



How weirs and gates help with the stability of discrete time control

Alla Kolechkina and Ronald van Nooijen

Delft University of Technology, Netherlands (a.g.kolechkina@tudelft.nl)

Modern control systems tend to be based on computers and therefore to operate by sending commands to structures at given intervals (discrete time control system). Moreover, for almost all water management control systems there are practical lower limits on the time interval between structure adjustments and even between measurements. The water resource systems that are being controlled are physical systems whose state changes continuously. If we combine a continuously changing system and a discrete time controller we get a hybrid system. We will show how the control action due to the hydraulic behaviour of weirs and gates can help stabilize such a system.