



Flooding of polder areas that are dominated by greenhouse industry

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ABSTRACT

In 1998, severe rainfall-fed inundations of polders in the western part of the Netherlands have led to large economic losses, especially in polders with a high percentage of land occupied by greenhouses. In this study an integrated approach is used in order to find innovative solutions for this type of high-density development areas. In a case study of the Oranjepolder a model has been created which includes all important hydrodynamic and hydrological processes. This includes the rainfall runoff processes of greenhouses, individual greenhouse rainwater storage facilities and their discharges to the open water. Interactions between the surface water system and sewer system in the urban areas are included. Overland flow was added, to simulate flooding. The use of integrated modelling was essential to the identification of flooding problems in the Oranjepolder. Limitations are the large amount of data required for this model and the time it takes to run a calculation. The integrated approach used in the Oranjepolder has led to the identification of solutions for flood prevention that could not be identified in a traditional modelling approach.

KEYWORDS

greenhouses, hydrodynamic modelling, integrated, inundation, polders