VIRTUAL JANUARY MEETING AND HYBRID JULY MEETING
- ENDORSED [SCIENCE ON SCHEMA.ORG GUIDANCE](#)
- BROUGHT TOGETHER 20 PARTICIPANTS IN FOUR WORKSHOPS FOR UNDERSTANDING NEEDS TO BROADEN OUTSIDE USE OF NASA DATA FOR THE ENVIRONMENTAL JUSTICE COMMUNITY ([UNBOUND-EJ](#))
- ORGANIZED FOUR [DATA HELP DESK](#) EVENTS
- SUPPORTED EIGHT [COMMUNITY FELLOWS](#)
- HOSTED MORE 400 [COMMUNITY-LED TELECONS](#)
- FOUNDED THE EQUITY, DIVERSITY, INCLUSION, AND JUSTICE ADVISORY COMMITTEE

THROUGHOUT THE REPORT, LOOK FOR STORIES TO SEE ESIP IN ACTION

“Whether it is to lower carbon footprints, to adapt to travel budget changes or to expand our reach, especially to more remote areas of the world, ESIP plans to hold one in-person meeting and one virtual meeting each year. We feel this can help us increase our reach in an inclusive and climate-friendly way.”

- SUSAN SHINGLEDECKER, ESIP EXECUTIVE DIRECTOR
Excerpt from her guest blog “[ESIP’s Meeting Culture and Community Participation Guidelines](#)”

DRONES MEASURE MOUNTAIN SNOW

ESIP IN ACTION

Mountain topography is what makes their vistas grand and awe-inspiring. Especially when the first snows outline peaks or linger late into the warmer months. But such variable terrain and seasonal changes present a challenge for measuring the reflectivity of snow, called albedo.

Albedo, the ratio of reflected to incoming solar radiation, is an important factor in water and climate balance calculations. In order to measure albedo in complex alpine terrain, researchers have to trek high to gather ground measurements or rely on precarious, high-altitude weather stations. Neither of which can capture a mountainous area's beautiful but heterogeneous snow cover.

That is why Eric Sproles from Montana State University applied for an ESIP Lab grant. He hoped that by using Uncrewed Aerial Vehicles (UAVs or drones), researchers could survey larger areas. The catch: The bird's eye view of a UAV generates slightly different measurements. So, the ESIP Lab helped cover ground measurement validation to determine the error correction for UAV albedo measurements. The incubator success helped set the stage for larger projects funded by the USGS National Innovation Center, USGS National Land Imaging Program, and Montana NASA EPSCoR.

In January 2022, Sproles and his team published their findings in *Frontiers in Remote Sensing*, offering an inspiring view not just from the mountaintop but of its snow-scattered, drone-surveyed topography, too.

—
Read more ESIP news and stories: esipfed.org/merge



GARDEN WALL WEATHER STATION, MONTANA
CREDIT: ERICH PEITZSCH, USGS

ESIP STRATEGY AND FOCUS

2021-2026 STRATEGIC THEMES

- THEME 1: MAKING EARTH SCIENCE DATA MATTER - INCREASE USE AND PROMOTE THE VALUE OF EARTH SCIENCE DATA AND INFORMATION
- THEME 2: ELEVATING EARTH SCIENCE DATA PROFESSIONALS
- THEME 3: PROMOTING A HEALTHY AND INCLUSIVE CULTURE
- THEME 4: INCREASING EARTH SCIENCE COLLABORATION INTERNALLY AND WITH PARTNER ORGANIZATIONS
- THEME 5: LEADING INNOVATION IN EARTH SCIENCE DATA FRONTIERS

[ESIPFED.ORG/STRATEGY](https://esipfed.org/strategy)

“

Specifically in the space of open data and platforms, when anyone can be a user, that means no one is a user ... We believe that hyperlocal data, community-focused data, and data from the community is going to shift how we provide answers and capability in the environmental space.”

- AMEN RA MASHARIKI, DATA AND SOCIAL JUSTICE FELLOW WITH BEZOS EARTH FUND
July Opening Plenary, Community-based Data Collective for Environmental Impact

2022: DATA FOR ALL

All people, including data professionals, researchers, public officials, and communities need access to usable data and information. Earth science data in particular can play a critical role in decision-making, especially in conjunction with other data. ESIP's theme for 2022 delved into the technology, data literacy, and process transparency that influence data generation, use, and understanding.

2023: OPENING DOORS TO OPEN SCIENCE

As ESIP begins our 25th year, we embrace the challenge of opening doors to open science. To many, science can appear to be a closed endeavor with inaccessible data and methods, with results not available to those who need them most. Our theme builds on the 2022 focus on access and equity and emphasizes the challenges and opportunities of open science, as 2023 is the Year of Open Science.

We will explore how the ESIP Community can play a role in opening doors to make our work more open. From building open-source software to reconciling pay-to-play open access, the impacts affect data management, geospatial tech, community building, and discoverability. We will learn not only how to unlock doors and open them, but how to hold them open for others.

BALANCING NETWORKING AND ACCESSIBILITY

ESIP's return to in-person networking was joyous, productive, and collaborative. However, virtual accessibility remains an important aspect of ESIP's offerings. To accommodate for larger budgets for hybrid AV and to maintain the high levels of participation seen in all-virtual events, ESIP will move forward with one virtual meeting and one in-person meeting in 2023.

MEETINGS

ESIP led a fully virtual meeting in [January 2022](#) and an in-person meeting with virtual access in [July 2022](#). Both events were successful and brought together a wide array of data professionals across the Earth sciences in government, academia, and industry. More than 300 people joined each meeting with 175 people joining in-person in Pittsburgh last July.

Throughout the year, ESIP provides a mostly virtual platform for researchers, computer scientists, data managers, and others to collaborate. As such, the organization and core community is well-equipped and experienced with virtual, collaborative tools and effective strategies for gathering feedback and maintaining engagement. ESIP continues to provide ongoing facilitation workshops for session organizers to enhance the community's skills in virtual knowledge exchange.

Returning to in-person events while leveraging the success of ESIP's virtual connections required thoughtful design by ESIP staff and deliberate training for session organizers and Community Fellows as well as bigger AV and food budgets. With the additional challenges of traveling during a pandemic, the in-person meeting was slated to be two-thirds in person and one-third online but ended up being closer to half and half – further highlighting the importance of hybrid options.

Based on post-meeting surveys, the challenges and price of returning to in-person was worth it. More than 90% of participants reported that they would recommend ESIP Meetings to friends and colleagues.

