



GEO Blue Planet 5th Symposium

Local action in support of global traction

24 - 28 Oct 2022 | Accra, Ghana



Website: symposium.geoblueplanet.org

The ocean and coastal arm of the Group on Earth Observations (GEO), the GEO Blue Planet Initiative works to ensure the sustained development and use of ocean and coastal observations for the benefit of society. With the first Symposium held in 2015, this GEO Blue Planet flagship event aims to increase regional linkages, promote collaboration between stakeholders and the observing community and gather community feedback on the focus of GEO Blue Planet activities.

For the first time, the GEO Blue Planet Symposium will take place in Africa, in Accra, Ghana. With the theme **“Local Action in Support of Global Traction”**, the 5th Symposium is specifically geared towards improving GEO Blue Planet’s engagement with African nations in an effort to expand the Earth Observation community of practice, strengthen local capacity and provide access to resources, tools and services.

The Symposium will feature Plenary Sessions centred around the themes of **Fisheries**, **Ecosystem Conservation** and **Coastal Hazards**. It will also feature ocean and coastal observations training sessions, thematic workshops and an interactive poster forum.

Co-organised by the GEO Blue Planet Secretariat (Mercator Ocean International, NOAA and the University of Maryland) and the AIR Centre, this year’s hosts and local organisers are the University of Ghana and University of Energy and Natural Resources in Ghana.





Organising Committee

Mercator Ocean International

EU4OceanObs project

University of Maryland & NOAA

University of Ghana

GMES & Africa programme

University of Energy and Natural Resources

Atlantic International Research (AIR) Centre

Audrey Hasson – GEO Blue Planet EU Coordinator

Fifi Adodo – Use Case Expert

Lillian Diarra – Communications & Outreach Officer

Vincent Legros – Events Manager

Emily Smail – GEO Blue Planet Executive Director

Nikelene Mclean – NOAA Knauss Marine Policy Fellow

Kwame Adu Agyekum – Earth Observation Expert, GEO Blue Planet Steering Committee co-chair & Regional Project Coordinator GMES&Africa phase 2

Bennet Foli – Oceanographer

Dogbeda Azumah - Communication, M&E Officer

Prof. Amos Kabo-bah - Co-Chair, GEO Land Degradation

Neutrality Initiative & Dean of International Relations Office

Jose-Luis Moutinho – Chief Business & Networking Officer/
GEO Blue Planet Steering Committee co-chair

The event was mainly funded by the European Union, through the EU4OceanObs action implemented by Mercator Ocean International on behalf of the European Commission. EU4OceanObs works to strengthen international ocean governance for the increased collection, sharing and use of ocean and coastal observations for society. EU4OceanObs also facilitates the European coordination of GEO Blue Planet (www.eu4oceanobs.eu).

Thank you to all the sponsors of this year's Symposium!



Funded by the European Union



Copernicus Marine Service



PROGRAMME OF THE EUROPEAN UNION

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AIRCENTRE ATLANTIC INTERNATIONAL RESEARCH CENTRE





Programme Committee

Mercator Ocean International | EU4OceanObs

University of Maryland & NOAA

NOAA

University College Cork, Ireland

University of Energy & Natural Resources, Ghana

University of Ghana | GMES and Africa programme

Atlantic Innovation Research (AIR) Centre, Portugal

University of Michigan, USA

Digital Earth Africa

NASA & GEO Disaster Risk Reduction Working Group

University of Cape Coast, Ghana

South African National Space Agency (SANSA)

IOC Africa

TGER/CEESP/IUCN, Switzerland and Lagos State University

Marine Biodiversity Observation Network (MBON), IPBES

Institut de recherche pour le développement (IRD)

European Space Agency - EO for Africa

Nansen Environmental & Remote Sensing Centre, Norway

University of Cape Town, South Africa

IMS, University Dar es Salaam, Zanzibar

RCMRD | AfriGEO, Kenya

GEO Secretariat

UNEP Nairobi Convention

UNEP Abidjan Convention

Sustainable Seas Trust, South Africa

Suez University, Egypt

University of Mauritius

Ministry of Environment, Nigeria

**Pierre-Yves Le Traon, Audrey Hasson,
Fifi Adodo & Lillian Diarra**

Emily Smail

Paul DiGiacomo & Nikelene Mclean

Rory Scarrott

Amos Kabo-bah

Kwame Adu Agyekum & Bennet Foli

Jose Moutinho

Brian Arbic

Lisa Rebelo, Cedric Jorand & Lisa Hall

David Borges

Donatus Agnuureng

Stewart Bernard

Mika Odido

Ilsa Elegbede

Isabel Sousa-Pinto

Yves Morel

Giuseppe Otavianelli & Zoltan Szantoi

Johnny Johannessen

Juliet Hermes

Margareth Serapio Kyewalyanga

Phoebe Oduor & Samantha Musinzi

Sara Venturini

Timothy Andrew

**Abdoulaye Diagana & Vanessa
Ahouadjiro**

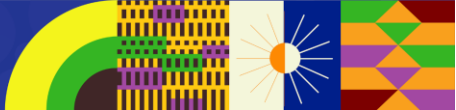
Toshka Bernado

Elham Ali

Depeeka Kaullysing

Sonigitu Ekpe





Local Partners



UENR University of Energy
& Natural Resources

Address: Fiapire, Sunyani, Ghana
uenr.edu.gh

The Department of Fisheries and Water Resources (DFWR) is Bono's foremost Centre directly concerned with research and training of fisheries/aquaculture scientists and practitioners among her institutions of higher learning. It is the only Department in Ghana to run a combined degree in Fisheries and Aquaculture. The vision of DFWR is to become a leading department in teaching, research and community outreach in advancing a world with food security, employment and water management.

In the quest to position the University of Energy and Natural Resources (UENR) as a world-class institution for energy and natural resources management, UENR has initiated the process to establish Ghana Inland Blue Economy Centre (GiBEC). The overall objective of GiBEC is to develop integrated solutions to address problems of poor governance, food insecurity, hunger, tourism, transportation, energy and sustainability through short-to long-term career and academic training programmes in inland fisheries, aquaculture, blue economy and contribute to the design, setting-up and implementation of policies, regulations, and management related to the blue economy in the country.



**UNIVERSITY
OF GHANA**

Address: Legon Boundary, Accra, Ghana
www.ug.edu.gh

The Department of Marine and Fisheries Sciences at the University of Ghana is Ghana's foremost centre directly concerned with marine environmental research and training of fisheries and aquaculture scientists among her institutions of higher learning. The University of Ghana also hosts the Regional Marine Centre responsible for implementing the Marine and Coastal Areas Management for North and West Africa (MarCNoWA) project under the Global Monitoring for Environment and Security & Africa programme (GMES & Africa).

Agenda



Speakers



Past Symposia





For general questions regarding the event, you can contact: symposium@geoblueplanet.org
In case of logistics issues and emergencies, please contact:

- Vincent Legros | vincent.legros@mercator-ocean.fr (logistics & event management)
- Lillian Diarra | lillian.diarra@mercator-ocean.fr (communication)
- Prof. Amos Kabo-Bah | amos.kabobah@uener.edu.gh (local host)

Need more information? Find one of the Symposium organisers:

Emily Smail



Amos Kabo-Bah



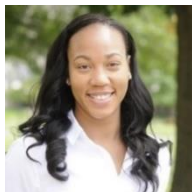
Fifi Adodo



Vincent Legros



Nikelene Mclean



Rory Scarrott



Ignatius Williams



Lillian Diarra



Jose Moutinho



Twitter: @GEOBluePlanet
@EU4OceanObs

#GEOBluePlanetSymposium

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#EO4Impact





5th Symposium | 24 – 28 Oct 2022 | Accra, Ghana

PROGRAMME DESCRIPTION

Training Sessions | 24 October

The Training Sessions will be geared towards introducing ocean and coastal observations to a wide audience. Sessions will include a review of the basic principles of Ocean Observations (e.g., fundamentals of oceanography, introduction to satellite and in-situ observations, modelling), common tools and strategies for analyzing observations, and exploring the availability and capacity of data products for information-based decision making.

Objectives

- Introduce satellite and in-situ observing and modelling of the ocean and coasts
- Provide a high-level overview of the processes involved in analysing ocean data
- Inform attendees of the availability and capacity of ocean and coastal data products for information-based decision making

Target audience

These sessions are open to a maximum of 40 attendees from diverse career backgrounds including academics (research scientists, students), end users (sectoral stakeholders) and local/regional decision and policy makers.

Plenary Sessions | 25 & 26 October

The Plenary Sessions are geared towards exploring the role of ocean and coastal observations in addressing **fisheries, ecosystem conservation and coastal hazards** through region-specific **user needs assessment, tools & opportunities, and inspiring examples** of successful applications supporting decision making. The Plenary Sessions will reflect the context of GEO Blue Planet's Core Action Areas of **Stakeholder Engagement, Cooperation and Co-design and Capacity Development**.



The selection of this year's plenary topics was based on a review of the ocean and coastal related engagement priorities set forth by the relevant regional governing bodies in recent





conferences and meetings (e.g., the African Union Blue Economy Strategy, the African Union Commission Agenda 2063, and the Ocean Decade Africa Roadmap).

