

Innovation in ocean data and services

The experience of maritime forecast in Colombia

Urbano-Latorre, Claudia Patricia^{1*}, Herrera Vasquez, Guido², Latandret-Solano, Sadid³; Camilo Martínez, Andrés⁴

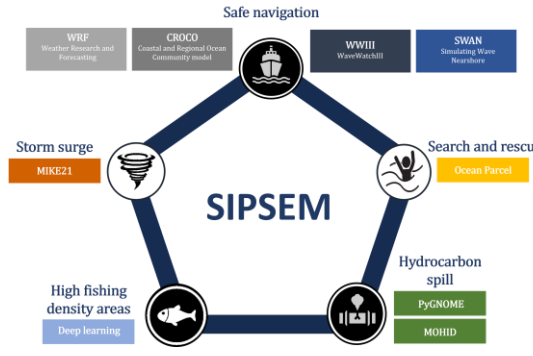
1. cubano@dimar.mil.co Centro de Investigaciones Oceanográficas e hidrográficas del Caribe, 2. gherrera@dimar.mil.co Centro de Investigaciones Oceanográficas e hidrográficas del Caribe; 3. solano@dimar.mil.co, Centro de Investigaciones Oceanográficas e hidrográficas del Caribe; 4. camilo@dimar.mil.co Centro de Investigaciones Oceanográficas e hidrográficas del Caribe

The SIPSEM (Integrated Forecast System for Maritime Safety) Climate Services Ecosystem operates as a strategic network for the observation, analysis and management of climate and oceanographic information of the General Directorate of Maritime (Dimar) in Colombia.

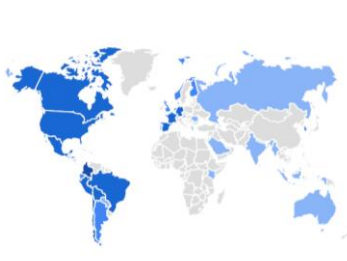
Abstract

SIPSEM, essential for decision-making related to maritime safety, sustainability and resilience to

climate change. Contributing to Challenge 8 of the Decade of Ocean Sciences, it facilitates open access to real-time meteorological and oceanographic forecasts (<https://meteorologia.dimar.mil.co/>), promotes the open use of information for decision-makers and coastal communities, and drives technological innovation. It receives more than 4,900 visits per year, not only from Colombia but also from other countries.



Active users by country



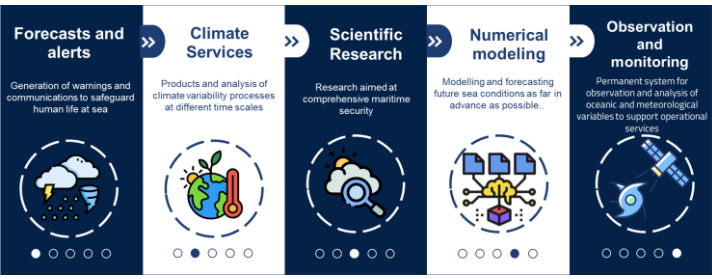
PAÍS	USUARIOS ACTI...
Colombia	4,4 mil
United States	241
Bolivia	72
Mexico	38
Panama	19
Peru	19
Netherlands	15

On the technological side

The ecosystem includes:

- (1) Coastal monitoring, by collecting measured data on currents, temperatures, salinity and waves.
- (2) Forecasting and visualisation applications, including the development of interactive tools that transform data into intuitive products, such as dynamic maps and simulations of extreme events.

Climate services



What's next?

1. Incorporation of artificial intelligence and machine learning to improve the accuracy of climate, river and rip current forecasts.
2. Implementation of alert systems in ports and tourist beaches through interactive tools and real-time notifications.
3. Generation of climate change impact scenarios that support decision-making for maritime security.

2024

365 DAILY - HIGH SEAS AND PORT FORECASTS
33 SPECIAL STATEMENT DUE TO ADVERSE PHENOMENA
28 SPECIAL PRESS RELEASE FOR CYCLONE SEASON
21 SEARCH AND RESCUE

This development will improve maritime safety and position Colombia as a regional benchmark in innovation applied to ocean, river and port management in the context of climate change.

