MEETING REPORT

Ocean Observing Co-Design
by The Global Ocean Observing System

2025 Strategy and Planning Meeting: Ocean Observing Co-Design Programme

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unesco Intergovernmental Oceanographic Commission
WORLD METEOROLOGICAL ORGANIZATION
UN environment United Nations Environment Programme
International Science Council

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2025 Strategy and Planning Meeting Report: Ocean Observing Co-Design Programme

Executive summary

The Co-Design Programme meeting took place over three days (January 14–16, 2025) at the Atlantic Oceanographic and Meteorological Laboratory (AOML) in Miami, Florida, with virtual participation options. This meeting served as a strategic opportunity to assess progress, align objectives with the programme's mission, and establish a clear roadmap for the coming years. Sessions were structured to evaluate programme effectiveness, refine governance, and strengthen partnerships, with a focus on sustainable ocean observing and co-design efforts.

Day 1: Establishing Context and Focus

The first day centered on assessing programme progress and setting the stage for future activities. Discussions included a status review of co-design, revisiting the co-design process, a SWOT analysis, and engagement with the Tropical Cyclones Exemplar.

Day 2: Advancing the Work Plan

Day two focused on refining the work plan and fostering partnerships. Sessions covered collaborative opportunities with Synobs, progress updates on Boundary Currents, Marine Heatwaves, Marine Life, and Storm Surge Exemplars, a session on refinement of the programme's governance structure, and long-term programme objectives.

Day 3: Refining Plans and Next Steps

The final day was dedicated to finalizing action plans and next steps. Sessions covered capacity development, the Ocean Carbon Exemplar, modelling community connections, alignment with the DCO for Ocean Observing, and communication strategies.

The meeting provided a structured yet adaptive approach to advancing the Co-Design Programme. Participants reaffirmed their commitment to strengthening ocean observing systems through co-design, a clearer governance, and global partnerships. Action items and responsibilities have been assigned, ensuring continued progress toward the programme's goals.

Meeting Outcomes

The Co-Design Programme aims to enhance the existing ocean observing system around key application areas, reinforcing the impact and capacity. Key outcomes from the meeting, which will form part of the work plan moving forward, include the following elements:

- The current implementation plan does not fully reflect an important aspect of co-design community development. This is a vital, overarching component already taking place through the activities of the exemplars.
- In general, the Exemplar projects are following the development phases outlined at the start of the programme, and (best) practices are beginning to emerge.
- Governance and transparency were identified as weaknesses of the programme, therefore communications, setting up a robust governance structure and re-initiating the Advisory Group, to provide broader outreach and strategic guidance in the next stages of the programme, will be priorities.
- Stakeholder engagement along the value chain remains essential, fostering stronger connections and ensuring observing systems align with user needs. Stakeholders have expressed strong support for the Programme's direction, affirming its relevance and value in addressing critical ocean observation challenges.
- Exemplars have gained credibility and recognition through the programme, and this has strengthened the bridge between science and societal impact, and expanded engagement with intergovernmental, regional, and local institutions and potential funders.
- Exemplars are developing at different speeds due to variations in maturity of the existing services and complexity of the,, and existing services, many are now transitioning into Phase 2, focusing on pilot projects and testing OSSE/OSE approaches

Below is a summary of key actions answering to these outcomes, while a detailed list of action items, priorities, and timelines can be found in Annex 1: Work Plan.

Key actions for the Programme

- **Governance & Structure** – Establishing a clearer governance framework and reconstituting the programme advisory group.

- **Exemplar Development** – Creating a standardized planning template and identifying and sharing Exemplars' best practices.
- **Stakeholder Engagement** – Strengthening collaboration with GOOS, WMO, and engaging with external stakeholders such as industry, financial entities, others.
- **Bridging Observing & Modelling** – Enhancing technical integration and data accessibility and surveying existing modeling communities for improved coordination
- **Visibility of Programme and Communications** – Revamp the website sharing the up-do-date advancements of the programme and timely information.
- **Community Development** – Create a network of networks and develop international capacity for Co-Design (Depending on funding availability)

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Report

The meeting took place over three days (14th – 16th of January 2025) at Atlantic Oceanographic and Meteorological Laboratory (AOML) facilities in Miami, Florida with an option to join virtually. The meeting provided an opportunity for participants to reflect on the progress of the Programme and assess where adjustments are necessary to align with the initial approach and overall objectives. The agenda guided the sessions, which included discussions on key areas of focus to ensure continued progress toward the Programme's main goals.

The present report includes a summary of the discussions during each day, keeping the order of the discussions as the proposed agenda. Additionally, the Exemplar leads joined in dedicated sessions to discuss their plans and needs in terms of the Co-Design Programme Management team; the discussions with the Exemplars are gathered in an extra section after the second day in the report.

Objectives of the meeting:

1. Evaluate and update the programme's objectives, ensuring alignment with its mission and vision and identifying strategic goals for the next two years.
2. Create a comprehensive work plan, an outline of activities for 2025 and a work plan for 2026-2027 to guide programme implementation, integrating actions informed by insights and lessons learned over the past years.
3. Establish a clear governance structure for the Co-Design programme, including its partnerships, projects, exemplars, and key champions.
4. Refine the Programme's direction based on lessons learned and evolving priorities and redefine the Programme's intended legacy.
5. Identify methods to evaluate programme progress, ensuring transparency and accountability across all components.

The main outcome is the work plan presented in Annex 2, which outlines the working areas, activities, priorities, and the expected execution timeline. While actions related to the Exemplars were discussed, they are not included in this version of the work plan.

Acknowledgement

We extend our sincere gratitude to the World Meteorological Organization (WMO) for supporting the mobilization of key members, enabling their valuable contributions to this effort. Additionally, we appreciate the facilities and support provided by NOAA, with special recognition to the Atlantic Oceanographic and Meteorological Laboratory (AOML) for hosting and facilitating essential discussions. Their contributions have been instrumental in advancing this work.

Day 1 – Tuesday 14 Jan

Status of Co-Design: 'Where We Are'

An initial recap of the programme's status, compared to its original proposal, was presented. This session provided an overview of the objectives and anticipated outcomes, with discussions focusing on the programme's progress along the pathway to achieving these goals. While significant advancements have been made, the need for improved communication about the outcomes generated by the exemplars was identified. Enhanced visibility and integration of these contributions are critical to aligning them more effectively with the programme's overarching objectives.

The discussion highlighted key aspects of the implementation process for the exemplars, emphasizing that the co-design approach primarily builds upon existing observing systems. However, it was noted that the current implementation plan does not fully reflect an important aspect of the programme: community development. This is a vital, overarching component already taking place through the activities of the exemplars.