Session Objectives

- Initiate and stimulate dialogue about ocean and coastal related issues globally and in Africa.
- Provide insight into the needs of local/regional stakeholders which are essential to address marine and coastal issues.
- Explore the available tools and opportunities brought by Earth Observations in addressing these issues.
- Present inspiring examples of successful application based on Earth Observation supporting decision making.

Target Audience

The plenary sessions are open to an audience of up to 200 attendees from varying levels of government, research institutions, commercial sectors and other local stakeholders. Attendees may include high-level representatives from international agencies, ministers of government, policy makers, representatives from regional and local organizations, earth observations experts, researchers, students and other local stakeholders.



Plenary 1: Fisheries

Fisheries has been identified as an engagement priority given the importance of the fisheries sector to many countries in Africa. It plays a significant role in supporting food and nutritional security and supports the livelihoods of people in many coastal communities across the world. There are, however, many issues affecting the growth and success of the fisheries sector. The African Union and other governing bodies in the region have identified challenges related to data, assessments, ecosystem-based approaches to fisheries management, regulation, enforcement and governance as being of prime importance. Ocean and coastal observations can provide information about conditions (e.g., harmful algal blooms) that might impact fisheries and aquaculture sites, identify and track illegal fishing activity and monitor environments that support fisheries stock species.

The Fisheries Plenary Session will be geared towards first understanding the needs of stakeholders who are involved in small scale fisheries, commercial fisheries and fisheries management in the region. This will be followed by a demonstration of the tools and opportunities which have been developed using Ocean and Coastal Observations for fisheries-related applications. Finally, the session will be closed by a presentation on inspiring examples of cases wherein Ocean and Coastal Observation tools have been successfully employed meet a fishery related need.





Plenary 2: Ecosystem Conservation

Properly conserved ecosystems and well managed coastal and ocean activities are the basis for sustainable Blue Economies that lift regional communities. Healthy and diverse coastal and marine ecosystems provide significant economic, cultural, and social contributions to many countries in Africa, contributing up to 35% of the GDP in some regions primarily through fisheries and tourism. The African continent has over 35,000 kilometers of diverse and unique habitats and ecosystems, inextricably linked with diverse cultures and communities, each with their own aspirations and socio-economic potential.

However, different ocean and coastal regions across Africa are experiencing similar pressures on their diverse and valuable ecosystems. These pressures include Climate Change, pollution, over-exploitation, and increasingly the growing influence of marine litter. These pressures threaten coastal community's potential to benefit sustainably from their unique marine environments, putting long term income stability at risk.

This session will explore how data from satellites may help communities and regions secure the ecosystem foundations of their Blue Growth potential. It recognizes the critical role played by local and regional stakeholders, and stakeholder networks, in all aspects of managing and harnessing an ecosystem, and the information needs of these diverse stakeholder communities.

The session focuses on the use of participatory approaches and using example ecosystems such as Mangroves and Sargassum - key ecosystems that can support or even hinder both tourism and fisheries. These ecosystems are used to provide examples and inform discussions on how data from satellites and other sources, and stakeholder-led development, can be used by local and regional stakeholders to identify issues, provide management guidance, and ultimately restore and conserve the balance within these habitats which support their local communities and economic activity.



Plenary 3: Coastal Hazards

Coastal areas consist of 20% of the Earth's surface yet containing over 50% of the human population and 75% by 2025. A hub of biodiversity and production, coastal areas are home to valuable wetlands, coral reefs, fisheries, oil, and gas reserves. As sea level rises and the frequency of natural disasters grows, coastal areas under human development are likely to experience increased hazards including erosion, inundation, and pollution, posing a threat to coastal communities, infrastructures, and coastal ecosystems. With over 35,000 kilometers of coastline, Africa is highly vulnerable to coastal hazards. In recognition of those growing risks, enhancing coastal resilience has been a priority for local governments, industries, and environmental advocates. Recent advances in observing techniques offers unprecedented coastal data sets that provide solid foundations for adaptation strategies. The access and use





of these data sets are still limited and understanding stakeholders' needs is key to deliver relevant actionable information to decision makers and coastal communities.

The Coastal Hazards Plenary Session will be geared towards initiating and stimulating dialogue about coastal related issues globally and in Africa, providing insight into the needs of local and regional stakeholders, exploring the Earth Observation tools and opportunities which can be used in addressing these issues, and presenting inspiring examples of the successful application of Earth Observations in supporting decision making frameworks.

Interactive Poster Forum | 24 & 25 Oct

The Forum is designed to be a platform for interactive dialogue among various members of the ocean and coastal observations value chain. Based on a review of the engagement priorities set forth by the relevant regional governing bodies, we have identified and will be organizing our forum around the themes of: **Fisheries, Ecosystem Conservation and Coastal Hazards**, as well as around the cross-cutting areas of: **Stakeholder Engagement, Cooperation and Co-design and Capacity Development.**

We plan to feature six booths which will be populated by data providers, academics (researchers and students), industry representatives, policy makers, and stakeholders from end-user groups. Each booth will act as round tables where presenters will engage in dialogue with each other and with conference attendees. The forum would also be an opportunity for local stakeholders to engage with invited members of the private sector to spark discussion about funding projects/actionable outcomes.

Objectives

- Provide an interactive platform for engagement among members of the ocean and coastal observations value chain.
- Support engagement between local stakeholders and the private sector to encourage the development of local/regional opportunities.
- Discuss the role of ocean and coastal observations in addressing issues pertinent to the African continent.

Target Audience

The Forum should appeal to the general audience of the symposium.

Copernicus Private Sector Opportunities | 26 Oct

This session will highlight private sector opportunities using Copernicus-based products in support of a sustainable blue economy. About 20 Ghanaian and European Small and Medium-sized Enterprises (SMEs) will have a 5-minute pitch to present their





companies/services/products relevant for the African context, as well as needs and ideas for collaboration.

This session is hosted by the Atlantic International Research Centre (AIR Centre), together with the Portuguese Space Agency as part of the activity “Copernicus SMEs – Atlantic Ocean Interactions” funded by the European Union through the Framework Partnership Agreement on Copernicus User Uptake.

Thematic Workshops | 27 & 28 Oct

The workshops will aim to strength linkages between local/regional sectoral end-users and EO data providers. Five thematic workshops are planned centred around the ocean and coastal engagement priorities of **Fisheries, Ecosystem Conservation** and **Coastal Hazards**.

The five workshops will focus on the following topics:

- **Earth Observations for Fisheries and Aquaculture Site Selection**
- **Ocean and Coastal Observations for National Adaptation Plans (NAPS)**
- **Earth Observations for Coastline changes**
- **Earth Observations for Sargassum Monitoring**
- **Earth Observations for Marine Litter Monitoring**

Attendees will have the opportunity to openly engage with data providers to provide insight into the data needs and gaps in information among local/regional end-user communities. They will also have an opportunity to improve their understanding of the Earth Observation tools available to address region specific issues while providing feedback on the interoperability and feasibility of making Earth Observation products/tools operational in their respective communities, countries and regions.

Objectives

- Discuss and propose actionable deliverables which can contribute to a more resilient and prosperous continent.
- Improve local/regional understanding of the Earth Observation tools available and build local/regional capacity in using these tools/ products.
- Seek feedback from local stakeholders in determining the feasibility of making tools/products operational in specific communities, countries etc.

Target Audience

The workshops should appeal to a diverse audience of stakeholders interested in using Ocean and Coastal Observations to support decision-making on the African continent. These workshops may also include local/regional Earth Observation experts, local sectoral stakeholders (e.g., representatives from regional fisheries associations), leaders/ chiefs of local coastal communities, representatives from research institutions and students.





Agenda

5TH SYMPOSIUM

24 – 28 Oct 2022 | Accra, Ghana

Alisa Hotel North Ridge

DAY 1 : MONDAY, 24 OCT

09h00-15h30	Training sessions
15h00-16h00	On site registration & refreshments
16h00-18h00	Symposium Opening Ceremony: Welcome remarks & keynote presentations
18h00-20h00	Welcome cocktail reception & Interactive Poster Forum opening

DAY 2 : TUESDAY, 25 OCT

09h00-12h00	Plenary session 1: Fisheries
12h00-14h00	Lunch townhall
14h00-17h00	Plenary session 2: Ecosystem Conservation
17h00-19h00	Interactive Poster Forum

Venue: **Alisa Hotel North Ridge**, 21 Dr. Issert Road – North Ridge, Accra, Ghana, in the following halls:

- Training sessions (Ridge Arena & Prins hall)
- Plenary sessions & Forum (Ridge Arena)
- Thematic Workshops (Opera 1 & 2 halls)

All times are in Ghanaian local time (UTC +0)

Daily tea breaks mid-morning & mid-afternoon and lunches will be provided for all session participants



