Study about prediction of temperature reduction effect by various countermeasures that use mesoscale model

[Point]

Various countermeasures have been suggested for alleviating heat-island phenomenon in urban areas, but comparative discussion has not been sufficiently made for multiple alternatives regarding practicality and temperature reduction effect. For this reason, this study is conducted for the purpose of presenting countermeasure scenario based on actual condition and causal analysis of heat-island phenomenon in the capital region, and predicting temperature reduction effect by enforcing such countermeasure scenario. In 2002, in addition to spread of rooftop gardening, water surface reproduction of river, and adoption of water-retentive pavement in Tokyo's 23 wards, actual measurement and trial calculation were conducted regarding effect of highly reflective pavement that prevented heating by reflecting near-infrared component of insolation on main body. Then its effectiveness was shown, and relative comparison was made with other countermeasures. Furthermore, trial calculation was conducted about the degree of deterioration of heat-island phenomenon caused by artificial exhaust heat volume in urban areas by the year 2010, and the possibility of heat-island phenomenon spread was shown.

Keywords: mesoscale model, heat-island, various countermeasures, highly reflective pavement, artificial exhaust heat