An easy experimental facility for observing tsunamis and disaster reduction

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An easy and inexpensive experimental facility is designed for students in classrooms to learn tsunami events. The idea of the facility arising from those applied in dam-breaking experiments as the formation mechanism are quite similar for tsunami generation and dam-breaking flows. The main facility is an acrylic tank which is divided into two regions by a movable gate. At the downstream region, different layouts of acrylic cylinders are placed to simulate the planting of coastal vegetation which is found to be capable of efficiently reducing the flood disaster. When the gate is suddenly pulled up, the water in the upstream region will quickly flow to the downstream region as a tsunami-like bore, and finally goes outside of the open end of the tank. The longest distance of the flow out of the tank is measured by a video camera. Finally the longest distances of all layouts are compared to find out the best design of layout for reducing the flow speed. The experiment not only can be performed in classrooms, but also provides an insight to the role of coastal vegetation in disaster reduction.

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