# Water Treatment Plant Optimisation

The water treatment plant (WTP) optimization tool points towards specific water treatment options based on forecasted raw water quality allowing the downstream water infrastructure to operate efficiently in terms of drinking water quality and financial performance.

Applications

- In reservoirs with multiple raw water intakes, the forecasting service line provides useful information for choosing the most appropriate one.

- In WTPs containing multiple water treatment stages, such as disinfection, oxidation, coagulation and flocculation, sedimentation and filtration the WTP optimization tool indicates cost-effective combination of water treatment practices.

Benefits

- Supports WTP operators promptly manage incidences of critical drinking water quality.

- Minimizes the overall functional cost of the WTP.

- Provides an overview of how the WTP will perform in the upcoming days under typical conditions proposed water treatment practice.

- Applies a set of machine-learning models that maximize adaptability to WTP that may differ from conventional water treatment schemes.
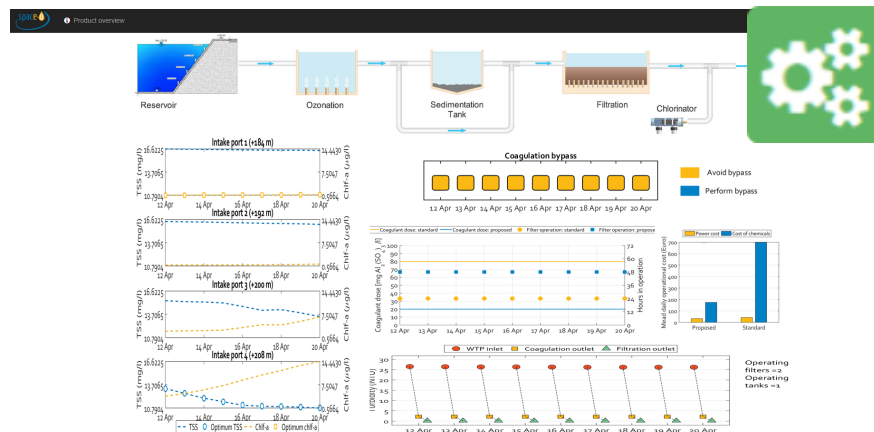
Product Overview

The WTP optimization tool (WTPO) entails two modules: (a) the selection of the most appropriate water abstraction depth, and (b) the optimization of the WTP operation. The selection of the optimum water abstraction depth is based on the comparison of key water quality parameters in various depths. The optimization of the WTP operation is treated as a cost minimization problem subject to operational constraints and standards of effluent water quality. The WTPO tool relies upon a credible emulator of the WTP. This emulator is a series of machine-learning algorithms, which describe the efficiency of each treatment stage separately under varying (a) raw water characteristics, and (b) operating scenarios. Thereby, it is feasible to assess the overall functional cost of these alternative operating scenarios and, hence, indicate cost-saving opportunity windows.

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