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District-level local measuring program of the urban environment in Budapest

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The natural environment and thus, the climatic conditions are modified by the concentrated human presence of urban areas. In our research we aim to analyze the resulting urban climatic effects in a downtown district of Budapest, Hungary. For this purpose, we have started a measuring program of in-situ measurements in the southern central located district called Ferencváros, which can be found near the river Danube, and mainly consists of 3- and 4-storey older and newly built buildings. The newly built buildings are mainly the results of the Ferencváros local government's efforts to improve the environment for the citizens. Within the framework of the block rehabilitation program, inner parts of the old house blocks were demolished, and inside the blocks common green areas have been created.
In our urban climate measurement program air temperature and relative humidity are recorded along a pre-defined path consisting of 22 measuring points, which covers the studied area. The measuring sites are located in different characteristical points of the district, such as green parks, narrow streets, paved squares and roads. In order to calculate the urban heat island intensity, temperature measurements are compared to the hourly recorded data of the Budapest synoptic station (ID number: 12843) located in the southeastern suburb district of the city. After completing an entire year of measurements, the seasonal cycle of temperature and relative humidity differences are analyzed as well, as the diurnal changes and the spatial structure within the study area.