Status of GEO Blue Planet Activities

13 November 2020

Purpose and Mission

GEO promotes open, coordinated and sustained data sharing and infrastructure for better research, policy making, decisions and action across many disciplines. The GEO community focuses on three global priority engagement areas: the United Nations 2030 Agenda for Sustainable Development, the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction. GEO Blue Planet is the ocean and coastal-arm of GEO aims to ensure the sustained development and use of ocean and coastal observations for the benefit of society.

GEO Blue Planet's mission is to:

- advance and **exploit synergies** among the many observational programmes devoted to ocean and coastal waters;
- **improve engagement with** a variety of stakeholders for enhancing the timeliness, quality and range of services delivered; and
- raise awareness of the **societal benefits** of ocean observations at the public and policy levels.

GEO Blue functions as a network of ocean and coastal-observers, social scientists and end-user representatives from a variety of stakeholder groups, including international and regional organizations, NGOs, national institutes, universities and government agencies.

Cross-cutting and Thematic Working Groups

The initiative promotes, partners with and leads working groups, projects, communities and programmes that support the GEO Blue Planet mission. Information about GEO Blue Planet activities and related activities are organized around three cross-cutting areas and ten thematic areas.

Cross-cutting Activities

GEO Blue Planet has three standing working groups that implement cross-cutting activities:

- Stakeholder Engagement and Societal Awareness Working Group
- Capacity Development Working Group
- Data Discovery, Access and Utilization Working Group

The primary role of these working groups is to identify and share best practices. A core group of working group members identify and guide priority activities. Task Teams with additional members from the GEO Blue Planet Steering Committee and other interested parties are formed to implement short-term activities (6 - 18 months).

Stakeholder Engagement and Societal Awareness Working Group

The GEO Blue Planet working group on stakeholders and societal awareness works to promote communication between those who need better knowledge of the ocean and coasts with those who are capable of producing that knowledge using ocean and coastal observation technologies. The current and completed activities of this working group are outlined below. The working group lead is Louis Celliers.

Current activities:

- ***Compiling examples of societal benefits achieved from ocean and coastal observations***
  - Description: compile some iconic examples of ocean observing products that have a direct and tangible positive impact on society, e.g. saving lives, supporting livelihoods, producing economy benefits, etc.
  - Lead: Ralph Rayner
- ***Mapping the ocean and coastal observation and services "oceanscape"***
  - Description: Oceanscape is an effort of the GEO Blue Planet Initiative to identify the numerous organisations (including projects, programmes, and other structures) working in the "ocean space", and to clarify the connections between them (as well as identifying opportunities to make connections where none exist).
  - Leads: Sophie Seeyave and Jonathan Hodge
- ***Best practices in science communication and outreach***
  - Description: This aspect of the Blue Planet Working Group is led by "Ocean Communicators United", an informal grouping of representatives of international, regional or national oceanographic research organisations that provides a forum for its members to share information, expertise, best practices and materials related to marine science communications.
  - Leads: Sophie Seeyave

Completed activities:

- ***GEO Blue Planet Symposiums***
  - Description: GEO Blue Planet hosts symposiums every one to two years in different regions for the purpose of increasing regional linkages, promoting linkages between stakeholders and the observing community and gathering community feedback on the focus of GEO Blue Planet activities.
    - 4th GEO Blue Planet Symposium – Toulouse, France, 2018

- 3rd GEO Blue Planet Symposium – College Park, MD, USA, 2017
- 2nd GEO Blue Planet Symposium – Cairns, Australia, 2015
- Kick-off Symposium - Ilhabela, Brazil, 2012

- ***Regional Workshops***
  - Description: GEO Blue Planet works with various partners to organize workshops that aim to identify stakeholder information needs, support the development of decision-support tools and identify technology and data gaps.
    - Workshop on "Earth Observation and Coastal Climate Services for Small Islands"
    - Workshop on Ocean and Coastal Information in Support of Marine Resources and Biodiversity in the Macronesia and Sao Tome and Principe Region
    - Workshop on Implementing and Monitoring the Sustainable Development Goals in the Caribbean: The Role of the Ocean – St. Vincent and the Grenadines, 2018

- ***Publications***
  - Writing a Communications Strategy: A Step-by-Step Guide and Template Tailored for International (Marine) Science Organisations
  - AGU book chapter

Capacity Development Working Group

The GEO Blue Planet working group on capacity development works to link and build on existing capacity development efforts related to sustained ocean and coastal observations, products and services. Best practices will be shared broadly with the GEO Blue Planet and broader GEO community, and in particular submitted to IODE Ocean Best Practices repository (www.oceanbestpractices.org). The working group lead is Sophie Seeyave.

