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## HYDRAULIC STATE AND DISTURBANCES ESTIMATION IN CANALS. A CASE STUDY

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### Abstract

Social reasons, the new irrigation methods and the water use improvement are the main reasons for changing the rigid water delivery methods by on-demand methods and improve the water conveyance and distribution efficiency. In this domain, there is a great program of rehabilitation and modernisation of traditional irrigation systems in Portugal. In this program, have been used the supervisory and real time control. Real time control needs, in each instant, the knowledge of the hydraulic state and external disturbances, only measuring a few state variables. The paper presents a pole-placement method to estimate both the state variables and external disturbances (demand delivery). The obtained results are presented to Salvaterra Canal of Sorraia Irrigation Scheme.

Keywords: irrigation canal regulation, estimation and estimator design