

# Meeting Highlights

2022 ESIP January Meeting February 11th, 2022





# **2022 ESIP THEME**

### Data for All People: From Generation to Use & Understanding

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# **MEETING TECHNOLOGY**

# zoom

671 Downl

Making Drones Interesting Age

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2021 ESIP July 3,257 Views	G Suite Source to the former of the series performer with the series of						
71 Downloads	Day	Time	Session Name	Takeaway #1	Takeaway #2		
	Tues. Jan. 26	13:30 ET - 15:00 ET	Understanding the ESIP Community Participation Guidelines: What it means for you	Application of the CPG to not only individuals but groups or individuals or agencies/organizations should be further explored	Additional training should be made available - trainin for leadership (staff and volunteer) to heip infuse CPG into all ESIP space bystander intervention training/resources; ways in handle bad behavior and encourage appropriate behavior with understanding and compassion with an emphasis on leading practices		
APCH Q and Pasted Gene 1	Tues. Jan. 26	16:00 ET - 17:30 ET	Jupyter Notebooks: Harnessing the full potential	Application of JNBs in education, geosciences & publications.	Given the diverse audience, Adoption of JNBs in your respective		
nore stats			http://b	oit.ly/ESI	P22jan		

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to capture up to 3 'take away' points from their 2021

Takeaway #3

The connection of

the CPG is there but

ESIP's core values to

should be emphasized

and made more explicit

with others → http://bit.ly/wm21takeaways. These

be made available - training

wonder

https://2022esipjanuarymeeting.gigochat.com/

### Find & Access Meeting Content

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#### Best Practices & Fundamental Challenges of AI in Earth and Space Sciences

Deriving scientific insights from artificial intelligence methods requires adhering to best practices and moving beyond off-the-shelf approaches" (Imme Ebert-Uphoff et al 2019). Artificial intelligence (AI) has been showing promises to address many challenges associated with Earth sciences, such as remote mapping, prediction, anomaly detection, event classification, and potentially provide high-speed, effortless alternatives for representing vague non-observable processes in Earth system models. However, due to AI's uncertainty and black box nature, there is no consensus on a universal way to correctly use AI. This session calls for best practices of AI utilization and invites the current AI practitioners to present their experiences and workflows on preparing AI-ready data, training AI models, or applying AI in real scenarios, as examples for the community to learn from. The successful use of AI in any domain of Earth and Space Sciences is welcomed for this session.

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Throughput Poster posted on 18.01.2022 Simon Goring ~

![](_page_4_Figure_6.jpeg)

The Earth and Space Science Knowledge Commons: Space ... Presentation posted on 14.01.2022

Rvan McGranaghan

ICESat-2 for Fluvial

Poster posted on 13.01.2022

Geomorphology

Jake Gearon

Towards Automated

Analytics of Research

Poster posted on 14.01.2022

![](_page_4_Picture_9.jpeg)

a**share** 

Andrea Pörsch 🐱

![](_page_4_Picture_11.jpeg)

Enabling Community Contribution of Cloudbased Training for ... Presentation posted on 13.01.2022

Yuhan Rao 🗸

![](_page_4_Picture_14.jpeg)

Publications

Irina Gerasimov 👻

2030 Geophysics HPC Collection Project: enabling vertical ... Poster posted on 13.01.2022 Lesley Wyborn ~ Citizen Science School Garden and Community ... Presentation posted on 13.01.2022 Becky Walters

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### **Browse Presentations:**

https://esip.figshare.com/ESIP\_January\_2022

#### Ryan McGranaghan

ASTRA LLC

Title: The opportunities and challenges of ML: Trends from the space weather perspective

Slides: https://doi.org/10.6084/m9.figshare.13728070.v1

#### Ziheng Sun

George Mason University **Title:** Earth Al: Formulating ESIP ML Community Effort **Slides:** https://doi.org/10.6084/m9.figshare.13721521.v1

View Recording

View Notes

By Session:

https://2022esipjanuarymeeting.sched.com/

### Find & Access Recordings

![](_page_5_Picture_1.jpeg)

2022 ESIP January Meeting

34 videos • 27 views • Updated 3 days ago

Public  $\checkmark$ 

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ESIP

No description

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Market of the second se	2022 ESIP January Meeting Session Design Training ESIP
And the second s	ESIP 101: An Introduction to ESIP & the 2022 ESIP January Meeting ESIP
Al-Bracky Dota Community Progenoments Sourcey, preliminary results Mithabuthy	Al-Ready Data: Draft Standard and Use Cases
AL STREAM	Building Strong Communities Around Open Source Software & Open Science Part 1

