U.S. IOOS 2025 DMAC
ANNUAL MEETING AGENDA
April 29, 2025 – May 1, 2025

SILVER SPRING CIVIC BUILDING
One Veterans Place
Silver Spring, MD 20910

DAILY AGENDA:		
Tues (April 29):	**Wed (April 30):**	**Thu (May 1):**
09:00 – 10:25 Presentations/Plenary	09:00 – 10:10 Presentations/Plenary	09:00 – 10:45 Presentations/Plenary
10:25 – 10:50 Break	10:10 – 10:35 Break	10:45 – 11:15 Break
10:50 – 11:55 Presentations/Plenary	10:35 – 11:50 Presentations/Plenary	11:15 – 12:30 Presentations/Plenary
11:55 – 13:00 Lunch	11:50 – 13:00 Lunch	12:30 – 13:30 Lunch
13:00 – 14:10 Presentations/Plenary	13:00 – 14:15 Breakout Discussions	13:30 – 14:30 Breakout Discussions
14:10 – 15:25 Breakout Discussions	14:15 – 14:25 Break	14:30 Daily Wrap
15:25 – 15:40 Break	14:25 – 14:40 Breakout Report Outs	15:00 Adjourn Day 3
15:40 – 15:55 Breakout Report Outs	14:40 – 15:50 Presentations/Plenary	
15:55 – 16:15 Presentations/Plenary	15:50 – 16:05 Break	
16:50 Daily Wrap	16:05 – 16:50 Presentations/Plenary	
17:00 Adjourn Day 1	16:50 Daily Wrap	
17:30 Happy Hour–Silver Branch Lagerhaus & Biergarten	17:00 Adjourn Day 2 17:30 Happy Hour–Casa de Snowden	

Tuesday, April 29, 2025

Location: Silver Spring Civic Building:

- Spring Room (Plenary/Breakout)
- Ellsworth Room (Breakout)

0830 Arrival, coffee and breakfast provided

0900 Introduction/Meeting Kickoff (Micah Wengren and Mathew Biddle, IOOS) (slides)

0915 US IOOS Office Updates (Carl Gouldman, Jeff Payne, Derrick Snowden, IOOS)

0930 Introduction to IOOS Marine Life Data Network (Mathew Biddle, IOOS) (slides)

- Overview of the IOOS Marine Life Data Network.
- Points of engagement for existing Communities of Practice.

0950 GliderDAC- System Hardening, V2 Features (Leila Baghdad Brahim, Tetra Tech and Sarina Mann, IOOS) (slides)

- A highlight of key improvements in Glider DAC v2.0, including automation, quality control, error handling, and modern DevOps integration
- A preview of the upcoming v3.0 features focused on automation, data transparency, and enhanced user experience

1010 HABDAC topics (Clarissa Anderson, SCCOOS) (slides)

- HABDAC as a national framework for end-to-end advanced plankton data convergence and product creation for a broad sector of end users
- Development of HABDAC with Tetra Tech and RA partners and its capacity to date

1025 Break

1050 HFR and NCCF (Inger Kittle, NOAA) (slides)

- NESDIS has been working with the IOOS Surface Currents Program to transition the High Frequency Radar Network (HFRNet) Data Assembly Center (DAC) into the NESDIS Common Cloud Framework (NCCF) and is currently testing the operations of the new version which is targeted to go live in June.
- Walkthrough of this project as it has progressed on our transition to operations (T2O) pathway and showcases how HFRNet leverages the NCCF's common enterprise services to streamline the migration of the DAC into the NOAA enterprise.

