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Does green infrastructure influence hydrological cycle in peri-urban area under climate change projections?

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According to US EPA, the green infrastructure is a cost-effective, resilient approach to managing wet weather impact that provides many community benefits, it reduces and treats storm water at its source while delivering environmental, social, and economic benefits.
In this study, the hydrological cycle under climate change projections was analysed and assessed using physical hydrologic model, CAT(Catchment hydrologic cycle assessment tool), in a peri-urban catchment located South Korea.
The hydrologic cycle in urban area is very vulnerable by the human induced interruption and climate change. To minimize the distorted water cycle in urban area, green infrastructure is proposed. Assuming infiltration trench and rain tank in urban area, long-term variations of streamflow was simulated and also flood mitigation was analysed. Three climate change scenarios including FGOALS-s2, HadGEM-ES, and INM-CM4 for the period from 1976 to 2099 were applied under RCP 8.5 condition. Also, the design floods for 5, 10, 20, 50, and 100 years frequency were selected and tested. The results showed that when the green infrastructure was applied, the baseflow was increased significantly but flood peak reduction for high design flood is negligible because of high rainfall intensity.
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