Current activities:

- ***Collaborating with the Ocean Best Practices Initiative***
  - Description: The Secretariat has been collaborating with the Ocean Best Practices Initiative on how the GEO community can support registration/development of Best Practices. Sargassum monitoring and management is being used as a pilot for this effort (see: for the sargassum information hub for additional information).
  - Project Lead: Emily Smail

Completed activities:

- ***Publications***
  - Challenges for global ocean observation: the need for increased human capacity

Data Discovery, Access and Utilization Working Group

The GEO Blue Planet working group data discovery, access and utilization is working to share best practices and support activities to increase data discoverability and integration of data sets. The working group is particularly focused on supporting the advent of systematic and regular provision of analysis ready quality assured data. The Working Group currently does not have a formal lead.

Current/Completed activities:

- ***The working group has not completed any projects and does not have specific projects lined up.***

Thematic Working Groups

Multi-hazard Warning Systems

To support the Sendai Framework for Disaster Risk Reduction, GEO Blue Planet has been working to identify needs for additional hazard-warning systems. Work to date has been focused on supporting the development of "other coastal hazards" to augment the Caribbean Early Warning System for Tsunamis and other Coastal Hazards. Hazards that have been focused on include sargassum and oil spills which were identified by regional stakeholders as priorities.

Current activities:

- ***Sargassum monitoring in the Tropical Atlantic***
    - Description: NOAA CoastWatch is working with the University of South Florida, NOAA AOML and NOAA CoastWatch node for the Caribbean and Gulf of Mexico to provide a monitoring product for the entire tropical Atlantic region and improve inundation reports for impacted areas. GEO Blue Planet will disseminate project information through the Sargassum Information Hub. GEO Blue Planet is working with IODE to create a sargassum community within OceanExpert and is currently working to make the Sargassum Information Hub available in different languages and piloting country-specific pages on the Hub.
    - Leads: Emily Smail, Leah Segui and Cesar Toro (IOCARIBE)
- ***Oil spill information service for the Wider Caribbean***
    - Description: GEO Blue Planet is collaborating with AmeriGEO, IOC-UNESCO IOCARIBE, NOAA Satellite Analysis Branch, and RAC-REMPETC to develop a pilot Oil Spill Information Service for Venezuela. Project partners are discussing methods to collate and host available data.
    - Leads: Emily Smail, Cesar Toro (IOCARIBE), Angelica Gutierez (AmeriGEO) and Rich Frazier (AmeriGEO)

Completed activities:

- ***Launch of the Sargassum Information Hub***
    - Description: GEO Blue Planet, IOCARIBE, AtlatnOS and the AIR Centre launched the Sargassum Information Hub (sargassumhub.org), a centralized location for information related to monitoring, forecasting, management, use and research of sargassum.
        - Ocean Best Practices System now hosts a sargassum community on the OBPS portal.
    - Leads: Emily Smail, Leah Segui and Moutinho
- ***Workshops***
    - Wider Caribbean Oil Spill Information System Workshop

- Workshop Sargassum and Oil Spills Monitoring Pilot Project for the Caribbean Sea & Adjacent Regions

Understanding Flooding on Reef-lined Island Coasts Working Group

The Understanding Flooding on Reef-lined Island Coasts (UFORIC) Working Group works to develop action plans that can be used globally, regionally, and nationally to help guide research and development activities related to understanding and predicting flooding along tropical coral reef-lined shorelines over the coming years. The leads of this working group are William Skirving and Curt Storlazzi.

