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Satellite observations of sub-mesoscale vortex trains in the western boundary of the South China Sea

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Abstract

This study uses high resolution Medium Resolution Imaging Spectrometer (MERIS) satellite data to analyze sub-mesoscale ocean vortex trains (OVTs) in the western boundary of the South China Sea (SCS). Thirteen cases of vortex trains on the lee side of the Phú Quý Island were observed in the boreal summer from May to August of 2005 – 2010. The average diameter of the vortices is 28.1 ± 13.8 km. The average spacing distance estimated between two consecutive vortices is 66.3 ± 27.8 km. The dynamic parameters of a case observed on July 26, 2009 were extracted using a theoretical model. The aspect ratio is 2.8. The ratio of the propagation velocity of the vortex to the undisturbed flow velocity is 0.73. We use a nested high-resolution

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