**FORWORD**

The four major Eastern Boundary Upwelling Systems (EBUS), namely the Canary and Benguela systems in the Atlantic Ocean; Peru-Chile and California systems in the Pacific Ocean, share similar characteristics and cover less than 1% of the global ocean surface. Nevertheless, they contribute to about 8% of the global marine primary production and more than 20% of the worldwide fish catches.

The Northwest African upwelling area is one of the significant coastal upwelling regions in the world. As in other major upwelling areas, strong equatorward marine winds are dominant in determining the strength and duration of upwelling events. However, the subsurface waters ascending to the surface under the influence of the winds have physical and chemical properties that are distinct from the usual surface waters. The upwelled waters are, for instance, colder and richer in nutrients than the surface waters. Nutrient-rich water, supplied to the sunlit surface layer by wind-driven upwelling, stimulates the growth of phytoplankton that ultimately fuel diverse and productive marine ecosystems. The upwelling activity along the Moroccan Atlantic coast (21°N-36°N) is of great importance. It is the source of the national fishery resources (mainly pelagic resources). Therefore we dedicate this volume of "Frontiers in Science and Engineering" to describe this phenomenon both for its physical/chemical/biological aspects and its impact on fishery resources.

Accordingly, the different aspects of upwelling activity are discussed in six papers as follows:

- ***Long-term upwelling activity along the Moroccan Atlantic coast***, between Cape Blanc (21°N) and Cape Spartel (36°N), during the period 1967-2019 (53 years). This paper focuses on the physical and the wind-driven process, given a general pattern of this phenomenon's spatial/temporal and seasonal variability along this coast.

- ***The variability of the Cape Boujdour upwelling and its relationship with the Cape Blanc frontal zone (Morocco)*** where physical and chemical (nutrients) processes are studied.

- ***Marine Circulation along the Moroccan Atlantic Coast*** details the hydrodynamic processes, from the surface to the depth of this coast's continental shelf/beach and along the Moroccan Atlantic coast.

- Due to the significant global problem of oceanic pollution and particularly the dispersion of seafloor debris, we describe the ***Marine circulation impact on the solid waste spatial distribution in the Moroccan Atlantic seafloor*** The paper also develops the Relationship of these impacts with the general circulation.

- Because of the importance of phytoplankton and zooplankton in the food chain during the upwelling process, it is necessary to study the ***Structure, diversity, and characterization of Copepod habitats in the upwelling of Cape Ghir***..

- Finally, the ***Relationship between migratory behavior and environmental characteristics revealed by the genetic structure of Sardina Pilchardus populations along the Moroccan Atlantic coast*** is explained. Indeed, due to the strong relationship between the pelagic resources that represent more than 80% of the national fishery production and the environmental/oceanographic conditions during the upwelling events, it is necessary to explain this interaction (migration-environment).

The different parts of this volume are an example of the very close cooperation between Researchers from the Hassan II Academy of Science and Technology (Science and Technologies of Environment, Earth and Sea College), the National Institute of Fisheries Research of Casablanca, the Hassan II University of Casablanca, and some French researchers from IRD-Perpignan, the National Institute of Research in Computer Science and Automatic Control Grenoble; and the Centre for Insular Research and Environmental Observatory, in the French Polynesian islands.

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