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A decadal comparative analysis of the recent changes in subsurface temperature and salinity in both sides of North Atlantic subtropical gyre

A. Cianca, R. Santana, J. Pérez-Marrero, M. Villagarcia, C. Llerandi, L. Cardona, D. Vega, C. Barrera, M.J. Rueda, and O. Llinás

Instituto Canario de Ciencias Marinas, Oceanography, Telde, Spain (andres@iccm.rcanaria.es)

Changes in subsurface temperature and salinity in the North Atlantic have been recently documented. Warming and salinification of the Intermediate waters or cooling and freshening of the modal waters in the outcropping regions are some consequences of these changes. The North Atlantic Oscillation (NAO), as well as the influence of the global phenomenon “El Niño”, are noted as the causes of the changes. A decadal observation set (1994- 2003) made at the stations BATS (Bermuda Atlantic Time-Series) and ESTOC (European Station for Time-series in the Ocean, Canary Islands), located at both sides of the subtropical gyre (west and east, respectively), provide a coherent data set to study temperature and salinity variability in the region. The number of observations and its regular time distributions, as well as the comparison between basins, improves the inter-annual variability analysis. The results show similar variability at both sides of the subtropical gyre related to standardized anomalies of temperature and salinity, mainly in the intermediate waters (1000 to 2000 m). No significative tendences are observable along the period; however visible interannual variability patterns are likely linked to the NAO.