

POGO-SPONSORED TRAINING INITIATIVE Report

1. Name of grant recipient (Proposal Coordinator)

Ezinvi Baloïtcha

2. Title of training

Gulf of Guinea Ocean Sciences Summer School

3. Dates of training

Start date: 25/08/2025

End date: 29/08/2025

4. Location of training (e.g. institute, city, country) Please indicate if online/in person/hybrid.

Auditorium Joseph Fondjo, University of Dschang, Cameroon. Hybrid

5. Number of trainees: 36

6. Other partners/funding sources

- 1) Copernicus Marine Service via Mercator Ocean International
- 2) SCOR Capacity Development Program

7. Provide an outline of the training course/initiative (objectives, format, topics)

Full programme can be included as an Appendix.

Objectives:

- Strengthen scientific capacity of francophone students and young researchers in ocean sciences within the Gulf of Guinea region.
- Provide practical training on key oceanographic parameters (sea level, temperature, salinity, biogeochemistry, and ocean circulation).
- Foster international collaboration to address regional vulnerabilities linked to climate change.
- Build a professional network of young scientists committed to advancing oceanographic research and sustainable marine resource management.

Format:

- **Duration:** Five-day intensive programme (25–29 August 2025).
- **Participants:** 36 early-career scientists and students from French-speaking countries of the Gulf of Guinea.
- **Approach:** Combination of lectures, hands-on workshops, group projects, and a field excursion.
- **Structure:** Daily thematic focus, with progressive transition from foundational lectures to applied practice and fieldwork.
- **Outputs:** Group presentations, data analyses, field measurements, and networking opportunities.

Topics Covered:

1. Foundational Lectures

- Introduction to Oceanography (circulation, atmosphere–ocean interactions).
- Sea Level Rise in the Gulf of Guinea: drivers, impacts, and regional implications.
- Marine Biogeochemistry and ecosystem functioning.
- Introduction to Python for Data Analysis (Numpy, Matplotlib, Seaborn, Pandas and Xarray).

2. Measurement and Data Techniques

- In-situ data acquisition (CTD, TSG, ADCP, drifters, buoys, ARGO floats, Gliders, Saildrone).
- Remote sensing principles and applications (satellite sensors, SWOT mission).
- Introduction to ocean numerical modeling (CROCO model, discretization, parameterizations).

3. Workshops (by groups)

- **In-situ Data:** journey of in situ data acquisition practices and data collection across multiple platforms and through field surveys.
 - Accessing and preparing observational datasets (e.g., PIRATA, Copernicus Marine Service).
 - In situ data processing using python programming language.
 - Definition of an in-situ data collection survey: theory and practical application.
- **Remote Sensing:** Processing satellite altimetry data with Python (SSH, geostrophic currents, SST, SSS and surface density).
- **Modeling:** Installing and running CROCO in the Benguela region, interpreting outputs.

4. Applied Training

- Accessing and using Copernicus Marine Service (CMEMS) data.
- Group project presentations on modeling, remote sensing, and in-situ data analysis.

5. Special Thematic Lectures & Career Development

- Maritime security in the Gulf of Guinea.
- Scientific project writing and funding opportunities.
- Career paths in data science and AI for oceanography.
- Coastal ecosystems and monitoring systems.
- SCOR capacity-building programmes.

6. Field Excursion

- Practical experience of data collection in the field at the Municipal Lake of Dschang (CTD probe, Water level data logger, multiparameter probe, GPS).
- Environmental assessment of local waters.
- Data sharing with the municipality.

7. Closing Ceremony

- Certificate awarding.
- Networking and cocktail reception.
- Celebration of interdisciplinary and international collaboration.

8. Provide a summary of the students' performance and any informal feedback received

Please note that an evaluation questionnaire will be sent to the participants by the Secretariat and therefore we ask that you provide a list of trainees and their e-mail addresses. The questionnaire results will be shared with you in due course.

Throughout the summer school, the 36 participants demonstrated strong engagement and motivation. They actively participated in lectures, contributed to discussions, and showed excellent teamwork during the hands-on workshops and the field excursion on the Municipal

Lake of Dschang. The group projects and daily presentations highlighted their ability to apply theoretical knowledge to practical tasks, from satellite data analysis to in-situ measurements and ocean modeling.

Performance highlights included:

- Rapid acquisition of new skills in Python for data analysis. For many participants, it was their first experience using Python, and they expressed enthusiasm about discovering its potential and usefulness for oceanographic applications.
- In just two days, students were able to parameterize, run, and analyze outputs from the CROCO regional ocean model—an impressive achievement, especially since for most of them this was the first exposure to numerical modeling.
- Effective collaboration across disciplines, as participants worked in mixed teams to interpret results and prepare group presentations.
- Enthusiastic participation during the fieldwork, where students successfully operated instruments (CTD probe, Water level data logger, multiparameter probe, GPS) and collected valuable environmental data.

Informal feedback gathered during discussions and at the closing ceremony was overwhelmingly positive. Participants particularly appreciated:

- The balance between lectures, practical training, and fieldwork.
- The opportunity to learn directly from both regional and international experts.
- The interactive teaching style, which allowed them to ask questions and receive guidance.
- The networking opportunities, which they considered invaluable for future collaborations.

Many participants also expressed a strong wish that the summer school be extended to two weeks in future editions, as they felt additional time would allow them to deepen their skills and consolidate their learning.

As requested, a full list of trainees with their email addresses will be provided separately to the Secretariat. The evaluation questionnaire coordinated by the POGO Secretariat will complement this informal feedback, and we look forward to reviewing the results once available.

9. Do you have any plans for future collaboration with the students, the host institute (if applicable) or for future editions of the training course?

Yes. We are planning to organize the second edition of the Gulf of Guinea Ocean Sciences Summer School (GGOSSS) next year in Cotonou, Benin, hosted by the International Chair of Mathematical Physics and Applications (ICMPA – UNESCO Chair). This next edition will build on the success of the inaugural school in Cameroon, further strengthening regional capacity in ocean sciences and fostering collaboration among students, early-career researchers, and international experts.

10. List of trainees

Please fill in the attached Excel spreadsheet with the list of trainees.