Benefits of Measuring Velocity Alongside Water Level
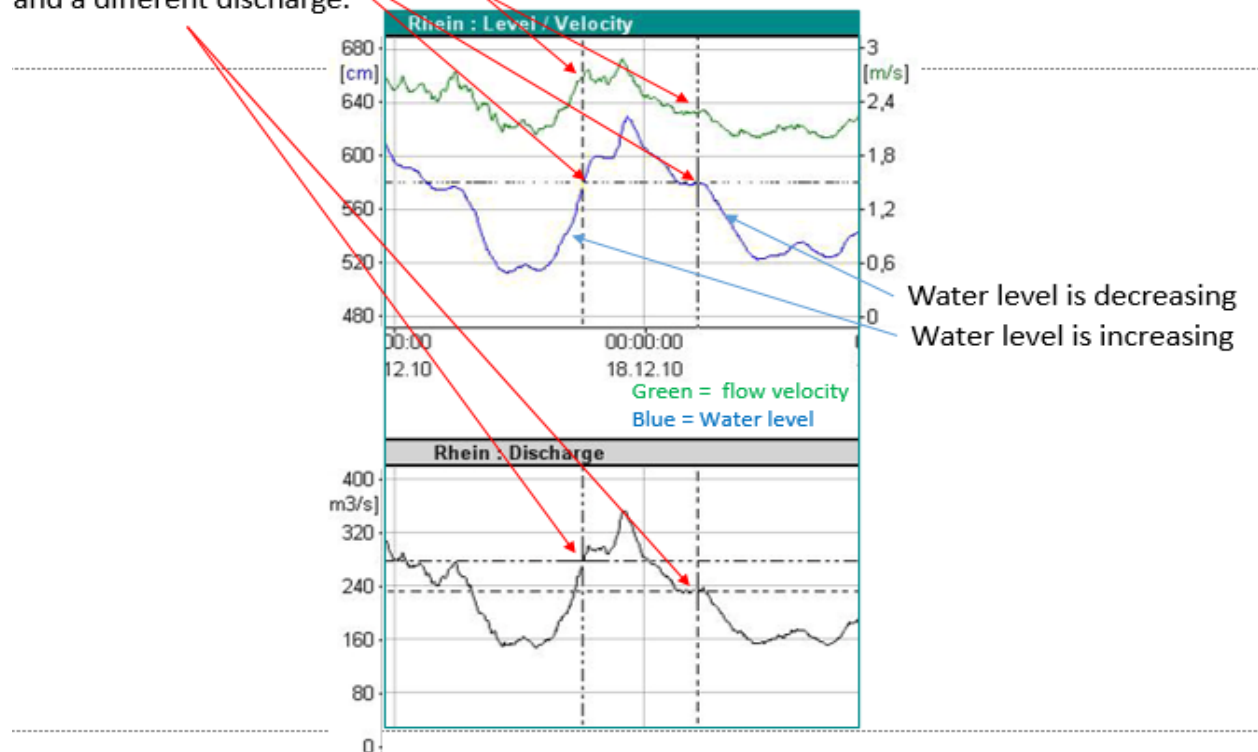
RQ-30 and RG-30 Radar Sensor

Detecting dynamic processes in a channel utilizing water velocity and level readings.

The RQ-30 velocity/level/discharge sensor or an RG-30 velocity sensor with an existing water level sensor provide information that allow you to detect the following processes in the channel and cross-section.

