RQ-24 - discharge measurement with radar
Rhine, Vorarlberg, Austria

Task

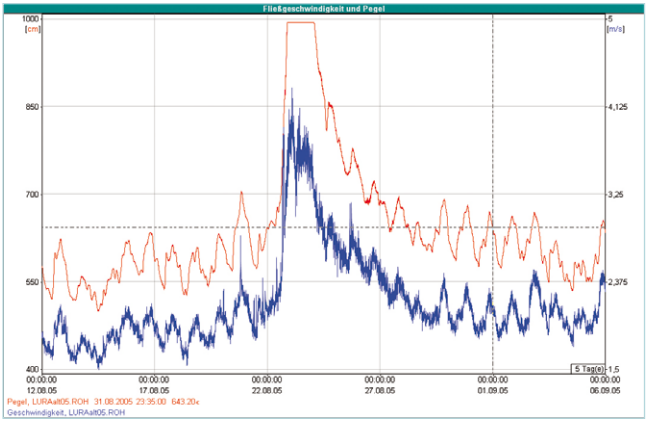
Discharge measurement at the river Rhine to capture periodic extreme flood events. To prevent the measurement system from flotsam and bed load a non-contact measuring technique is necessary to ensure a failsafe and contious measurement even in case of floods. Simple setting-up operation is necessary to ensure economic assembling.

Average water gauge about 250 m³/s

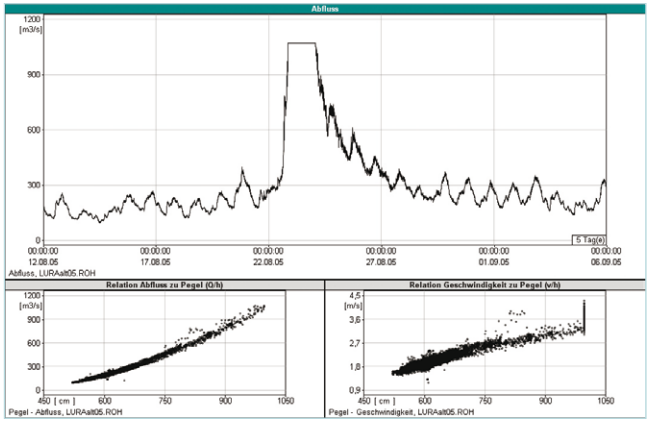
flood water - water gauge greater 1100 m³/s (100-year flood 2005)

Solution

The RQ-24 system measures non-contact and maintenance-free level, flow velocity and automatically calculates the actual discharge in m³/s. The system is secured in case of flood because of installation above the river at a railway brige. Easy integration into the existing measurement system by analogue or digital output. Low one time investment costs because no structural modifications at the river are necessary. Especially in case of floods the system measures accurate which was proven in August 2005 during the 100-year flood event.



Flow velocity (v) and stage (h) (during 100-year flood 2005)



Discharge (Q), Relationship h/Q and h/v (during 100-year flood 2005)

Immediate digital online availability of the actual discharge measurement values at any time without any additional post processing or periodic measuring campaigns by manpower to calibrate the discharge. Because of the continuous measurement of flow velocity (v), stage (h) and calculation of the discharge (Q) the stage-discharge relationship (h/Q) and stage - velocity relationship (h/v) are available for analysis and quantification of discharge. A change in the riverbed can be deduced from a change in the relationship. This change can be adjusted by parameterization. The RQ-24 is a reliable and failsafe measurement system.

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