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Anthropogenic methane ebullition and continuous flux measurement

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Municipal wastewater treatment plants (WWTPs) have shown to emit significant amount of methane during treatment processes. While most of studies cover only in-plant diffusive methane flux, magnitude and sources of methane ebullition have not well assessed. Moreover, the reported results of methane emissions from WWTPs are based on low spatial and temporal resolution. Using a continuous measurement approach of methane flux rate for effluent system and secondary clarifier treatment process at one WWTP in Southwest Germany, our results show that high percentage of methane is emitted by ebullition during the anaerobic treatment (clarification pond) with high spatial and temporal variability. Our measurements revealed that no ebullition is occur at the effluent system. The observed high contribution of methane ebullition to the total in-plant methane emission, emphasizes the need for considering in-plant methane emission by ebullition as well as the spatial and temporal variability of these emissions.