Agenda

5TH SYMPOSIUM

24 – 28 Oct 2022 | Accra, Ghana

Alisa Hotel North Ridge

DAY 3 : WEDNESDAY, 26 OCT

09h00-12h00

**Plenary session 3:
Coastal Hazards**

12h00-14h00

**Lunch townhall:
Forum closing notes**

14h00-17h00

**Copernicus private
sector opportunities**

17h00-18h00

Symposium closing

18h00-20h00

Social event/ dinner

DAY 4 : THURSDAY, 27 OCT

09h00-12h00

**Workshop 1: Earth
Observations for
Fisheries & Aquaculture
Site Selection**

12h00-14h00

Lunch

14h00-17h00

**Workshop 2: Ocean
and Coastal
Observations for
National Adaptation
Plans**

DAY 5 : FRIDAY, 28 OCT

09h00-12h15

**Workshops: Earth Observations
for monitoring
3- Coastline Changes
4- Sargassum
5- Marine Litter**

12h15-12h45

Concluding notes to workshops

12h45-14h00

Lunch



MONDAY, 24 OCT | 09:00-15:30 (UTC+0) PRE-EVENT – TRAINING SESSIONS

Welcome & General introduction

Venue: Ridge Arena | Alisa Hotel

- 9:00-9:05 Welcome from GEO Blue Planet Secretariat
- 9:05-9:10 Remarks from local organising committee
- 9:15-10:00 **What are ocean & coastal observations, and why are they important?**
Nikelene Mclean, Satellite Oceanography and Climatology Division, STAR/NESDIS, NOAA
- Introduction to Observational Oceanography and Modelling:**
Dr. Fifi Adodo, Mercator Ocean International
Dr. Rory Scarrott, University College Cork, Horizon Europe-funded DOORS project
- 10:00-10:15 *Tea/coffee break*

Parallel Training Sessions

Venue: Ridge Arena
Audience: General Public

Venue: Prins Hall
Audience: Technical/ Academia

- | | |
|--|---|
| <ul style="list-style-type: none"> 10:15-11:00 Introduction to Remote Sensing for Decision Making
Dr. Ebenezer Nyadjiro, NOAA National Centers for Environmental Information 11:00-11:45 International Collaboration and Sharing: An Overview of the Ocean Info Hub Project and the International Coastal Atlas Network
Jeff McKenna, President Emeritus of OSGeo / Gateway Geomatics / ICAN / OIH | <ul style="list-style-type: none"> Introduction to Open Source EO Tools: Copernicus Marine Service and Jupyter Notebooks
Fabrice Messal
Mercator Ocean International Creating powerful maps and apps using the ArcGIS Living Atlas Ocean Data
Pauline Okeyo, Solution Engineer Environmental Systems Research Institute (ESRI) Eastern Africa |
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5th SYMPOSIUM | 24 – 28 October 2022 | Accra, Ghana

PRE-EVENT TRAINING AGENDA





5th SYMPOSIUM | 24 – 28 October 2022 | Accra, Ghana

PRE-EVENT TRAINING AGENDA

11:45-13:00

Lunch (provided for all training participants)

Parallel Training Sessions

Venue: Ridge Arena
Audience: General Public

Venue: Prins Hall
Audience: Technical/ Academia

13:00-13:45 **Marine and Coastal Data Products for Decision Making**

Fabrice Messal,
Mercator Ocean International

Application of Open-Source Tools for Fisheries, Biodiversity Conservation and Coastal Erosion Applications in West Africa

Dr. Ebenezer Nyadjiro, NOAA
National Centers for
Environmental Information

13:45-14:00

Break

14:00-14:45 **Coastal Observations for Under-Resourced Countries**

Gregory Cowie, University of
Edinburg

Retrieval, Processing and Analysis of Remotely Sensed Ocean Data: Utilising NASA Resources for Ocean Analysis

Dr. Richard Damoah,
NASA GESTAR
Dr. Anthony Kinyua,
Morgan State University

14:45-15:30 **Coastal and Marine Data for Management and National Development**

Antisem Donkor, Institute of
Applied Science & Technology,
Ghana

Sharing Ocean Data through Standards: An Introduction to the Ocean Data and Information System (ODIS)

Jeff McKenna, President Emeritus
of OSGeo / Gateway Geomatics /
ICAN / OIH

15:30-16:00

Refreshments





Mon, 24 Oct | 16:00-20:00 | Ridge Arena - Alisa Hotel

SYMPOSIUM OPENING CEREMONY

15:00- Onsite registration & refreshments
16:00

16:00- **Welcome Remarks**
16:50

GEO Blue Planet Secretariat	Dr. Pierre-Yves Le Traon (Mercator Ocean International & EU4OceanObs action) Dr. Emily Smail (Univ. of Maryland and NOAA)
University of Ghana	Dr. Angela Lampety <i>tbc</i>
University of Energy and Natural Resources	Prof. Elvis Asare-Bediako (Vice Chancellor)
Ministry of Environment, Science, Technology and Innovation (MESTI), Ghana	Kwamena Quaison (Chief Director)
European Commission Directorate-General for Research and Innovation	Joanna Drake (Deputy Director-General for Mobility and Environment)
European Union Delegation to Ghana	Massimo Mina (Head of Cooperation)
GMES & Africa	Ignatius Williams (University of Ghana)

16:50- **Introductory Keynote Presentations**
18:00

GEO Blue Planet Activities	Dr. Emily Smail (GEO Blue Planet Executive Director (Univ. of Maryland and NOAA))
UN Ocean Decade Roadmap for Africa	Dr. Zacharie Sohou (IOC-Africa Vice Chair and Director of the Benin Fisheries and Oceanological Research Institute)

Q&A

18:00- **Welcome cocktail reception & Interactive Poster Forum**
20:00

Informal roundtables & poster exhibitions to facilitate discussions on the six following themes:

- i) Fisheries, ii) Ecosystem Conservation, iii) Coastal Hazards, iv) Stakeholder Engagement, iv) Cooperation & Co-design and v) Capacity Development



5th SYMPOSIUM | 24 - 28 October 2022 | Accra, Ghana

AGENDA | PLENARY SESSIONS



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Tue, 25 Oct | 09:00-12:00 | Ridge Arena - Alisa Hotel

PLENARY SESSION 1: FISHERIES

Co-chairs: Nikelene Mclean (NOAA), Dr. Isa Elegbede (TGER/CEESP/IUCN, Switzerland & Lagos State University) & Dr. Stewart Bernard (South African National Space Agency (SANSA))

User Needs: Keynote presentations from end-users in Africa

9:00-9:05	Introduction	
9:05-9:15	Small Scale Fishers	Dr. Greg Duggan (Abalobi, South Africa)
9:15-9:25	Commercial Fishing	Nana Oyeman Ofori-Ani (Ghana Industrial Trawlers Association)
9:25-9:35	Fisheries Economics	Dr. Wisdom Akpalu (Institute of Management and Public Administration, Ghana)
9:40-10:00	Panel Discussion	Above speakers and Dr. Angela Lampety (University of Ghana) <i>tbc</i> Dr. Rebecca Essamuah (Centre for Maritime Law & Security (CEMLAWS) Africa)
10:00-10:15	<i>Break</i>	

Fisheries Plenary | Tools & Opportunities

10:15-10:20	Introduction	
10:20-10:35	Overview presentation on how Earth Observations can be used for Fisheries and Aquaculture	Katie Geddes (University of Miami and ORTA NOAA)
10:35-10:50	General presentation of the South African Oceans and Coastal Information Management System (OCIMS)	Dr. Marie Smith (Council for Scientific and Industrial Research (CSIR), South Africa)
10:50-11:05	<i>Break</i>	



Fisheries Plenary | Inspiring Examples

11:05-11:10	Introduction	
11:10-11:25	Earth Observations for fisheries and aquaculture site selections	Amine Mohamed Taji (ACRI-EC Space Sciences)
11:25-11:40	GMES and Africa safety at sea service	Bennet Atsu-Foli (GMES & Africa University of Ghana)
11:40-11:55	Earth Observations to support Barbados fisheries	Dr. Shelly-Ann Cox (Blue Shell Productions, Barbados)
12:00-14:00	<i>Lunch</i>	

Tue, 25 Oct | 14:00-17:00 | Ridge Arena - Alisa Hotel

PLENARY SESSION 2: **ECOSYSTEM CONSERVATION**

Co-chairs: Dr. Rory Scarrott (University College Cork) and Prof. Isabel Sousa-Pinto (University of Porto, MBON and IPBES)

User Needs: Keynote presentations from end-users in Africa

14:00-14:05	Introduction	
14:05-14:15	Perspectives: What are the priority ecosystem conservation challenges in African regional seas	Dr. Zacharie SOHOU (IOC-Africa Vice Chair and Director of the Benin Fisheries and Oceanological Research Institute)
14:15-14:25	Ecosystem conservation as a foundation for sustainable blue economies	Gabriel Akoko Juma (ECOP Africa Coordination Unit)
14:25-14:45	Panel discussion to help identify synergies	Session speakers
14:45-15:00	<i>Break</i>	

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AGENDA | PLENARY SESSIONS



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Ecosystem Conservation | Tools & Opportunities

