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For overtopping wave energy converters (WECs) a more efficient energy conversion can be achieved when the volumes of water, wave by wave, that enter their reservoir are known and can be predicted. A numerical tool is being developed using a commercial CFD-solver to study and optimize the hydrodynamic behavior of overtopping WECs, which includes the prediction of the individual overtopping volumes.

This paper presents the results of experimental model tests that have been carried out to validate the numerical tool for its ability to predict the individual overtopping volumes for a fixed nearshore 2D-structure. First numerical model results are given for a specific test with regular waves, and are compared with the corresponding experimental results in this paper.

Keywords: device control, numerical CFD models, overtopping, physical model tests