1110 Expansion to a Nationally Coordinated IOOS Passive Acoustic Monitoring Network (Lindsey Peavey Reeves, NOAA, Carrie Wall Bell, NOAA, and Xavier Mouy, WHOI) (slides)

- Deliverables and scientific applications resulting from the DMAC Topic 2 SoundCoop project
- Establishment of the IOOS-based Ocean Sound Observation Network

1135 Telling a Story with your Data: Web Portal Dashboard Integrations (e.g. route planning with OceansMap) (James Doyle, MARACOOS/TetraTech) (slides)

- Enhanced Decision-Making with Side-by-Side Comparisons: Demonstrating OceansMap's capability to compare two ocean scenarios in a dashboard view, allowing operators to evaluate different routes or conditions (e.g., weather along ship routes or tidal currents) side by side, leading to more informed decision-making.
- Future of Data Interaction with AI Integration: Highlighting the development of the OceansMap AI

assistant, which aims to simplify the process of accessing and comparing ocean data through intuitive chat prompts so that the demo given today can be created by any user without requiring deep technical knowledge.

1155 Lunch (on your own)

1300 DMAC Cloud Computing Initiatives: Overview of CO-DMAC Project & Next Steps and Cloud-Native Subsetting Tool/Service (Jonathan Joyce and Kelly Knee, TetraTech) (slides)

- Introduction to CO-DMAC project
- Update on cloud optimized gridded model data mgmt
- Update on model subset service
- Next Steps for CO-DMAC project

1330 Offshore Operations DAC Update (Kelly Knee, TetraTech, Riley Morse Young, GMRI, and Alex Kerney, GMRI) (slides)

1345 Performant Time Series Extraction and Data Visualization from Operational Gridded Datasets (Shane St Savage, TetraTech) (slides)

- Modern technologies (zarr, xpublish, prefect, ray) are applied to grid dataset processing to generate temporally binned statistical data products, allowing for right-sized data exploration
- Data is duplicated in two preoptimized chunking formats (tile and timeseries) to facilitate very fast explorations of large grid datasets via either access pattern

1410 Breakout Discussions:

#1: Cloud Native DMAC - accessing, subsetting, EDR, etc. *Leads: Jonathan Joyce and Shane St. Savage, TetraTech, and Alex Kerney, GMRI*	**Description:** • Background on the definition of cloud-native and the current approach to handle IOOS data on the cloud • How to use XPublish APIs to easily access IOOS model data • How to subset IOOS model data using XPublish • Discussion on adding datasets, deployment options, and other use-cases to consider	**Room:** Spring
#2: Community engagement approaches, risks and benefits *Leads: Tim Kearns, GLOS, and Matt Biddle, IOOS*	**Description:** • To generate actionable ideas for engaging other RAs in their work and shared needs in marine data collection, products, awareness, and usage.	**Room:** Ellsworth (1st Floor)

1525 Break

1540 Breakout Report Outs

1555 N-PAcT: Building Partnerships to Better Understand Species on the Move (Ryan Logan, NOAA) (slides)

- Acoustic telemetry data provides essential information on marine species distribution, range, habitat use and connectivity across oceanic and coastal habitats.
- Recent investments by NOAA have led to the creation of the Northeast Pacific Acoustic Telemetry (N-PAcT; npact.aoos.org) Node to help researchers in the region (Alaska to Baja California, Mexico) share tag and receiver information, gather data on large-scale movements of their tagged animals, and share insights with resource managers more effectively.

1615 **Coastal Safety Mobile Application** (Tim Kearns, GLOS) (slides)

1630 **Water Level: Datum Converter** (Brian Stone, TetraTech) (slides)

- Overview of the challenges and opportunities that having datum conversions available offers
- Description and demonstration of new datum conversion tool that allows users to visualize, compare and download water level data in known datums.

