Abstract View

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Propagation of the Seasonal Upwelling in the Eastern Equatorial Atlantic

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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 m s^{-1}. Similar analysis of historical monthly mean SST data shows that the coastal upwelling event propagates poleward from 1°S to at least 13°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 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.