

Assessment and validation of numerical wave models

Abstract:

An experiment with irregular wave trains over different bathymetry configurations has been run to create a compact dataset for deterministic validation of numerical wave models, measuring wave elevations and wave kinematics.

The dataset, consisting of focused wave groups of variable steepness, from low, linear behavior, to steep highly nonlinear breaking waves.

We use the dataset to validate the performance of three wave models of variable fidelity, linear irregular wave theory, a non-hydrostatic multilayer wave model and a high fidelity two-phase flow volumes-of-fluids wave model.