➢ Identifying Hysteresis (RQ-30 data shown below)
➢ Detect a Change of Riverbed/Cross Section (RQ-30 data shown below)
➢ Recognition of Vegetation Growth (RQ-30 data shown below)
➢ Change from Normal Flow to Super or Subcritical Flow
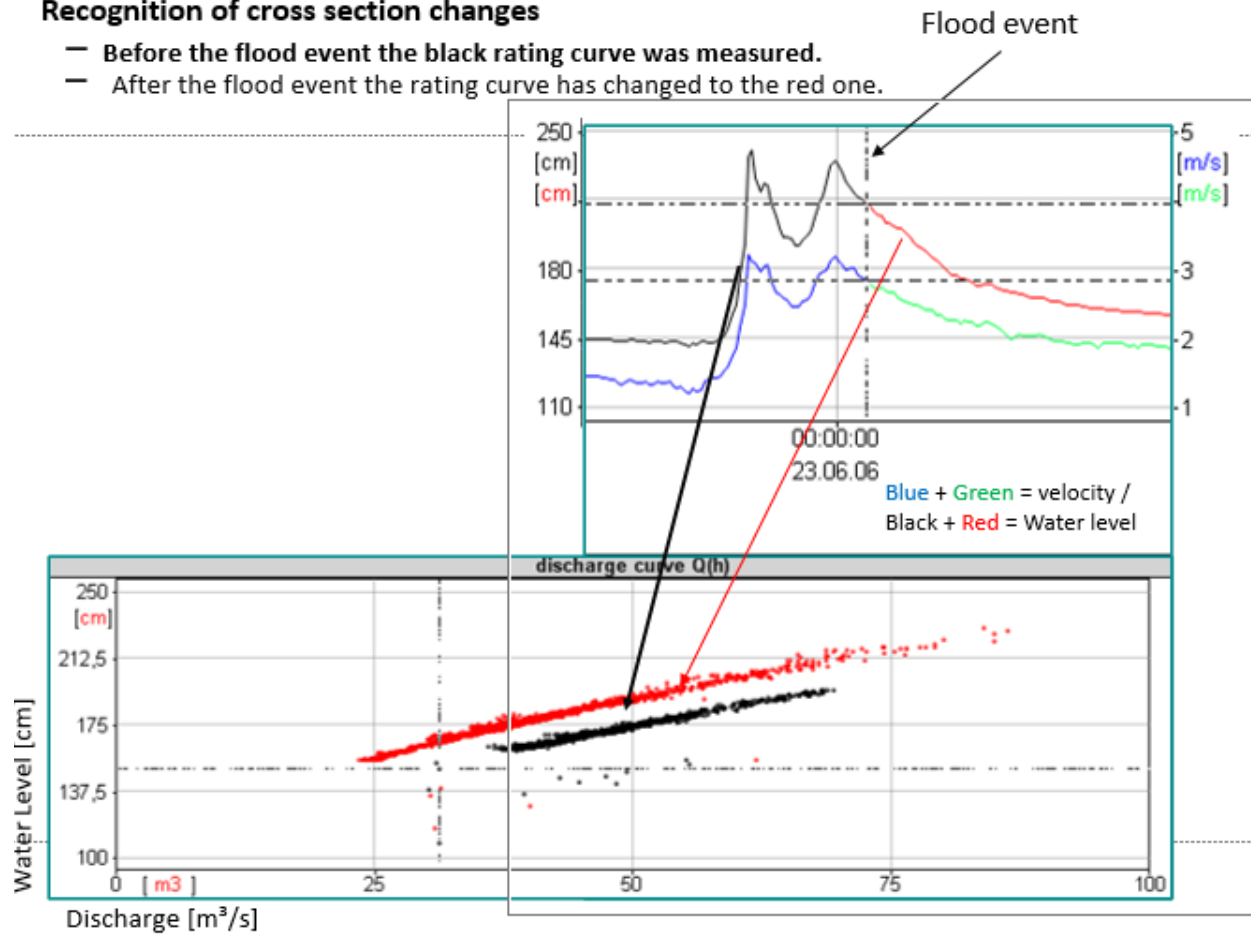➢ Tide Effects

Hysteresis Effect:

At the same water level, different velocity's and a different discharge.

Water level is decreasing
Water level is increasing

Green = flow velocity
Blue = Water level

Change of Riverbed/Cross Section:

Recognition of cross section changes

- Before the flood event the black rating curve was measured.
- After the flood event the rating curve has changed to the red one.

Flood event

250 [cm] [cm]

180

145

110

00:00:00
23.06.06

Blue + Green = velocity /
Black + Red = Water level

5 [m/s] [m/s]

3

2

1

discharge curve Q(h)

Water Level [cm]

250 [cm]

212,5

175

137,5

100

0 [m3]   25   50   75   100

Discharge [m³/s]

Recognition of Vegetation:

- ✓ Water level and Velocity increase and decrease in the same rate
- ✓ Vegetation starts growing and the water level increase but the velocity gets slower
- ✓ Vegetation influences the velocity and water level correlation very much. Even though the discharge stayed over the hole period almost the same.
- ✓ Vegetation was removed

Blue = flow velocity / Red = Water level / Green = Discharge