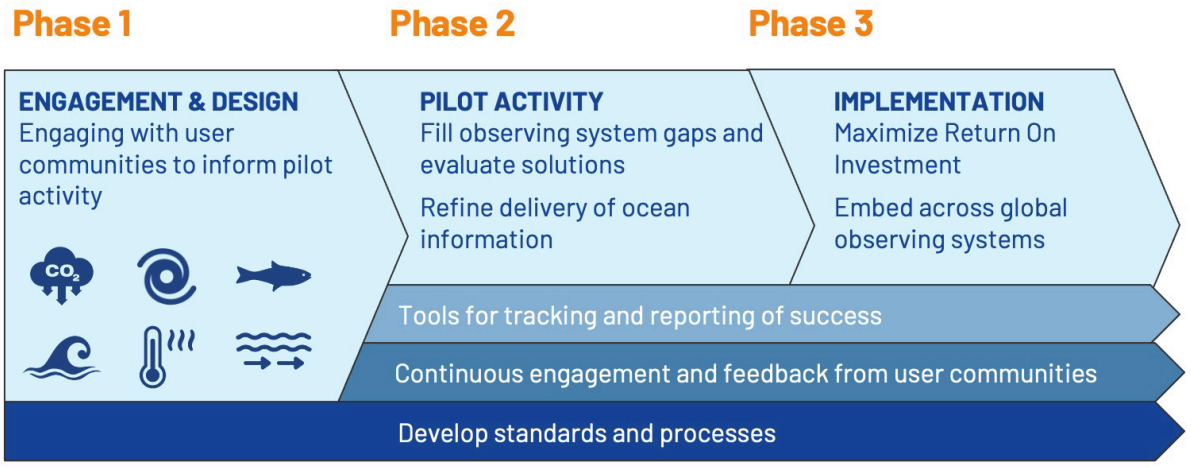

Figure 1: Three phases of the Co-Design Implementation process

The current implementation process includes three phases; Phase 1: details on aim, identification of key stakeholders and players in the value chain, the global team has been assembled. Phase 2: planning of pilots: locations and partners, connections with key users, connections along value chain (e.g. modelling), plans for design assessment and plans for implementation of pilots (support, partners, resource secured/needed). Phase 3: Plans for value assessment and global spread of design/knowledge.

When reflecting on the evaluation process, three main points were raised. First, the co-design process aims to enhance and improve existing observing systems. Secondly, each exemplar faces unique challenges, influenced by the current state of the observing systems they are working to advance. Finally, a critical need was identified to ensure that we connect co-design outcomes to GOOS, WMO, and other initiatives to support legacy and transformation. One potential pathway for achieving this is through connecting outcomes of exemplars as they mature to the WMO's Rolling Review of Requirements (RRR) processes, which will help integrate the results into regional and/or global observing needs planning processes.

Additionally, the discussion on tools that can be applied to evaluate the advancement of the programme are such as OSE/OSSEs. Deploying tools such as OSE/OOSE was acknowledged as requiring dedicated resources, without which their effective implementation may be constrained. The team also recognized the need to explore alternative tools and innovative methods, such as artificial intelligence, to further enhance the performance and impact of observing systems.

Since this session aimed to set the stage for the discussions, there were no specific outcomes; instead, it contributed to the dedicated sessions where actions were outlined.

Re-visit Co-Design process

The discussion provided an opportunity to reflect on how far along the value chain (to users or to intermediary providers to users) each exemplar needs to operate. It emphasized the need for a clear value chain design to ensure effective data delivery and highlighted the importance of integrating this design into the overall process. A key point raised was determining the optimal timing for engaging end users to prevent them from becoming disengaged in overly technical discussions. It was agreed that involving users throughout the design process is essential to building trust. Additionally, efforts should be made to accept invitations to stakeholder's meetings whenever possible. While it can be challenging to have stakeholders actively participate in technical sessions, their engagement throughout the process was identified as highly beneficial when feasible.

When reviewing the progress of our Exemplars, it became clear that, in general, they are following the envisioned development phases outlined at the start of the programme (see Figure 1) and aligning with the evaluation process. This structured approach is serving as a model for co-design development across various application areas.

Discussions also highlighted that the co-design process varies across Exemplars due to differences in the maturity of the observing system and services landscape they aim to enhance and the complexity of their respective landscapes. As a result, Exemplars are progressing at different pace, despite working with a consistent co-design approach, and their progress is related to their unique challenges. Recognizing these varying levels of progression from phase 1, to 2 is essential, and it was suggested that the reporting against the development phases outlined in the 2024 Progress Report could be used as a tool to help Exemplars track progress and measure success more effectively.

Defining the Co-Design process

The team discussed refining the co-design process for the Programme. The following schematic representation summarizes the main points that are considered essential in this process. The graph represents the iterative process of evolving a fit-for-purpose ocean observing system, while the graph is not final it captures key steps described below and clustered with the co-design implementation phases.

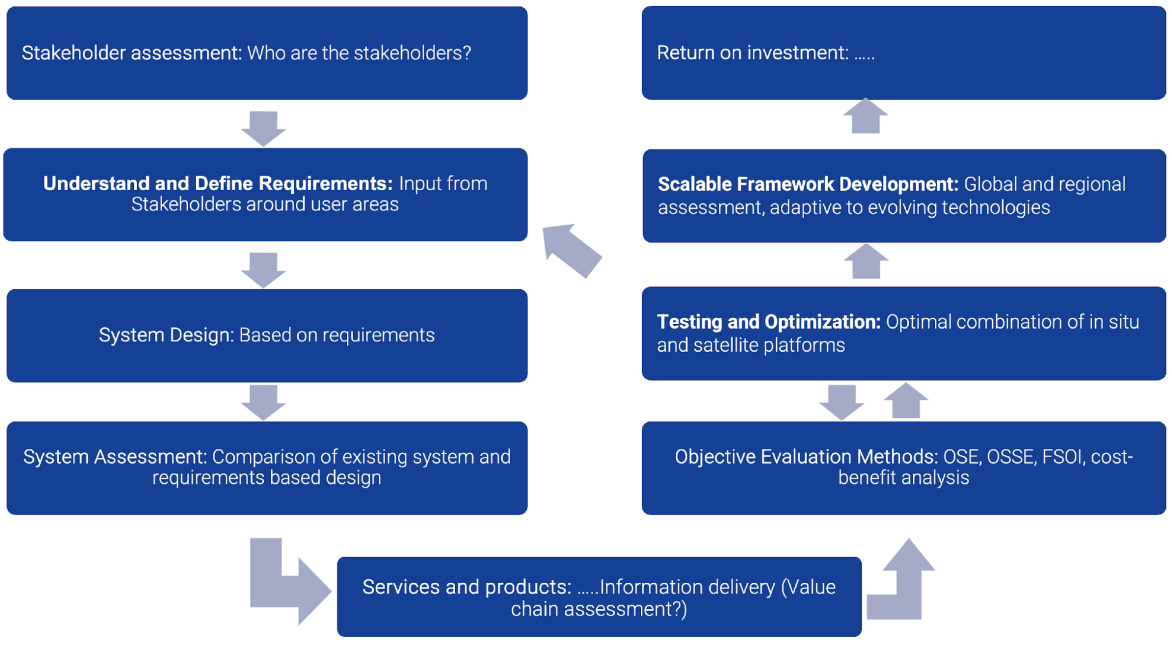

Figure 2. Elements of the Co-Design process

Phase 1 : Engagement and Design

- **Stakeholder Assessment** – Identifying relevant stakeholders and defining the extent of engagement along the value chain. Users should be engaged early in the design phase to build trust, but care must be taken to avoid overwhelming them in highly technical meetings. Attending their meetings, where possible, can enhance collaboration. The discussion emphasized the importance of integrating value chain design into the process and involving end users.

- **Understanding and Defining Requirements** – Gathering input from stakeholders to prioritize key system components. A structured approach is needed to ensure requirements are driven by stakeholder needs, balancing technical and application-focused considerations.

Phase 2 : Pilot activity

- **System Design** – The Co-Design process focuses on improving or developing existing systems for future needs. In this sense, this step is about translating requirements into system components. It can be different sets of requirements: **modeling needs** (reducing uncertainty in high-error areas) and **stakeholder-driven needs** (fit-for-purpose observations). Both must be considered in parallel to create a system that serves both scientific and practical applications.

