

C-RISe abstract for WIOMSA 11th Symposium

Oral Presentation Requested

Theme: Coastal and marine technologies supporting management

Abstract Title: ESA EO4SD Marine & Coastal Resources Management - increasing the uptake of EO-derived information in sustainable development

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Abstract:

The coastal and marine environments of the ESA EO4SD (Earth Observation for Sustainable Development) regions of focus (Caribbean, West Africa, Western Indian Ocean, Northern Indian Ocean and East Asia Pacific) are rich and diverse, possessing high levels of biodiversity and productivity. These ecosystems are subject to climatic and anthropogenic pressures, which affect both the resilience of living resources and the services derived from them. Coastal locations have always been important sites of human settlement and today a substantial and increasing proportion of the world's population are vulnerable to marine flooding and coastal erosion, putting communities, essential infrastructure and economies at risk. Additionally, for countries to benefit from growing Blue Economies, they must understand the available resources and have the tools to monitor and manage them effectively.

Robust environmental information for the coastal and marine areas in many of these regions is sparse. This is due to the difficulty of collecting data in these locations, due to the problem of access (lack of road infrastructure or suitable survey vessels), difficult terrain and the vast areas to be covered. Earth Observation (EO) is a vital tool in the journey towards more effective management of the coastal and marine environment.

EO4SD is an ESA initiative aiming to achieve a step change in the uptake of satellite-based environmental information by International Financing Institution (IFI) regional and global programmes. The UK's National Oceanography Centre is working with a consortium of seven European organisations, over three years, to deliver EO services in the Marine and Coastal Resources Management thematic area: EO4SD-Marine.

The project, initiated in mid-2018, is working with a range of IFIs (World Bank, Asian Development Bank, Inter-American Development Bank and African Development Bank) and their Client States, to define and implement a large-scale demonstration of the application of EO-derived information.

Activities include:

- Strategic planning, communication and stakeholder engagement to define user needs
- Design and implementation of demonstration marine and coastal EO information services
- Robust delivery and upscaling of a cluster of streamlined ‘satellite to user’ services in partnership with key stakeholders
- Capacity building and mainstreaming to enable continued use of marine EO data beyond the timescales of this project
- Impact evaluation and implementation review

EO4SD-Marine will deliver a range of services under four themes: Hydrographic information; Coastal Environment (from both land and water perspectives); Surveillance and monitoring; and Information to support the Blue Economy. The expertise for delivery of the required EO services is drawn from leading institutes, companies and individuals working in satellite oceanography, leveraging existing projects and activities wherever practicable. The project will provide improved capability for accessing robust evidence-based information to underpin sustainable development and management activities. This capability will help partner countries to build a resilient marine and coastal socioecological system, and support their growing Blue Economies.

EO4SD-Marine will support the attainment of Sustainable Development Goals (SDGs) in several respects. It is particularly concerned with Goal 14 *Conserve and sustainably use the oceans, seas and marine resources for sustainable development*, providing services for, inter alia: aquaculture site selection; Marine Protected Area planning and management; fisheries surveillance; and marine pollution detection and monitoring. In addition to supporting attainment of SDG goals, some of these services are aligned with SDG indicators and can be used in the monitoring of progress towards their realisation. For example, the monitoring of water quality through chlorophyll concentration can be used towards the provision of an index of coastal eutrophication (SDG indicator 14.1.1).

A large element of EO4SD-Marine is capacity building to enable local actors to access and use EO data independently, following completion of the project. This also supports the SDGs, specifically: Goal 9 *Build a resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation* and Goal 13 *Take urgent action to combat climate change and its impacts*, by addressing targets 9.5.2 and 13.b.1, increasing the number of researchers and raising capacities for planning and management.

Here we present an overview of project implementation, including the strategic approach and details of the portfolio of services. These will be linked to SDGs and the wider role EO can play in the upcoming UN Decade of the Oceans.