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Temporal and spatial variations of freshwater region by river runoff in a small bay with the passage of a typhoon using POM

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With the passage of a typhoon temporal and spatial variations of freshwater region by river runoff in a small bay is examined using a three-dimensional primitive equation model (POM). Numerical experiments are focused on influence of the tracks of typhoons and their intensities on freshwater region. Three-track cases of typhoons are implemented in the estuary of Nakdong River in the southern sea of Korea. The model results show that storm surges are tended to decrease in the right hand side, while tended to increase in the left hand side, and that clockwise eddies are formed in the bay in the both of left and right sides and play a role on restricting the outward extension of freshwater from the river runoff. However, a centered-track typhoon did not form such a clockwise eddy in the bay. Storm surges in the bay were more excited in the left- and the center-track typhoons than that in the right-track typhoon. The model also implies that the passage of typhoons influence biologically and chemically on organisms in the bay with freshwater release.