OTT Hydromet Application Notes / Success Stories

Stationary Discharge Measurement at the Wallen-steingraben near Wismar

OTT SLD & LogoSens2
Online-measurement with a horizontal Doppler – Flowsensor

Measurement site at Rothentor / Wallensteingraben (drill) near completion

Background

The drill called „Wallensteingraben“ connects the Lake of Schwerin with the Hanseatic city Wismar, ending in the Baltic Sea. The Wallensteingraben was originally constructed as channel and is almost 20 km long. In the context of implementing the European Water Framework Directive its ecological passability shall be improved.

At the measurement site „Rothentor“a weir system was replaced by a natural rock ramp. At the same time a measurement site for the continuous monitoring of discharge quantities was installed. Ideally, this measurement site has been designed for the deployment of an acoustic discharge measurement system already in the project phase.

Construction of the rock ramp with a shovel with a long grab

The contractor for this measurement is the National Authority for Environment and Nature (StAUN) in Schwerin, on behalf of the Ministry for Agriculture, Environment and Consumer Protection of Mecklenburg-Western Pomerania.

Task

- Online measurement of water level and velocity of flow with subsequent discharge calculation according to the velocity-index-method.
- Storage of all data and real-time availability for the planning and control tasks of the StAUN and of the water- and shipping authority
- Remote data transmission and remote maintenance of the measurement systems via analogue line.

Monitoring Solution

- **OTT** SLD 2.0 MHz Side-Looking-Doppler-Sensor for measurement of local velocity of flow (index velocity)
- **OTT** CBS – compact bubble sensor for longterm-stable water level measurement
- Stationmanager **OTT** LogoSens2 for monitoring and storage of measured data, calculation of discharge quantities and control of remote data transmission via analogue modem (mainlines available).

Trapezoid construction and mounting around the measurement-cross-section (Picture: StAUN Schwerin)

***OTT** SLD and bubble pot of **OTT** CBS*

- The measurement-cross-section was completed trapezoidally and the bed and the slopes were fortified with grass pavers. The Doppler-sensor is firmly attached to a concrete profile which has been flush mount into the slope. The required ductwork for the sensor cable of the **OTT** SLD and the measuring tube of the **OTT** CBS were installed beneath the pavers.

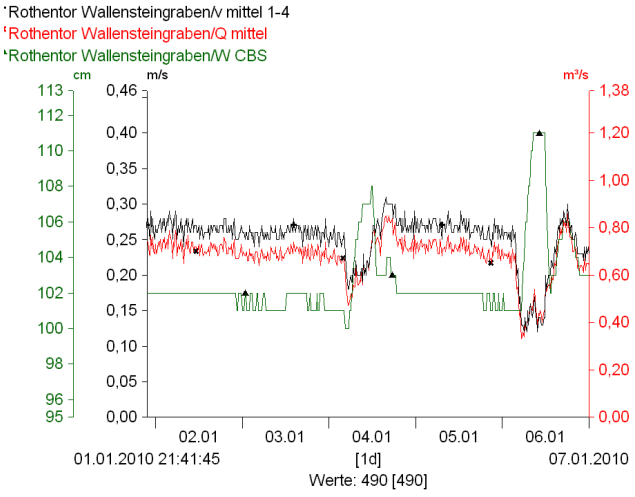
Advantages

- Online – monitoring of the total discharge
- Reliable measurement of velocity of flow with up-to-date ultrasonic-Doppler-technology
- Longterm-stable water level measurement
- Installation works only at one bank
- No cable crossing through the water body required
- Data polling and remote maintenance of measurement system via telephone network

Summary

- The new measurement site, equipped with state-of-the-art **OTT** instruments from now on provides discharge data around-the-clock.
- The measurement instruments have been and are working without any failure since summer 2009.
- Thanks to the professional service, the measurement station Rothentor could take up its operation on schedule.

Rock ramp at the Rothentor after completion (Picture: StAUN Schwerin)



Discharge curve with ice blockage events in January 2010

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