- 15:00-15:05 **Introduction**
- 15:05-15:20 **UNEP-GEMS Ocean: Harnessing multi-stakeholder partnerships to transform data into action** Niccolo Bassan (UNEP-GEMS Ocean and Coasts)
- 15:20-15:35 **WIOMSA: Developing international and interdisciplinary research capacity in support of regional ecosystem conservation efforts** Dr. Louis Celliers (Western Indian Ocean Marine Science Association (WIOMSA))
- 15:35-15:55 **Mission: Restore our Ocean and Waters** Garry Kett (All-Atlantic Youth Ambassador, University College Cork) and Sigi Gruber (Active Senior Advisor to the European Commission)

15:55-16:10 *Break*

Ecosystem Conservation | Inspiring Examples

- 16:10-16:15 **Introduction**
- 16:15-16:30 **The Sargassum Information hub: Exploiting satellite data to support Sargassum monitoring and forecasting** Dr. Shelly-Ann Cox (Blue Shell Productions, Barbados)
- 16:30-16:45 **MANCOGA - Using data and co-design approach in understanding the role of mangroves in sustaining fisheries** Senyo Adzah (The Development Institute)
- 16:45-17:00 **The issue of microplastics and the potential role for satellite data** Dr. Ebenezer Nyadjro (Mississippi State University/NOAA)

17:00-19:00 **INTERACTIVE POSTER FORUM**





Wed, 26 Oct | 09:00-17:00 | Ridge Arena - Alisa Hotel

PLENARY SESSION 3: COASTAL HAZARDS

Co-chairs: Dr. Fifi Adodo (Mercator Ocean International), Dr. Lisa Rebelo (Digital Earth Africa) and Tânia Li Chen (AIR Centre)

User Needs: Keynote presentations from end-users in Africa

09:00-09:05	Introduction	
09:05-09:20	Keynote on coastal zone risks assessment and capacity building needs	Prof. Kwasi Appeaning Addo (Institute for Environment and Sanitation Studies, University of Ghana)
09:20-09:30	Perspectives on capacity building needs of ocean sciences stakeholders in Africa	Dr. Temitope Sogbanmu (University of Lagos, Nigeria)
09:30-09:50	Early Career Ocean Professionals (ECOPs) panel discussion on stakeholder needs	Dr. Raphael Onguene (Douala Institute of Technology, Cameroon) Dr. Sandrine Djakouré (Université Felix Houphouet Boigny, Côte d'Ivoire) Dr. Temitope Sogbanmu, (University of Lagos, Nigeria) Gabriel Akoko Juma (ECOP Africa Coordination Unit, Helmholtz Centre for Polar and Marine Research)
09:50-10:05	<i>Break</i>	

Plenary Coastal Hazards | Tools & Opportunities

10:05-10:10	Introduction	
10:10-10:25	Copernicus Marine and coastal zone monitoring and forecasting	Dr. Pierre-Yves Le Traon (Mercator Ocean International, France)
10:25-10:40	Demonstration of Copernicus data access and visualisation services	Fabrice Messal (Mercator Ocean International, France)
10:40-10:55	Digital Earth Africa coastline monitoring service	Dr. Lisa Rebelo (Digital Earth Africa)



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Click on code for speaker bios





BLUE PLANET

5th SYMPOSIUM | 24 - 28 October 2022 | Accra, Ghana

AGENDA | PLENARY SESSIONS



Click on code for speaker bios

10:55-11:10

Break

Plenary Coastal Hazards | Inspiring Examples

11:10-11:15

Introduction

11:15-11:30

Examples of addressing coastal hazards challenges using space technology applications: Caribbean/Latin America oil spill project

Dr. Emily Smail & Dr. Xiaofang "Bonnie" Zhu (NOAA, USA)

11:30-11:45

Coastal erosion at regional scale

Dr. Donatus Angnuureng (ACeCOR/ University of Cape Coast, Ghana)

11:45-12:00

Using remote sensing and modelling for coastal detection

Dr. Babette Tchongang (JPL/ NASA)

12:00-12:15

Coastal monitoring and flooding risks mitigation

Anne-laure BECK (ARGANS, France)

12:15-14:00

Lunch

COPERNICUS PRIVATE SECTOR OPPORTUNITIES

14:00-14:10

Overview of session and SMEs

Tânia Li Chen (Atlantic International Research Centre (AIR Centre))

Space for Sustainable Development

14:10-14:30

Copernicus Marine Services for Africa

Dr. Pierre-Yves Le Traon (Mercator Ocean International, Copernicus Marine Service)

14:30-14:50

GMES & Africa: Marine and Coastal Areas Management in Africa & Copernicus Partnership

Ignatius Williams (University of Ghana/ GMES & Africa programme)

14:50-17:00

Showcasing Sustainable Innovation

20 Ghanaian & European SME pitches on Copernicus based products & services

17:00-18:00

SYMPOSIUM CLOSING REMARKS

Dr. Emily Smail (GEO Blue Planet Executive Director)
Ignatius Williams (University of Ghana)
Nikelene Mclean (NOAA)
Dr. Fifi Adodo (Mercator Ocean International)



GEO Blue Planet 5th Symposium

Thematic Workshops | 27 & 28 Oct 2022
Alisa Hotel North Ridge | Accra, Ghana



Thursday, 27 Oct | 9h-12h, Opera 1 & 2 Halls (max. 90 participants)

Workshop 1: Earth Observations for Fisheries and Aquaculture Site Selection

Workshop co-chairs: Dr. Isa Elegbede (TGER/CEESP/IUCN, Switzerland & Lagos State University) and Ignatius Williams (University of Ghana)

Fisheries has been identified as an engagement priority given the importance of the fisheries sector to many countries in Africa. It plays a significant role in supporting food and nutritional security and supports the livelihoods of people in many coastal communities across the world. It also plays a notable role in strengthening the economies of many countries and contributes directly to the GDP of African economies. There are however many issues affecting the growth and success of the fisheries sector. Relevant governing bodies in the region (African Union, African Conference on priority setting and partnership development for the UN Decade of Ocean Science for Sustainable Development) have identified challenges related to data, assessments, ecosystem-based approaches to fisheries management, enforcement and governance.

This workshop is designed to provide regional fisheries stakeholders with insight into the suite of Earth Observation products and services that can be used to meet fisheries and aquaculture related needs. Workshop attendees will have the opportunity to gain first-hand knowledge from Earth Observation experts who have successfully developed and implemented fisheries related products and services. With support and guidance from these experts, workshop attendees will also have the opportunity to propose the implementation of region-specific Earth Observation-based fisheries projects and outcomes that are in line with the GEO Blue Planet Core Action Areas of Stakeholder Engagement, Cooperation and Co-design and Capacity Development.



Thursday, 27 Oct | 14h-17h, Opera 1 & 2 Halls (max. 90 participants)

Workshop 2: Ocean and Coastal Observations for National Adaptation Plans (NAPS)

Workshop co-chairs: Dr. Louis Celliers (WIOMSA), Dr. Pierre-Yves La Traon and Fabrice Messal (Mercator Ocean International) and Dr. Sara Venturini (GEO)

Global organisations such as the United Nations have proposed guidelines for undertaking national responses to climate change by way of National Adaptation Plans (NAPs).



According to the United Nations Framework on Climate Change Convention (UNFCCC), the main objective of the NAP process is to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience; and to facilitate the integration of climate change adaptation into existing policies, programmes and activities within all relevant sectors.

This workshop is designed to explore the role of Earth Observations in the formulation of National Adaptation Plans with special considerations for improving the resilience and adaptive capacity of coastal resources by integrating coastal adaptation into NAPs. This is needed to ensure that the coastal and ocean economies can achieve their potential, whilst ensuring the functioning of ecosystem services upon which such economies are built. The need for transformation of coastal communities is a key element of sustainability as part of strategies to adapt to climate change.



Friday, 28 Oct | 9h – 10h30 | Opera Hall 1 (max. 45 participants)
Workshop 3: Earth Observations for Coastline changes

Workshop co-chairs: Dr. Donatus Angnuureng (University of Cape Coast) and Dr. Lisa Rebelo/ Dr. Edward Boamah (Digital Earth Africa)

Coastal zones are largely vulnerable to the dynamics of natural and human-induced changes. Low-lying areas are even more at risk with projected sea level rise due to global climate warming while being home to around 10% of the world's population and to many megacities, making them a priority. There is therefore the need to understand coastline dynamics based on reliable and consistent data, and to ensure policies that can sustainably support population growth and urban development.

This workshop on coastline changes aims to share information, spark interest, and to strengthen the cooperation between all coastal stakeholders, from academic to non-academic communities, by developing reflections, strategies, and recommendations on addressing coastal hazards at regional and global level. This workshop will be focused on exploring coastline dynamics, coastal erosion, and coastal pollution, exploring a range of related monitoring and management aspects and challenges in the African context, including:

- Bridging gaps in data availability, and between academics and non-academics
- Engaging with the leading policy and decision makers
- Strengthening regional cooperation and collaboration (co-design & co-management) to manage the same hazards
- Strengthening legal & institutional frameworks & capacity building





Friday, 28 Oct | 9h – 10h30 | Opera Hall 2 (max 45 participants)
Workshop 4: Earth Observations for Sargassum Monitoring

Workshop co-chairs: Dr. Emily Smal (University of Maryland and NOAA) and Dr. Shelly-Ann Cox (Blue Shell Productions)

A number of important advances have been made in the last decade to address sargassum influx events, which have emerged as a coastal hazard impacting climate-sensitive socio-economic sectors in the Wider Caribbean and West Africa. While there is a general consensus that we should view influxes as an economic opportunity through the promotion of valorisation initiatives, the reality is that sargassum inundations remain more of a threat than a benefit until key issues are resolved. A shift in mindset is a critical step, but this must be followed through with deliberate action.