1650 **Daily Wrap**

1700 **Adjourn Day 1**

1730 **Happy Hour**

- Silver Branch Lagerhaus & Biergarten: 8401 Colesville Rd #150, Silver Spring, MD 20910

Wednesday, April 30, 2025

Location: Silver Spring Civic Building:

- Spring Room (Plenary/Breakout)
- Ellsworth Room (Breakout)

0830 Arrival, coffee and breakfast provided

0900 Welcome (Micah Wengren and Mathew Biddle, IOOS)

0910 ERDDAP™ Updates and New Capabilities (Chris John, NOAA) (slides)

- Major changes in ERDDAP™ from the last 2 years
- Brief coverage of what is currently being worked on or planned soon for ERDDAP™

0925 Unidata/THREDDS Data Server Project Update (Sean Arms, NSF Unidata) (slides)

- Near-term TDS development plans with cloud based workflow highlights.
- Future directions, including plans for shifting the TDS to a more sustainable, cross-language architecture.

0940 NDBC Update (Stephanie Ray and Dawn Petraitis, NOAA) (slides)

- Update on status of Data Flow Transition from IOOS RAs to NDBC
- NDBC Automated QC Handbook updates

0955 Erddap2agol: Bridging ERDDAP™ and ArcGIS Online for the Next Generation of Marine Science (Jerad King, GCOOS) (slides)

- Learn about the open-source/open-development Python package, erddap2agol, designed to automate the process of creating, managing, and updating ArcGIS data services created from ERDDAP™ data.
- Discover how you can use the ArcGIS platform in conjunction with tools like erddap2agol to bolster the impact of your data.

1010 Break

1035 DOC's Generative Artificial Intelligence and Open Data: Guidelines and Best Practices- what it means for IOOS and DMAC? (Megan Cromwell, NOAA/NOS and Hassan Moustahfid, IOOS) (slides)

- Overview of Department of Commerce's guidelines and best practices for using Generative Artificial Intelligence and Open Data
- Exploration of what these developments mean for IOOS and the DMAC community in terms of opportunities, responsibilities, and implementation strategies

1055 AI Data Quality and Predictions (Philippe Tissot, Texas A&M and James Spore, NOAA) (slides)

- Jimmy Spore from NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) will provide an overview and update on their AI-enabled Water Level Data Quality Control project. Details to include: initial results, planned AI model development, and plans for transitioning to operational use.
- Dr. Philippe Tissot from Texas A&M University-Corpus Christi, Conrad Blucher Institute will provide an update on a separate but inherently related AI-enabled quality control project focusing on Texas water level data. Details to include: challenges resolved so far and tentative QC methods to be

followed.

1110 IFCB Data Repository and AI-enabled Classifier (Felimon Gayanilo, GCOOS) (slides)

- McLane IFCB Dashboard alternative
- An online IFCB data repository that extends the IFCB Dashboard to allow project, bin or class summaries.

1130 FathomNet: Accelerating the Processing of Ocean Visual Data at Scale (Henry Ruhl, CeNCOOS) (slides)

- *Purpose and Mission*: FathomNet aims to streamline access to AI and machine learning tools to accelerate the analysis of ocean visual data, addressing the growing backlog of underwater imagery collected by researchers. FathomNet is a collaborative effort involving programmers, marine scientists, and enthusiasts, fostering a community dedicated to understanding life in the ocean.
- *Integrated Tools*: FathomNet has created an globally accessible ecosystem of interconnected tools and services that connect machine learning data analysis resources with a spectrum of users—from experts to enthusiasts—to analyze ocean imagery. The FathomNet Database, an open-source database for machine learning models and expertly labeled ocean imagery, houses over 138,000 high-resolution, expertly annotated images including animals, habitats, and human-made objects. FathomNet Portal provides data access and end-to-end AI-assisted processing of ocean imagery. FathomVerse, a mobile community science game, unlocks the bottleneck of human-in-the-loop review by empowering anyone with a smartphone or tablet to interact with real ocean imagery and contribute to AI training.