Opening Plenary: Moving beyond Principles to Practice - Engaging

Plenary: Open Science and the private sector - making data more

Indigenous Communities

accessible through innovation

1:31:31

1:34:21 ESIE

1:15:21 ESIP

Understanding Schema.org: Exploring its utility for research data on the

### Browse Recordings on YouTube:

https://www.youtube.com/playlist?list=PL8X9E6I5\_i8juxpuecdjcSXT9-qX-QQok

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# By the Numbers

2022 ESIP January Meeting February 11th, 2022

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### **MEETING BY THE NUMBERS**

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Our Virtual Photo!

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# Plenary Highlights

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### Moving beyond Principles to Practice - Engaging Indigenous Communities

Learn from experiences conducting research and managing data in partnership with indigenous communities with reverence, respect, reciprocity and responsibility

Takeaways:

- Supporting the shift to self-determined work from extractive research Seasons
- Performing work with/by/as
- Seasons of Research Framework

![](_page_10_Picture_6.jpeg)

### Tags: CARE, partnership, Indiginous Communities, with/by/as, data sovereignty

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![](_page_10_Picture_10.jpeg)

Seasons of Research with/by/as the Keweenaw Bay Indian Community

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Want to learn more? Join: Sustainable Data Mgmt

Above All, Prioritize Land and Life. Be thoughtful, intentional, be deliberate, make evident, Apply institutional, academic, and scientific tools, methods, & resources for the protection, restoration, & revitalization of Land and Life.

Second, know your subject, project, stakeholders and rights-holders, and Know yourself.

Finally, Be Humble. which requires (an uncomfortable) vulnerability.

![](_page_10_Picture_17.jpeg)

and 150+ partner organizations

# **Open Science and the Private Sector**

![](_page_11_Picture_1.jpeg)

Highlighting innovative public private partnerships that are expanding the use of ES data by more people/communities and audiences

### Takeaways:

- White House and OSTP priorities for Public Private Partnerships for data
- Private wildfire scenario planning and mitigation tools
- How bringing together open source and other data can fuel insights

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### Tags: Public Private Partnerships, Administration, Al, wildfires, ferocious innovation

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Want to learn more? Join: Public Private Partnership Cluster

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# Breakout Session Highlights

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# Data on the Brink: Improving Data Access and Reusability Do-A-Thon

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Goal: Build capacity to improve data access and reusability

Takeaways:

- Small groups of dedicated people get things done, but wow, is there a lot to do!
- Data conservation is never done; we need to be diligent to ensure that rescued data remains accessible and usable
- Prioritization is critical, but extraordinarily challenging

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### Tags: **Data conservation, data stewardship, community data, resilience, data ethics**

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![](_page_13_Picture_11.jpeg)

Want to learn more?

**Contact: Steve Diggs, Denise Hills** 

and 150+ partner organizations

Join: Data Stewardship; Community Resilience; CODATA IDAR-TG

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### Improving "FAIRness" and "Fairness" of AI/ML in Geoscience

Many people complain that the AI/ML experiments in research literature are difficult to reproduce or reuse. The challenges exist in every step of the AI/ML workflows, from data preparation to model sharing, from hyperparameter tuning to uncertainty and biases in training dataset.

### Takeaways:

- **Daniel Katz:** Current FAIR principles focus on **data**. Efforts on **non-data objects**, like workflows, software, environments, are on the way.
- Jianwu: integrate serverless computing tech to automate big data analysis
- Jinbo: FAIR data via PO.DAAC S3 basket
- Michael Mahoney: Using AI/ML to help NY manage lands for net zero carbon goals
- Laura: <u>A review of Earth Artificial Intelligence</u>
- Jensen: FAIRable workflows in Geoweaver / white paper on Practical AI in Earth System Sciences

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### Tags: FAIRness, AI/ML, ethics, geosciences

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![](_page_14_Picture_14.jpeg)

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Contact: Jensen Sun (zsun@gmu.edu)

Michael Mahoney (mike.mahoney.218@gmail.com) Join: https://wiki.esipfed.org/Machine Learning

![](_page_14_Figure_16.jpeg)

