



Evaluation of Quality Control and Tilt Correction Effects on Fast-Response Fluxes Measurements at an Ocean Platform

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This study presents an evaluation of the atmospheric influencing factors on the post-processing for fast-response data of horizontal momentum, vertical wind component, temperature, and water vapor to measure turbulent fluxes. They are observed at the leodo ocean research station over the Yellow Sea during the period of 2005 to 2008. The post process methods employed here are composed of quality control and tilt correction for turbulent flux measurement. The observation errors frequently occur in light wind conditions; therefore, it is very important that the quality control performs data of field experiments to develop accurate bulk formula in these regimes. In strong wind conditions, most errors occur before rain event. The effects of three tilt correction method (double rotation, triple rotation, and planar fit) are compared. The present analysis result of the fast-response data by quality control shows that total removal ratio of the data generally depends on the factors such as wind speed, relative humidity, significant wave height, visibility, and stability parameter (z/L). Our analysis results show an interesting aspect that the total removal ratio of water vapor data increases with decrease of wind speed and wave height when wind speed is less than 3ms^{-1} and wave height is less than 1m . The total removal ratio of water vapor also increases with the value of stability parameter even though there are some oscillations in the removal ratio. The effects of three different algorithms of tilt correction methods (double rotation, triple rotation, and planar fit) are compared. The further study with the net results from post-processes will be discussed with based on comparison between before rainy season and after rainy season over the ocean.