



## **Extended statistical entropy analysis for improving benchmarking of wastewater treatment plants**

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Wastewater treatment plants (WWTPs) are complex systems with partially high uncertainties in flow, load, and the composition of the incoming wastewater. Nevertheless, these plants have to be operated continuously to meet emission standards. Benchmarking serves as a tool for continuous identification of the best practice and is successfully applied to WWTPs. The extended statistical entropy analysis (eSEA), a new quantitative evaluation method is applied to data from more than 100 WWTPs, stemming from an Austrian benchmarking project. Previous work on the application of eSEA to N-compounds shows that this method has considerable benefit for the evaluation of WWTPs compared to conventional indicators such as the N-removal rate. In this research the benefit of biological treatment is expressed in terms of a reduction in statistical entropy. The results are compared to benchmarking derived using conventional indicators. Similarities and differences are distinguished and the potential of the eSEA to improve benchmarking of WWTPs is demonstrated.