Relationship of the Kuroshio with the current fields in the East China Sea from observations and model results

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We investigated relationship between variations of the Kuroshio in the southern East China Sea (ECS) and the current structure across the Korea/Tsushima Strait (KTS) using observational data and numerical simulation results. Variability of the Kuroshio in the southern ECS was obtained from moored current measurements located near the Kuroshio axis for 2 years (June 2015-June 2017), while current pattern across the KTS was obtained from acoustic Doppler current profiler (ADCP) measurements by a ferryboat between Hakata and Pusan. Comparisons between the two time series of observations reveal a significant relationship : when the Kuroshio in the southern ECS was strengthened the current in the western channel of KTS was also strengthened with a shift of the Tsushima Current (TC) to the coast. This correlated feature was also seen in the data-assimilated HYCOM, confirming that the HYCOM can reasonably reproduce the current field in the ECS. Further investigations using 25-year-long HYCOM outputs exhibit that the Kuroshio can vary the TC in the KTS. This presentation will show the connectivity of current fields in the northern ECS to the Kuroshio in the southern ECS.

Keywords: Kuroshio, East China Sea, observation

