



## Abstract View

[Volume 13, Issue 1 \(January 1983\)](#)

### Journal of Physical Oceanography

Article: pp. 18–37 | [Abstract](#) | [PDF \(1.61M\)](#)

# Propagation of the Seasonal Upwelling in the Eastern Equatorial Atlantic

**Joël Picaut**

*Laboratoire d'Océanographie Physique, Université de Bretagne Occidentale, 29200 Brest, France*

(Manuscript received November 2, 1981, in final form August 30, 1982)

DOI: 10.1175/1520-0485(1983)013<0018:POTSUI>2.0.CO;2

### ABSTRACT

Several mechanisms have been proposed to explain the coastal and equatorial upwelling in the eastern Atlantic (Guinea Gulf). The most controversial is the mechanism of remote wind forcing in the western equatorial Atlantic suggested by Moore *et al.* (1978). Most of the possible explanations for the upwelling and their relative importance are discussed in view of recent observations.

Detailed analysis of daily sea surface temperature (SST) collected at 16 coastal stations along the northern coast of the Guinea Gulf reveals that the upwelling event propagates westward along this coast at a mean speed of  $0.7 \text{ m s}^{-1}$ . Similar analysis of historical monthly mean SST data shows that the coastal upwelling event propagates poleward from  $1^\circ\text{S}$  to at least  $13^\circ\text{S}$  at the same phase speed. Furthermore, the Northern Hemisphere and Southern Hemisphere coastal upwelling signals seem to start at the same time from the equator. The same kind of analysis applied to hydrographic data from a station situated 41 km

off Abidjan, reveals an upward phase propagation of the upwelling event at  $7 \text{ m day}^{-1}$  from 300 m to the surface. These results and those of Servain *et al.* (1982) suggest that remote wind forcing west of the Gulf of Guinea is an important factor affecting the temperature in the Gulf.

#### Options:

- [Create Reference](#)
- [Email this Article](#)
- [Add to MyArchive](#)
- [Search AMS Glossary](#)

#### Search CrossRef for:

- [Articles Citing This Article](#)

#### Search Google Scholar for:

- [Joël Picaut](#)



© 2008 American Meteorological Society [Privacy Policy and Disclaimer](#)  
Headquarters: 45 Beacon Street Boston, MA 02108-3693  
DC Office: 1120 G Street, NW, Suite 800 Washington DC, 20005-3826  
[amsinfo@ametsoc.org](mailto:amsinfo@ametsoc.org) Phone: 617-227-2425 Fax: 617-742-8718  
[Allen Press, Inc.](#) assists in the online publication of *AMS* journals.