



## **Stability of a series of identical controlled channels**

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For long open channels it is possible to model the behavior in response to a change in inflow as a delay followed by a reservoir. If we have a series of such models, for instance as a model for the reaches of a primary canal in an irrigation system then it is interesting to examine the possibilities for local control. One possible problem is the interaction between the different reaches and their controllers. For a system of  $N$  reaches with identical PID controllers we derive sufficient conditions for stability of the system as a whole.