Effects of Typhoon and Rainfall on the Kuroshio Surface Temperature and Salinity East of Taiwan

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Temperature and salinity are two major variables of the ocean states. Their fluctuations can affect the ocean circulation; moreover, the global changes. In order to understand the effects of wind and rain on the sea surface temperature (SST) and sea surface salinity (SSS) of Kuroshio, we detected the hydrologic characteristics of Kuroshio after heavy rainfall and typhoon passed by east of Taiwan. SST and SSS data are collected from cruises of R/V Ocean Researcher I and spray glider cruises, as well as rain rate data from the Microwave Imager onboard the Tropical Rainfall Measuring Mission. The results show a good correlation between the rain rate and minimum SSS with a coefficient of determination of 0.82 in heavy rainfall cases. The rainfall drops the SSS of Kuroshio with a rain rate of 0.176 psu per mm/hr. Different from the heavy rainfall cases; typhoon not only drops the SST and SSS, but also induces the sub-surface water to uplift. It causes the SSS increases after temporary drops down.

Keywords: Kuroshio, sea surface temperature, sea surface salinity

