

ABSTRACT

In recent years, the urban heat island phenomenon has become an important social problem in Japan. Countermeasures to reduce this effect include reduction of anthropogenic heat release and enhancement of urban vegetation. Tokyo city is located opposite the Tokyo bay, and cool sea breezes blow over a wide area during the daytime in summer. Therefore, introducing cool sea breezes into urban spaces can be considered an effective measure for reducing urban heat island effects. Numerous official and residential buildings exist in urban areas, and the scale of vortices among these buildings is extremely small compared to that of the urban heat island circulation. It has been difficult to evaluate the airflows of both an urban space and an urban boundary layer. Hence, in this study, we developed a numerical simulation tool that can resolve individual buildings using a highly parallel vector supercomputer system named the 'Earth Simulator' for analyzing the urban heat island. This paper reports the recent simulation results obtained for the entire area of Tokyo's 23 wards.

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