Current activities:

- ***Wave-driven Flood-forecasting on Reef-lined Island Coasts Early Warning System (WaveForce)***
  - Description: The current version of WaveFoRCE utilizes existing satellite and modeled wave and sea surface height forecasts as inputs. It combines them with bathymetry and remotely-sensed reef properties, and applies simplified assumptions about friction coefficients, shallow water bathymetric profiles, and wave shadowing effects in a Bayesian Network developed to predict wave-driven coastal flooding on coral reef-lined coasts. The WaveFoRCE methodology has been successfully tested at a case study site at Roi-Namur, Kwajalein Atoll, RMI. Two further site demonstrations, one in Guam and the other in Oahu, are currently being implemented. The success of WaveFoRCE at Roi-Namur demonstrates that a relatively simple EWS methodology does work well and is therefore ready to implement as a global forecasting system once funding is secured.
  - Leads: William Skirving, Curt Storlazzi and Ap van Dongeren

Completed activities:

- ***Workshop***
  - Understanding Flooding on Reef-lined Island Coasts Workshop

Water-associated Diseases Working Group

The GEO Blue Planet Working Group on Earth Observations for Water-Associated diseases aims to identify benefits, best practices and feasibility of incorporating Earth observation measurements into early-warning systems for water-associated diseases. It provides a forum to exchange useful information, share data and coordinate activities where feasible, to maximise benefits to society.

Current activities:

- ***The GEO Blue Planet Secretariat is not aware of current activities. We have reached out to the lead about scheduling regular working group meetings but she did not respond.***

Completed activities:

- ***2018 scoping workshop***
- ***Publications***
  - Environmental Reservoirs of Vibrio cholerae: Challenges and Opportunities for Ocean-Color Remote Sensing

Marine Debris Working Group

THe objectives of the marine debris working group are to: 1) Work with stakeholders at the global, regional and local scales to identify data and information gaps; 2) Provide networking and coordination support to connect the marine litter community; 3) Identify best practices in marine litter related ocean observations to inform policy recommendations and to measure the impact of mitigation strategies; and 4) Support UN Environment, international, regional organisations and Member States in the monitoring and reporting of SDG 14.1. The working group is currently being organized by an organizing committee composed of Eric Chassignet (Florida State University), Giovanni Coppin (Centro Euro-Mediterraneo sui Cambiamenti Climatici), Samy Djavidnia (Blue Planet / European Maritime Safety Agency), Francois Galgani (Institut Français de Recherche pour l'exploitation de la Mer), René Garello (IMT Atlantique), Nikolai Maximenko (University of Hawaii), Jose Moutinho (Atlantic International Research Centre), Frank Muller-Karger (University of South Florida), Hans-Peter Plag (Old Dominion University), Kostas Topouzelis (University of the Aegean) and Francesca Verones (Norwegian University of Science and Technology).

Current activities:

- ***Working with UN Environment on Marine Litter Data in support of SDG 14***
    - Description: UN Environment is working with IBM to do pilots for implementing the vision outlined in the white paper. They are doing this currently with Citizen Science data in collaboration with the AIR Centre. Esri and the GEO Blue Planet Secretariat had a recent discussion with UN Environment and their team developing the Digital multi-stakeholder platform.
    - Lead: Emily Smail
- ***Development of the Working Group***
    - Description: The group has drafted a working group description and activity brainstorming document.

Completed activities:

- ***Workshops***
    - Workshop on Marine Debris Indicators
    - Workshop on Observing and Monitoring Plastics in the Oceans
- ***Publications***
    - A Global Platform for Monitoring Marine Litter and Informing Action (in final editing/publication by UN Environment; completed at the request of UN Environment)
    - Plastic Pete Video

Eutrophication Working Group

The objectives of GEO Blue Planet Eutrophication Working Group are to 1) Work with stakeholders at the global, regional and local scales to identify data and information gaps; 2) Provide networking and coordination support to connect the eutrophication community; 3) Identify best practices in eutrophication related ocean observations to inform policy recommendations and to measure the impact of mitigation strategies; and 4) Support UN Environment, international, regional organisations and Member States in the monitoring and reporting of SDG 14.1.