Friday, 28 Oct, 10h45 – 12h15 | Opera Hall 2 (max 45 participants)
Workshop 5: Earth Observations for Marine Litter Monitoring

Workshop co-chairs: Richmond Kennedy Quarcoo (Plastic Punch), Dr. Ebenezer Nyadzro (Mississippi State University and NOAA) and Ivy Akuoko Gyimah (University of Cape Coast)

Marine litter has become a multi-dimensional problem with economic, environmental, cultural, and human health costs. To address this issue, the United Nations created Sustainable Development Goal (SDG) 14, "Life Below Water" and Target 14.1: "By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution". Achieving this target requires the identification and assessment of marine litter via a host of observation and detection methods to inform policy. This workshop is designed to explore the role of Earth Observations in supporting marine litter monitoring efforts.

Friday, 28 Oct, 12h15 – 12h45 | Opera Halls 1 & 2 (max 90 participants)
Concluding Workshop Remarks

Summary concluding remarks from each of the five workshops by co-chairs or moderators.





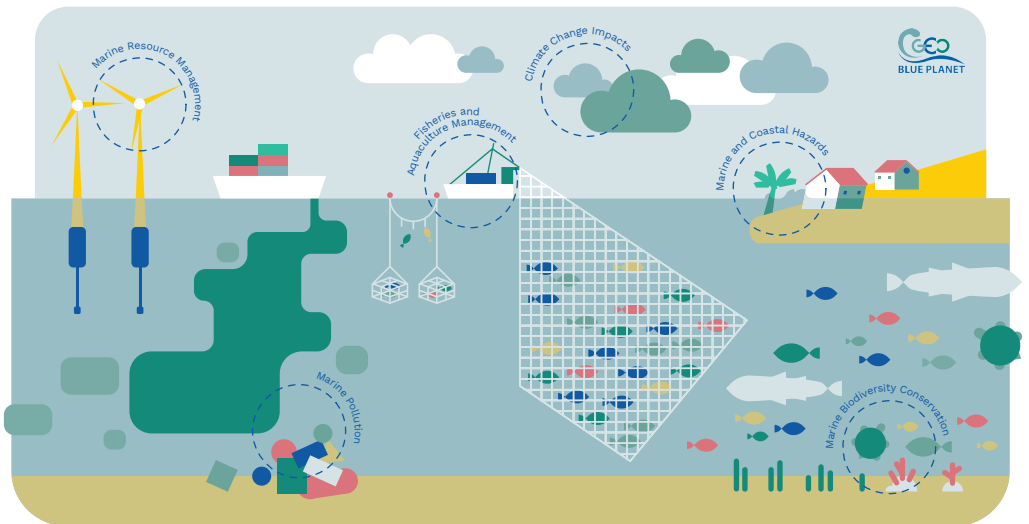
BRIDGING THE GAP

between ocean and coastal observational data and societal needs to deliver actionable information

Who we are

The GEO Blue Planet Initiative is the coastal and ocean arm of the Group on Earth Observations (GEO) that aims to ensure the sustained development and use of ocean and coastal observational data for policy and decision-making. We do this by working with stakeholders to understand their information needs and connecting them with available data and products.

GEO Blue Planet is an open community and all who share the interests of the GEO Blue Planet community are welcome to join.



The GEO Blue Planet Secretariat is currently supported by the United States and the European Union.



National Oceanic and Atmospheric Administration
U.S. Department of Commerce



MERCATOR OCEAN INTERNATIONAL



EU oceanobs
INTEGRATING OCEAN OBSERVANCE
TO CONTRIBUTE TO GLOBAL OCEAN RESILIENCE

What we do

GEO Blue Planet works with stakeholders to identify their ocean and coastal information needs, co-design responsive tools and products, and build capacity to strengthen and transfer capabilities.



Activities are selected based on stakeholder needs and currently focus on ocean and coastal observations for the following topics:



Marine litter



Eutrophication



Coastline changes



Fisheries



Sargassum



Oil spill



Climate adaptation



All activities support and contribute to the UN Decade of Ocean Science for Sustainable Development

Join us

If you are interested in being a part of GEO Blue Planet, please contact the Secretariat via info@geoblueplanet.org.

 geoblueplanet.org

 info@geoblueplanet.org

 symposium.geoblueplanet.org

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GEO BLUE PLANET 5th SYMPOSIUM

24 - 28 October 2022 | Accra, Ghana

LOCAL ACTION IN SUPPORT OF GLOBAL TRACTION





GEO Blue Planet 5th Symposium

24 - 28 Oct 2022 | Accra, Ghana

Local action in support of global traction



GEO Blue Planet 5th Symposium Report



1. Executive Summary

The 5th GEO Blue Planet Symposium was held from 24 to 28 October 2022 at the Alisa Hotel North Ridge in Accra, Ghana. For the first time, this signature GEO Blue Planet event took place on the African continent after four previous symposia in North and South America, Australia and Europe. Themed **Local Action in Support of Global Traction**, the 5th Symposium was specifically geared towards improving GEO Blue Planet's engagement with African nations in an effort to expand the Earth Observation (EO) community of practice, strengthen local capacity and provide access to resources, tools and services. A total of 181 delegates participated in the symposium from research institutions, international and regional organisations, government agencies, private sector companies, media and NGOs. The event welcomed high representation from Ghana and a large number of university students and early career ocean professionals, as well as achieved near equal gender balance.

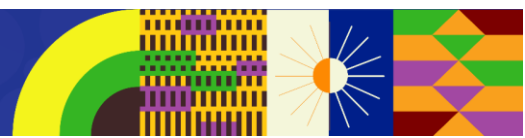
Featuring plenary sessions centred around using ocean and coastal observations for fisheries, coastal hazards and ecosystem conservation, the 5-day event also included a full day of training sessions, five thematic workshops, an Interactive Poster Forum and a side event dedicated to Earth observations for private sector opportunities in the Blue Economy.

The Symposium was organised by the GEO Blue Planet Secretariat, comprising the European Office hosted by Mercator Ocean International and the US Office hosted by NOAA and the University of Maryland, in collaboration with local partners - the University of Ghana and the University of Energy and Natural Resources (UENR), and the Atlantic International Research Centre (AIR Centre). This year's Symposium was funded by the European Union through the [EU4OceanObs project](#), the [Copernicus Marine Service](#) and the [Framework Partnership Agreement on Copernicus User Uptake](#).

The main outcomes and recommendations:

- Develop an information hub for the fishing community & other stakeholders to expand the reach and efficiency of the GMES and Africa marine weather early warning service.
- Propose the development of a charter for Blue Schools & Blue Careers to help promote and develop aquaculture in Ghana
- Organise teams to work on guidance for coastal National Adaptation Plans (NAPs), and Fisheries and Aquaculture NAPs
- Develop a plan to support integrated land-to-sea-litter monitoring using Earth Observations and citizen science
- Engage local stakeholders and policy makers to build inclusive and integrated regional solutions to coastal hazards

All presentations, full agenda, speaker bios, photos and other resources are available here: <https://geoblueplanet.org/5th-symposium-2022/>



1. Symposium overview

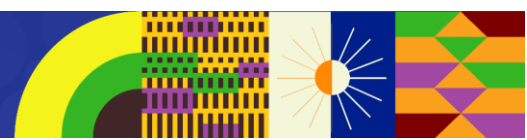
24 Oct 2022 | Pre-event: Training Sessions (9:00 – 15:30)

The training sessions were geared towards introducing ocean and coastal observations to a wide audience. About 90 participants attended these sessions, mainly from research organisations and universities, but also end users from sectoral stakeholders, NGO representatives and Ghanaian public agencies. These sessions included diverse topics, from a review of the basic principles of Ocean Observations (e.g., fundamentals of oceanography, introduction to satellite and in-situ observations, modelling), to common tools and strategies for analysing observations, and exploring the availability and capacity of data products for information-based decision making.

Training session titles and presentations

Click on the presentation titles to access the presentations.

