ID: W2955849003

TITLE: A Sustained Ocean Observing System in the Indian Ocean for Climate Related Scientific Knowledge and Societal Needs

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ABSTRACT:

The Indian Ocean is warming faster than any of the global oceans and its climate is uniquely driven by the presence of a landmass at low latitudes, which causes monsoonal winds and reversing currents. The food, water and energy security in the Indian Ocean rim countries and islands are intrinsically tied to its climate, with marine environmental goods and services, as well as trade within the basin, underpinning their economies. Hence, there are a range of societal needs for Indian Ocean observation arising from the influence of regional phenomena and climate change on, for instance, marine ecosystems, monsoon rains and sea-level. The Indian Ocean Observing System, IndOOS, is a sustained observing system that monitors basin-scale ocean-atmosphere conditions, while providing flexibility in terms of emerging technologies and scientific and societal needs, and a framework for more regional and coastal monitoring. This paper reviews the societal and scientific motivations, current status and future directions of IndOOS, while also discussing the need for enhanced coastal, shelf, and regional observations. The challenges of sustainability and implementation are also addressed, including capacity building, best practices, and integration of resources. The utility of IndOOS ultimately depends on the identification of, and engagement with, end-users and decision-makers and on the practical accessibility and transparency of data for a range of products and for decision-making processes. Therefore we highlight current progress, issues and challenges related to end user engagement with IndOOS, as well as the needs of the data assimilation and modelling communities. Knowledge of the status of the Indian Ocean climate and ecosystems and predictability of its future, depends on a wide range of socio-economic and environmental data, a significant part of which is provided by IndOOS.

SOURCE: Frontiers in marine science

PDF URL:
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CITED BY COUNT: 58

PUBLICATION YEAR: 2019

TYPE: article

CONCEPTS: ['Sustainability', 'Environmental resource management', 'Climate change', 'Underpinning', 'Ocean observations', 'Earth system science', 'Environmental science', 'Geography', 'Environmental planning', 'Oceanography', 'Meteorology', 'Ecology', 'Geology', 'Geotechnical engineering', 'Biology']