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## Introduction

The African north-western area governed by the Canary System, is one of the four major areas of upwelling in the world. Indeed, the pelagic ecosystem along the Atlantic Moroccan coast is governed by both variability in space and time regarding upwelling activity and is among the most productive ecosystems. It is characterized by the presence of four upwelling areas whose activity is seasonal in the northern part and permanent in the southern part. The main target of this study is to have an average distribution of the physicochemical parameters during four season in the upwelling areas (Cap Cantin and Cap Boujdor) since 1994 using in situ data and try to find in the future the impact of this variability on the acidification phenomenon in this area.

## General context

Data result used were collected from the national and international hydrological cruises (INRH and jointly with Russian V/R "Atlantida" and Norwegian V/R "Dr Fridtjof Nansen" ) along two transects (Cap Cantin and Cap Boujdor) of the Moroccan coast. The cruises were carried during autumn, winter, spring and summer from 1994 to 2020.

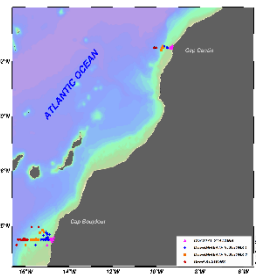


Fig 1: Location Network of the station

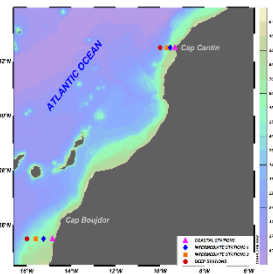


Fig 2: Network medium station

## Materials and methods

- For each station, the parameters of Temperature, Salinity, Dissolved Oxygen were collected from surface to bottom of the water column with CTD SBE911+ sondore (Conductivity- Temperature-Depth) ;
- Phosphates analysis were taken at various levels of the water column and was analyzed by spectrophotometry method (Autoanalyzer AA3);
- The average of the physicochemical parameters of each station was calculated according to the season.

## Results

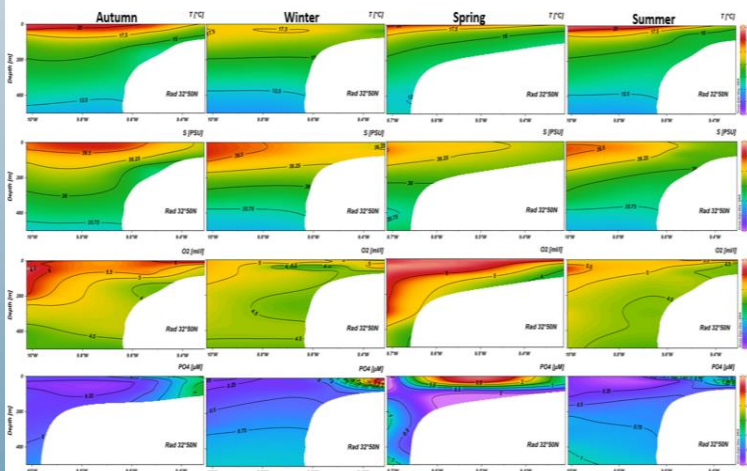


Fig 3 : Vertical distribution along transect 32°30N "Cape Cantin area ": of the temperature (°C), salinity (psu), dissolved oxygen and phosphates (µM) during Autumn, winter, Spring and Summer

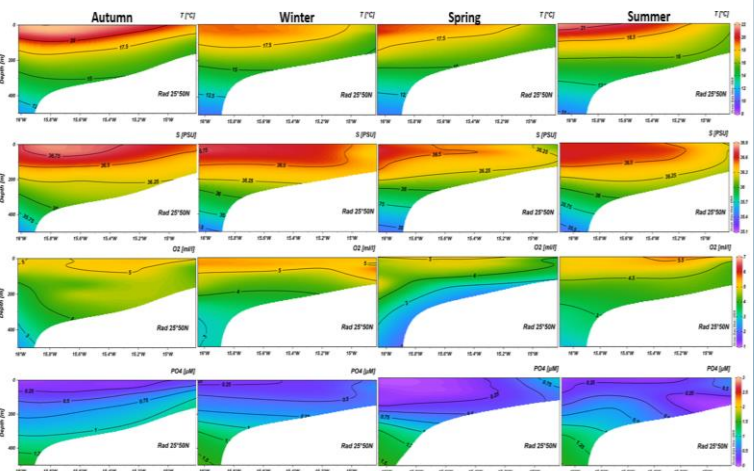


Fig 4 : Vertical distribution along transect 25°30N "Cape Boujdor ": of the temperature (°C), salinity (psu), dissolved oxygen and phosphates (µM) during Autumn, winter, Spring and Summer

## Discussion and Conclusion

The results confirm the seasonality of the upwelling activity in the Moroccan Atlantic coast. Indeed, in Cape Cantin area, the average evolution of physical and chemical parameters such as temperature, salinity, dissolved oxygen and phosphates revealed a seasonal variability of the upwelling activity. The peak of activity of the resurgences is detected in summer originated from 200m accompanied by a relaxation in autumn. In Cape Boujdor area, a strong upwelling activity was observed in summer, spring and winter seasons originated from 250 to 300m . While in autumn, the activity was very low and drifts south of Dakhla. Thus, this variability will have an important impact on the evolution of the biogeochemical cycle of carbon in these areas, which could lead to monitor the impact of climate change on the pelagic ecosystem of our Moroccan Atlantic coast.

## References

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