- **System Assessment** – Comparing existing observing systems against a requirements-based design. This step is essential for identifying gaps and refining strategies before advancing to service delivery.

- **Services and Products** – The observing system design alone is not enough, there needs to be a focus on designing the services and products that will deliver value to stakeholders. The value chain design, including the modeling and data delivery components, needs to be integrated alongside the observing system design.

- **Objective Evaluation Methods** – Utilizing tools like OSE (Observing System Experiments), OSSE (Observing System Simulation Experiments), FSOI (Forecast Sensitivity to Observations Impact), and cost-benefit analysis to validate system design. These methods should be iterative, allowing adjustments to the system design based on ongoing assessments.

- **Testing and Optimization** – Identifying the optimal mix of in-situ and satellite platforms for the system. It is very important that the functional observing networks feed directly into models and assessments. This step could have several iterations between the evaluation in step 6 because of the need to test whether the optimization is working.

Phase 3 : Implementation

- **Scalable Framework Development** – Ensuring global and regional applicability while adapting to evolving technologies. The framework must be flexible and adaptable to meet both current and future needs.

- **Societal value** – Evaluating the economic value of ocean observing systems through early impact assessments. The evaluation should engage across the process to help quantify the benefits in all steps and improve long-term sustainability.

The scheme is not a final version, and the team agreed that while it displays some of the learnings of the Programme at this stage of implementation, it needs further work.

Key actions

- Develop further the Co-Design Process based on available information (e.g., Pilot development structure, scientific papers, workshops, etc.)
- Establish specific outcomes to evaluate the progress of the Exemplars in the Co-Design process (three phases)
- Map the connections, expertise and usage of existing networks within the modelling communities
- Look for best practices of successful connections of observing and modelling community

SWOT Analysis of the Programme

A dedicated session focused on assessing the state of the Programme, during which a SWOT (Successes, Weaknesses, Opportunities, Threats) analysis was conducted.

Through critical perspectives, the team developed the analysis summarized in the figure below.

Figure 3. SWOT analysis of the Co-Design Programme

Strengths

Through an internal analysis, we identified key strengths that highlight the Programme's progress, impact, and unique position within the ocean observation community:

- **Leadership in Co-Design and observation**: The Programme is uniquely positioned as the only known initiative advancing co-systems and new observations, providing insights in their value.
- **Stakeholder support and engagement**: Stakeholders have expressed strong support for the Programme's direction, affirming its relevance and value in addressing critical ocean observation challenges.
- **Exemplar progress**: The Programme is delivering results across its Exemplars driving forward the ambitioned Co-Design approach (See Progress Report 2024).
- **Real-World application of outputs**: Our outputs are serving other spaces beyond our partners, like the report of the Co-Design workshop 2022, demonstrating the practical value of our work.

- **Expanding stakeholder networks**: The Programme continues to build strong relationships with existing stakeholders while attracting new collaborators, fostering a more inclusive and impactful network.
- **Strengthened global collaboration**: Deeper connections with global partners, such as the World Meteorological Organization (WMO), are enabling us to uncover new funding opportunities and expand our programme and exemplars reach.
- **Alignment with new ambitions**: By re-creating partnerships and aligning with evolving goals, the Programme ensures its relevance and adaptability in a changing landscape.
- **Unique role in the ecosystem**: By avoiding duplication, proposing our approach and focusing on users, the Programme is creating a distinctive space within the broader ocean observation ecosystem .

Weaknesses

Our internal analysis also revealed key areas where the Programme faces challenges or requires improvement to achieve its full potential:

- **Governance and transparency**: The Programme would benefit from a more aligned governance structure, with clearer roles and responsibilities to enhance transparency and accountability.
- **Measuring progress**: The lack of clear Key Performance Indicators (KPIs) for the Exemplars and Programme makes tracking progress and demonstrating impact more challenging.
- **Stagnation in Exemplars**: Some Exemplars have experienced slower-than-expected progress, underscoring the need for renewed momentum and strategic focus.
- **Visibility beyond GOOS**: The Programme's visibility is limited, both within the GOOS community and beyond, reducing its ability to attract broader recognition and engagement.
- **Connectivity with pilot regions**: The Programme could benefit from stronger connections to the GOOS community in the pilot regions, including Regional Alliances (RAs) and National Focal Points (NFPs), to improve the integration of efforts.
- **Insufficient communication**: Success stories and achievements are not being communicated effectively to key stakeholders, reducing the Programme's ability to build support and advocacy.

- **Representation in advisory groups**: Broader, global, and balanced representation—particularly from the Global South—is needed to strengthen the Advisory Groups and ensure diverse perspectives in decision-making.
- **Limited outputs and dissemination**: While progress has been made, the number of tangible outputs remains low, and dissemination efforts are insufficient to showcase successes and impacts effectively.
- **Funding challenges and resource constraints**: Limited funding and staffing significantly hinder progress, restricting the Programme's ability to implement and scale its co-design initiatives.
- **Testing new technologies**: The Programme is not yet effectively demonstrating how new technologies align with objectives or showcasing their relevance to potential funding agencies.

Opportunities

The analysis highlighted several promising opportunities to enhance the Programme's impact, visibility, and effectiveness:

- **Improved visibility and outreach**: Expanding the Programme's visibility beyond the GOOS community offers opportunities to engage with national governments, NGOs, philanthropic organizations, industry partners, and other key stakeholders. Targeted outreach, potentially with support of the DCO Ocean Observing, can amplify awareness and recognition.
- **Co-Design as a coalition for ocean impact**: The Programme's co-design approach positions it as a hub for collaboration and collective action, enabling diverse stakeholders to work together toward meaningful ocean outcomes.
- **Expanded and diverse funding**: The Programme could secure increased and sustainable funding to support its ambitions by aligning with a variety of sources, including philanthropic organizations, industry, and under-resourced regions.
- **Integration along the value chain**: Emphasizing the value and impact of ocean observations can enhance recognition and foster stronger partnerships.
- **Focusing on under-resourced regions**: Increased effort to support under-resourced areas, including SIDS and marginalized groups, provides opportunities to advance equity and strengthen global participation.
- **Leveraging new technologies**: The Programme can actively incorporate and test new technologies motivating innovation and improving observational models.

- **Artificial Intelligence**: Exploring the role of AI and smart models offers the potential to improve ocean observations, enhance efficiency, and address critical gaps in the data we need.

Threats

While the Programme has significant strengths and opportunities, several external and internal challenges could impact its progress and long-term sustainability:

- **Capacity challenges in less-developed regions**: Limited capacity in under-resourced regions poses a risk to building and sustaining career pathways in ocean observation.
- **Retention of knowledge and sustained positions**: Retaining institutional knowledge and establishing long-term, sustainable positions in these areas remain significant challenges.
- **Competition from other programmes**: The emergence of other initiatives within the Ocean Decade and GOOS ecosystems creates competition for attention and resources. This can lead to stakeholder fatigue in certain regions, potentially fragmenting efforts and hindering collaboration.

Day 2 – Wednesday 15th January

Synobs and Co-Design Meeting

The Synops project, co-chaired by Yosuke and Elisabeth, was introduced as an IOC Decade project led by the Ocean Predict Observing System Evaluation Task Team. The objective of Synobs is to seek ways to extract maximum benefit from the combination of various observation platforms, typically between satellite and in-situ observation data, in ocean prediction.

