



Micro scale wind pattern over the Hinase archipelago under the Typhoon attack and its impact on surface tidal current

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We investigated the impact of Typhoons on the micro-scale (around 100 m scale) wind pattern over the Hinase Archipelago in the Seto Inland Sea, in the southwestern part of Japan. The Hinase Archipelago has highly complicated land-sea distribution with narrow 100 to 200 m width of channels. We installed an automatic weather station and a water temperature and salinity gauge in this region in 2017 spring. We will show the wind variation pattern with the focus on typhoon attack cases in recent years. To the north of the archipelago, there is the main land from which several rivers flowing out to the sea. In Typhoon cases, fresh water is supplied to the surface water of the small channels due to heavy rain. That makes the "mizushio", which is shallow surface tidal current that is consisted of water with low salinity. The mizushio is believed to affect much to the oyster cultivation. Such damages occur especially in Typhoon cases. Thus, estimation of the impact of typhoon on "mizushio" is an important issue in this area.

We tried to apply down scaling modelling to this area for two typhoon cases to econstruct detailed surface wind patterns over the complex terrain. As the movement of typhoons, both the rainfall pattern and surface wind pattern changes. We will show the accumulated rainfall over the catchment to estimate river discharge. The interaction between the surface wind pattern and the surface tidal current will also be discussed. The calculation results will be compared with the observations to validate the model.