What are Ocean and Coastal Observations and Why are They Important?	Nikelene Mclean, Satellite Oceanography and Climatology Division, STAR/NESDIS, NOAA
Introduction to Observational Oceanography and Modelling	Dr. Fifi Adodo, Mercator Ocean International Dr. Rory Scarrott, University College Cork, Horizon Europe-funded DOORS project
Introduction to Remote Sensing for Decision Making	Dr. Ebenezer Nyadjiro, NOAA National Centres for Environmental Information
Introduction to Open Source EO Tools: Copernicus Marine Service and Jupyter Notebooks	Fabrice Messal, Mercator Ocean International
International Collaboration and Sharing: An Overview of the Ocean Info Hub Project and the International Coastal Atlas Network	Jeff McKenna, President Emeritus of OSGeo /Gateway Geomatics/ ICAN / Ocean Information Hub (OIH)
Creating powerful maps and apps using the ArcGIS Living Atlas Ocean Data-	Pauline Okeyo, Solution Engineer Environmental Systems Research Institute (ESRI) Eastern Africa
Marine and Coastal Data Products for Decision Making	Fabrice Messal, Mercator Ocean International
Application of Open-Source Tools for Fisheries, Biodiversity Conservation and Coastal Erosion Applications in West Africa	Dr. Ebenezer Nyadjiro, NOAA National Centers for Environmental Information
Coastal Observations for Under-Resourced Countries	Prof. Gregory Cowie, University of Edinburg
Retrieval, Processing and Analysis of Remotely Sensed Ocean Data: Utilising NASA Resources for Ocean Analysis	Dr. Richard Damoah, NASA GESTAR and Dr. Anthony Kinyua, Morgan State University
Coastal and Marine Data for Management and National Development	Antisem Donkor, Institute of Applied Science and Technology, Ghana
Sharing Ocean Data through Standards: An Introduction to the Ocean Data and Information System (ODIS)	Jeff McKenna, President Emeritus of OSGeo / Gateway Geomatics / ICAN / Ocean Information Hub (OIH)



A shout out to our amazing trainers!



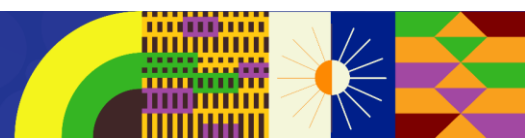
24 Oct 2022 | Opening Ceremony (16:00 – 18:00)

The Symposium opening ceremony took place in the mid-afternoon with welcome addresses from the GEO Blue Planet European and US offices, represented by Dr. Pierre-Yves Le Traon (Mercator Ocean International) and Dr. Emily Smail (Univ. of Maryland and NOAA), and high-level speakers:

- **Kwamena Quaison** - Chief Director of the Ministry of Environment, Science, Technology and Innovation (MESTI), Ghana
- **Dr. Zacharie Sohou** - IOC-Africa Vice Chair and Director of the Benin Fisheries and Oceanological Research Institute
- **Prof. Elvis Asare-Bediako** (Vice Chancellor of the University of Energy and Natural Resources (UENR), Ghana
- **Dr. Angela Lamptey** – Fisheries expert & lecturer at the University of Ghana
- **Joanna Drake** (Deputy Director-General for Mobility and Environment at the European Commission Directorate-General for Research and Innovation
- **Massimo Mina** - Head of Cooperation of the European Union Delegation to Ghana
- **Ignatius Williams** – GMES and Africa programme/ University of Ghana

This was followed by keynote presentations on:

- [GEO Blue Planet Activities](#) – Dr. Emily Smail (GEO Blue Planet Executive Director (University of Maryland/ NOAA)
- [UN Ocean Decade Roadmap for Africa](#) – Dr. Ir. Zacharie Sohou (IOC Africa Vice-Chair and Director of the Benin Fisheries and Oceanological Research Institute)





25-26 Oct 2022 | Plenary Sessions

The Plenary Sessions were geared towards exploring the role of ocean and coastal observations in addressing fisheries, ecosystem conservation and coastal hazards through region-specific user needs assessment, tools & opportunities, and inspiring examples of successful applications supporting decision making. These sessions aimed to reflect the context of GEO Blue Planet's Core Action Areas of Stakeholder Engagement, Cooperation and Co-design and Capacity Development. The selection of this year's plenary topics was based on a review of the ocean and coastal related engagement priorities set forth by the relevant regional governing bodies in recent conferences and meetings (such as the African Union Blue Economy Strategy, the African Union Commission Agenda 2063, and the Ocean Decade Africa Roadmap).

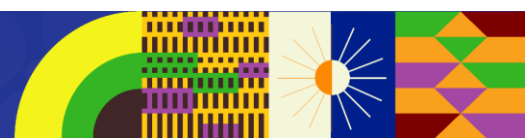
Thank you very much to all our speakers and panellists for your crucial part in this Symposium's success!

All the presentations are available on here: <https://geoblueplanet.org/5th-symposium-2022/>

25 Oct 2022 | Fisheries Plenary Session (9:00 – 12:00)

The Fisheries Plenary Session was geared towards first understanding the needs of stakeholders who are involved in small scale fisheries, commercial fisheries and fisheries management in the region. This was followed by a demonstration of the tools and opportunities which have been developed using ocean and coastal Observations for fisheries-related applications. Finally, the session was closed by a presentation on inspiring examples of cases wherein ocean and coastal observation tools have been successfully employed to meet fishery related needs.

The session was co-chaired by Nikelene Mclean (NOAA), Dr. Isa Elegbede (TGER/CEESP/ IUCN, Switzerland & Lagos State University) and Dr. Stewart Bernard (South African National Space Agency (SANSA)).



Key takeaways from the Fisheries Plenary session include:

- There are major concerns regarding the sustainability of fisheries stocks in Ghana given the high rates of overexploitation in the region.
- There are also concerns related to overcapitalisation and instances of illegal, unregulated and undocumented fisheries.
- There needs to be more focus on tackling issues related to pollution and the impact of pollution on ecosystem sustainability.
- There should be more emphasis placed on the implementation and enforcement of laws related to fisheries and ecosystem conservation.
- There is a need for better collaboration between fisheries experts and policy and decision makers in the region.
- There is a need for more toxicologists, taxonomists, oceanographers, environmentalists etc., given that there is a lack of trained experts in decision-making agencies.
- Early exposure to fisheries/marine science related subject matter is needed to encourage younger generations to pursue careers that support sustainable marine and coastal resources.
- Traditional knowledge should be taken into consideration when developing plans for sustainable fisheries and ecosystem management.

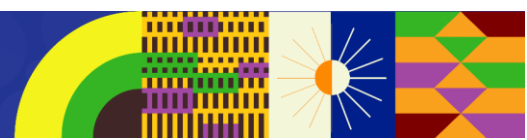
Recommendations for GEO Blue Planet:

- Host workshops and meetings at local universities and institutions to promote the use of Earth Observation in managing fisheries and ecosystem sustainability.
- Organise training opportunities to improve local capacity to use satellite derived products as decision support tools.
- As an intergovernmental body, GEO has the convening power to work with local scientists/experts and decision-making bodies to improve science-based decision making.
- GEO Blue Planet can work with the larger GEO community to discuss making peer reviewed journal articles related to Earth Observation available to students and researchers in Ghana.
- GEO Blue Planet can work with fisheries stakeholders in the region to gain insight into the parameters of importance in the region in order to develop dedicated, user-friendly EO-based products and tools.



Group photo of the fisheries plenary speakers and panellists

[Click here for the speaker bios](#)



25 Oct 2022 | Ecosystem Conservation Plenary Session (14:00 – 16:00)

This session served to explore how data from satellites may help communities and regions secure the ecosystem foundations of their Blue Growth potential. It recognises the critical role played by local and regional stakeholders, and stakeholder networks, in all aspects of managing and harnessing an ecosystem, and the information needs of these diverse stakeholder communities.

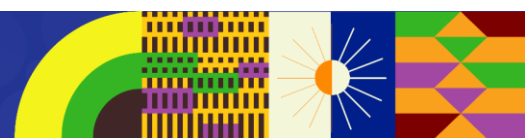
The session focused on the use of participatory approaches and using example ecosystems such as Mangroves and Sargassum - key ecosystems that can support or even hinder both tourism and fisheries. These ecosystems are used to provide examples and inform discussions on how data from satellites and other sources, and stakeholder-led development, can be used by local and regional stakeholders to identify issues, provide management guidance, and ultimately restore and conserve the balance within these habitats which support their local communities and economic activity.

Key takeaways from the Ecosystem Conservation plenary session include:

- Ecosystem degradation is occurring at an alarming rate in Ghana due to pollution, Illegal, Unreported and Unregulated (IUU) fishing, poor enforcement of environmental laws and climate change.
- Ecosystem conservation is the foundation of sustainable blue economies and as such there are needs to be better management of critical ecosystems such as mangroves, seagrasses, and coral reefs.
- If not prioritised, the degradation of these environments will impact the most vulnerable groups (e.g., small scale fishers, indigenous groups).
- Engagement with stakeholders is critical to the successful implementation of management solutions- there should be more campaigns that educate members of communities in close proximity to ecosystems of importance.
- Potential solutions that can be used to address these issues involve the use of built infrastructure, socio-institutional adaptation as well as marine and coastal nature-based solutions.
- There is a need for more early childhood education campaigns so that the upcoming generation are aware of the importance of ecosystems and be aware of the role of science in solving these issues.
- There is a need for better enforcement of laws geared toward reducing dumping, littering, release of industrial effluent and other sources of pollution of important marine ecosystems.

