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# On the effect of anthropogenic heat forcings on the Urban Heat Island Effect in Rotterdam, The Netherlands

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Often, anthropogenic activities contribute importantly to the energy budget of urban surfaces. Anthropogenic emissions of heat have therefore a major impact on the Urban Heat Island effect. In this study we investigate the impact of the anthropogenic heat release on the urban climate for the Dutch coastal town Rotterdam. For this purpose simulations have been performed with both the 3D and the 1D version of the Weather Research & Forecasting (WRF) model. The WRF model includes a detailed description of the exchange processes between the urban surface and the overlying atmosphere, the so-called SLUCM model. Our results show that the effect of anthropogenic emissions on the UHI is (locally) significant. From our study it appears that the anthropogenic emissions contributes to UHI effect with values up to 1.5 K for an anthropogenic emission of 200 W/m2, for which values it constitutes about one third of the entire UHI effect in the city of Rotterdam.