# Unlocking ARCO: Analysis-Ready Cloud-Optimized Data Transformation in practice.

Lightning talks, discussion driven by upvoting questions, tutorials

#### Takeaways:

- A lot of interest in kerchunk: There is a lot of interest in using archival formats with cloud-optimized access metadata and tools so data doesn't have to be replicated.
  - There are other methods like H5Coro too.
  - However, we are still constrained by the chunks of that archival data, which may not be optimized for a use case. So we still have a need for on-the-fly transformation of chunks in the cloud.
- **Start with a clear use case:** How to create cloud-optimized access via decisions like how to chunk data and whether a cloud-optimized format is necessary really depends on the use case.
  - ARCO data production is hard because it reveals problems / inconsistencies with the underlying archival data
- An evolving technology and best practice space. We cannot (yet) propose a set of solutions that will make sense for all or even most use cases.
  - We now have great tools for ARCO data production (e.g. Pangeo Forge). Consider using / contributing to these (rather than writing your own custom scripts)

Want to learn more?

### Contact: Aimee Barciauskas

Join cloud computing cluster email list: <u>https://lists.esipfed.org/mail</u> <u>man/listinfo/esip-cloud</u>

Join ESIP Slack and cloud computing cluster channel: https://bit.ly/3FtX1HV

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# Sustaining Community Repository Networks: Lessons Learned and Steps Moving Forward

The session will result in a better shared understanding of the shared and different challenges that repositories and repository networks within the ESIP community face when it comes to sustaining their capabilities.

### Takeaways:

- Multiple strategies:
  - Bottom up through building repository sustainability through partnering with other repositories
  - Fee-for-service strategy for sustaining funds
  - Sustaining communities that develop around network
- We can learn from other domain networks for models that have worked
- Shared critical need to transition from

<sub>Tags:</sub>award→award model **Repositories, Network, Funding, Sustainability** 

![](_page_16_Picture_10.jpeg)

Want to learn more? **Contact:** 

Karl Benedict - <u>kbene@unm.edu</u> Matt Jones - <u>jones@nceas.ucsb.edu</u>

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# Enhancing the Guidelines for Sharing and Reusing Dataset Information Quality

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Session participants learned about international and interdisciplinary approaches for managing and sharing data quality information, discussed the dataset information quality guidelines, and recommended enhancements for the guidelines.

### Takeaways:

- Help those implementing the Dataset Quality Guidelines by sharing examples with caveats, suggested practices, and a workflow
- Need to describe approaches for assessing compliance with the Guidelines
- Engage data users for their feedback

### Tags: **Research data quality, data management data curation, data use**

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![](_page_17_Figure_11.jpeg)

Want to learn more?

![](_page_17_Figure_15.jpeg)

### Towards an Earth and Space Science Knowledge Commons

Pioneers & Building the Community of Practice - the first of an ongoing series of virtual gatherings that will cultivate a community of practice and the tools for interconnecting and making more accessible Earth and space data and knowledge

Agnes Cameron (MIT Knowledge Futures Group) <u>Caroline Coward</u> (NASA Jet Propulsion Laboratory) <u>Chris Erdmann</u> (American Geophysical Union) <u>Samuel J. Klein</u> (MIT Knowledge Futures Group) <u>Ryan McGranaghan</u> (NASA Goddard Space Flight Center; ASTRA LLC) <u>Ellie Young</u> (Common Action) **Earth and Space Data Knowledge Commons:** a combination of intelligent information representation and the openness, governance, and trust required to create a participatory ecosystem whereby the whole community maintains and evolves this shared information space

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#### Takeaways

- 1. Community of interest Community of practice
- 2. To develop a knowledge commons, our design approach must go beyond the traditional, purely technological knowledge graph methodology
- 3. A living conversation is being cultivated: Publish research and commentary intended to seed and grow conversations and thinking about data and knowledge commons PubPub Space Collection

**Some powerful emergent questions**: How do you move from a Community of Interest to a Community of Practice in your research/projects? How do we make contribution to knowledge commons a natural part of CoP activities?