Key activities and findings of the Synops project, including:

- Coordinating matrices and Observing System Simulation Experiments (OSSEs) to evaluate the impact of different observation types on ocean prediction systems.
- Sharing evaluation outcomes conducted in various Prediction Centers and the Prediction community.
- Supporting the development of a Data Submission Scheme for better use of observation data.

- Constructing a framework to provide real-time information from ocean prediction systems.

The presentation highlighted the positive impacts of altimetry and Argo data on ocean prediction systems, as well as the complementary effects of different observation types. However, Yosuke also emphasized the challenges of conducting OSEs and OSSEs, including the considerable time, computational, and human resources required.

The group acknowledged the value of the Synobs work and the importance of aligning it with the co-design exemplars' needs and priorities. Participants agreed on the need for a structured plan to support the design and implementation of observing systems, including potential funding and resources from observational committees.

Key actions

The discussion focused on the potential for collaboration between Synobs and the co-design group. Suggestions included:

- Invite Synobs team to provide an analysis of their flagship OSEs or OSSEs for co-design Exemplars to discuss the learnings and leverage the expertise and insights
- Explore the potential for collaboration between Synobs and the co-design group, particularly in the context of Tropical Cyclones and Boundary Currents Exemplars.
- Coordinating efforts to support the development of data assimilation procedures and validate the effectiveness of recommended observations.

Governance

The governance of the Co-Design Programme was a key focus of the discussions, with an emphasis on refining roles, responsibilities, and enhancing overall transparency. The Management Team underscored the importance of adopting a more structured approach to ensure effective decision-making and equitable stakeholder representation.

The team also emphasized the critical need to align co-design efforts with other global initiatives, such as Decade Collaborative Centers and regional frameworks. This

alignment would enable the Programme to leverage shared resources, expertise, and synergies, fostering greater global collaboration and impact.

Finally the team discussed the opportunity to expand support for the Programme through inviting key stakeholder representatives into the Advisory Group.

Structure

The Programme's governance structure was reviewed to assess what had worked effectively and what needed improvement throughout its evolution. Based on these reflections, a strengthened and revised governance framework was proposed and collaboratively co-designed with the team, as illustrated in the schematic view below, to be finalised post meeting.

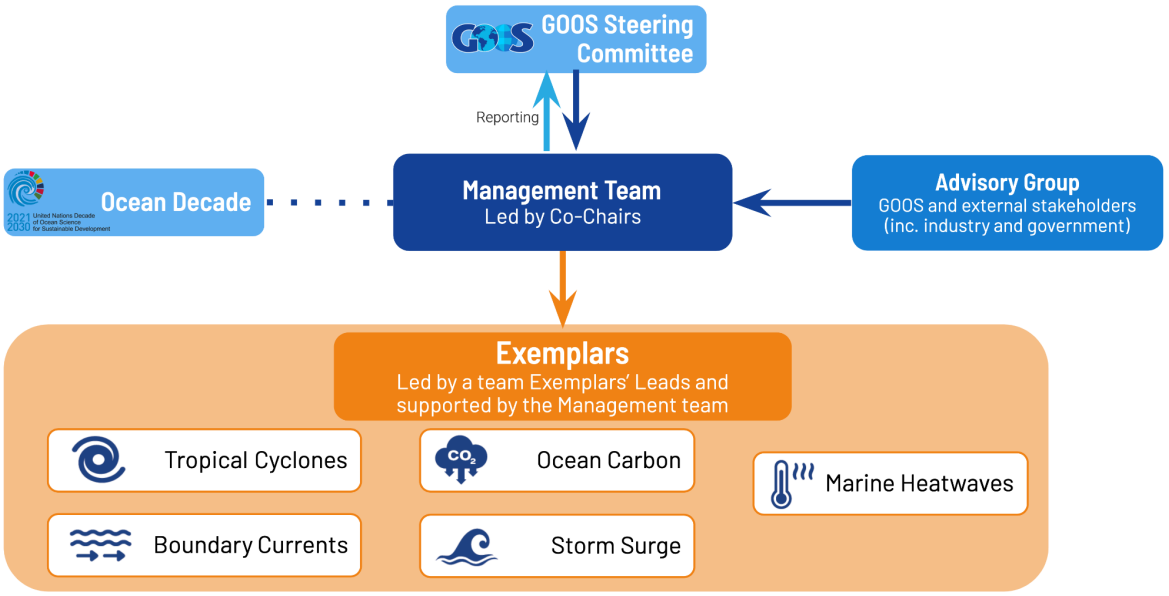

Figure 4. Governance Structure of the Co-Design Programme

Defining the Management Team role, Advisory Group role and communication between the Programme and reporting to GOOS, as well as recognising and Programme's supporters, sponsors and sharing information on the Programme's progress with these sponsors, was agreed upon to ensure transparency. Inputs from the advisory group will inform decision-making processes, while the Management Team provides regular updates to the advisory body.

Roles and Responsibilities

Management Team

The Management Team is led by two Co-Chairs and includes a GOOS representative, experts from relevant communities such as satellite and operational modelling, and program support officer/s. This team guides the program, offers strategic guidance to the Exemplars, and convenes regularly to advance, to align objectives and assess progress. Among its key responsibilities are:

- High level advocacy, connections to key stakeholders and develop partnerships
- Manage programme development, report to GOOS against objectives, consider transformation
- Strategic guidance and support for the Exemplars and between them, as well as their selection and assessment.
- Evolve the Co-Design process and create best practices, consider legacy for GOOS
- Seek funding and resources
- Communications (Internal and external to GOOS)

Advisory Group

The Advisory Group comprises representatives from GOOS and external stakeholders, including industry and government members. Its composition may vary based on the program's priorities or needs, as determined by the Management Team. The Advisory Group convenes annually, with members available to provide advice in their areas of expertise, thematic, regional, etc, as necessary.

The responsibilities of this group include:

- Feedback on strategic directions and assessment of progress
- Identify and advocate for resources in their communities
- Provide advice from their expertise to develop of the programme, including connections where relevant

Exemplars

The Exemplar will consist of a Team Leadership constituted by 2-3 experts. Additionally, each Exemplar will have a steering committee aiming for the wide geographical representation as relevant to their application area. The Exemplars leads will convene with the Management Team on a regular basis. The Exemplars will:

- Provide an excellent model for evolving user-focus systems design and tools addressing high societal needs
- Reporting on progress of co-design
- Advocate for Co-Design in their activities
- Deliver a concrete recommendations on design and services associated with their area
- Convene a global team of experts to develop the Exemplars

Key Actions

- Establish clearer governance structure
- Develop and circulate documents outlining the updated governance structure, clearly defining the roles and responsibilities of the advisory group and the management team.
- Re-establish Advisory group and Inform the expectations/TOR
- Establish and formalize reporting protocols to ensure consistent communication with sponsors and stakeholders.

Revisit the Co-Design Programme's Big Aims

The team revisited the high-level objectives outlined in the original proposal, which aim to integrate observing and modeling efforts to support a sustainable ocean. A focused discussion was held on the progress of the four key objectives and a reassessment of the order of the objectives took place. A summary of the discussion and the new wording and order of the objectives is presented below.

Objective 1: Integrate ocean observing and prediction based upon Co-Design to support a sustainable ocean and society in ways that are measurably better.