Current activities:

- ***Finalization of working group description and activities***
- ***Capacity development for Level 2 (national/regional) satellite data analysis for reporting on SDG 14.1.1a***
    - Description:
    - Leads: Emily Smail, Dany Ghafari (UN Environment) and Chu Ishida (EO4SDGs/CEOS)
- ***Development of machine learning activities to monitor/predict eutrophication using additional information including land use change***
    - Description: Development of machine learning activities to monitor/predict eutrophication using additional information including land use change
    - Leads: Emily Smail, Paul DiGiacomo, Keith VanGraafeiland

Completed activities:

- ***14.1.1a methodology***
    - *Description:* ***Supported the development of the methodology for SDG 14.1.1a (Coastal Eutrophication) and the drafting of the Global Manual on Ocean Statistics.***
    - Leads: Emily Smail, Jillian Campbell (previously UN Environment), Dany Ghafari (UN Environment), Veronica Lance (NOAA) and Sathya Ramachandran (NOAA)
- ***Level 1 data processing and development of a Chlorophyll Hub Site***
    - Description: Worked with a team of ocean color scientists, Esri and UN Environment to process global (level 1) data products for formal reporting on SDG indicator 14.1.1a. The data will be included in the formal UN SDG report.
    - Leads: Keith VanGraafeiland, Emily Smail and Leah Segui

Fisheries Working Group

There is a need to integrate ocean observations with fisheries to understand the status of resources and exploitation rate, allowing stakeholders in various regions to develop plans and sustainable management practices. Work to date has been focused on identifying the needs and the gaps in data availability and knowledge sharing for the fisheries community and supporting the implementation of an open knowledge platform to empower decision makers. The working group is led by Emily Smail, Kwame Adu Agyekum and Anton Ellenbroek.

Current activities:

- **Earth observations for tuna fisheries management workshop series**
    - Description: GEO Blue Planet is hosting a series of sessions to highlight and increase awareness of EO information for sustainable fisheries management. The sessions are open to relevant stakeholders, including those involved in tuna RFMOs and fisheries management councils, technical experts and others to discuss the integration of EO in sustainable tuna fisheries management.
    - Lead: Leah Segui
- **Fisheries-scape**
    - Description: GEO Blue Planet is working with Deimos to develop the fisheries-scape to provide information about fisheries services in a user friendly and interactive way. Information about the services include the data, infrastructure, and software used to

develop the service along with contacts. The goal will be to link the fisheries service community in order to bring awareness on what and how data are used for fisheries management and create a network for information and resource sharing.
    - Leads: Helena Maria Los and Anton Ellenbroek
- **Technology transfer for the Indian Ocean**
    - Description: GEO Blue Planet is in discussions with the World Bank to conduct a technology transfer of SMS fisheries alerts developed in Ghana for fishing communities around the Indian Ocean, including Bangladesh, India, and Pakistan.
    - Leads: Kwame Adu Agyekum, Subrata Sarker and Emily Smail

Strategy and Next Steps Thematic Working Groups

Over the next several months, GEO Blue Planet will be working to review current activities and develop a new strategy to potentially align with the UN Decade on Ocean Science for Sustainable Development and begin to synergize activities and the GEO Blue Planet strategic/implementation plan align activities with the objectives of the nearly formed European Office. For this purpose, three strategy working groups are being formed.

Internal Organization and Networking Working Group - LP/Jeremy Chairs

- Re-engaging BoA
- Creating an Agile/Effective Corporate Structure
- Designing Geo BP as a High-Functioning, Distributed Volunteer Workforce
- Design new process/criteria for accepting and sunsetting WG and Projects
- Diversify and expand funding plan, including revision of partnership tiers
- Actively pursue and finalize fiscal partnership and transition to flagship status

UN Decade Working Group - alignment, prioritization, and Programme Proposal Working Group - Kwame/Elva Chairs

- work with existing WGs to identify key alignment with UNDOS
    - map existing activities and projects to UN Decade
    - identify those WG and projects that are not a close fit
- prepare proposal for UN Decade Programme Call (include MBON)

GEO/GEO BP Coordination Working Group - Doug Cripe/Sophie Seeyave chairs

- technical - linking ocean-related GEO observation systems and tools
- communication - among ocean-related GEO initiatives, flagships, etc/
- external - linking GEO/GEOSS to the external ocean obs community