

EGU22-12733

<https://doi.org/10.5194/egusphere-egu22-12733>

EGU General Assembly 2022

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Pulsations of the Azores anticyclone at intra-seasonal scale: how oceanic waves and coastal wind anomalies combine constructively to force the variability of the north-eastern boundary upwelling system in winter-spring.

Badara Sané, Alban Lazar, Malick Wade, and Amadou Thierno Gaye

The Azores High shows a strong intra-seasonal variability that, transmitted to the whole North Atlantic by the Trade Wind, generates a multi-factor variability of the Canary Islands eastern edge upwelling system. In this work, we study the cold season (March to April), using satellite observations and numerical simulation, and how the variability of the wind at the equator, the Kelvin and coastal waves, and the local wind along the North-West African coast combine to force upwelling variability. Composite analyses show how, in 80% of the cases, the pulsations of the anticyclone at 40 d excite equatorial waves that arrive in the Senegalese upwelling 15 d later, precisely at the time of the phase change of coastal wind anomalies. These waves trapped at the coast, from upwelling or downwelling, reinforce the local wind anomaly. The intra-seasonal variability of the SST is thus the result of a double local and remote effect whose respective contributions we quantify