



IOC-UNESCO Workshop on « The Canary Current Eastern Boundary Upwelling System »

Rapid-Fire presentation on :

Primary production dynamic,
Phytoplankton diversity and PFTs in The
Canary Current Upwelling System

BERRADA Aicha

IAV Hassan II-Rabat, Morocco. Email : aichaberrada21@gmail.com

Context

PFTs are conceptual groupings of phytoplankton species, which have an ecological functionality in common. Examples include Nitrogen fixers; calcifiers, DMS producers and silicifiers. The groupings are not necessarily related to physiological characteristics, but are often based on functionality or other characteristics such as cell size (pico, nano and micro-phytoplankton).

Are of interest of biogeochemical community because they are relevant proxies of ecosystem functioning, and may be a function of climate change, with potential impacts on the efficiency of ocean carbon sequestration. Incorporation of PFTs into biogeochemical models may improve the predictive capabilities of such models.

Can be derived from ocean colour remote sensing both through direct effects as well as indirect effects (e.g. changes in phytoplankton composition is accompanied by changes in the ensemble of particles and dissolved substances, leading to changes in the reflectance spectra).

► Main objectives

Describe major PFTs and their taxonomic biodiversity

Dynamic of primary production in response to physical forcing

Understand the vertical variability of PP



Study area

Canary current
upwelling system



Material

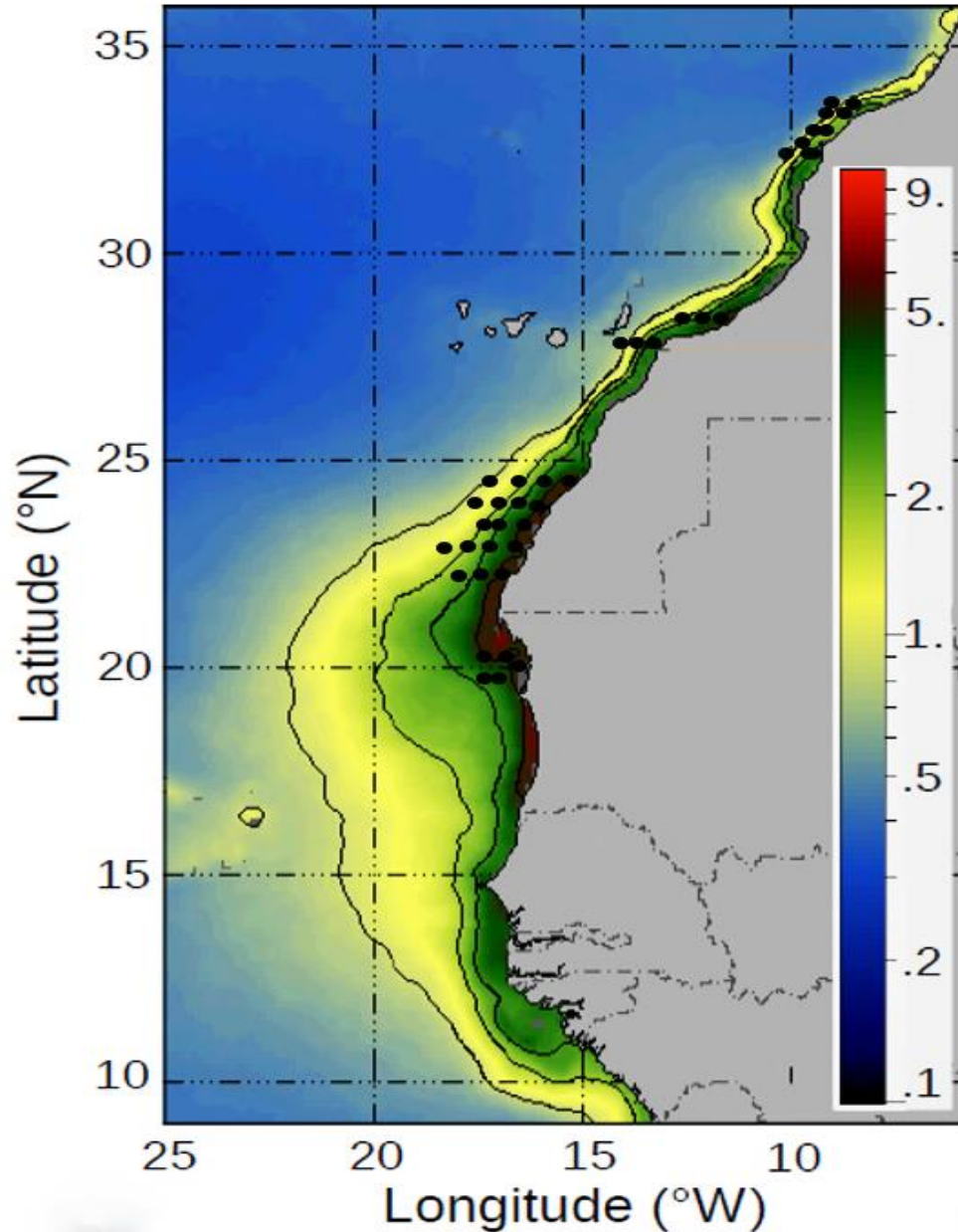
In situ data
Satellite imagery



Methods

Sampling
PHYSAT

Main research axes



1 : Identify the anomaly, nature and changes in physical factors temporally and spatially

2 : Perceive the changes / anomalies that appear on the spatial and/or temporal scale off mesoscale productive areas

In situ data obtained regularly at the temporal, such as the hydrological parameters and biological indicators (Chlorophyll 'a' and zooplankton biomass). However, data on phytoplankton diversity are discontinuous in time due to the difficulty of specific determinations

3 : Determine the biogeography of pico/nano/micro-phytoplankton groups and their species

4 : understand the impact of climate change on the dynamics, composition and diversity of phytoplankton, on intra-seasonal to interannual time scales

Perspectives

- ▶ Describe the spatial and temporal variability of PP in the CC ecosystem.
- ▶ Identify regions with a similar distribution pattern of PP.
- ▶ Characterize vertical profiles of PP based on descriptions of biomass variability and production.
- ▶ Highlight the major phytoplankton groups that exist in the CCLME.
- ▶ Understand the impact of climate change in the upwelling system of the CC.