



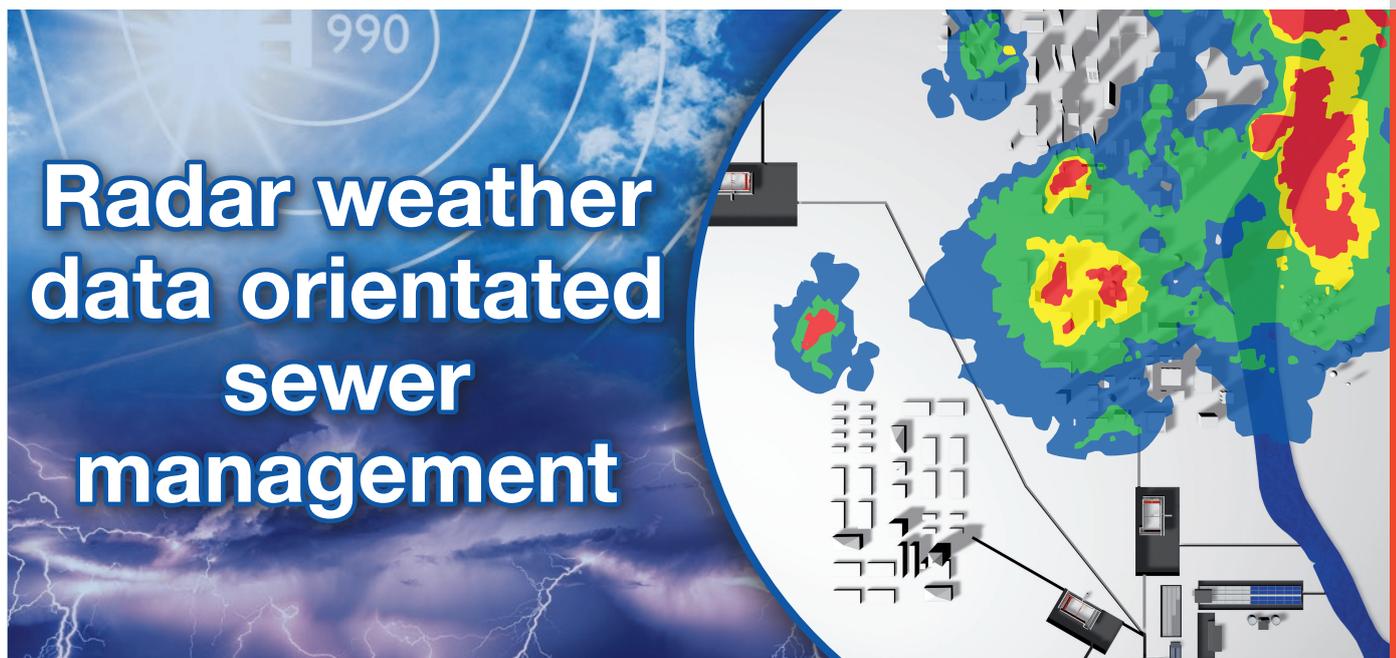
STEBATEC®

Measure – Control – Regulate

Reinhalteverband Mühlthal & Region Böhmerwald

Dynamic sewer system control significantly reduces discharge quantities

- Central control of all outflow rates
- Consideration of digital radar weather data
- Optimization of technical and hydraulic components
- Significantly improved water protection



Starting situation

The Reinhalteverband Mühlthal & Region Böhmerwald in Upper Austria consists of 24 municipalities, looks after around 1.000 km of sewer, 18.000 sewer shafts, 300 pumping stations, 60 storm water basins and 6 sewage treatment plants. Despite its size, however, the drainage system reached its limits. The individually operated storm water basins, for example, relieved the load rigidly into

the recipient in the event of overload. The fixed outflow rate to the sewage treatment plant also proved not to be optimal, as the catchment area is often irrigated unevenly. In order to reduce the untreated discharge quantities, additional storage basins could have been built or the existing basin volumes could have been increased. However, these measures are associated with considerable costs, which is why the Reinhalteverband decided to coordinate the control of the basins.

