

Experimental study of sprinkling water to mitigate urban heat island impact as an application of groundwater use -Part 3-

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Recently, groundwater levels are rising to near the ground surface in metropolitan area. It is necessary to pump up of the groundwater to lower the level for the mitigation of the damages caused by large earthquakes and to utilize it appropriately. One of the utilization of groundwater is suitable for the sprinkling on asphalt pavements in summer. It may be practical to mitigate urban heat island impact. The aim of this study is to estimate the atmospheric temperature decreases by means of sprinkling groundwater on asphalt pavements in summer days.

The measurements of changes in atmospheric temperature and ground surface temperatures by sprinkling water were performed in Aug. 2005. As the result, the maximum decreases of atmospheric and ground surface temperatures reached to about 2 and 17 degrees Celsius, respectively. We evaluated those temperature decreases by simulation examining the heat conduction into ground and the heat balance between atmosphere and ground surface. This simulation results show good agreement with the experimental results.