MEETINGS BY THE NUMBERS

2 ESIP MEETINGS	643 MEETING ATTENDEES
>200 SPEAKERS	243 FIRST TIMERS
>60 COMMUNITY-LED BREAKOUT SESSIONS	
63 RESEARCH SHOWCASE POSTERS, DEMOS, AND MORE	



THE 2022 JULY ESIP MEETING TOOK PLACE IN PITTSBURGH, PENNSYLVANIA. CREDIT: CHRIS MARSICANO/ESIP

JANUARY 2022

PLENARIES

OPENING PLENARY: MOVING BEYOND PRINCIPLES TO PRACTICE - ENGAGING INDIGENOUS COMMUNITIES

Speakers: Stephanie Russo Carroll, Valoree Gagnon, Kathleen Smith, and Emily Shaw

PLENARY: OPEN SCIENCE AND THE PRIVATE SECTOR - MAKING DATA MORE ACCESSIBLE THROUGH INNOVATION

Speakers: Allison Wolff, Ezinne Uzo-Okoro, and Kevin O'Brien

CLOSING PLENARY: STATE OF ESIP/ASSEMBLY BUSINESS MEETING/PEER RECOGNITION CEREMONY

Get a fast-paced overview of the [January 2022 Meeting Highlights](#) and other recordings on ESIP's YouTube channel.

JULY 2022

PLENARIES

OPENING PLENARY: COMMUNITY-BASED DATA COLLECTIVE FOR ENVIRONMENTAL IMPACT

Speakers: Rebecca Nugent and Amen Ra Mashariki

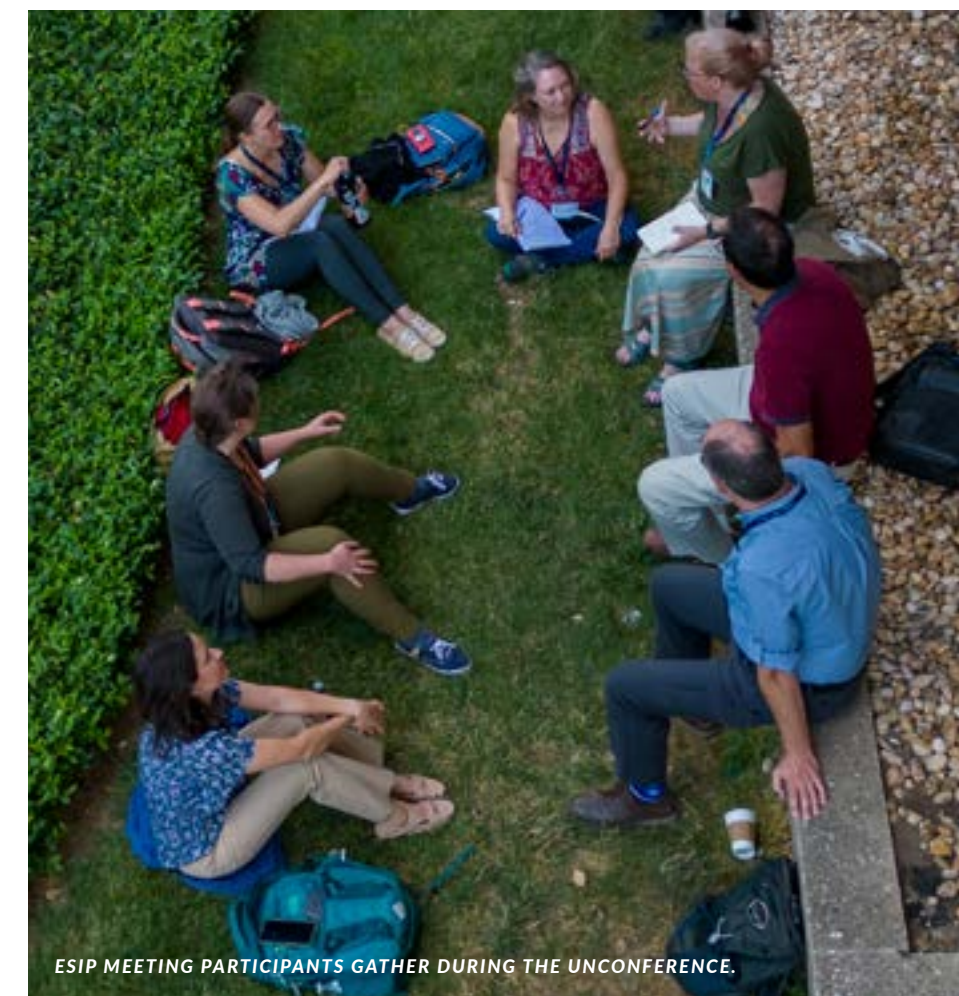
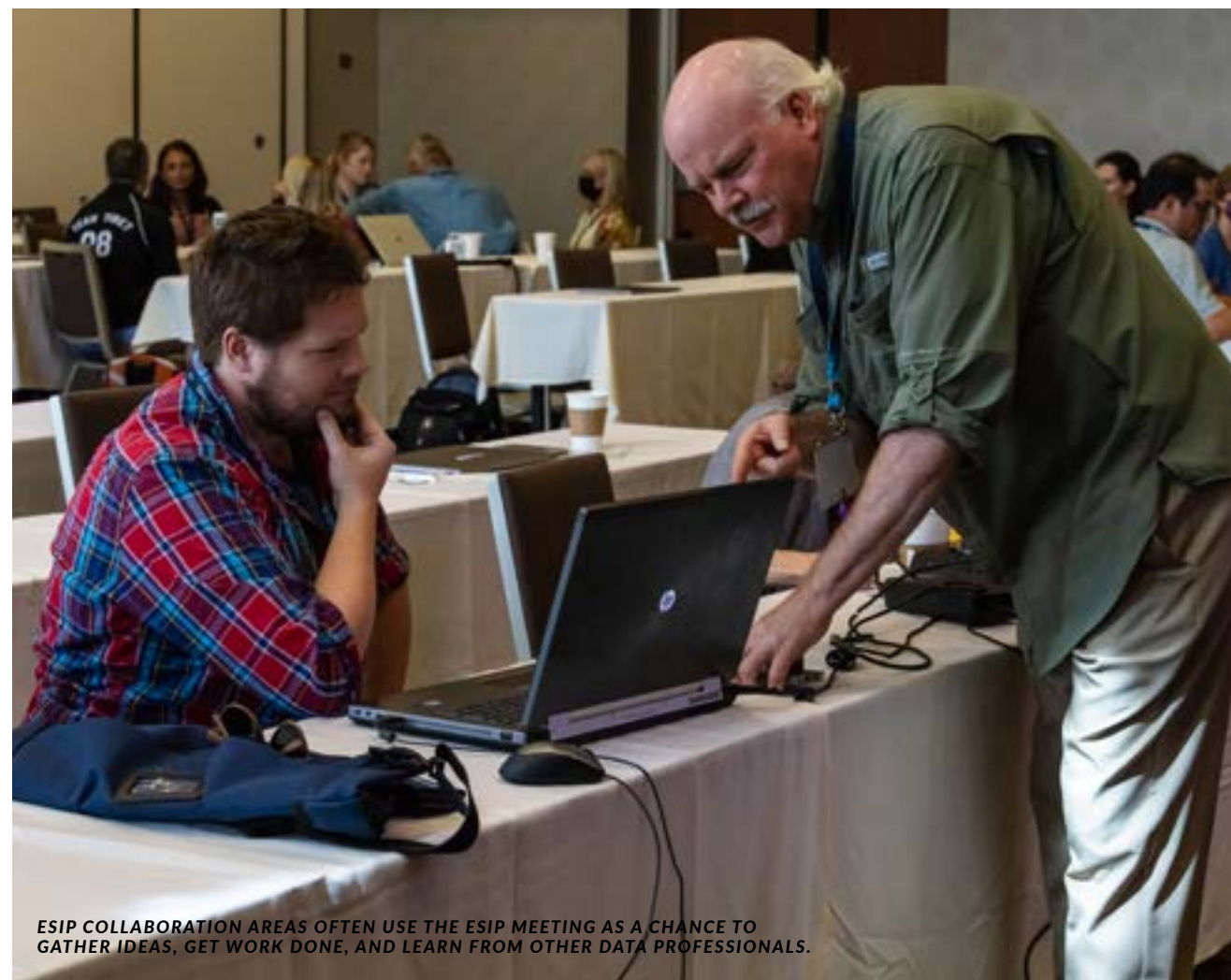
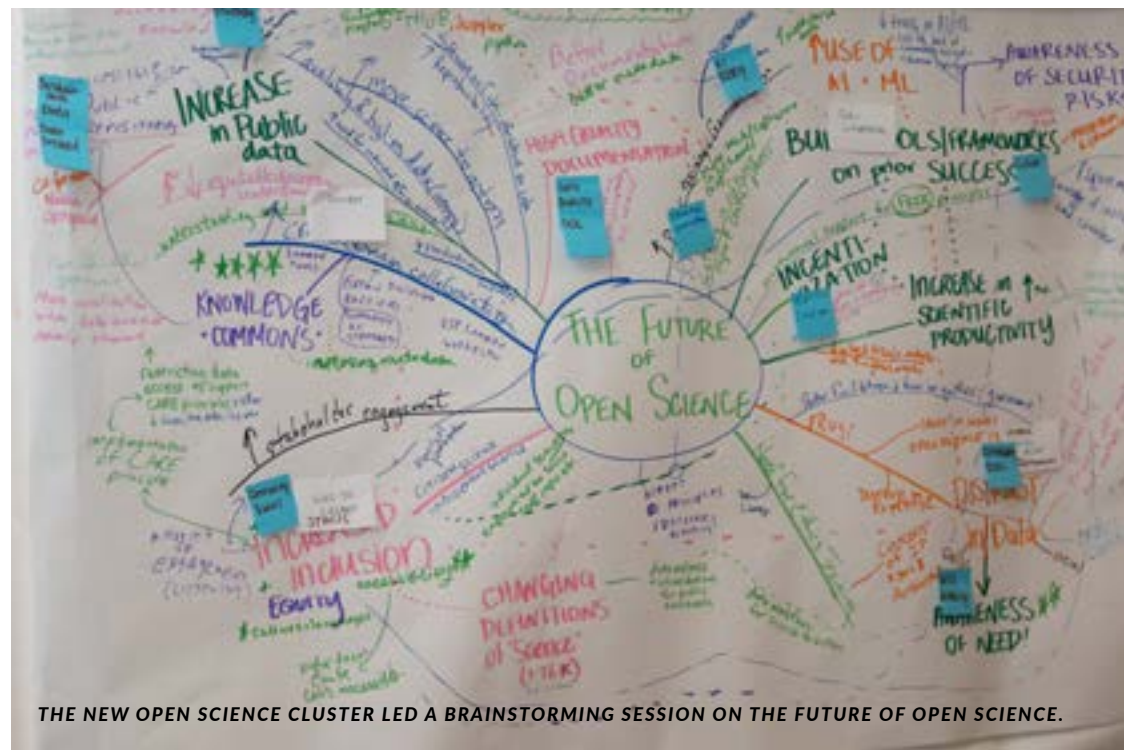
LAB PLENARY: FUNDAMENTAL RIGHTS, ANTI-DISCRIMINATION LAW, AND AI REGULATION AND MEANINGFUL ENGAGEMENT IN DATA FOR ALL PEOPLE