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### Better Science for Future Us: Planning for the Year of Open Science

Goals: to increase visibility and value of open science within government and support "bright spots" that are already doing this though sharing stories

Takeaways:

- Both top-down and grassroots efforts are necessary
- Dissolve silos by supporting early adopter "bright spots"
- Reuse & build from existing efforts to accelerate change

Speakers:

- Ileana Fenwick, UNC Chapel Hill
- Eli Holmes, NOAA Fisheries Northwest Center
- Anna Holder, California EPA Water Boards
- Aaron Friesz, NASA Land Processes DAAC.
- Amy Steiker, NASA NSIDC DAAC

Tags:

Open science, team science, mentors, researchers, diversity, equity, inclusion

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### Applying Use Cases to the Biological Data Standards Primer

Expert panel and use case to explore the application of various major metadata standards (EML, ISO-19115, FGDC-CSDGM, and MIxS) to biological observation data. Participants discussed and explored metadata options for a simplified dataset. (Session LINK)

### Takeaways:

- Useful to hear about the different strengths and weaknesses of different standards. Or talking about how you would represent the same thing across standards.
- Opportunity for the cluster to highlight possible crosswalks between metadata standards for biological data.
- Possible new task to use the CSDGM Biological Data Profile and create an ISO version. One exists but it's underused.

Tags: **Biological data standards, FAIR, metadata, EML, ISO-19115, FGDC-CSDGM, MIxS** 

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![](_page_20_Picture_11.jpeg)

<u>Link to Primer on</u> FigShare

Want to learn more? **Contact: Abby Benson (albenson@usgs.gov)** Join: Biological Data Standards Cluster <u>Listserve</u> Wiki: <u>LINK</u>

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Want to learn more?

Contact: Leslie Hsu (lhsu@usgs.gov)

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Tags: **Collaborations, connections, risk, community** resilience

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# Building Stronger Bridges Between Collaborations

Connect related ESIP and USGS Community for Data Integration (CDI) efforts, specifically in the areas of risk, resilience, and disasters. Examine how cross-group connections are formed and sustained.

Takeaways:

- Slow down, get clear on your group's purpose and how connections can advance it.
- When you make a connection, you tap into a • network. You don't need to do/know everything.
- ESIP, CDI, & other communities should continue • to create opportunities that foster connections.

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![](_page_21_Figure_10.jpeg)

# Megan Carter (megancarter@esipfed.org)

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# Wikidata A knowledge graph for the earth sciences?

- Introducing Wikidata, a free and open knowledge base that can be read and edited by both humans and machines.& can provide central storage for the structured data & population of ES KGs Where Wikidata has Takeaways:
  - Wikidata is an active data community (Hackathons etc.) with tools & data crosswalks that ESIP can participate in, although many ES topics are not yet populated as much as in the Life Sciences which includes 671 biology-related properties
  - An example of leveraging Wikidata for building applications from the science comes from the drone community
  - We can populate Wikidata with harmonized ES data & build KGs using well-established schemas & where possible reusing Design Patterns
     Want to learn more?

### Tags: Wikidata, drones, collaboration, semantic harmonization structured data, alignment

Contact: Chuck Vardeman Join: https://meta.wikimedia.org/wiki/Wikipedia Weekly Network

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Where Wikidata has info on Soil or Glaciers

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### Recent advancements in marine data management

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As a collaboration between the MDC and BDSC the goal of the session was to highlight recent activities and facilitate collaboration and information sharing across sub-disciplines of marine data.

### Takeaways:

- Leveraging eDNA data for biodiversity using Darwin Core can be a complex activity but a recent <u>guide</u> makes it easier.
- The OCB Phytoplankton Taxonomy Working Group has developed an intermediate <u>data model</u>, between the tables handled by the scientists and the GBIF/OBIS data publishing model for extracting plankton and other particle observations from images.
- <u>METS RCN</u> working towards a FAIR data model (including identifying/defining terms in standard vocabularies)
- SAMOS using XML metadata exchange to keep rapidly changing metadata up to date between ships and shore.
- Potential collaboration between marine data, bio data, and semantic harmonization. - HH chat!

### Tags: **eDNA, imaging, FAIR, metadata**

Integrating environmental DNA (eDNA) data to fuel global biodiversity research Plankton and other particle observations from imaging Recent advancements in marine data managemen METS-RCN **Marine Ecological Time Series Research** Coordination Network (METS-RCN) 2022 ESIP Winter Meeti Heather Benway (hbenway@w BCO-DMO BC�-DM� Marine Ecological Time Series Research Coordination Network (METS-RCN) ESIP Winter Meeting SAMOS Metadata Exchange Shawn R. Smith @ 🔊 🌞

Want to learn more? Contact: Mathew Biddle mathew.biddle@noaa.gov Join: <u>Marine Data, Biological Data Standards</u>

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# Understanding the Significance of the SBIR-STTR Program, Its Phases and Technologies, and How Your Organization Can Benefit

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**SBIR Program**: Small business (<=500 employees) leads. Multiple phases.

