



Observational analysis of the impact on local thermal environment by the development of a river in South Korea

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A big project for land development in 4 major rivers is progressing in South Korea. The most influencing change in the rivers due to the project which would affect on the local meteorology is the increase of river width, which results in the increase of water surface area. To assess the impact of water surface area change, ten automatic weather stations and two stations for flux observation were installed and aligned cross a river located in west of Taegu city in South Korea. The observed meteorological elements are air temperature, humidity, wind speed and direction, radiation, sensible and latent heat flux, ground heat flux, and water surface temperature. West side of the river is agricultural area and east side of the river is occupied by industrial complex. The spatial variations and differences of air temperature and water vapor contents across the river are compared for westerlies and easterlies in wind condition. The energy budgets are also compared for the cases of opposite wind directions. The variations of air temperatures and moisture are evident with distances from the riverfront. The highly influenced area by the river is quantitatively estimated depending on the atmospheric conditions. The differences of temperatures between from air, ground, and water surface are compared when the visibility is low due to the causes such as the fog.