The team acknowledged advancements in this area, particularly in emphasizing fit-for-purpose observing systems. Co-Design processes have been increasingly embedded in the programme's activities, ensuring that ocean information aligns with the needs of end users. However, while progress is evident, the team recognized the need to further refine approaches to enhance user engagement based on learnings from the programme activity and document successes in this area as outputs that can be shared.

Objective 2: Make ocean observing and information appreciably more impactful through transformative Co-Design with key user stakeholders.

There was consensus that notable steps have been taken in integrating observing and prediction systems. The programme has brought together expertise from various disciplines and stakeholders, fostering a collaborative environment. However, while the integration has improved, measuring the tangible impacts of these efforts remains an area for further development. The team identified a need for clearer metrics to assess improvements and ensure continued progress.

Objective 3: Establish the international capability to undertake Co-Design processes, including infrastructure needs, leading to a more impactful observing system.

Discussions highlighted progress in strengthening international capacity to support Co-Design. The programme has fostered international collaborations through both its initiatives and the work of exemplars. However, further work is required to fully establish a comprehensive global capability for Co-Design. The team acknowledged the need to enhance coordination, expand participation, and develop mechanisms that ensure sustained engagement and implementation at an international scale.

Objective 4: Consider new approaches and technology across all elements of the Co-Design programme.

The team noted that this objective has not been fully addressed within the current scope of activities. While innovation is an inherent part of ongoing discussions, a structured approach to systematically integrating new technologies and methodologies has not yet been established. The team agreed on the importance of prioritizing this objective in future phases to

ensure that cutting-edge approaches and technological advancements are incorporated into all elements of the Co-Design programme.

Overall, the team recognized significant progress on Objectives 1, 2, and 3, particularly in areas of fit-for-purpose observing, interdisciplinary collaboration, and international capacity. However, the discussions underscored the need for more targeted actions to measure impact, expand to global Co-Design capabilities, and incorporate new technologies. Addressing these areas will be crucial in advancing the programme's objectives and achieving a truly integrated and sustainable ocean observing system.

Key Actions

- Establish a structured reporting framework to track progress against programme objectives by the end of 2025.

Exemplars

Exemplars play a pivotal role in the Co-Design Programme, serving as test cases for developing and applying co-design principles within their respective communities, whilst engaging in advancing observing system design and delivery for key application areas. Over the past two and a half years, they have made steady progress, working to implement their envisioned plans. A detailed Progress report on each Exemplar's documented progress prior to the meeting is available separately.

The three-day meeting included dedicated sessions with each Exemplar, providing an opportunity to reflect on their activities, assess the impact of their participation in the Programme, and evaluate how their involvement is shaping their specific applications. This report highlights key questions addressed to each Exemplar based on their progress, while providing an overview of discussions for others. Additionally, the sessions identified challenges where the Management Team could offer further support.

From these discussions, the impact of Co-Design on the work of its Exemplars can be summarized in four key areas:

1. **Credibility and Recognition**: The Co-Design Programme has enhanced the legitimacy of exemplars within the global ocean observing and meteorological communities. As an official GOOS programme, it has supported formalised collaboration with intergovernmental organizations like WMO, improving engagement pathways and visibility, particularly for the Tropical Cyclone Exemplar.

2. **Bridging Science and Societal Impact:** Traditional oceanographic research focuses on understanding physical processes but often lacks direct application. The Co-Design approach shifts this focus by aligning research with stakeholder needs—such as shipping, fisheries, and search and rescue—ensuring scientific efforts lead to practical outcomes and sustained funding.

3. **Engaging Non-Intergovernmental Stakeholders:** Co-design facilitates direct engagement with external stakeholders beyond intergovernmental bodies like IOC and WMO. This expands funding opportunities and strengthens links between GOOS structures, programs, and projects, enabling resource opportunities.

4. **Balancing Intergovernmental Systems and Implementation:** While intergovernmental organizations provide global coordination, they are often disconnected from operational ocean observing efforts and implementers.

The team identified specific actions for each Exemplar to support its development in 2025. To anticipate needs and facilitate the identification of opportunities, the Management Team will provide a template to follow the key planned activities for each Exemplar and offer support to them.

Key Actions

- Establish a template for enabling Management Team to support the Exemplar activities
- Develop an Ocean Decade call for Ocean biological - ecological Exemplar
- Find pathways for an exemplar workshop 2025/2026

Tropical Cyclones Exemplar

What is the unique value that Co-Design has offered that no other initiative has allowed you to do? - Unique Value of the Co-Design Programme

The Co-Design Programme has provided credibility and recognition within the global ocean observing and meteorological communities, helping to organize efforts under an official GOOS-endorsed framework. By fostering collaboration with WMO and other intergovernmental groups, the programme has formalized relationships that were previously informal and fragmented, creating clearer pathways for engagement. This structured approach has been particularly

beneficial for the Tropical Cyclone Exemplar, which has gained increased visibility and improved its ability to engage with regional and national stakeholders.

Has getting into the WMO connections allowed a better understanding on the importance of the ocean observations for the Met services or lead to an acknowledgement that oceans are important if we want to improve Tropical cyclone forecasting ?

The Co-Design programme has significantly increased the visibility of ocean contributions to tropical cyclone forecasting, leading to a deeper understanding of ocean-atmosphere interactions. For the first time, oceanographers were invited during the 8th WMO Workshop on the Impact of Various Observing Systems on Numerical Weather Prediction and Earth System Prediction, as well as the WMO RA-IV Hurricane Committee, highlighting the crucial role of ocean data in improving weather forecasting. Engagement with regional meteorological centers (e.g., RSMC Tokyo) has provided valuable insights into how effectively they utilize ocean data and what gaps remain.

Additionally, the exemplar is looking out for identifying local champions outside the US, particularly across the Asia-Pacific, to lead efforts that are tailored to regional needs.

How can Co-Design improve visibility and the impact of its work?

There is a clear need for dedicated personnel rather than relying solely on volunteers to enhance the programme's visibility and impact. Better integration within GOOS programmes is also essential to achieve greater recognition and strengthen collaboration. Outreach efforts, such as including Co-Design slides in presentations, have been valuable in introducing the programme to new audiences; however, further efforts are required to build broader awareness and engagement.

Has the value chain approach helped in the process to engage better when looking at opportunities to engage?

The value chain concept is a tool used in the TC Exemplar to illustrate how ocean data serves multiple users, not just end-users. The WMO recognizes "data users" known as end-users in this programme as critical, and the Co-Design approach has reinforced the importance of tracing data needs across the entire chain, from collection to forecasting.

How can the legacy of co-design be sustained in GOOS beyond the decade, and what should the ongoing structure of co-design look like?

There's a need to ensure that connections are maintained after the Decade, and it's important to diagnose the structure and continue dialogue in the next two years to ensure GOOS carries this forward.

The goal is to create mechanisms for long-term sustainability across the program, not just for the exemplars. This will help ensure that work continues even when key people leave or retire.

Can you outline the next steps, resource needs across regions?

It is possible to identify the needs across regions, such as observing capacity, education, and the use of remote sensing data. However, acting on these needs is limited by the team's capacity, and more resources and support from foundations may be needed, particularly for small islands or less developed countries. In the Bay of Bengal and Pacific Islands, these needs should ideally be driven by regional organizations like INCOSE or PI GOOS.