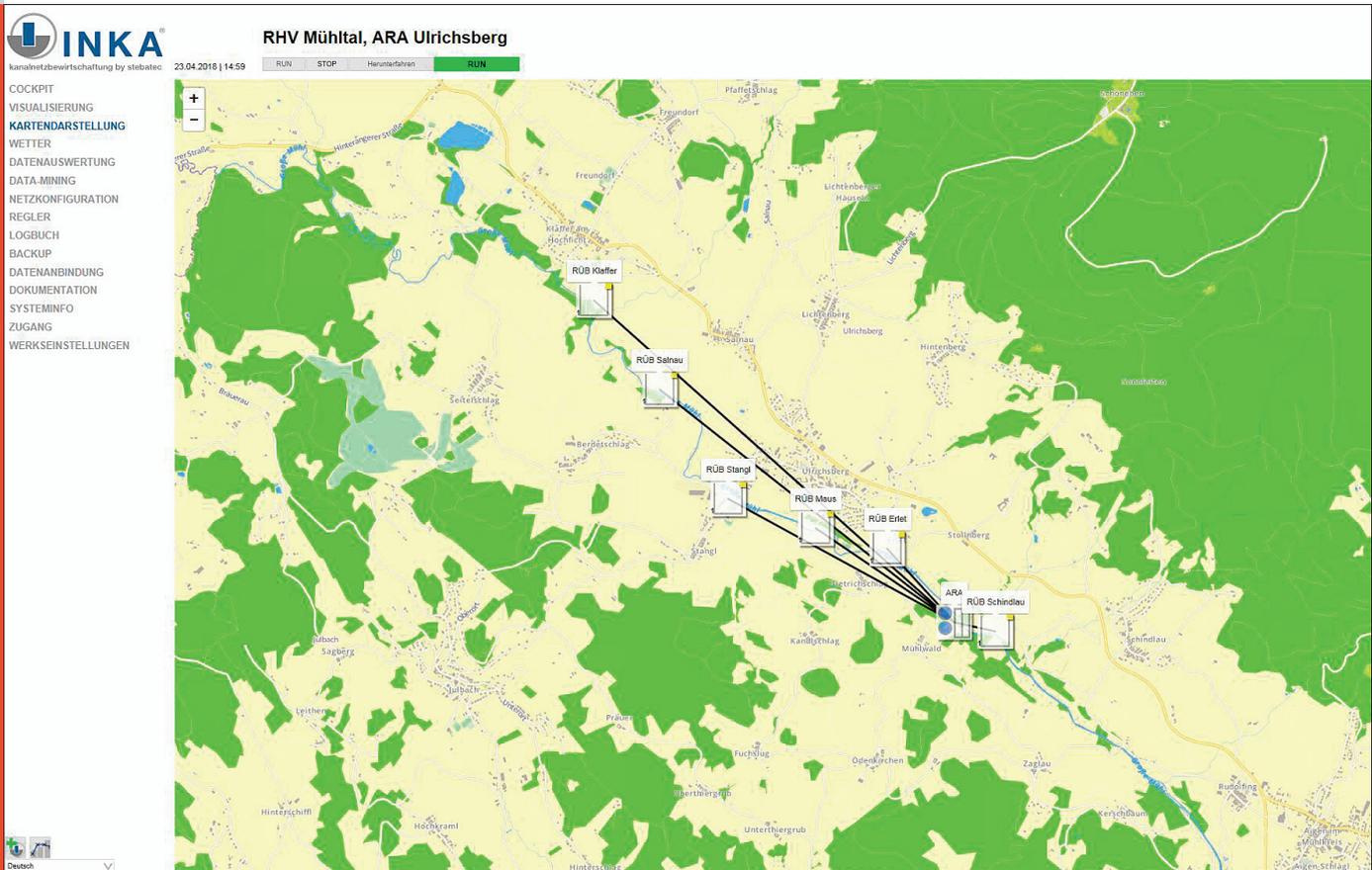
Requirement

- Minimum consumption of storage volume in the sewer system as long as the sewage treatment plant is not working at full capacity
- No discharge into the recipient until all reservoirs are full
- Coordinated basin drainage taking into account the entire catchment area
- Software that can be parameterized in many ways, safely records geographical and meteorological conditions and processes measurement data reliably

Implementation

In a first step, the old throttle weighers of the storm water basins with their fixed outflow rates had to be replaced by adjustable, pneumatic discharge controllers, which precisely measure

the outflow rate and can be integrated into a process control system (cf. the project report on the Erlet storm water basin). This created the basis for being able to adjust the outflow rates at the neuralgic points dynamically, i.e. according to the amount of the incoming water. Because



