



Water Mass Variability in the Rockall Through Using a Numerical Model

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A regional version of ORCA0.5 was integrated over 44 years and used to analyse the water mass variability in the sub-surface at the Rockall Through. The results suggest that the local variability at the surface does not impact the waters at around 750 meters. The diagrams of temperature and salinity were able to determine that the water mass at those depths can be prescribed by a mixing of 2 different water masses, a relatively fresh and cold water from the Labrador Sea region and a relatively warmer and saltier water from the Mediterranean Sea. Temperature and salinity characteristics were also used to track down the path in which these 2 waters masses reach the Rockall Through, clearly showing that the water from the Labrador Sea enters the Rockall Through following the sub-polar gyre, while the water from the Mediterranean Sea has a straight path from the Gulf of Cadiz. In fact, a lagged correlation between the water mass variability and a sub-polar gyre index is very high and coherent at 95%. A comparison between the model results and in-situ observations of salinity and temperature shows that the model results are very robust, suggesting that the knowledge of the dynamics in the region can be improved with a deeper analysis of the model.