



Simulation of internal waves in the Strait of Gibraltar using a nonhydrostatic model

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A 2D (x, z -laterally integrated-), non-hydrostatic and high resolution numerical model has been developed in the area of the Strait of Gibraltar in order to simulate the generation of high amplitude internal waves at the east edge of Camarinal Sill during tidal outflow (toward the Atlantic Ocean) and its propagation toward the Mediterranean Sea. The response of the model to different parameters as the strength tidal forcing, width of the channel and bathymetry has been analyzed in order to identify its influence on these internal wave processes (amplitude, wavelength, celerity, mixing effects, etc.). The simulation shows that, in the generation zone, the internal wave is made up of two structures which seems to fit to the first and second baroclinic modes and they propagates toward East with different velocity. The structure related with the second baroclinic mode is essential to distinguish the vertical mixing effects produced by the internal waves.