



The origin of the Tsushima Warm Current in a high resolution ocean circulation model

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From 0.1° OFES (OGCM for the Earth Simulator) results provided by the JAMSTEC (Masumoto et al., 2004), we investigated the East China Sea circulation while focusing on the origin of the Tsushima Warm Current. The volume transport of the simulated Tsushima Warm Current is 1.7 Sv and is weaker than the observation. The Kuroshio Current, however, is reproduced well, as well as the Taiwan Warm Current of about 1.5 Sv. Considering that this global model is not optimized for the East China Sea, and these flows are not determined by the lateral boundary conditions but by the internal dynamics, the model results are good enough for the purpose of this study. The model results show that the main part of the Tsushima Warm Current is a continuation of the Taiwan Warm Current. The complex interaction between the Taiwan Warm Current and its extension with the Kuroshio to the east of Taiwan and to the west of Kyushu seems to be the main cause of confusions in previous studies based on sparse observation and low resolution modeling. The net intrusions of the Kuroshio into the East China Sea in those areas occur only seasonally.