Speakers: Margaret Hu, Renée Sieber

CLOSING PLENARY: FUNDING FRIDAY ANNOUNCEMENT & AWARDS CEREMONY

Speakers: Colette Brown and Ryan Abernathey

Experience the collaboration and innovation in the [July 2022 Meeting Highlights](#) on the ESIP YouTube channel.



COLLABORATION

CLUSTERS

Cluster participants are professional volunteers who come together to discuss, learn, develop solutions, and seek opportunities in Earth science data, leveraging each others' expertise to address challenges at their home institutions.

Collectively, clusters and technical committees are called collaboration areas by the ESIP community and focus on domain areas. Administrative committees help guide and govern ESIP. Join a monthly telecon, contribute to a cluster project, or connect with other Earth science data professionals: esipfed.org/collaborate

COLLABORATION AREAS

CLUSTERS

- | | |
|--|--|
| <ul style="list-style-type: none"> • Agriculture and Climate • Air Quality • Biological Data Standards • Cloud Computing • Coalition on Publishing Data in the Earth and Space Sciences (COPDESS) • Community Ontology Repository (COR) • Community Resilience • Council of Data Facilities (CDF) (New in FY22) • Data Management Training Clearinghouse Working Group • Data Readiness • Disaster Lifecycle • Discovery | <ul style="list-style-type: none"> • E2SIP • Envirosensing • Information Quality • Machine Learning • Marine Data • Open Science (New in FY22) • Physical Sample Curation • Research Artifact Citation • Schema.org • Semantic Harmonization • Soil Ontology and Informatics • Sustainable Data Management |
|--|--|

TECHNICAL COMMITTEES

- Data Stewardship Committee
- Education Committee
- Information Technology and Interoperability (IT&I) Committee
- Semantic Technologies Committee

ADMINISTRATIVE

- Equity, Diversity, Inclusion, and Justice (EDIJ) Advisory Committee
- Finance Committee
- Governance Committee
- Meetings Committee
- Nominations Committee
- Partnership Committee
- Program Committee

PROJECT HIGHLIGHTS

EDUCATION COMMITTEE

WHAT WE DID: Organized a teacher workshop and presented the Out2Lunch webinar series to connect teachers and students with ESIP data practitioners and Earth science tools.