Key Actions for Tropical Cyclones Exemplar

- Increase visibility GOOS and connections with WMO and other Regional/National bodies (NOAA, IMOS, etc.)
- Connect the Exemplar with GRA (INDOOS, PI-GOOS) and WMO Regional representations
- Increase visibility of the Programme with external stakeholders to GOOS
- Finalise the Pilot development structure
- Connect with the Satellite Community after engaging with PI-GOOS

Boundary Currents Exemplar

What is the unique value that Co-Design has offered that no other initiative has allowed you to do? - Unique Value of the Co-Design Programme

The Co-Design Programme's unique value lies in its ability to bridge the gap between scientific research and societal impact. Traditionally, oceanographic

studies have been driven by scientific curiosity, focusing on understanding physical processes like heat and salt transport. While these studies produce valuable knowledge, they often lack direct connections to real-world applications. The Co-Design approach shifts this paradigm by consistently asking how research outcomes affect stakeholders, such as shipping industries, maritime safety, search and rescue operations, and fisheries. This perspective has been particularly transformative in places like South Africa, where research grants increasingly require societal relevance. Co-Design encourages researchers to actively engage with stakeholders, ensuring their work translates into useful products and services. Ultimately, this approach fosters opportunities for sustained funding and long-term impact by aligning scientific efforts with practical needs, though integrating these considerations into research remains a complex challenge.

What do you consider important for success in that stakeholder engagement?

Stakeholder engagement has been successful by leveraging existing networks, like fisheries, to initiate meaningful discussions. The September workshop generated strong interest, revealing that better ocean data could significantly improve fisheries operations. While much work remains, the process has opened valuable conversations. Additionally, visibility has improved through advocacy efforts, including presentations to the UN Decade and GOOS, which helped communicate the importance of ocean currents. Having key advocates and global connections has also facilitated engagement with the right stakeholders at different levels.

How can we improve the visibility of the Co-Design program beyond the GOOS community and raise awareness among broader stakeholders?

While the Co-Design program is well-known within GOOS circles, broader outreach is needed, particularly to key industry stakeholders like shipping companies and fisheries. Engaging with large players could be beneficial but is challenging due to the vast number of stakeholders. Disaster risk reduction is another promising avenue, with potential collaborations in satellite communications and mapping tools for events like tropical cyclones and storm surges. Strengthening ties with WMO and meteorological services is also important, but further efforts are needed to determine the best approach.

Exploring opportunities to connect with Synobs for running data simulations for the exemplar

The discussion focused on how to integrate historical observations into model simulations to improve boundary current analyses. One proposal was to

leverage existing OSE/OSSE frameworks by sending data to established systems for validation and simulation. This approach includes collaborating with experts from SAEON OSE, the Synobs system, and other relevant frameworks such as FSOI.

A key challenge identified was the availability of skilled postdocs to support this work. While South Africa has struggled to attract candidates, external funding, possibly from DCC Ocean Climate Nexus (China), could help facilitate international collaboration.

Another major point was the need to enhance global data-assimilating models, which currently operate at a 10th-degree resolution. While high-resolution nested models are necessary for shelf-scale processes, they depend on accurate boundary conditions from coarser models. Without refining these inputs, even high-resolution models will struggle to produce reliable results. This challenge is common across boundary current networks, emphasizing the need for broader discussions within GOOS and Synobs.

Key Actions for Boundary Currents Exemplar

- Raise the profile of the BC work within bodies e.g., WMO as a critical piece to impact weather
- Provide recommendations on whom to engage on developing data assimilation needs/options/processes
- Facilitate connections and recommendations for economic assessment initiatives in the region.
- Bridge SAEON OSE with the Synobs system and other relevant frameworks (e.g., FSOI) by engaging with key experts.
- Develop a structured action plan to support programme fundraising efforts.

Marine Heatwaves Exemplar

Overview of discussions

As this exemplar had just positioned a new lead, Dr. Melanie Juza, the overall discussion focused on revitalizing the exemplar, clarifying its scope and priorities, and finding ways to better integrate it with related ocean observing and forecasting efforts.

The new leadership aims to reassess the exemplar's current status, update its direction, and reconsider the selection of pilot areas based on criteria such as warming hotspots and ecosystem vulnerability. Plans are underway to relaunch the Steering Committee, with an online meeting scheduled for February to establish a clear roadmap for selecting pilot areas and addressing other key topics.

Enhancing the visibility and communication of the Marine Heatwaves Exemplar is a priority, including the potential development of a one-page fact sheet to highlight its significance and pilot areas. Strengthening connections with weather services and the WMO could also enhance collaboration, given the clear linkages in impact and forecasting needs.

Key scientific priorities include evaluating marine heatwave modeling and forecasting capabilities and exploring intersections with other exemplars, such as Tropical Cyclones and Boundary Currents.

Challenges remain, particularly in securing sufficient funding and resources to support the exemplar's activities and in fostering stronger engagement with key stakeholders and user communities.

Key Actions for Marine Heat Waves Exemplar

- Relaunch the Steering Committee (SC) in February.
- Clearly articulate the importance of the Exemplar within WMO.
- Confirm 2 additional co-leads for the Marine Heatwaves (MHW) Exemplar.
- Strengthen connections with other relevant Exemplars (e.g., Tropical Cyclones, Ocean Carbon and Boundary Currents).
- Reconnect with the MHW Exemplar to assess emerging needs during its reinvigoration.

Marine Life Exemplar

Overview of discussions

The Marine Life Exemplar lead provided an overview of the challenges they have faced in aligning their existing co-design efforts under the GOOS co-design program. While they are actively engaged in co-design practices through initiatives like the Marine Biodiversity Observation Network (MBON), they have struggled to secure funding and

tangible outcomes specifically through the Co-Design programme. The discussion acknowledged the disconnect between the exemplar work and the specific structure and requirements of the Program.

The key agreement was that the Co-Design program will propose another relation different than an exemplar to facilitate stronger connections to other relevant exemplars, as well as explore opportunities to help raise the visibility and awareness of the exemplar's co-design approaches within the GOOS community and beyond.

Key Actions for Marine Life Exemplar

- Redefine the best way to engage in the ongoing efforts in Marine Life from the current projects associated with the Exemplar.
- Explore best-practices when their paper is published to extract insights and integrate key learnings into the programme.
- Establish connections between Marine Life community and other Exemplars to promote knowledge exchange.
- Engage with the Decade team to launch a Marine Bio-ecological Exemplar call.

Storm Surge Exemplar

Overview of discussions

The Storm Surge Exemplar is being implemented as part of the Coast Predict program and the Co-Design program. The Storm Surge Exemplar is focused on developing a coastal multi-hazard, people-centered early warning system, with storm surge being one of the key hazards addressed.

The discussion highlighted the importance of stakeholder engagement in the exemplar's activities, with plans to involve local partners, national meteorological services, and other key stakeholders in the co-design and implementation of the observing systems and early warning capabilities.

There was agreement that the Storm Surge Exemplar could benefit from closer alignment and collaboration with the Co-Design program. Specific suggestions included:

- Leveraging the Co-Design team's expertise and connections to facilitate stakeholder engagement, particularly with the WMO and regional meteorological services.
- Exploring opportunities for joint funding proposals and workshops that bring together the Storm Surge Exemplar with other relevant exemplars (e.g., tropical cyclones, marine heatwaves).
- Developing a clear messaging and storytelling approach to highlight the societal value and impact of the storm surge work, which could help attract diverse funding sources beyond traditional science funding.

Overall, the discussion emphasized the importance of strengthening the connections between the Storm Surge Exemplar and the Co-Design program, with the goal of leveraging synergies, sharing best practices, and amplifying the impact of the storm surge-related activities.