Recommendations for GEO Blue Planet:

- GEO Blue Planet can help support education campaigns whereby the importance of ecosystem conservation is emphasized.
- GEO Blue Planet can partner with local universities and institutions to host more seminars on the role of Earth O in supporting ecosystem conservation.
- Host trainings so that Ghanaians and representatives from other countries in the region can strengthen local capacity at using EO based tools in support management of ecosystems.
- GEO Blue Planet can work with local educators to propose curricula that provides early exposure to topics related to ecosystem conservation, fisheries, aquaculture etc.
- Improve the capacity among small island developing states and developing countries to monitor ecosystem health using EO derived tools and products.
- Provide improved access to available data that can be used to inform policies and decision support frameworks needed to reduce the degradation of marine ecosystems.





Group photo of the ecosystem conservation plenary speakers and panellists

[Click here for the speaker bios](#)

Oct 2022 | Coastal Hazards Plenary Session (9:00-12:00)

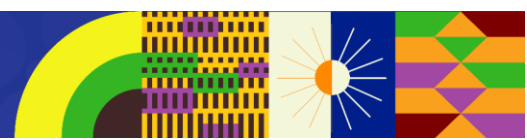
This session served to explore the role of ocean and coastal observations in addressing coastal hazards issues through stakeholder's needs assessments, tools and opportunities to tackle coastal risks challenges, and inspiring examples of successful EO-based applications for decision making in coastal areas, contributing to coastal resilience. This session initiated and stimulated dialogue about ocean and coastal related issues in African countries. It allowed GEO Blue Planet community to discuss and collect feedback that can help develop activities and deliverables, which would in turn contribute to coastal resilience, sustainable coastal activities, and use of coastal resources in the continent.

General information needs for coastal hazards assessment

- Increase research support to help collect in situ, relevant and reliable data to understand coastal hazards
- Skills in cloud computing (infrastructure and human resources) are needed to process and explore the collected data and information
- Need for hazard modelling and forecasting (e.g., flooding, erosion risk) at local and regional scale
- Need for increased ocean wave modelling required for early warning systems of coastal flooding
- Developing linkages and pathways to use of EO products
- Best practice guidelines for the use of coastal data
- Need to implement a regional collaboration, crucial because whatever is done in each country impacts the neighboring countries.

Recommendations for GEO Blue Planet

- GEO Blue Planet should work with all stakeholders (in different countries and with decision and policy makers) to increase awareness of the potential for EO to be used in support of management and monitoring coastal risks and resilience.



- GEO Blue Planet should work to significantly engage more ECOPs and Youth in ocean science and policy.
- GEO Blue Planet should support the sharing of best practices for advocacy and collect information needs and requirements to help develop integrated and inclusive solutions that meet the needs of the ocean observing community.
- GEO Blue should consider developing training and education workshops to strengthen local capacity.

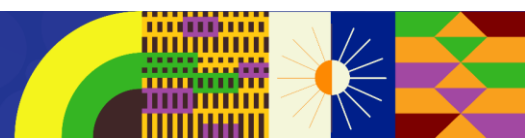


Group photo of coastal hazards plenary speakers and panellists
[Click here for the speaker bios.](#)

24 – 25 Oct 2022 | Interactive Poster Forum

Widely attended by Symposium participations, the forum served as space for informal roundtable discussions, networking and to stimulate interactive dialogue among participants. The forum featured 5 booths exhibiting posters from data providers, academics, and stakeholders from end-user groups around the themes of **Fisheries**, **Ecosystem Conservation**, **Coastal Hazards**, **Cooperation and Co-design**, and **Capacity Development**, with the cross-cutting theme of **Stakeholder Engagement**.

Aligned with the plenary session themes and GEO Blue Planet’s core action areas, the forum was quite the success, allowing participants to take forward topics presented in the plenary session and panel discussions, and find out more about existing coastal and observation data, services, and tools available and explore possibilities for future collaboration.





26 Oct 2022 | Side-event: Copernicus Private Sector Opportunities

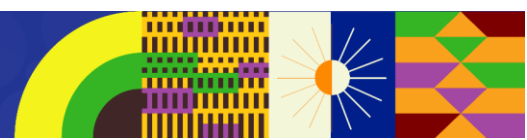
This session highlighted private sector opportunities using Copernicus-based products in support of a sustainable blue economy. 20 Ghanaian and European Small and Medium-sized Enterprises (SMEs) gave 5-minute pitches to present their companies/services/products relevant for the African context, as well as needs and ideas for collaboration.

This session was hosted by the Atlantic International Research Centre (AIR Centre), together with the Portuguese Space Agency as part of the activity “[Copernicus SMEs – Atlantic Ocean Interactions](#)” funded by the European Union through the Framework Partnership Agreement on Copernicus User Uptake.

[Click here](#) for the profiles of the speakers of this session.



Group photo of SMEs representatives and session chairs during Copernicus private sector opportunities session



27 – 28 Oct | Thematic Workshops

The Symposium ended with 2 days of thematic workshops aligned with GEO Blue Planet's [current activities](#). The workshops aimed to strength linkages between local/regional sectoral end-users and Earth Observation data providers.

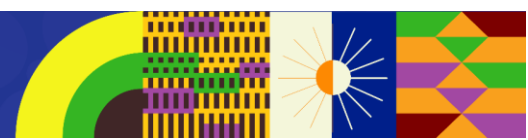


The five workshops focused on the following topics:

Earth Observations for Fisheries and Aquaculture Site Selection

Workshop co-chairs: Dr. Isa Elegbede (TGER/CEESP/IUCN, Switzerland & Lagos State University), Nikelene Mclean (NOAA) and Ignatius Williams (University of Ghana)

This workshop was designed to provide regional fisheries stakeholders with insight into the suite of EO products and services that can be used to meet fisheries and aquaculture related needs. Workshop participants had the opportunity to gain first-hand knowledge from Earth Observation experts who have successfully developed and implemented fisheries related products and services. With support and guidance from these experts, participants were given the opportunity to propose the implementation of region-specific Earth Observation-based fisheries projects and outcomes that are in line with the GEO Blue Planet Core Action Areas of Stakeholder Engagement, Cooperation and Co-design and Capacity Development.



Ocean and Coastal Observations for National Adaptation Plans (NAPS)

Workshop co-chairs: Dr. Louis Celliers (WIOMSA), Dr. Pierre-Yves La Traon and Fabrice Messal (Mercator Ocean International)

This workshop was designed to explore the role of Earth Observations in the formulation of National Adaptation Plans with special considerations for improving the resilience and adaptive capacity of coastal resources by integrating coastal adaptation into NAPs. This is needed to ensure that the coastal and ocean economies can achieve their potential, whilst ensuring the functioning of ecosystem services upon which such economies are built. The need for transformation of coastal communities is a key element of sustainability as part of strategies to adapt to climate change.

Earth Observations for Sargassum Monitoring

Workshop co-chairs: Dr. Emily Smail (University of Maryland and NOAA) and Dr. Shelly-Ann Cox (Blue Shell Productions)

This workshop presented the need and role of Earth Observations for Sargassum monitoring in the tropical Atlantic. A number of important advances have been made in the last decade to address sargassum influx events, which have emerged as a coastal hazard impacting climate-sensitive socio-economic sectors in the Wider Caribbean and West Africa. While there is a general consensus that we should view influxes as an economic opportunity through the promotion of valorisation initiatives, the reality is that sargassum inundations remain more of a threat than a benefit until key issues are resolved. A shift in mindset is a critical step, but this must be followed through with deliberate action.

Earth Observations for Coastline Changes

Workshop co-chairs: Dr. Donatus Angnuureng (University of Cape Coast), Dr. Lisa Rebelo/ Dr. Edward Boamah (Digital Earth Africa), & Dr. Fifi Adodo (Mercator Ocean International)

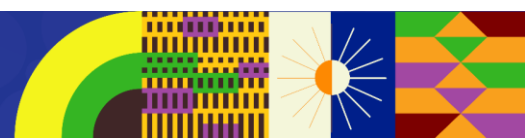
This workshop on aimed to share information, spark interest, and to strengthen the cooperation between all coastal stakeholders, from academic to non-academic communities, by developing reflections, strategies, and recommendations on addressing coastal hazards at regional and global level. Focusing on exploring coastline dynamics, coastal erosion, and coastal pollution, the workshop also presented a range of related monitoring and management aspects and challenges in the African context, including:

- Bridging gaps in data availability, and between academics and non-academics
- Engaging with the leading policy and decision makers
- Strengthening regional cooperation and collaboration (co-design & co-management) to manage the same hazards
- Strengthening legal & institutional frameworks & capacity building

Earth Observations for Marine Litter Monitoring

Workshop Co-chairs: Richmond Kennedy Quarcoo (Plastic Punch), Dr. Ebenezer Nyadjro (Mississippi State University and NOAA) and Ivy Akuoko Gyimah (University of Cape Coast)

Marine litter has become a multi-dimensional problem with economic, environmental, cultural, and human health costs. To address this issue, the United Nations created Sustainable Development Goal (SDG) 14, “Life Below Water” and Target 14.1: “By 2025, prevent and



significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution”. Achieving this target requires the identification and assessment of marine litter via a host of observation and detection methods to inform policy. This workshop is designed to explore the role of EO in supporting marine litter monitoring efforts.

