[JJ] Evening Poster | H (Human Geosciences) | H-DS Disaster geosciences

[H-DS12]Human environment and disaster risk

convener:Tatsuto Aoki(School of Regional Development Studies, Kanazawa University), Nobuhisa Matsuta(Okayama University Graduate School of Education), Toshihiko Sugai(東京大学大学院新領域創成科学研究科自然環境学専攻, 共同), Mamoru Koarai(Earth Science course, College of Science, Ibaraki University)

Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

This session discusses disaster risks being inherent in the natural and human environment, which sometimes happen to appear at a disaster, from the viewpoint of not only natural sciences but also social and human sciences. Examples of discussion subjects are as follows: uncertainty of forecasting disaster and problems of huge disaster with low frequency that raised from the 2011 Tohoku earthquake, the methodology for improving hazard maps, national recovery plans considering probable changes or sustainability of the society, international cooperation for disaster mitigation, problems of active faults or liquefaction, adjusting disaster mitigation plan to the regional characteristics, technical development for supporting disaster prevention, education for the disaster mitigation.

[HDS12-P01]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 (Δx = 10 m) and 74 lattices in the *y*-direction (Δy = 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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