1150 Lunch (on your own)

1300 Breakout Discussions:

#1: Quality Control of Observing data using AI and other IOOS DMAC/AI Intersections *Leads: Hassan Moustahfid and Sarina Mann, IOOS; Felimon Gayanilo, GCOOS; Jonathan Joyce and Shane St. Savage, TetraTech*	**Description:** Quality Control of Observing data using AI • This breakout session aims to explore how Artificial Intelligence and Machine Learning (AI/ML) can enhance the quality control (QC) of data from ocean observing systems. • Participants will discuss current challenges in data quality, examine successful AI/ML applications in QC, including real-world case studies, and identify opportunities for automating anomaly detection, data validation, and real-time corrections. • The session will also address barriers to integrating AI into existing workflows and foster cross-disciplinary collaboration to scale and operationalize AI-driven QC solutions. • Outcomes will include shared strategies, practical insights, and actionable next steps toward more reliable and scalable data quality management. IOOS DMAC/AI Intersections Lightning Talks (5 minutes max each) • AI assisted data exploration • Cheap, powerful, on demand cloud GPU clusters	**Room:** Spring

	• Near real-time echosounder biological estimates using a ship-to-cloud ML pipeline • Connecting LLMs to scientific data using MCP	
#2: Unconference/ Open Discussion Room	**Description:** • The Ellsworth room is available for unplanned discussions or breakouts during this time (and throughout Days 1 and 2 of the meeting). • We may post a sign-up sheet or other means of assigning and announcing topics prior to this breakout session or at other times during the meeting.	**Room:** Ellsworth (1st Floor)

1415 Break

1425 Breakout Report Outs

1440 NOAA's Coastal Ocean Reanalysis (CORA): Cloud Optimized Data to Inform Flood Predictions Using Flood Frequency, Intensity, and Duration (Matt Conlin, NOAA, Karen Kavanaugh, NOAA, Cheryl Morse, TetraTech, and, Kelly Knee, TetraTech) (slides)

- Overview of cloud optimization methods for NOAA's 20 TB Coastal Ocean Reanalysis (CORA)
- Summary of progress in developing spatially-continuous flood outlooks using CORA

1505 IOOS Cloud Sandbox: Coastal Ocean Reanalysis/Community-Based Modeling & Sandbox Infrastructure Update (Analise Keeney and John Ratcliff, NOAA, and Patrick Tripp, TetraTech) (slides)

- Coastal Ocean Reanalysis (CORA) Community Modeling and IOOS Partnership (Analise Keeney)
- IOOS Sandbox Infrastructure and Workflow Optimization (Patrick Tripp)
- CORA in the IOOS Sandbox (John Ratcliff)

1535 Data-Driven Climate Readiness (Tigist Jima, NOAA) (slides)

- Overview of L.A.N.T.E.R.N collaboration with OAR's Climate Ready Nation focused on Coasts—entailed identifying programs in NOAA that are coast focused and will protect the nation's economy, coastal communities and national security from natural hazards and threats.
- Share identified programs/programs and opportunities across NOAA on Coasts Key Mission Area:
    - critical ongoing projects across NOAA
    - internal collaborations and efficiencies and
    - expanding investments and capabilities

1550 Break

1605 Sanctuary Watch: a new web architecture for data visualization (Jai Ranganathan, NOAA) (slides)

- Sanctuary Watch is a website that exists for the visualization of trends within the National Marine Sanctuary system. The website is based upon an open-source WordPress-based framework that we have built.
- Our framework is expressly designed for other organizations to use for their own data visualization websites. The goal of the framework is to make data visualization tools available to those without any coding background at all.

1620 CDIP's Journey Moving 50 Years of Wave Data to AWS (Darren Wright and Hailey Johnson, CDIP) (slides)

- CDIP's Journey Moving 50 Years of Wave Data to AWS
- Introduce the Coastal Data Information Program (CDIP) and it's history of wave observations before going into the details of our experience moving from On-Premises to AWS cloud.

