

## **Numerical simulation of the abrupt occurrence of strong current in the southeastern Japan Sea**

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Coastal set-net fisheries have been frequently damaged by the occurrence of sudden current (known as kyucho) in the Japan Sea. In this study, a high-resolution coastal ocean model is developed to provide a means to predict this stormy current. The 1.5 km-mesh model nested in a regional ocean data assimilation system is driven by mesoscale atmospheric conditions at 1-hour intervals. The modeled results show rapid changes of the coastal current along the San-in Coast, on the eastern side of the Tango Peninsula, and around the Noto Peninsula and Sado Island, mostly associated with strong wind events. These modeled coastal water responses are consistent with in-situ velocity measurements. The simulation also shows that the vortex separated from the Tango Peninsula frequently grows to a bayscale anticyclonic eddy in Wakasa Bay. Evidently, the coastal branch of the Tsushima Warm Current becomes unstable due to a strong meteorological disturbance resulting in the generation of this harmful eddy.

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