Key Actions for Storm Surge Exemplar

- Following the publication of key papers, support a stakeholder meeting with users, WMO and industry.
- Strengthen regional and local connections at pilot sites (e.g., Southeast Asia, Pacific Islands) with meteorological services and industry partners.
- Facilitate discussions on low-cost technology as a cross-cutting topic for collaboration with other Exemplars (e.g., Tropical Cyclones, Boundary Currents).

Carbon Exemplar

What is the unique value that Co-Design has offered that no other initiative has allowed you to do? - Unique Value of the Co-Design Programme

Co-design allows us to engage directly with concrete stakeholders in ocean observation, particularly those not tied to intergovernmental bodies like the IOC and WMO, even though these institutions remain key supporters of GOOS.

This approach enables funding and linking external stakeholders to GOOS structures, programs, and projects, something not previously possible due to resource limitations within GOOS.

Intergovernmental systems are valuable for their global reach and ability to coordinate national mandates. However, their weakness lies in the lack of direct involvement in the implementation of ocean observing systems and a disconnection from the observer and research communities, which are essential to GOOS's function. GOOS was initially part of the intergovernmental system, but its success has come from balancing its role within this system while engaging stakeholders outside it. Connections with implementers and external organizations like SOCONET and POGO help bridge this gap.

GOOS provides legitimacy to observing networks by ensuring they meet transparency and openness standards. While it's possible for observing networks to exist independently of GOOS, doing so would reduce their credibility, especially in providing reliable, transparent information. GOOS's endorsement ensures trust and upholds the commitment to openly share data, an essential part of addressing the urgent need to reduce emissions and make informed decisions.

How can we ensure global inclusion in ocean carbon accounting, even for regions not directly involved in the exemplar project?

The exemplar lead acknowledged the importance of expanding international participation in ocean carbon accounting while maintaining a strategic and gradual approach. Current efforts focus on securing funding, particularly through Horizon Europe, to support the early stages of governance, finance, and observation design, primarily in the North Atlantic. However, the framework is designed to be scalable, allowing future global integration.

The management team emphasized the need for inclusivity, ensuring that stakeholders from other regions, especially those underrepresented, such as the Caribbean and developing nations, are engaged in the co-design process. This engagement will help build capacity and readiness for future funding opportunities. Partnerships with organizations like the World Bank and the Environmental Defense Fund play a crucial role in integrating non-European and non-North American actors, reinforcing the goal of a truly global ocean carbon accounting system.

Key Actions for Ocean Carbon Exemplar

- Strengthen ties between the Exemplar and WMO to ensure strategic alignment.

- Improve communication, visibility, and messaging strategies to ensure proper integration with GOOS.
- Secure GOOS official endorsement for Exemplar efforts as part of a GOOS Carbon Plan with clear work areas and connections to the BGC Panel.

Day 3 – Refining the plan and Next steps

Developing capacity for Co-Design

The meeting focused on the proposal to establish a "network of networks" to build international co-design capacity for ocean observing systems. The session aimed to refine the project's scope, establish a collaborative framework, and develop human capacity for co-design. Under the NSF AccelNet proposal submitted in 2024, the Joint Effort for Data assimilation Integration (JEDI) system (hosted on the UCAR platform) will play a central role in supporting this initiative.

Concept of Network of Networks (NoN)

The NoN is designed as a collaborative, long-term initiative, rather than a series of one-off meetings with predefined outcomes. Its structure aims to function as an open space for various networks and communities to contribute to the development of ocean observing systems. Key stakeholders from networks such as the Center for Ocean Leadership (COL), JCSDA, and GOOS will form a sustained, evolving partnership to work together toward shared objectives in support of ongoing ocean science assimilation and modelling needs. This approach is designed to ensure alignment of efforts and manage expectations as the project progresses.

Rather than focusing on short-term milestones, the NoN seeks to establish a continuous collaborative process that aligns multiple stakeholders toward common, long-term goals in ocean observing and co-design. The NoN will allow stakeholders to contribute to the refinement of the JED framework, improving its use for ocean observing, data assimilation, and policy studies, ensuring that the system evolves based on the community's need for ongoing products and services.

Capacity building

A central focus of the proposal is to expand human capacity for co-design, extending beyond the current group of participants. Key attention was given to data assimilation

as an area where additional work is required to enable more effective co-design practices.

By building a broader community of practitioners skilled in co-design, the NoN aims to foster the development of best practices that can guide the design and implementation of ocean observing systems in a collaborative manner.

This human capacity-building effort will not only address technical aspects like data assimilation and training, but will also emphasize the social and organizational dimensions of co-design, ensuring that diverse perspectives are represented and integrated.

Key Outcomes on the NoN:

- **Sustained Collaboration**: Establish a long-term, collaborative framework through the network of networks that will drive ongoing engagement, training, feedback, and system improvement.
- **Human Capacity Building**: Expand the community of co-design practitioners, focusing on developing expertise in data assimilation and other critical areas of ocean observing and data management.
- **Leveraging JEDI and Existing Networks**: Use the JEDI system and existing networks to gather community requirements and refine the system based on real-world use cases. Maintain a focus on training and user engagement of tools with an emphasis on SIDs and LDCs.
- **Governance Structure and Stakeholder Alignment**: Finalize the governance framework for the network and ensure that all stakeholders have a clear understanding of the project's goals, structure, and pathways to participation.

Key activities

- Plan the AccelNet meeting or a Co-Design Meeting (Depending on outcome from proposal review anticipated March 2025 , and receiving funding)
- Develop a Co-Design webinar to share learnings, best practices, and expand outreach of the approach.

Connections with modelling community

The session had a focus on exploring the integration of the co-design program and the exemplar observing and modeling communities. The goal was to consider what needs to be done to bridge the gaps between these communities to ensure observation data is effectively used in predictive models and decision-making tools, with a focus on operational prediction systems.

Barriers to integrating observation networks into operational models were identified, including sustainable funding, data accessibility, and optimal sampling strategies. Bridging the gap between observing and modeling communities both within and across exemplars was considered essential to foster stronger connections and improve integration.

The need for more specific observation data requirements for operational forecasting was emphasized, along with identifying gaps in existing data. Existing initiatives like the Copernicus project were highlighted as valuable resources for documenting data requirements.

The importance of a holistic approach involving the corporate sector and blue-tech entrepreneurs was also stressed for developing a global ocean observing system.

In summary, the discussion focused on the current integration challenges between observing and modeling communities and how co-design principles could help address these gaps and improve operational forecasting.

Key activities

- Map the connections, expertise and usage of existing networks within the modelling communities in the Exemplars (Survey)
- Look for best practices of how to set successful connections with the modelling community so that the observation gaps can be identified and sampling strategies optimized.

Alignment with DCO OO

The session included the Decade Coordination Office (DCO) for Ocean Observing in the discussion, who presented the DCO's vision and priorities while exploring potential alignment and support for the Co-Design program. The discussion focused on leveraging synergies between the two initiatives to enhance ocean observing efforts.

The DCO-OO outlined its priorities for the next 4–5 years, emphasizing responsiveness to end-user needs, which aligns closely with the Co-Design program's objectives. Its three key focus areas include developing a federated and interoperable global ocean digital ecosystem, establishing a strategy for a fit-for-purpose global ocean observing system, and advancing transformational alignment. Within this transformational alignment, the DCO has thematic collaboration areas, one of which focuses specifically on the Co-Design processes.