1635 Great Lakes Bathymetry (Rationale, Inputs, Visualization, Output) (Tim Kearns, GLOS) (slides)

1650 Daily Wrap

1700 Adjourn Day 2

1730 Happy Hour—Casa de Snowden

Thursday, May 1, 2025

Location: Silver Spring Civic Building:

- Fenton Room (Plenary/Breakout)
- Colesville Room (Breakout)

0830 Arrival, coffee and breakfast provided

0900 Welcome (Micah Wengren and Mathew Biddle, IOOS)

0910 IRA Topic 2 Ecosystem Observations Project Overview (Gabrielle Hillyer, IOOS Association) (slides)

- Review of IRA Topic 2 Ecosystem Observations Goals and Objectives related to DMAC

1010 IRA Topic 2 WWW Project Overview (Gabrielle Hillyer, IOOS Association) (slides)

- Review of IRA Topic 2 WWW Goals and Objectives related to DMAC

1015 IRA Topic 2: Water Level - data management consistency across regions: metadata, QARTOD implementation, data sharing (Jennifer Dorton, SECOORA, Carol Janzen, AOOS, and Cotie Alsbrooks, SECOORA) (slides)

- Discuss data management pathways, protocols, and tools to support water level teams across RAs
- Create standardized metadata to clarify the decision-making contexts that water level data can support
- Define a data pathway/pipeline for sharing with NOAA and other users, enabling cross-RA data comparability and integration

1045 Break

1115 IRA Topic 2: Waves - Backyard Buoys - All Things Data (Roxanne Carini, Seth Travis, and Troy Tanner, NANOOS) (slides)

- IRA funding provides opportunities broadly to address wave observation gaps in the regions, primarily using low-cost technologies.
- This presentation only covers Backyard Buoys with the intent of helping everyone understand what is currently available to your RAs relative to BB DMAC.

1145 IRA Topic 2: Web cameras - Data & Imagery Management (Theo Jass, SECOORA) (slides)

- IRA funding provides for a robust national data assembly center for web camera data and imagery, and will allow for ongoing data storage & management of imagery from cameras installed in the WebCOOS project, along with a small number of new cameras brought into the network.
- Covering data management and storage in WebCOOS, to further understanding of what has already been done within WebCOOS and how things can progress in the future.

1215 New WebCOOS tools (API client, NWLON-syncronization visualizer) (Matt Conlin, NOAA) (slides)

- Overview of the Webcam Coastal Observing System (WebCOOS) project
- Description of new tools for using the WebCOOS API and visualizing water level observations

1230 Lunch (on your own)

1330 Breakout Discussions

#1: IRA Topic 2: Enhancing Coordination with NOAA Data Pipelines-- Exploring current and potential future data flows from IRA Topic 2 activities into NOAA offices and programs (e.g., NDBC, GTS, NWS) *Leads: Jen Dorton, Cotie Alsbrooks, and Theo Jass, SECOORA; Roxanne Carini, Seth Travis, and Troy Tanner, NANOOS; Gabrielle Hillyer, IOOS Association*	**Description:** The goal of this data management session is to discuss emerging challenges within the water level, webcams, and waves sub projects within Topic 2. Specifically, we will focus on establishing (1) data management pathways, protocols, tools, metadata standards, and data pipelines for water level (2) discuss coordination and data storage for T2 webcam efforts, and (3) discuss how to streamline new wave data streams into NDBC and maintain ERDDAP consistency.	**Room:** Fenton (2nd Floor)
#2: DMAC's communities insights— how to better track data usage, provenance, credit, sovereignty through metadata and other means/ FAIR & CARE *Lead: Anna Barboza, IOOS Association*	**Description:** How to better track data usage, provenance, credit, sovereignty through metadata and other means/ FAIR & CARE-- this breakout session will explore how the IOOS community can better integrate FAIR/CARE principles into metadata practices, with a focus on tracking data usage, credit, provenance, and sovereignty. Participants will discuss current approaches, challenges, and gaps to integrating FAIR/CARE principles into metadata, while helping shape a flexible, community-informed process to ensure ethical, inclusive, and transparent data governance.	**Room:** Colesville (2nd Floor)

1430 Breakout Report Outs/Daily Wrap

1500 Meeting Adjourn