(OA8) Rotation of the inner vortex in concentric eyewall typhoon

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ABSTRACT

Typhoon 'Winnie' of 1997 displays concentric eyewall structure, with the inner vortex rotated in the range of the outer eyewall. In addition, typhoon 'Dujuan' in 2003 indicates the same feature. The rotation period of the inner vortex is 3.5-4.0h, which is smaller than the advection period. In order to understand the mechanism of the rotation, a linearized two-layer asymmetric model is designed in this paper. Many tests are taken to get insight into the rotation mechanism. The results show that the vortex Rossby gravity wave plays an important role in the rotation process of the inner vortex, which directly increase the rotation period.

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