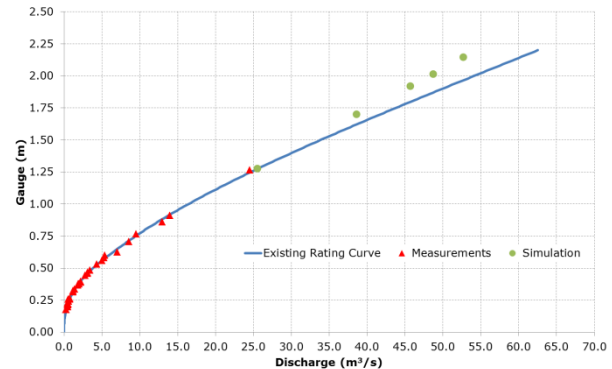
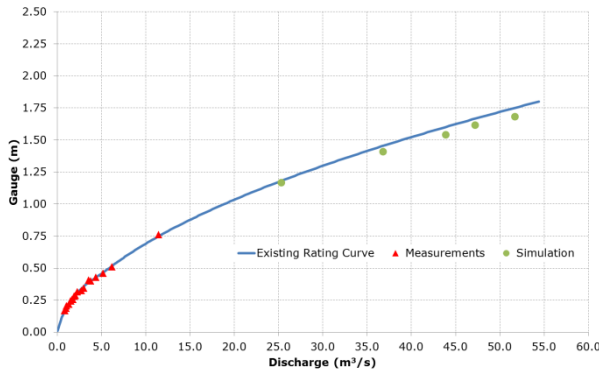


## Hydraulic modeling of hydrometric gauging stations in canton Aargau



**Client:** Department of hydrometry of canton Aargau, Aarau, Switzerland

**Year:** 2016

**Keywords:** River engineering, river flow, 2D model, calibration, rating curve, gauging station

As part of a pilot project we carried out analyses of the rating curves of some gauging stations of a river by means of a detailed 2D model for the department of the hydrometry of the canton. The objective of the project was to verify the rating curve of the stations for large discharges and to adjust them, if needed.

A detailed 2D model has been set up based on the available cross sections and DTM (Swisstopo). The 2D model has been calibrated based on the available measured data (red points in figures) through the adjustment of the friction factors.

The simulations of large discharges show that the existing rating curve of one of the stations is in good agreement with the computed values. The rating curve of the other two stations deviates from the simulation. One of the existing rating curve overestimates the gauge values for discharges over  $HQ_2 = 25.3 \text{ m}^3/\text{s}$  (Left figure, deviation +1.3% - +4.2%), whereas the other one underestimates the gauge values for discharges over  $HQ_{10} = 38.6 \text{ m}^3/\text{s}$  (Right figure, deviation -4.7% - -8.4%).