WHY WE DO IT: Facilitating data competency for a future workforce benefits societies facing environmental challenges like climate change, resource depletion, air and water quality issues, and extreme weather.

RESEARCH ARTIFACT CITATION CLUSTER

WHAT WE DID: Wrote an op-ed in Eos titled "Credit Where Credit is Due" about revamping how research contributions are recognized.

WHY WE DO IT: Research takes a village. Let's recognize people for different contributions, whether their work is data management, sample collections, or another aspect.

DATA READINESS CLUSTER

WHAT WE DID: Created a step-by-step list of leading practices for assessing, managing, and analyzing open Earth science data for artificial intelligence (AI) and machine learning (ML) applications.

WHY WE DO IT: Like a pre-flight checklist for pilots, our tool helps researchers and data managers ensure open environmental data can fly to its fullest (and fastest) heights with AI and ML.

COMMUNITY RESILIENCE CLUSTER

WHAT WE DID: Gathered challenges and solutions for geoscientists to include place-based, community resilience in their research.

WHY WE DO IT: Climate change, natural disasters, and public health threats test the durability of our society. Community resilience focuses on the capacity to respond and bounce forward after these life-changing events.

INFORMATION QUALITY CLUSTER

WHAT WE DID: Facilitated an international collaboration to develop guidelines for dataset quality and to organize FAIR practices for data managers and repositories.

WHY WE DO IT: Dataset quality underpins the success of our community's work being findable, accessible, interoperable, and reusable (FAIR).



THE SCHEMA.ORG CLUSTER WORKS ON METADATA STANDARDS TO HELP IMPROVE EARTH SCIENCE DATA DISCOVERABILITY.
CREDIT: CHRIS MARSICANO/ESIP

METADATA GUIDANCE

ESIP IN ACTION

Across the sciences, researchers produce millions of peer-reviewed scientific papers in hundreds of thousands of publications every year. But this is only one look at research productivity, which many in the Earth science data community see as too narrow and sometimes problematic.

In the era of Big Data and the pressures of “publish or perish,” discoverable and reusable datasets are like diving for pearls — they are hard to find within a whole ocean and hunting skillfully takes years of practice.

To make Earth science data easier to find, Schema.org markup offers a solution through standardization and consistency. In ESIP, the [Schema.org Cluster](#) has developed [guidelines](#) to help data-generating groups format the metadata on dataset web pages. Clearer metadata in domain-specific formats is like providing a pearl-diving map and seafloor scanner, making datasets easier for search engines to read, categorize, and share.

Now endorsed by the ESIP Partner Assembly, the Science On Schema.Org (SOSO) Guidance Documents version 1.3.0 ([DOI 10.5281/zenodo.4477164](#)) can help on multiple scales, from individuals to labs, from research institutions to repositories.

Read more ESIP news and stories: esipfed.org/merge

ESIP LAB

ESIP's agility is showcased in the ESIP Lab, which provides small-grant funding opportunities for Earth science technology research projects. Each project must outline a specific learning objective, and rather than convincing funders that a proposal has all the answers already, the ESIP Lab looks at roadblocks that a small investment can help overcome. The Lab also provides a collaborative environment, access to tools and cloud resources, and support to innovate.

A key ESIP Lab collaboration is the NOAA Cloud Pathfinders Program (NCP), which was [presented at the 2022 July ESIP Meeting](#). As a pilot project, the program focuses on how to maximize cloud resources for climate research. NCP enables scientists to transition existing research or production workflows to the cloud



WITH FUNDING FROM THE ESIP LAB, TRUNG LE AND COLLEAGUES FOUND THAT ICE COVER PLAYS A SIGNIFICANT ROLE IN SEDIMENT TRANSPORT NEAR RIVER BANKS IN SPRING. AS CLIMATE CHANGE CONTINUES, SHORTER WINTERS ARE EXPECTED TO RESULT IN FEWER ICE-COVERED DAYS FOR NATURAL STREAMS.
CREDIT: TRUNG LE, UNIVERSITY OF NORTH DAKOTA

alongside a cohort of other learners. Amazon Web Services (AWS) provided cloud credits to kickstart NCPP and supported each NCPP project with one-on-one consultations with their Solution Architects to develop cloud best practices and maximise the use of cloud resources for their project.

In 2022, the ESIP Lab partnered with machine learning (ML) experts and geoscientists to put out a special request for proposals to build an ML curriculum. This [special ESIP Lab RFP](#) brought together ML tutorials related to hydrology, seismology, and the cryosphere. The seed funding started at \$5,000, with an additional \$2,000 for including [Geoweaver](#). The funded tutorials, which are still being developed, will be included in the [GeoSMART curriculum](#), an NSF-funded initiative to educate the next generation of researchers to use and adopt powerful machine learning tools.

[Read a Q&A](#) with ESIP participants Ziheng (Jensen) Sun from George Mason University and Nicoleta Cristea from the eScience Institute at the University of Washington on the GeoSMART collaboration.

FUNDED PROJECTS

ML TUTORIAL COHORT

GLACIERSTATS: OPEN SOURCE GEOSTATISTICS SOFTWARE AND EDUCATIONAL MATERIALS IN PYTHON
Emma MacKie | University of Florida

INTEGRATED GRADIENT BOOSTING DECISION TREES AND DEEP LEARNING FOR LARGE-SCALE SWE ESTIMATION
Ryan Johnson | University of Alabama

DEEPICEDRAIN - MACHINE LEARNING-POWERED LOW-LATENCY ICESAT-2 POINT CLOUD PROCESSING
Wei Ji Leong | Oregon State University

HIGH RESOLUTION PREDICTIONS OF GLOBAL SNOW USING RECURRENT NEURAL NETWORKS
Andrew Bennett | University of Arizona

MACHINE LEARNING FOR FLOOD RISK ASSESSMENT
Tom Narock | Goucher University

EXPLAINABLE AI: AN APPLIED TUTORIAL OF SYMBOLIC REGRESSION FOR EARTH SCIENTISTS
Etienne Chenevert | Indiana University

2022 LAB-FUNDED PROJECTS

DEEP LEARNING BASED SUBMESOSCALE OCEAN EDDY DETECTION ON THE AMAZON WEB SERVICE CLOUD
Jianwu Wang | University of Maryland, Baltimore County | 8/30/2021 - 5/31/2022

COMPARISON OF MACHINE LEARNING TECHNIQUES FOR PREDICTING COMPLEX FLOWS AT THE BREACH OF THE GREAT SALT LAKE
Som Dutta | Utah State University | 8/30/2021 - 12/30/2022

DEVELOPING A CLOUD-BASED OPEN-SOURCE PLATFORM FOR AN AUTOMATIC HIGH-THROUGHPUT MONITORING SYSTEM TO SAFEGUARD STREAM WATER QUALITY
Tao Wen | Syracuse University | 8/30/2021 - 5/31/2022

PARTNERSHIPS

Partner organizations create the stable backbone of ESIP's collaborative infrastructure.

