Geophysical Research Abstracts
Vol. 17, EGU2015-12427, 2015
EGU General Assembly 2015

A climatological analysis of the seasonal variability of surface temperature and circulation over the Canary current upwelling system.

Saliou Faye (2), Alban Lazar (1), Bamol Sow (3), and Amadou Gaye (4)

(1) UPMC Univ Paris 06 Sorbonne Universités, LOCEAN-IPSL, LOCEAN, Paris, France (alban.lazar@locean-ipsl.upmc.fr), (2) Centre de recherche océanographie Dakar-Thiaroye, CRODT/ISRA, Senegal, (3) Laboratoire d'Océanographie, des Sciences de l'Environnement et du Climat, University Assan Seck , (4) LPAOSF, ESP, Université Cheikh Anta Diop, Senegal

The seasonal climatological budget of the mixed layer temperature of the Canary Current upwelling system (CCUS) is described and analyzed using an eddy permitting numerical simulation of the Tropical Atlantic, validated against observed surface temperature, winds and currents. During the so-called cooling period from November to May, the maximum temperature decrease is observed over an area extending meridionnaly along Mauritania and Senegal and over about 1-2° of longitude from the coast .It is driven mainly by vertical turbulent mixing, due to the season strengthening of Ekman pumping and vertical shear of horizontal currents, and by horizontal advection of northern waters.. Farther offshore, except near the Cap Verde islands away from the direct influence of coastal upwelling, the SST drop is mainly governed by air-sea fluxes,. During the so-called warming season from June to October, the temperature increase is overall driven by air-sea heat fluxes, except south of about 10-12°N. There, horizontal advection and vertical turbulent mixing control the temperature due to the influence of, respectively, the North Equatorial Counter-Current and temperature inversions just below the MLD. A more detailed analysis is proposed along the coastal region