To support a sustainable Blue Economy, the DCO follows a three-pillar model for a global ocean observing system, integrating scientific/governmental, corporate, and BlueTech/financial sectors. This model serves as a foundation for identifying transformational projects that drive community-wide impact.

Recognizing the Co-Design program and exemplars as key opportunities for transformational alignment, the DCO offered support in facilitating discussions on Co-Design concepts and achievements. This includes developing transformational areas where the goal is to bring together a community to identify and address a pivotal challenge that can drive significant change. The DCO is initiating this approach with the Biodiversity community, positioning Co-Design as a transformational area for future implementation. Additionally, the DCO launched a mentorship program that incorporates Co-Design, providing support in communication and outreach while enhancing visibility and stakeholder engagement.

The session explored leveraging the DCO's Implementing Partners (DIPs) to provide resources for Co-Design workshops and community engagement. Additionally, they explored strategies for effectively communicating the value of Co-Design efforts to a broader audience, including private sector stakeholders. Opportunities were identified to involve the DCO in connecting with industry and strategic partners to strengthen the Co-Design advisory group.

The session concluded with an agreement to further align the DCO's transformational initiatives with the Co-Design program's needs, ensuring greater impact and integration within the broader ocean observing community.

Key activities

- DCO OO will advise potential members for the integration of the Advisory Group.
- DCO OO will support the visibility of the programme in his activities

- Leveraging DPIs support on Co-Design as a transformational area to enable discussions on the concepts and learnings from the Programme.

Communications

The session focused on refining communication strategies for Co-Design, including a review of a funding pitch deck developed with the Decade Strategy Communications Group (SCG). While the draft was discussed, it remains a work in progress and is not detailed in this report. Additional discussions covered updates to the GOOS website to enhance Co-Design visibility and the need for a revised Co-Design presentation.

Co-Design Website

A significant part of the discussion focused on improving the visibility of the Co-Design program and exemplar projects on the GOOS website.

Key discussion points included:

- Improving the website layout and navigation to make Co-Design information more accessible and prominent.
- Incorporating governance structure and advisory group details to enhance transparency and accountability.
- Updating or creating a new video to make the website content more engaging and reflective of current activities.
- Ensuring clear and compelling messaging, rather than just listing information, to highlight the benefits and impact of Co-Design.
- Aligning website updates with potential future design changes to the GOOS website for consistency and integration.

Key actions

- Update a Co-Design PTT

- Update the GOOS Website pages for Ocean Observing Co-Design, integrating some of the elements that were agreed to highlight through communications

Annex 1: Work plan 2025 – 2026

Priority

P1	P2
P3	P4

Priority categories are ranked from 1 (most important) to 4 (least urgent)

			2025				2026			
Priority	**Key areas**	**Actions**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
1	Governance and transparency	Establish clearer governance structure	x							
1	Exemplar management	Establish a template for Exemplar Planning - Exemplars to fill in the template for Q2	x							
1	Governance and transparency	Develop and circulate documents outlining the updated governance structure, clearly defining the roles and responsibilities of the advisory group and the management team	x							
1	Visibility of Programme and Communications	Update the Website	x							
1	Documenting Co-Design Progress	Develop further the concept of the Co-Design Process presented in the meeting	x	x	x					
1	Stakeholder engagement	Develop the cases for WMO for Boundary Currents and Marine Heatwaves	x							
1	Stakeholder engagement	Focus on targeted bilateral outreach at UNOC	x							

2	Visibility of Programme and Communications	Reporting to sponsor agencies	x			x	x			x
1	Programme management	Circulate the report from the meeting / Deliver the work programme 2025/2026	x							
2	Documenting Co-Design Progress	Connect the Exemplars with Synobs (Tropical Cyclones /Boundary Currents)	x	x						
2	Governance and transparency	Review the list of UN Decade projects under Co-Design and convene a discussion at Co-Design Management meeting	x							
1	Documenting Co-Design Progress	Define how the projects will fit with the Exemplar's work	x	x						
1	Governance and transparency	Re-establish Advisory group and Inform the expectations/TOR Consider the stakeholders to approach and set up meetings		x	x					
1	Visibility of Programme and Communications	Update a Co-Design PTT		x						
1	Exemplar management	Develop an Ocean Decade call for a Ocean BioEcological Exemplar		x						
2	Visibility of Programme and Communications	Increase visibility of the programme and the work with GOOS, GRA, and WMO bodies and potential external partners		x	x	x	x	x	x	
2	Funding	Look for different funding opportunities (Climate adaptation funding, philanthropy, etc)		x	x	x	x	x	x	x
2	Stakeholder engagement	Engage with DCO OO in his broader Co-Design alignment initiative		x						
2	Exemplar management	Based on the exemplar plans, identify stakeholder connections and funding needs where the management team can take action		x	x	x	x	x		
2	Exemplar management	Decide if we have an exemplar workshop (Within the Accelenet meeting or based on other funds) based on the Exemplar planning		x						
2	Community development	Webinar on Co-Design		x	x					
1	Community development	Accelenet meeting or Co-Design Meeting		x	x	x				
2	Documenting Co-Design Progress	Map the connections, expertise and usage of existing networks within the modelling communities (Survey)		x	x	x				

1	Governance and transparency	Establish and formalize reporting protocols to ensure consistent communication with sponsors and stakeholders.		x	x					
3	Funding	Develop 3 proposal to upload in the Ocean Decade platform for funding matchmaking			x	x				
2	Programme management	Establish outcomes to evaluate the progress of the Exemplars in the Co-Design Process or define the scope of when can we say that the exemplars are done with a stage			x				x	

Annex 2: List of participants

On site

Name	**Role**
David Legler	Co-Chair
Bernadette Sloyan	Co-Chair
Ann-Christine Zinkann	Support team – BC Exemplar co-lead
Emma Heslop	GOOS representative
Andrea McCurdy	Support team – Satellite connections
Cristina Miño	Support team – Exemplar Support
On line	
Jun She	Support team – Modelling connections
Scott Glenn	Tropical Cyclone co-lead
Cheyenne Stienbarger	Tropical Cyclone co-lead
Tamaryn Morris	Boundary Currents co-lead
Melanie Juza	Marine Heatwaves co-lead
Frank Muller-Krager	Marine Life co-lead
Mairead O'Donovan	Storm Surge co-lead
Giovanni Coppini	Storm Surge co-lead
Richard Sanders	Ocean Carbon co-lead
Anya Waite	Ocean Carbon co-lead
Ronnie Noonan-Birch	Ocean Carbon
Elisabeth Remy	Synobs
Yosuke Fujii	Synobs
Terrence McConnell	DCO Ocean Observations lead

Annex 3: List of Acronyms

COLA: Center for Ocean-Land-Atmosphere Studies

DCC OCC: Decade Collaborative Center for Ocean-Climate Nexus and Coordination

DCO OO: Decade Coordination Office for Ocean Observing

DPI: Decade Programme Implementation

GOOS: Global Ocean Observing System

GRA: GOOS Regional Alliances

IOC: Intergovernmental Oceanographic Commission

JCSDA: Joint Center for Satellite Data Assimilation

JEDI: Joint Effort for Data Assimilation Integration

NoN: Network of Networks

SCG: Ocean Decade Strategic Communications Group

UNEP: United Nations Environment Programme

UNOC: United Nations Ocean Conference

WMO: World Meteorological Organization

The Global Ocean Observing System

unesco
Intergovernmental Oceanographic Commission

WORLD METEOROLOGICAL ORGANIZATION

UN environment
United Nations Environment Programme

International Science Council

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