- SBIR Phase III allows any federal agency to procure the technology on a sole source basis; awards are not protestable
- Successful example: GeoCollaborate developed by StormCenter Communications, Inc.

### STTR Program: Small business partnered with research institution (either can lead)

- Generally focused on supporting agency center needs/missions (not just "widgets")
- Successful example: DANTE project developed by Isciences LLC, CIESIN, & CASE International for USACE-ERDC

### NASA SBIR/STTR Program: https://sbir.nasa.gov/solicitations

- Submissions due March 9!
- Phase I awards up to \$75K; Phase II up to \$750K-\$1M; up to ~\$3M post-Phase II
- NASA SBIR-STTR Program Executive: Jason Kessler: <u>Session Presentation</u>

### NSF SBIR/STTR Program: https://www.nsf.gov/pubs/2022/nsf22551/nsf22551.htm

- Three submission windows through October 2022
- Anticipating 250-300 SBIR awards per year, up to \$70 million total
- Anticipating 60 STTR awards per year, up to \$15 million total

### Tags: Public-private partnerships; funding; small business innovation; technology transfer

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Want to learn more?

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Contact: https://wiki.esipfed.org/Public-Private Partnerships

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# **Understanding Schema.org**

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Introduction to Schema.org cluster, updates on usage of recommendations, planning for ESIP endorsement this summer

Takeaways:

- Goal of cluster: Simplify publication of standardized metadata to streamline dataset discovery
- Active Users: DataONE, EarthCube GeoCodes, Magnetics Consortium, Council of Data Facilities
- Version 1.3 nearing release, the cluster will be seeking ESIP endorsement for recommendations.
- Check out the github https://github.com/ESIPFed/science-onschema.org

Tags: **Data discovery, metadata**  Want to learn more? Contact: Adam Shepherd <ashepherd@whoi.edu> Join: https://wiki.esipfed.org/Schema.org\_Cluster

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![](_page_25_Picture_12.jpeg)

![](_page_25_Picture_14.jpeg)

Round the World Efforts to Improve the Discovery and Reusability of Education & Training Materials

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We explored current collaborative efforts to increase the discoverability of learning resources.

### Takeaways:

- Facilitate practical implementation of metadata schemas by developing an adoptable Metadata Application Profiles (MAPs) for an <u>RDA Minimal Metadata set for learning resources</u>.
- MAPs can greatly benefit the FAIR implementation of metadata schemas.
- MAPs allow for the exchange of information at greater scale, such as the <u>Dublin Core Tabular Application Profile (DC-TAP</u>).

Tags: Metadata, discoverability, training materials, learning resources, FAIR, minimal set, schema, training infrastructure

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#### Want to learn more? Contact: Nancy Hoebelheinrich, Kathryn Unsworth

Nancy - <u>nhoebel@kmotifs.com</u> Kathryn - <u>kathryn.unsworth@ardc.edu.au</u>

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### Community Development of the SWEET semantic system for Earth and Environmental Data – A Call for Interest

![](_page_27_Picture_1.jpeg)

Provided a historical & current overview. Brought together people interested in SWEET. Explore development tasks & solicit contributory interest.

### Takeaways:

- A living suite of ontologies. NASA JPL origins. Supports semantic tagging, model & grid interoperability, search & retrieval.
- Historical precedent to develop to greater complexity.
- Candidate dev. tasks: local definitions, added functions, hackathon, topical QA by SMEs, etc.
- Generated some interest

### Tags: **ontology, knowledge graph, semantic technology, Earth science, envrionmental science, terminology, SWEET**

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Want to learn more?

Contact:<a href="million-arrow-commutatio-arrow-commutatio-

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### A Framework for Knowledge Organization & Modeling of Space Data from Astronomy to near-Earth Space Activities

Bringing together interest in space data—from space sciences to space flight—and knowledge modeling. For space domain knowledge management.

