# A Study on the Influence of Stream Restoration on Urban Thermal Environment Change

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Due to various artificial heat sources, urban areas maintain a higher temperature than surrounding regions. This study was conducted to quantitatively analyze temperature reduction resulting from the urban stream restoration project. In this project, thermal environments were analyzed using a nearby Automatic Weather Station (AWS) system, and changes in temperature due to restoration were analyzed using an Envi-met model. The terrain data for the Envi-met model was constructed using a digital map and urban spatial information data. The modeling domain consisted of 45 lattices in the *x*-direction ($\Delta x$ = 10 m) and 74 lattices in the *y*-direction ($\Delta y$ = 10 m) including the target area. 51.2% and 48.8% of the current modeling domain consisted of asphalt roads and concrete buildings, respectively, but approximately 13% of the asphalt road surface area was turned into water when stream restoration was implemented. The average temperature in the project area was 15.2℃, which was about 0.5℃ higher than in the suburbs. The monthly mean temperature difference was highest at 1.1℃ in November and lowest in June. It was found that the temperature in the suburbs was higher in winter. When the project area was restored into a stream, the temperature decreased by as much as 1.7℃ over the whole restoration area and 100 m to the east in winter. In summer, the temperature decreased by 3.1℃ over 130 m to the east. From these results, it can be expected that the restoration of urban covered streams will be effective for improving thermal environments in urban areas.

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