



Changes in the retroreflection structures in the South and Tropical Atlantic Ocean as observed from salinity maps

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We use the satellite data from SMOS product to perform quantitative analyses of Sea Surface Salinity (SSS) and salt transport in the retroreflections region in the South and Tropical Atlantic. We examine the dynamics between the salinity and velocities structures, with special focus on the seasonal change in the salinity meridional gradient and the salt flux transport. The data is analyzed to characterize the dynamics of the long-range water transport through the South Atlantic by performing a specific analysis at two prominent end points: the Brazil/Malvinas Confluence and the Agulhas Retroreflection. Besides, we have analyzed the impact of their changes on the Tropical Atlantic, particularly at the North Brazil Current Retroreflection. Our basic dataset consists of SMOS SSS weekly products derived with advanced techniques developed at the Barcelona Expert Centre. We have compared the SMOS data with the outputs of a high-resolution numerical model, with good agreement. Our study shows an increase in salt flux transport of the annual variability of the SSS in the three regions. These changes suggest a change in the composition of water masses that enter in the South Atlantic from the Agulhas System, contributing to an alteration in the dynamics of global circulation.