### Takeaways:

- Space ontology project (Robert Rovetto) may serve as framework, set of *knowledge models* for communities such as ESIP, AI & semantic groups, etc. Possibly toward space knowledge networks. Call for interest & ideas. Actively seeking sustainable support to further develop.
- **Graph technology** & current **Metaverse** concept involves questions relevant for space data and knowledge modeling
- Speaker (Kurt Cagle, DSC) made aware of the Solid project

Tags: **ontology, knowledge graph, semantic technology, space science, spaceflight, <u>orbital</u> <u>debris, space informatics, astronomy</u>** 

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# Community Fellow Highlights

2022 ESIP January Meeting February 11th, 2022

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### Public Questions vs. Open Datasets in U.S. Federal Environmental Governance

In this session, we were tasked with retrieving, examining, or visualizing specific data from <u>https://www.environmentalenforcementwatch.org/</u> to give feedback and experience its data connections/visualizations to government datasets. We explored the general availability and accessibility of federal government datasets through breakout groups and activities. Through D. Segessenman's experience.

### <u>Takeaways</u>:

- It's important to test and get feedback on your data platform to improve its accessibility
- There are a LOT of U.S. federal government datasets pertaining to environmental data and they are highly variable in their accessibility and utility it's a labyrinth!
- Even spending 15-30 minutes helping fill in metadata such as "does this dataset website have and API?", or "does this website have data visualization tools?" can be useful!

Tags: **Data Stewardship, Data Platform, Federal Repositories, Environmental Data**  Want to learn more? Contact: <u>Kelsey Breseman</u> Join: <u>Data Stewardship Telecon</u> and <u>email list</u>!

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# ESIP Cross-Domain Collaboratory: Wildfires

Disaster Lifecycle Cluster examines wildfires to exercise the ESIP Ecosystem of Innovation providing data to decision-makers so they can take immediate action.

### Takeaways:

- Critical need of communicating data to people who need to know - risk, actions to take.
- Need for Trusted information for Wildfire incidents (ORL evolution)
- Public access to local warnings & evacuations
  Partner with local organizations with boots on the ground

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Where do you get wildfire information?

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National Interagency Fire Center								
		application	on my phone	Pus	h notification	s		
	Center	JAS	SA F	IR	MS			
FIRM	Website					Agency website		
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Interagency		ews 📭	116		NAS	A		
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From	nasa world	view Ir	nciwe	b Nation	nal Weather S prest Service o	ervice lispatch offices		
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### Tags: ESIP Ecosystem of Innovation, Data-driven decisions, Trusted data, Operational Readiness Levels (ORLs)

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Want to learn more? DLC meets 1st Thursdays at 4:00 PM ET Join: <u>esip-disasters@lists.esipfed.org</u> Co-Chairs: Dave Jones <u>dave@stormcenter.com</u> Karen Moe karen.moe@earthlink.net

ESIP Fellow: Qian Huang QH1@email.sc.edu

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# 2022 January Meeting highlights

General experience and highlights from Global ARD to Local DRI

Takeaways:

- Amplify a common point: the great platform and an incredibly well organized & well documented meeting
- There's still a lot of friction to go from data to Analysis Ready Data (ARD) to Decision Ready Indicators (DRI)
  - One of the largest pain points is connecting the research to the practitioner
    - cloud computing cluster call on February 28, 2022 @ 1
- Demonstrations of GeoCollaborate (Dave Jones) and GISMO (Theo Goeremann) inspired new ways to look at extended data sources and visually collaborate
- OGC geopackage data encryption standards (Andreas Matheus) open up new potential avenues to leverage confidential Geospatial Data

### Tags: Cloud Computing, Disaster Awareness, Analysis Ready Data, Disaster Lifecycle

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# Q&A

### 2022 ESIP January Meeting February 11th, 2022

![](_page_33_Picture_3.jpeg)

# **ESIP ENGAGEMENT OPPORTUNITIES**

![](_page_34_Picture_1.jpeg)

Find people and tools to make your data findable, accessible, interoperable, and reusable.

```
Collaborate
```

Join-in or create a new collaboration area around your Earth science data challenges.

![](_page_34_Figure_5.jpeg)

![](_page_35_Picture_0.jpeg)

### Thank you for attending!

Keep up on all things ESIP: bit.ly/ESIPmondayupdate

![](_page_35_Picture_3.jpeg)

### **ESIP** Meetings **ESIPFED.ORG/MEETINGS**

### **ESIP** Collaboration Areas ESIPFED.ORG/COLLABORATE

**ESIP** Lab ESIPFED.ORG/LAB

![](_page_35_Picture_7.jpeg)