عنوان مقاله:

Vortex Solutions for Thermohaline circulation Equations

نویسنده:

Mahdi Kamandar - *Department of Mathematics, Shahed University, Tehran, Iran*.

خلاصه مقاله:

The main objective of this article is to establish a new model and find some vortex axisymmetric solutions of finite core size for this model. We introduce the hydrodynamical equations governing the atmospheric circulation over the tropics, the Boussinesq equation with constant radial gravitational acceleration. Solutions are expanded into series of Hermite eigenfunctions. We find the coefficients of the series and show the convergence of them. These equations are critically important in mathematics. They are similar to the ۳D Navier-Stokes and the Euler equations. The ۲D Boussinesq equations preserve some important aspects of the ۳D Euler and Navier-Stokes equations such as the vortex stretching mechanism. The inviscid ۲D Boussinesq equations are known as the Euler equations for the ۳D axisymmetric swirling flows.This model is the most frequently used for buoyancy-driven fluids, such as many largescale geophysical flows, atmospheric fronts, ocean circulation, clued dynamics. In addition, they play an important role in the Rayleigh-Benard convection.

کلمات کلیدی:

Boussinesq equation, Vortex theory, Single center vortex, Eigenfunctions, Hermite function

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1576182