GEO Blue Planet
5th Symposium

Local action in support of global traction

24 - 28 Oct 2022 | Accra, Ghana
Introduction to Observational Oceanography and Modelling

Dr. Fifi ADODO*, Dr Yves Morel, Dr Gael Alory
Risks/challenges for society

Vulnerability of the ocean (from global ocean to local littoral threats):

Limits of natural resources:

- Climate change and consequences on physical balances (storms, erosion, floodings, droughts, fish stocks, ...) and local ecosystems;
- Vulnerability of certain regions to natural variations or anthropic pressure (ENSO phenomenon);
- Accidents, pollution and natural disasters;
- Isolated ecosystem with specific environment (islands, lagoons, ...): Heritage/biodiversity, fragile equilibrium;
General scientific strategy

Observe - Understand – Modelling - Forecast
In situ ocean observations

**Figure 1:** Global and regional in-situ observing systems: Argo, gliders, research vessels, ship of opportunities, drifting buoys, marine mammals, tidal networks and high frequency coastal observatories.
In situ ocean observations

- International + national programs to collect data

**Argo**
- Essential element of the global ocean observation system.
- 3000 floats in operation
- 100,000 new profiles/year of temperature and salinity

**Research Vessels**
- Ships of opportunity

**PIRATA**
- Observation
- CL-O/A
- Tropical
- Atlantic

**Glider**

**Marine Mammals (MEMO)**

**Drifting buoys**

**Tidal Networks**
- Measure wave height, period, tidal range, tidal current, sea level trends.

**HF Coastal Networks**
- Measure surface current vectors, wave heights, directional spectrum.
Space ocean observation

Space observation as a complement to 'in situ' measurements

Principales routes maritimes

Argo

Altimeter' coverage of the ocean in only a few days
Examples of space observation missions for the ocean

- SSH (Sea Surface Height)
- SST (Sea Surface Temperature)
- SSS (Sea Surface sanility)
- Wind speed and direction
- Ocean colour (Chlorophyl-a concentration)
- Etc…
MOi has developed complex ocean simulation systems (numerical models) based on ocean observation data (satellite and in situ) that are able to describe, analyze and forecast the physical and biogeochemical state of the ocean at any given time, at the surface or at depth, on a global scale or for a specific zone, in real-time or delayed mode.
Thank You.
Medaase.
Oyiwaladon.