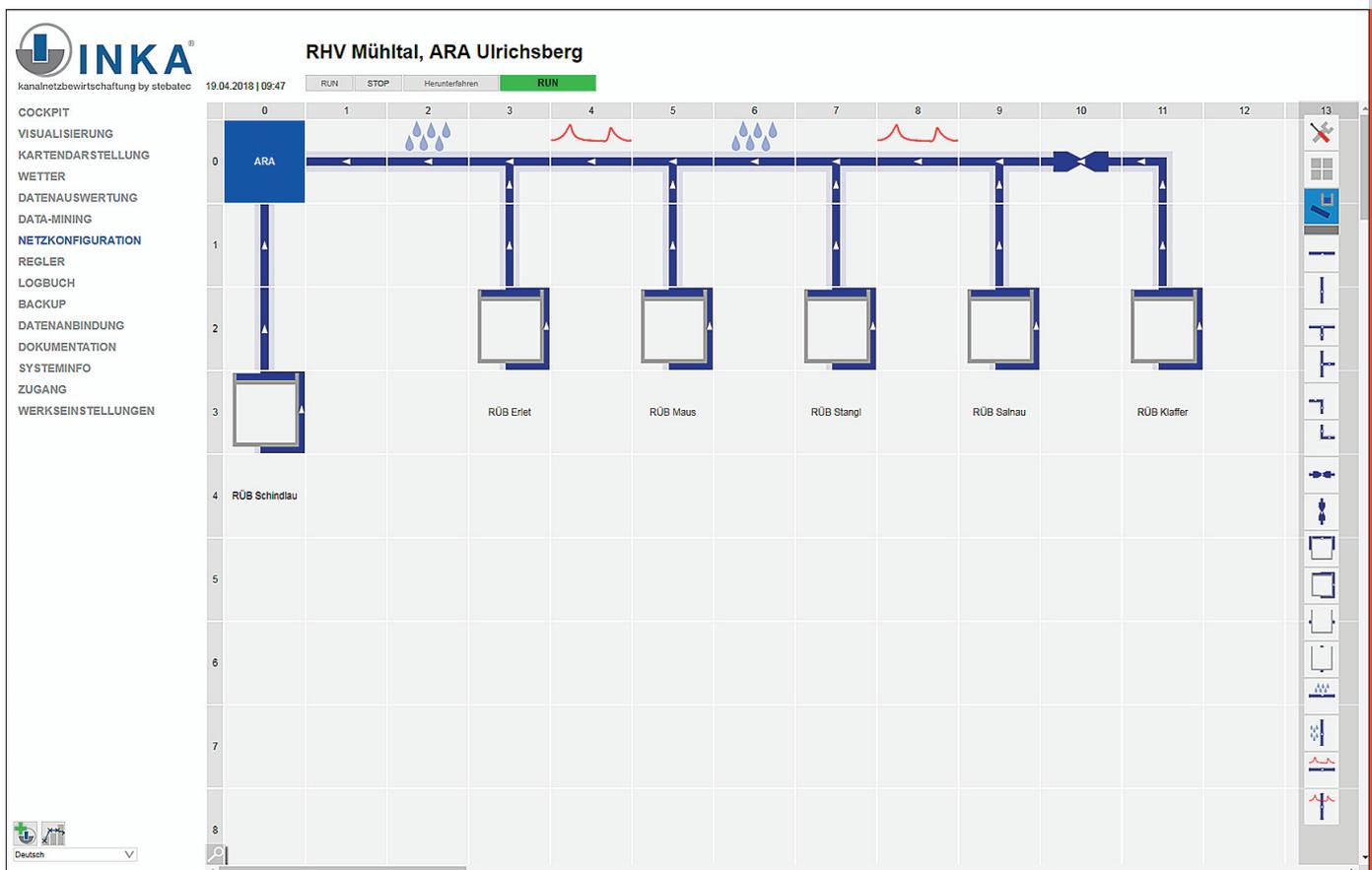
Geographical arrangement of the storm water basins in the catchment area along the river "Grosse Mühl".

The latest operating data of the Reinhaltverband as well as further information on INKA can be found at the STEBATEC stand at IFAT in Munich.

many of the rain events in the hilly catchment area of the sewage treatment plant Ulrichsberg irrigate this unevenly, the storm water basins are usually not filled equally. Dynamic control requires mastery of a large number of complex inter-relationships and requires suitable tools. The Reinhaltverband also wanted to avoid dependencies at all costs. For reasons of liability alone, monitoring of the sewer system control must be guaranteed by the company's own personnel. In addition to the actual control operation, a fall-

back concept in the event of a malfunction or a solution for construction work in the sewer system were also required. After thorough investigations it became clear that the INKA control system developed by the Swiss EAWAG with partners from research and industry and under the leadership of STEBATEC offered the required flexibility, transparency and reliability.

Easily accessible analysis tools that graphically demonstrate the function and efficiency of the sewer system proved to be very helpful shortly after commissioning. The calculations to date assume that with INKA – and without taking structural measures – the relief quantities can be reduced by up to 23 percent!



The network configuration allows the input of the essential information required by the stored algorithm to calculate the optimal outflow rates. The basin geometry is automatically visualized, which allows an immediate verification of the entered information.