

Abstract

The Azores current is part of the North Atlantic Subtropical gyre and has a strong influence on the global and regional climate variation. It is limited in the North by an oceanic Front called Azores Front. It has a major role, as it acts as a barrier to separate the cooler water from the North and the warmer water from the South. This study shows the seasonality of productivity based on changes in calcareous and organic walled dinoflagellates species collected by a sediment trap from May 2005 to April 2007 in this Current/Front system. The results obtained do not highlight a seasonality during the two years due to a strong decrease of the number of cysts the second year. This decrease of the cysts number is also visible in the planktonic foraminifera population. None of the environmental factors collected (SST, SSS, chlorophyll a, productivity) during the two years period show enough variations to create such a decrease. However, in comparison with other studies, a decrease of temperature just below the SST satellite detection could be a reason to these changes. This cooling would be explained by a switch of the Azores current, allowing the cooler water of the North to go South in the area of the sediment trap. Another explanation would be changes in the direction and in the velocity of a current in two different depths, leading to an irregular deposition of planktonic species above the sediment trap. Concerning the evolution of the dinoflagellate's population, a strong domination of calcareous species, with mainly *T. heimii*, was observed during the 2 years. Finally, the weakening of the AMOC, leading to a cooling does not seem to happen in the Azores Current/Front system for now.