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Heat Fluxes and CO_2 Variations Measured over a Tidal Flat

Parksa Kim (1), Kwangho Kim (1), Minseong Kim (1), Seongwoon Seo (1), Donghwan Kang (2), and Byunghyuk Kwon (1)

(1) Department of Environmental Atmospheric Sciences, Pukyong National University, 45, Yongso-ro, Nam-gu, Busan, 608-737, Korea(withlord56@naver.com), (2) Geo Sciences Institute, Pukyong National University, 45, Yongso-ro, Nam-gu, Busan, 608-737, Korea(dhkang@pknu.ac.kr)

In order to analyze the characteristics of momentum, heat fluxes and carbon dioxide variations in a tidal flat, observations were performed in Suncheon bay, Korea. Measured heat data was classified by surface condition for daytime inundation and daytime exposure. Since the sediment temperature extremely increased when the surface is exposed, the difference of temperature between the air and the surface was larger. Thus, it is clear that sensible heat flux and latent heat flux increase when the surface is exposed. CO_2 was intensively measured around the sunset when the variation of temperature is large. CO_2 flux was less absorbed during daytime when the surface was immersed, while it was more absorbed during daytime when the surface was exposed. When the soil temperature increases during daytime exposure, micro phytobenthos make a great photosynthesis. It causes a large absorption of CO_2 and it can explain the reason that a large absorption of CO_2 during daytime exposure. This shows that tidal flat actively operate as a sink of CO_2. Also, it support that the surface change in tidal flat make an influence on CO_2 exchange process. Understanding CO_2 exchange variations in tidal flat will be useful in climate change problems. Research on heat balance and carbon dioxide variations will help to understand not only the variations of local weather process but also the variations of global climate process.