Implication of Early Ocean Career Professionals

In support of the UN Decade ECOP programme [OceanBRIDGES task team](#) co-led by GEO Blue Planet, each plenary session included at least one Early Career Ocean Professional (ECOP) speaker and the coastal hazards panel discussion was entirely made up of ECOP panellists. The ECOPS who took part in the plenary sessions as speakers and panellists, with funding travel support by Mercator Ocean International/EU4OceanObs project, included:



Dr. Temitope Sogbanmu
University of Lagos,
Nigeria



Dr. Raphael Onguene
Douala Institute of
Technology, Cameroun



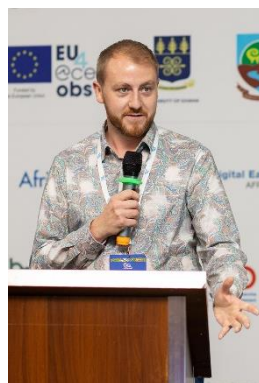
Gabriel Akoko Juma
ECOP Africa
Coordination Unit,
Helmholtz Centre for
Polar & Marine Research



Dr. Donatus Angnuureng
University of Cape
Coast, Ghana



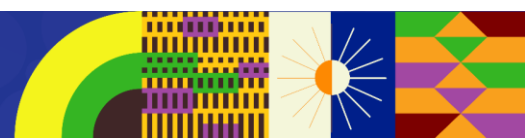
Dr. Sandrine Djakouré
Université Felix
Houphouet Boigny,
Côte d'Ivoire



Dr. Garry Kett
All-Atlantic Youth
Ambassador, University
College Cork



Dr. Babette Tchonang
NASA Jet Propulsion
Laboratory



Summary of Symposium Recommendations and Next Steps

Recommendations and outcomes from the Symposium were then presented to the wider GEO community at [GEO Week 2022](#), which took place a week later, between 31 October and 4 November in Accra, welcoming more than 1200 delegates.

The main recommendations include:

- Develop an information hub for the fishing community & other stakeholders to expand the reach and efficiency of the GMES and Africa marine weather early warning service.
- Propose the development of a charter for Blue Schools & Blue Careers to help promote and develop aquaculture in Ghana
- Organise teams to work on guidance for coastal National Adaptation Plans (NAPs), and Fisheries and Aquaculture NAPs
- Develop a plan to support integrated land-to-sea-litter monitoring using EO and citizen science
- Engage local stakeholders and policy makers to build inclusive and integrated regional solutions to coastal hazards

Symposium Organising Committee

Mercator Ocean International
EU4OceanObs project

Audrey Hasson – GEO Blue Planet EU Coordinator
Fifi Adodo – Use Case Expert
Lillian Diarra – Communications & Outreach Officer
Vincent Legros – Events Manager

University of Maryland & NOAA

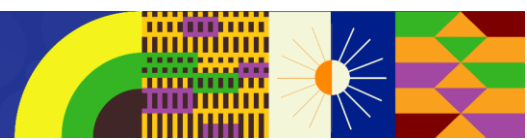
Emily Smail – GEO Blue Planet Executive Director
Nikelene Mclean – NOAA Knauss Marine Policy Fellow

University of Ghana
GMES & Africa programme

Kwame Adu Agyekum – Earth Observation Expert, GEO Blue Planet Steering Committee co-chair & Regional Project Coordinator GMES&Africa phase 2
Bennet Foli – Oceanographer
Dogbeda Azumah - Communication, M&E Officer

University of Energy and Natural Resources

Prof. Amos Kabo-bah - Co-Chair, GEO Land Degradation Neutrality Initiative & Dean of International Relations Office



Symposium Programme Committee

Mercator Ocean International | EU4OceanObs

University of Maryland & NOAA

NOAA

University College Cork, Ireland

University of Energy & Natural Resources, Ghana

University of Ghana | GMES and Africa programme

Atlantic Innovation Research (AIR) Centre, Portugal

University of Michigan, USA

Digital Earth Africa

NASA & GEO Disaster Risk Reduction Working Group

University of Cape Coast, Ghana

South African National Space Agency (SANSA)

IOC Africa

TGER/CEESP/IUCN, Switzerland and Lagos State University

Marine Biodiversity Observation Network (MBON), IPBES

Institut de recherche pour le développement (IRD)

European Space Agency - EO for Africa

Nansen Environmental & Remote Sensing Centre, Norway

University of Cape Town, South Africa

IMS, University Dar es Salaam, Zanzibar

RCMRD | AfriGEO, Kenya

GEO Secretariat

UNEP Nairobi Convention

UNEP Abidjan Convention

Sustainable Seas Trust, South Africa

Suez University, Egypt

University of Mauritius

Ministry of Environment, Nigeria

**Pierre-Yves Le Traon, Audrey Hasson,
Fifi Adodo & Lillian Diarra**

Emily Smail

Paul DiGiacomo & Nikelene Mclean

Rory Scarrott

Amos Kabo-bah

Kwame Adu Agyekum & Bennet Foli

Jose Moutinho

Brian Arbic

Lisa Rebelo, Cedric Jorand & Lisa Hall

David Borges

Donatus Agnuureng

Stewart Bernard

Mika Odido

Isa Elegbede

Isabel Sousa-Pinto

Yves Morel

Giuseppe Otavianelli & Zoltan Szantoi

Johnny Johannessen

Juliet Hermes

Margareth Serapio Kyewalyanga

Phoebe Oduor & Samantha Musinzi

Sara Venturini

Timothy Andrew

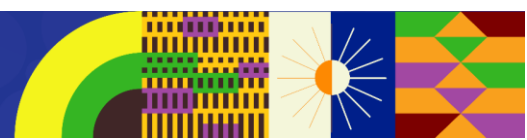
**Abdoulaye Diagana & Vanessa
Ahouadjiro**

Toshka Bernado

Elham Ali

Depeeka Kaullysing

Sonigitu Ekpe



Local Hosts and Partners

University of Energy and Natural Resources



The Department of Fisheries and Water Resources (DFWR) is Bono's foremost Centre directly concerned with research and training of fisheries/aquaculture scientists and practitioners among her institutions

of higher learning. It is the only Department in Ghana to run a combined degree in Fisheries and Aquaculture. The vision of DFWR is to become a leading department in teaching, research, and community outreach in advancing a world with food security, employment and water management.

In the quest to position the University of Energy and Natural Resources (UENR) as a world-class institution for energy and natural resources management, UENR has initiated the process to establish Ghana Inland Blue Economy Centre (GiBEC). The overall objective of GiBEC is to develop integrated solutions to address problems of poor governance, food insecurity, hunger, tourism, transportation, energy, and sustainability through short-to long-term career and academic training programmes in inland fisheries, aquaculture, blue economy and contribute to the design, setting-up and implementation of policies, regulations, and management related to the blue economy in the country.

University of Ghana

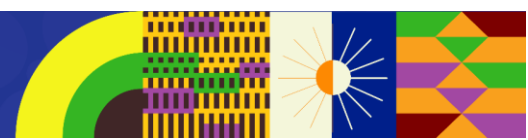


The Department of Marine and Fisheries Sciences at the University of Ghana is Ghana's foremost centre directly concerned with marine environmental research and training of fisheries and aquaculture scientists among her institutions of higher learning. The University of Ghana also hosts the Regional Marine Centre responsible for

implementing the Marine and Coastal Areas Management for North and West Africa (MarCNoWA) project under the Global Monitoring for Environment and Security & Africa programme (GMES & Africa).

The inspiration behind the design language for this year's Symposium

The visual identity for the GEO Blue Planet Symposium for 2022 was inspired by Kente fabric, the regal cloth of Ghana. Given that Kente fabric is made up of individually woven strips that are then joined together, with each telling its own unique story; the overall visual language comprises a mosaic pattern style that incorporates elements that represent the ocean, the coast, and aspects of Ghanaian culture like some of the weave patterns in Kente and Adinkra symbolism. The symbols included generally bear meaning towards unity, collaboration, wholesomeness, and innovation. Collectively, each square tells its own unique story. The background also has hints of the ocean/water bubbles further emphasising GEO Blue Planet's work to use EO towards conversation of marine environments and life.





About the graphical designer

Fungi Dube (www.fungidube.com) is a Brand, Visual and Webflow Web Designer based in Harare, Zimbabwe. She is an ardent Pan-Africanist who is passionate about Elevating African Narratives through Modern Design and Cultivating Afro-positive Sentiments.

Further resources

- [Press release GEO Blue Planet symposium Accra](#)
- [Ghana Business News article on Symposium](#)
- [Ghanaian Times article: Cabinet approves NSSP for environmental management with mentioning of GEO Blue Planet Symposium](#)
- [GEO Week 2022, Accra, Ghana](#)
- Previous GEO Blue Planet Symposia:
 - [1st GEO Blue Planet Symposium](#) (Ilhabela, Brazil, 2012)
 - [2nd GEO Blue Planet Symposium](#) (Cairns, Australia, 2015)
 - [3rd GEO Blue Planet Symposium](#) (Maryland, USA, 2017)
 - [4th GEO Blue Planet Symposium](#) (Toulouse, France, 2018)

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