l031setup[001 – 003]: Set-up

Purpose

The purpose of this test is to further verify depth-induced wave breaking and wave-induced set-up (set-up qualitatively).

Situation

To verify depth-induced wave breaking and wave-induced set-up, the laboratory flume experiment of Boers (1996) is used (see Figure 1). In his experiment, random, uni-directional waves propagate towards a bar-trough profile. At a large number of locations, observed wave spectra are available.

Three different up-wave boundary conditions are used in these experiments (case l031setup001, l031setup002 and l031setup003 respectively). Ambient currents and wind are absent.

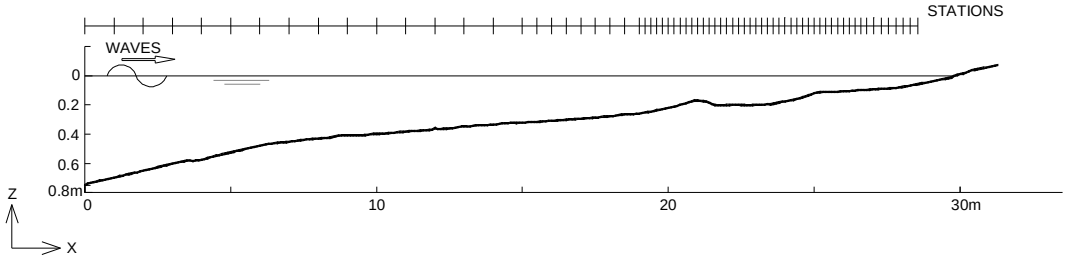

Figure 1 Bathymetry of laboratory experiment of Boers (1996).

Comparison

Comparisons are made with observations of Boers (1996) for energy density spectra and for the significant wave height H_{m0} and mean wave period T_{m01}.

Default Model commands

	COMPUTATIONAL GRID								
	1D/2D	XPC	YPC	ALPC	XLENC	YLENC			
	ID	0	0	90°	31.3	0			
	ΔX	ΔY	DIR1	DIR2	Δθ	FLOW	FHIGH	MSC	
	0.1	0	82.5°	97.5°	0.5°	0.15	2.	53	
	PHYSICS								
	GEN	BREAK	FRIC	TRIADS	QUAD	WCAP	REFRAC	FSHIFT	SETUP
	3	on	on	on	off	on	on	off	on
	BOUNDARY CONDITIONS								
	TYPE	BOU	C/V	P/R	NAME OF FILE				
001	side	S	con	read boundary from file	'1031setup001.bnd'				
002	side	S	con	read boundary from file	'1031setup002.bnd '				
003	side	S	con	read boundary from file	'1031setup003.bnd '				
	BOTTOM:			**WIND:**	**CURRENT:**	**WATER LEVEL:**			
001	'1031setup001.bot'			_	_	_			
002	'1031setup002.bot'			_	_	_			
003	'1031setup003.bot'			_	_	_			

References

Boers, M., 1996: Simulation of a surf zone with a barred beach; Report 1: wave heights and wave breaking. *Communications on hydraulic and geotechnical engineering*, Delft University of Technology, ISSN 0169-6548

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