Robust model for estimating pump characteristics and sewer flows from pumping station data - DTU Orbit (24/12/2018)

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Flow data represent crucial input for reliable diagnostics of sewer functions and identification of potential problems such as unwanted inflow and infiltration. Flow estimates from pumping stations which are integral part of many of the middle sized and larger separate sewer systems might help in this regard. A robust model and an associated optimization procedure is proposed for estimating inflow to a pumping station using only registered water levels in the pump sump and power consumption. The model is suitable for identification of pump capacity and volume thresholds for switching the pump on and off. These are parameters which are required for flow estimation during periods with high inflows or during periods with flow conditions triggering pump switching on and off at frequencies close to the temporal resolution of monitored data. The model, however, requires further development to provide reliable inflows during time steps within which the pump switches on or off.

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