From meetings to telecons, individual participation is open to everyone and it is not a requirement for participants to be part of member organizations. Organizations can become ESIP partners with voting representatives and volunteers who often help lead as cluster chairs, session organizers, and committee members. Additionally, some partner organizations step up as financial contributors and become sponsors. ESIP is supported by cooperative agreements with three federal agencies: National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and United States Geological Survey (USGS).

NEW PARTNERS

Welcome to our new partners!

FARALLON INSTITUTE
www.faralloninstitute.org

AUSTRALIAN RESEARCH DATA COMMONS
ardc.edu.au

OPENAQ
openaq.org

SYNOPTIC DATA PBC
synopticdata.com

AZAVEA
azavea.com



SPONSORS

ESIP is a community that spans multiple sectors including government, academic institutions, and the private sector. Sponsoring ESIP brings an organization's financial support along with products, expertise, and people. We are grateful for our growing sponsorship from the following organizations.

AMAZON WEB SERVICES (AWS)
July 2022 Premier Sponsor
In-kind Sponsor
\$50K ESIP participant use of AWS credits
aws.amazon.com

MICROSOFT
January 2022 Gold Sponsor
microsoft.com

ESRI
July 2022 Silver Sponsor
esri.com

ELEMENT 84
Social Sponsor
element84.com

AGU
January 2022 Research Showcase Sponsor
agu.org

FIGSHARE
In-kind Sponsor
figshare.com

FEDERAL PARTNERS

NASA, NOAA, and USGS provide the foundation of funding and support for the ESIP Community. Multiyear cooperative agreements with our federal partners focus on collaboratively meeting needs in Earth science data management, engaging a broad community to do so. Even with different data and missions, each agency shares challenges like navigating commercial partnerships, moving data to the cloud, and connecting with domain scientists and the next generation.

NASA

ESIP supports the annual [Earth Science Data System Working Groups \(ESDSWG\)](#) and runs the evaluation process for the [Advanced Information Systems Technology \(AIST\) Program](#). ESIP Lab Director Annie Burgess is the Technical Chair of the Collaboration Methods in Technology Infusion (CMTI) Working Group and coordinates the [Ignite@AGU](#) rapid-fire storytelling event.

Understanding Needs to Broaden Outside Use of NASA Data for the Environmental Justice Community (UNBOUND-EJ) seeks to make NASA tools and resources more usable and accessible to a wider audience. ESIP [supported four workshops](#) with more than 20 participants and provided a [recommendation report](#).



NOAA

In September 2022, ESIP helped organize the [NOAA Environmental Data Management Workshop \(EDMW\)](#) and supported the fourth [NOAA AI Workshop](#) in September 2022 on leveraging artificial intelligence in environmental sciences. The ESIP Lab and NOAA's Open Data Dissemination program piloted and shared the NOAA Cloud Pathfinder initiative for next-gen satellites.



USGS

The USGS Center for Data Integration (CDI) and ESIP's Information Technology and Interoperability (IT&I) [Committee](#) continue to collaborate on a monthly tech dive webinar. Early in the year, USGS also featured one of ESIP's volunteer leaders and USGS data scientist, Abby Benson, in an [article about data management](#) that paired with an [ESIP guest blog by the Biological Data Standards Cluster](#).



A RIVER RUNS THROUGH SLACK

ESIP IN ACTION

“Tap to drop a raindrop anywhere in the world and watch where it ends up.”

The [River Runner data visualization](#) is an open-source work-in-progress created by a team including several ESIP volunteers from the USGS. Dave Blodgett from U.S. Geological Survey - Water Mission Area, now ESIP’s chair of the Information Technology and Interoperability (IT&I) Committee, was one of the back-end developers alongside Ben Webb and Kyle Onda from the Center for Geospatial Solutions, Lincoln Institute of Land Policy. Sam Learner, a graphics journalist with the Financial Times, designed the user interface.

Blodgett and the rest of the team wanted to demonstrate how the [Internet of Water’s](#) open framework could innovate data and information exchange. With both the [U.S. River Runner](#) and [global version](#), the project is a showcase of what open-source data and creative collaboration looks like.

