



Azores Current Winter Pathways

Paulo Oliveira (1) and Álvaro Peliz (2)

(1) INRB/IPIMAR, Inst. de Inv. das Pescas e do Mar, Instituto Nacional dos Rec. Biológicos, 1449-006 Lisboa, Portugal (pbo@ipimar.pt), (2) Centro de Oceanografia, Universidade de Lisboa, 1749-016 Lisboa, Portugal (ajpeliz@fc.ul.pt)

Absolute geostrophic velocities derived from satellite altimetry and sea surface temperature maps from microwave imager data are used to describe the main Azores Current (AzC) pathways and its interannual variability for the winters (dec–mar) from 1998 to 2010. Probability maps of intense zonal flow ($U > 0.1\text{ms}^{-1}$) using all winter data, clearly show a tongue-like latitudinal band of high zonal flow centered at 34°N extending eastwards from the Middle Atlantic Ridge (MAR) to east of the Madeira Archipelago. The areas of higher zonal flow persistence are located between the MAR (37°W) and Hyères-Atlantis seamounts system (31°W) and east of that system till 22°W . These areas also characterized by the higher SST front probabilities. West of the MAR and east of 22°W the higher probabilities of the two fields are not co-located, with high SST front probabilities south of the zonal flow axis in the former and to the north in the latter. The probability maps for individual years and the time series for particular longitude ranges, show a strong coherence between the interannual fluctuations in the latitude of the AzC axis and high SST front probability, in the region between the MAR and the Atlantis seamount. Conversely, east of 22°W , from 2005 to 2009, the SST frontal probability maximum is located north of the maximum zonal flow persistence. The probability maps for individual winters, namely in 2007, show that these northern maxima are co-located with a secondary zonal flow, typically at about 37°N . Possible implications of these findings in the interannual variability of the central water masses off SW Iberia are discussed.