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Spatio-temporal modelling of urban water flows related to the integration of energy technologies in Amsterdam, the Netherlands.

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To mitigate climate change, the city of Amsterdam targets to reduce greenhouse gas emissions by 40% in 2025 in comparison to 1990. The reduction of energy use and implementation of non-carbon based energy technologies will change the way water will be used and distributed in urban areas. Technologies like urban heat distribution networks, heat pumps, and energy reclamation from the water cycle are gaining popularity in the city. How will the integration of these technologies affect the spatial distribution of water? And does this distribution change significantly during the different seasons of the year? In this work, we present a Water-Energy Nexus approach to model spatio-temporal flows of water on an urban scale. With these activities, we aim to fill the knowledge gap on how the implementation and integration of renewable energy technologies will affect the use and distribution of water on an urban scale.