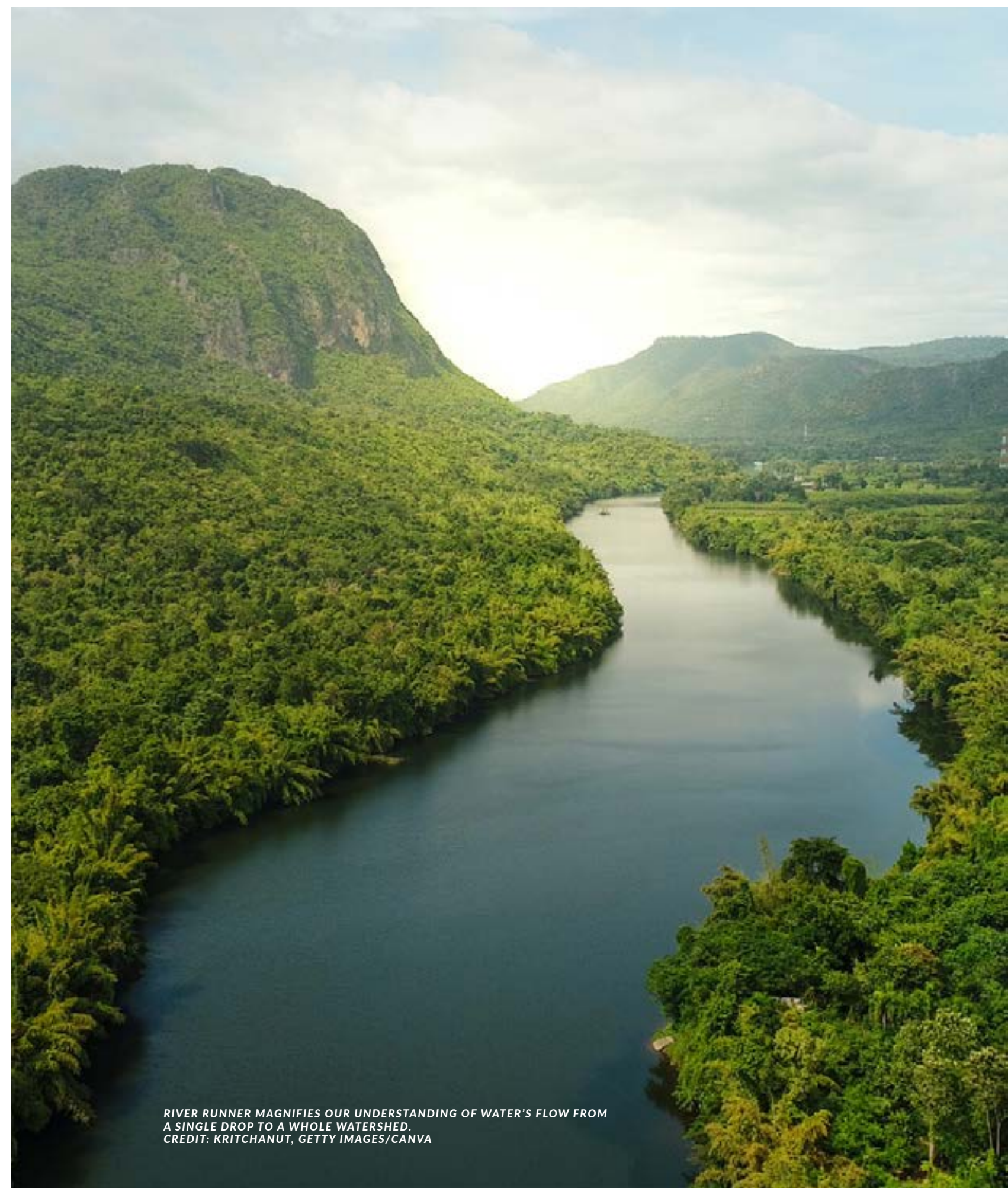
The ESIP team found out about the project because we noticed an odd blip in our Slack data. Some of the project’s key orchestrators in #river-runner-global were using ESIP Slack more than staff! This Slack meander is one of ESIP’s goals: Open the path of least resistance for Earth science data professionals to find their flow and connect to people outside their own organization. Sometimes a single raindrop can reveal the connections of a whole watershed.

Read more ESIP news and stories: esipfed.org/merge

<https://river-runner.samlearner.com/>

<https://river-runner-global.samlearner.com/>

<https://ksonda.github.io/global-river-runner/>



RIVER RUNNER MAGNIFIES OUR UNDERSTANDING OF WATER’S FLOW FROM A SINGLE DROP TO A WHOLE WATERSHED.
CREDIT: KRITCHANUT, GETTY IMAGES/CANVA

AWARDS

An important aspect of the ESIP community is recognizing the outstanding accomplishments, achievements, and service to our community by individual participants. [Read more.](#)

CATALYST AWARD

Given to participants who have brought about positive change in ESIP and inspired other members to take action. Selected by the President, the award recognizes exceptional volunteer efforts and enthusiasm.

ABBY BENSON, BIOLOGIST, USGS

WHAT I DO: I lead the Biological Data Standards Cluster. In our first year, we created and shared a primer for data managers handling large bio datasets.

WHY I DO IT: Biodiversity matters. Understanding trends is complex, so my team wants to make the data more accessible and reusable.

ESIP PARTNER OF THE YEAR

This award, selected by the Partnership Committee, honors an ESIP partner organization that best exemplifies the spirit of ESIP. This is often through collaboration, supporting data exchange, contribution to the ESIP community, or leadership in Earth science data.

BIOLOGICAL AND CHEMICAL OCEANOGRAPHY DATA MANAGEMENT OFFICE (BCO-DMO)

BCO-DMO has been an active partner since 2013, helping build the ESIP community's exploration and development of novel ideas, practices, and infrastructure that support data stewardship and use within the geosciences. BCO-DMO staff regularly co-chair ESIP meeting sessions and participate in ESIP clusters throughout the year, including the Biological Data Standards, Marine Data and Schema.org. They have contributed to notable projects including a data manager primer for biological data, draft recommendations for publishing non-tabular, complex ecological datasets, and three versioned releases of Science on Schema.

MARTHA MAIDEN AWARD

Named for Martha E. Maiden, Program Executive for Earth Science Data Systems at NASA, the award honors individuals who have demonstrated leadership, dedication, and a collaborative spirit in advancing the field of Earth science information.

CHRISTOPHER LYNNES, EOSDIS SYSTEM ARCHITECT (RETIRED), NASA

WHAT I DO: I have led the ESIP Discovery Cluster, helping to make data easier to find and use.

WHY I DO IT: I just retired, and I've seen the impact good data management has on real-world challenges. Big data is only as good as the architecture supporting it.

PRESIDENT'S AWARD

Selected by the current ESIP President, the award recognizes a participant who has made significant, tangible contributions to ESIP during the previous year.

ROBERT R. DOWNS, SENIOR DIGITAL ARCHIVIST, CIESIN, COLUMBIA UNIVERSITY

WHAT I DO: Contribute to ESIP Collaboration Areas and help ensure that data is curated, open, preserved, and reusable.

WHY I DO IT: Through serving on the leadership team of the Information Quality Cluster, I've learned about the importance of cross-collaboration within ESIP and working across disciplines to improve the use of Earth science data.

RASKIN SCHOLAR

Given to a current graduate student in the Earth or computer sciences, the scholarship is named for longtime ESIP community member Robert G. Raskin, and seeks to promote collaboration, research support, and exposure for talented students with an interest in community evolution of Earth science data systems. [Read more.](#)

COLETTE BROWN, UNIVERSITY OF CALIFORNIA, BERKELEY

WHAT I DO: Connect what humans see to what computers can help us understand to uncover shrub trends in the Arctic after large disturbances.

WHY I DO IT: Data science is the fastest way to help us get a better understanding of Arctic processes so we can develop effective climate adaptation strategies.



