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A Model for Quasi-Geotrophic Current and the Determination of Its Velocity in the Persian Gulf

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Many factors such as wind, tide, density and pressure gradients cause oceanic and marine currents. For the reason that the density of layers are different , therefore the more dense layer moves in direction of the less dense layer and consequently Quasi -Geotrophic currents are formed. In this study, we have considered the northern coasts of the Persian Gulf. In addition, the governing equations have been solved using the method of finite difference and considered stability, boundary and initial conditions appropriately. The components u and v have been obtained using the information of 30 stations and calculating the slope between two layers with considering depth and density variations in direction latitude (26˚ 25’ to 28˚ 11’) and longitude (49˚ 71’ to 52˚ 34’). The results are in relative good agreement with the results of the other mathematical models that have been already obtained for the Persian Gulf. Based on this study, for the spring season, the maximum of velocities is about 0.01 (m/s) and the minimum of them is 0.0001 (m/s).