Geophysical Research Abstracts
Vol. 21, EGU2019-8829, 2019
EGU General Assembly 2019

A map of the first baroclinic Rossby radius in the Black Sea

Greta Georgieva, Elisaveta Peneva, and Nikolay Rachev

Sofia University St. Kliment Ohridski, Faculty of Physics, Department of Meteorology and Geophysics, Bulgaria (elfa@phys.uni-sofia.bg)

The first baroclinic radius of Rossby is a measure of the typical mesoscale circulation scales in the relevant basin. Lately, several studies estimated the internal radius of deformation for the global ocean and some internal seas. For the Black Sea it is assumed to be of order of 20 km, but there is no systematic investigation of the range, taking into account present measurements of the termohaline properties.
In this study we use profiles of the temperature and salinity in the whole basin of the Black Sea coming from the CMEMS Black Sea Physics Reanalysis (product nomination BLKSEA_REANALYSIS_PHYS_007_004) and Argo autonomous floats measurements for the period 2009-2017. The aim is to estimate the Brunt-Waisala frequency N(z) and calculate the first internal radius of deformation. The results are shown as a horizontal map and the time variability is discussed. The obtained values are compared with previous studies of the Rossby waves characteristics in the Black Sea.