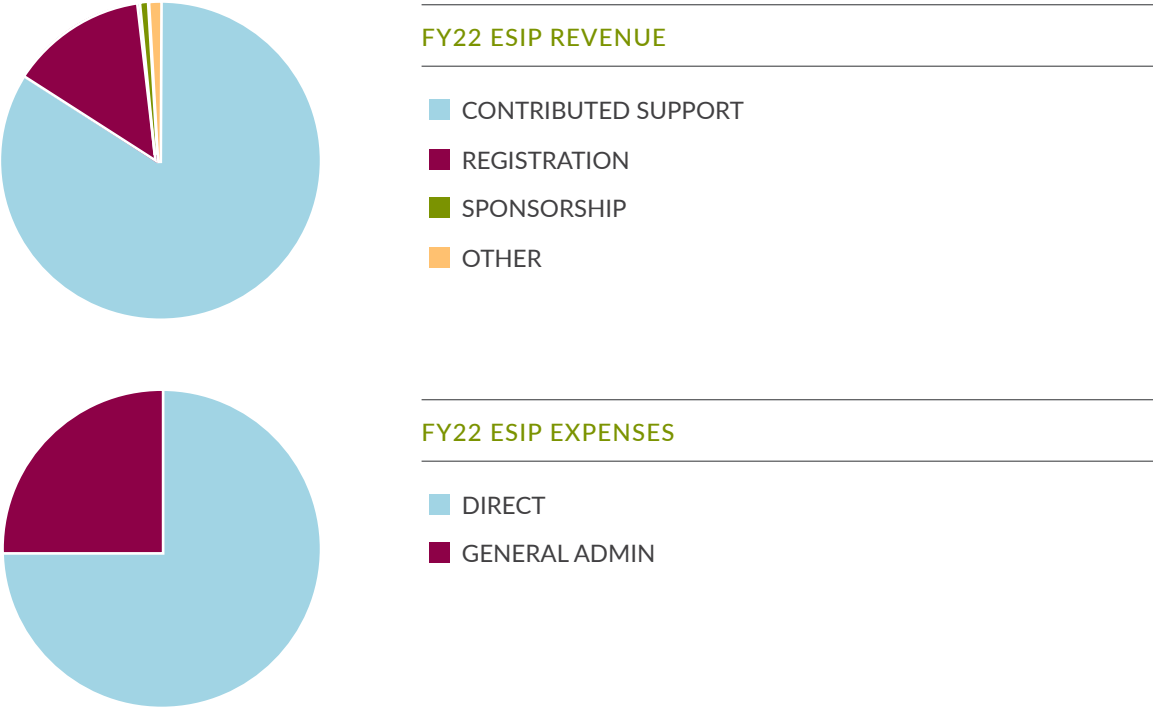
COLETTE BROWN IS A GRADUATE STUDENT AT THE UNIVERSITY OF CALIFORNIA, BERKELEY AND IS THE 2022 RECIPIENT OF THE ROBERT G. RASKIN SCHOLARSHIP FROM ESIP.

FINANCIAL UPDATE

ESIP’s revenue comes from multi-year Cooperative Agreements with three federal agencies. These agreements allow us to work in partnership with these key agencies to deliver our mission together. Meeting registration and sponsorship also comprise important revenue sources to fund work not covered by federal agreements. FY22 marked the return to in-person and hybrid meetings for ESIP. The financials show increased costs and revenue associated with hosting in-person meetings and workshops.

SUPPORT AND REVENUE	FY2021 TOTAL	FY2022 TOTAL
GOVERNMENT GRANTS/CONTRACT/UNIV	\$718,913	\$1,187,305
SPONSORSHIP	\$79,611	\$68,000
REGISTRATION	\$105,684	\$146,123
OTHER	\$584	\$1,921
TOTAL SUPPORT AND REVENUE	\$904,792	\$1,403,349
EXPENSES		
PROGRAM SERVICES	\$575,812	\$1,044,629
MANAGEMENT AND GENERAL	\$298,151	\$326,299
TOTAL EXPENSES	\$873,963	\$1,370,929
CHANGE IN NET ASSETS	\$95,829	\$38,543
NET ASSETS, BEGINNING OF YEAR	\$177,699	\$273,528
NET ASSETS, END OF YEAR	\$273,528	\$312,071

Note: These results have not been audited at press time; ESIP is audited annually and financial statements can be found at esipfed.org/about/funding-and-financials.



“To really democratize open science, we need an open science platform that everyone can access. I think this is fundamentally why so many of us are excited about cloud ... it’s the idea that it is globally present and in principle anyone can access it.”

- RYAN ABERNATHEY, 2021 CHARLES S. FALKENBERG AWARDEE
July Closing Plenary, Beyond FAIR: What Data Infrastructure Does Open Science Need?

ESIP LEADERSHIP



THE ESIP BOARD HAD ITS FIRST IN-PERSON MEETING IN TWO YEARS AT THE 2022 JULY ESIP MEETING.

As a volunteer organization, ESIP is led by the community and is truly a team effort between ESIP staff, the Board of Directors, the Program Committee, Cluster Chairs, Community Fellows, and the hundreds of people who contribute to our Earth science data community.

STAFF

- SUSAN SHINGLEDECKER
Executive Director
- ANNIE BURGESS
Lab Director
- MEGAN CARTER
Community Director
- PATTY ALLEN
Operations Director
- ALLISON MILLS
Communications Director

ELECTED LEADERSHIP

BOARD OF DIRECTORS

ESIP elects its officers, representatives, and committee chairs prior to the Annual Partner Assembly Meeting. The Board meets quarterly to govern ESIP.

- KEN CASEY, PRESIDENT
Data Stewardship Division, NOAA
- DENISE HILLS, VICE PRESIDENT
Geological Survey of Alabama
- FELIMON GAYANILO, PARTNERSHIP COMMITTEE CHAIR
Gulf of Mexico Coastal Ocean Observing System
- AMBER BUDDEN, GOVERNANCE COMMITTEE CHAIR
National Center for Ecological Analysis and Synthesis (NCEAS)
- TRACY PILONE, FINANCE COMMITTEE CHAIR
Element 84
- SARAH RAMDEEN, NOMINATIONS COMMITTEE CHAIR
Northrup Grumman
- CYNTHIA PARR, AT-LARGE BOARD MEMBER
USDA
- LESLEY WYBORN, AT-LARGE BOARD MEMBER
Australian National University
- MIKE DANIELS, AT-LARGE BOARD MEMBER
National Center for Atmospheric Research (NCAR)

PROGRAM COMMITTEE

The ESIP Program Committee meets monthly to guide ESIP programs and includes the President, Vice-President, and all the technical and administrative committee chairs.

