The role of the ocean in climate, with a focus on the African Seas

OCEAN OBSERVATION AND PREDICTION FOR COASTAL SUSTAINABILITY IN AFRICA
Outline

- Context
- African seas and ecosystems
- Ocean system and climate change
- African seas ecosystem's role
- Final words

OCEAN OBSERVATION AND PREDICTION FOR COASTAL SUSTAINABILITY IN AFRICA
WASCAL
Cabo Verde School
Climate Change and Marine Sciences

2021 United Nations Decade of Ocean Science for Sustainable Development

WASCAL
West African Science Service Centre on Climate Change and Adapted Land Use

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GEOMAR

OSCM
Ocean Science Centre Mindelo

THÜNEN
West African Science Service Center on Climate Change and Adapted Land Use

Structure

1. Climate Services Department
2. Research Department Competence Center (Ouagadougou, Burkina Faso)
3. Capacity Building Department

To strength research, education (training) and policies competences
African Seas and Oceans

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Specific process:
- physical
- biogeochemical
- biological
...their processes also contribute to climate change mitigation.
Ocean System

Affected

Mitigate

Climate change
Ocean system threats from climate change
- Rising temperatures
- Increased acidity
- Reduced oxygen content

Impacts on coastal and marine ecosystems
- Sea level rise
- Habitat loss
- Productivity changes
- Coral bleaching

Disruption ecosystem services
- Fisheries
- Coastal protection
- Recreation ...
Distribution of oxygen at about 300 – 500 m depth ($\sigma_\theta=26.9$ kg/m$^3$).

...deoxygenation, habitat loss, overfishing.
services, interconnectivity, climate change mitigation
FUTURO Science Project

- Natural Sciences
- Social Sciences
- Humanities / Law

FUTURO Field Campaign

- Co-Design with West Africans
- Stakeholder Dialogue

System Understanding
- Prediction Capabilities
- Long-term Observatory Design
- Education/Outreach
- Capacity Development
- Management Guidance

FUTURO: Future of Tropical Upwelling Regions in the Atlantic Ocean
Final words

Strategic ecosystems management may enhance the climate change mitigation and adaptation

To foster the understanding of climate change threats effects are required observational, experimental and modelling studies

Capacity building, coupled with the reinforcement of research and governance institutions

Fair mutual benefits from resources uses
**References**


