Effet de la sphéricité de la terre sur la circulation générale dans un océan*

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Abstract: Because of the mathematical complexity of the fundamental equations in spherical coordinates, one treats the general circulation very often by plane coordinates, assuming the ocean spreads over a plane surface instead of a spherical surface, although only the variation of the Coriolis parameter with the latitude is retained. The Coriolis parameter is, furthermore, assumed to be linear with respect to the latitude. The present study shows at first this assumption holds fairly good. The distribution of the curl of the wind stress is not much affected by the sphericity of the earth. Contradictory to a previous result, the mass transport along the western boundary does not become twice as great as that obtained by rectangular coordinates, even if the sphericity is rigorously taken into account by use of spherical coordinates. In fact, it remains unchanged at low and middle latitudes but decreases by half on the contrary at higher latitudes because of narrowing of the ocean surface resulting from the approach of its eastern and western boundaries with the latitude due to the sphericity of the

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