- DENISE HILLS, VICE PRESIDENT, PROGRAM COMMITTEE AND MEETINGS COMMITTEE CHAIR
Geological Survey of Alabama
- KEN CASEY, PRESIDENT
Data Stewardship Division, NOAA
- TRACY PILONE, FINANCE COMMITTEE CHAIR
Element 84
- SARAH RAMDEEN, NOMINATIONS COMMITTEE CHAIR
Northrup Grumman
- AMBER BUDDEN, DATA STEWARDSHIP COMMITTEE CHAIR
National Center for Ecological Analysis and Synthesis (NCEAS)
- CARLA MCAULIFFE, EDUCATION COMMITTEE
TERC
- DEREK MASAKI, INFORMATION TECHNOLOGY AND INTEROPERABILITY (IT&I) COMMITTEE CHAIR
USGS
- BRANDON WHITEHEAD, SEMANTIC TECHNOLOGIES COMMITTEE
Manaaki Whenua - Landcare Research
- FELIMON GAYANILO, PARTNERSHIP COMMITTEE CHAIR
Gulf of Mexico Coastal Ocean Observing System
- AMBER BUDDEN, GOVERNANCE COMMITTEE CHAIR
National Center for Ecological Analysis and Synthesis (NCEAS)

CLUSTER LEADERSHIP

Collaboration is where ESIP's magic happens. With 30+ active clusters, these leaders bring ESIP's mission down to Earth, bringing together people across industry, government, and academia to solve challenges in Earth science data stewardship.

DANIEL FUKA
Agriculture and Climate

STEVE YOUNG AND BETH HUFFER
Air Quality

ABBY BENSON
Biological Data Standards

AIMEE BARCIAUSKAS AND SUDHIR SHRESTHA
Cloud Computing

ARIKA VIRAPONGSE AND RUPU GUPTA
Community Resilience

KERSTIN LEHNERT
COPDESS

JOHN GRAYBEAL
COR

KAREN STOCKS AND NICK JARBOE
Council of Data Facilities

NANCY HOEBELHEINRICH
Data Management Training Clearinghouse Working Group

YUHAN RAO, TYLER CHRISTENSEN, AND ROB REDMON
Data Readiness

KAREN MOE AND DAVE JONES
Disaster Lifecycle

JONATHAN BLYTHE AND CHRIS LYNNE
Discovery

SCOTTY STRACHAN, JOSEPH BELL, AND MARTHA APPLE
Envirosensing

KRISTIN VANDERBILT AND COLIN SMITH
IM Code Registry

ZHONG LIU, YAXING WEI, BOB DOWNS, GE PENG, AND DAVID MORONI
Information Quality

ZIHENG (JENSEN) SUN
Machine Learning

CAROLINA BERYS-GONZALEZ AND CHRIS OLSON
Marine Data

JENNY HEWSON AND CYNDI HALL
Open Science

SARAH RAMDEEN, VAL STANLEY, AND JOAN DAMEROW
Physical Sample Curation

MARK PARSONS AND MADISON LANGSETH
Research Artifact Citation

ADAM SHEPHERD AND DOUG FILS
Schema.org

RUTH DUERR AND GARY BERG-CROSS
Semantic Harmonization

KATHE TODD-BROWN, TANJA WILLIAMSON, AND DYLAN BEAUDETTE
Soil Ontology and Informatics

MARGARET O'BRIEN
Sustainable Data Management

COMMUNITY FELLOWS

Each year, an outstanding group of early career researchers working on their graduate and post-doctoral studies supports different ESIP Collaboraion Areas. Here are the 2022 Community Fellows.

SAHARA ALI, UNIVERSITY OF MARYLAND BALTIMORE COUNTY
Air Quality Cluster

JAMES COLL, UNIVERSITY OF KANSAS
Cloud Computing Cluster

MORGAN WOFFORD, UNIVERSITY OF MICHIGAN
Community Resilience Cluster

DANIEL SEGESSENMAN, UNIVERSITY OF WISCONSIN-MADISON
Data Stewardship Committee

QIAN HUANG, UNIVERSITY OF SOUTH CAROLINA
Disaster Lifecycle Cluster

JAKE GEARON, INDIANA UNIVERSITY
Envirosensing Cluster

MICHAEL MAHONEY, STATE UNIVERSITY. OF NEW YORK
Machine Learning Cluster

SARA LAFIA, UNIVERSITY OF MICHIGAN
Semantic Technologies Committee

NOTE FROM THE EXECUTIVE DIRECTOR

Looking back on 2022, I am in awe of what the ESIP community has achieved together. While the world has seen so much disruption over the last three years, ESIP has stayed engaged, active, and at the forefront of collaborative communities whether convening online, in-person, or in hybrid formats. As a community we have shown our resilience and our agility, and this was clear in the energy of our meeting in Pittsburgh when we gathered in-person for the first time in over two years. I am exceptionally grateful for our volunteer and staff leadership that drives and empowers our work as well as the support from our federal and private sector sponsors.

ESIP's 2022 theme Data For All People: From Use to Generation and Understanding underpinned our work throughout the year, but that doesn't end in 2023. The formation of ESIP's Equity, Diversity, Inclusion, and Justice (EDIJ) Advisory Committee ensures that our commitment and efforts in this area will move forward in a lasting and sustained manner. You have likely heard me say before - if this work were easy it would already be done! This remains true more than ever now. ESIP is relevant and needed because the challenges we face as a community and as a world are hard. This is why community matters. Together, working in partnership, we can bring diverse perspectives and skills to all the challenges before us.

Next we will focus on Opening Doors to Open Science, aligning our efforts with so many organizations in our community in support of the 2023 Year of Open Science. The transformation to open science is hard work, but essential to maximizing the value and use of data and to science as a whole. A favorite phase of mine is "culture eats strategy for breakfast." Open science transformation will take strategic effort and to be truly successful we will need a cultural transformation in parallel. This is where community comes in. ESIP's culture of collaboration, candor, and camaraderie coupled with the diverse technical and domain-specific expertise around data management make us an essential player in this cultural transformation. Please join us in this incredibly important work as we open the doors to open science and walk through them together.





Susan Shingledecker
ESIP Executive Director

JOIN US

ESIP welcomes ideas, partnerships, and support from the global community of organizations and individuals who share our vision of being data stewardship leaders.

LEARN MORE

-  Network
-  Collaboration Areas
-  ESIP Lab

SEND FEEDBACK

We welcome community feedback at any time. Please send a note to Susan Shingledecker, ESIP Executive Director (Susanshingledecker@esipfed.org).

STAY CONNECTED

-  YouTube
-  Github
-  Twitter
-  LinkedIn
-  Figshare
-  ESIP Update

CONTRIBUTE

If you would like to make a financial contribution to support the work of ESIP, please send your contribution by mail to the address: ESIP • 574F Ritchie Hwy #248 • Severna Park, MD 21146 • staff@esipfed.org

COVER PAGE

Fissure 3 on Mauna Loa's Northeast Rift Zone on Dec. 1, 2022. Credit: USGS