XBeach skillbed report

summary report

Revision: 4693

July 22, 2015

XBeach skillbed report

Published and printed by:

Deltares
Rotterdamseweg 185
p.o. box 177
2600 MH Delft
The Netherlands

telephone: +31 88 335 85 85
fax: +31 88 335 85 82
e-mail: info@deltares.nl
www: http://www.deltares.nl

For support contact:

telephone: +31 88 335 85 55
fax: +31 88 335 81 11
e-mail: xbeach@deltares.nl
www: http://www.xbeach.org/

Copyright © 2015 Deltares
All rights reserved. No part of this document may be reproduced in any form by print, photo print, photo copy, microfilm or any other means, without written permission from the publisher: Deltares.

Contents

1 Introduction **1**

2 Release information **3**

2.1 Release notes 3

2.2 Change log 3

3 Overview **5**

Chapter 1

Introduction

The XBeach code and related functionalities develop fast. As a result there is a need from modelers and code developers to develop a tool that gives insight in the effect of code developments on model performnace. The XBeach skillbed tries to fulfill this need by running a range of tests including analytical solutions, laboratory tests and practical field cases every week with the latest code. This report contains a summary of the latest changes and tests. For a full description of the performed tests is referred to the status update reports.

Chapter 2

Release information

2.1 Release notes

We have been working on a lot of cool stuff that still needs to be described in more detail:

- hard structures
- multiple sediment fractions
- bed load and suspended load
- output options
- wave schemes
- non-hydrostatic model
- wave shap parameterization
- drifters
- river outflow
- boundary condition stuff
- ...

2.2 Change log

Chapter 3

Overview

In the table below the statuses of all tests found in the skillbed are summarized. In case a test is ignored or has failed, the corresponding message is given in the column “Message”. Please note that success or failure of the test runs are given in column “Run status”, while the success or failure of the Matlab analyses are given in column “Matlab status”. The last columns provide an overview of the main characteristics of each test.

Tests can be run multiple times using different settings. Different runs are identified by a run name, which follows after the test name and a dot sign. If a test is run once only, it is common use to name the run *default*.

Table 3.1: Status overview skillbed tests

Test	Run	Status	Matlab	Default settings	Configuration	Waves*	Water levels**	Fractions	Morphology	Hard layers	Groundwater flow
1953_storm_surge	default	✓	✓		1D	WG	V	1	✓		
1976_storm_surge	raai3400	✓	✓		1D	WG	V	1	✓		
1976_storm_surge	raai568	✓	✓		1D	WG	V	1	✓		
1976_storm_surge	raai6050	✓	✓		1D	WG	V	1	✓		
Assateague_Island	profA	✓	✓		1D	ST	C	1	✓		
Assateague_Island	profB1	✓	✓		1D	ST	C	1	✓		
Assateague_Island	profB2	✓	✓		1D	ST	C	1	✓		
Assateague_Island	profC	✓	✓		1D	ST	C	1	✓		
Boers_1C	custom	✓	✓		1D	WG	C	1			
Boers_1C	default	✓	✓		1D	WG	C	1			
CarrierGreenspan	default	✓	✓		1D	ST	C	1			
Curvi_Island	default	✓	✓		2D	WG	C	1			
DUROS	refere...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		

Table 3.1: *Status overview skillbed tests*

Test	Run	Status	Matlab	Default settings	Configuration	Waves*	Water levels**	Fractions	Morphology	Hard layers	Groundwater flow
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
DUROS	transe...	✓	✓		1D	WG	C	1	✓		
Delilah_199010131000	default	✗	✓		2D	WG	C	1			
Deltaflume2006	DP01	✗	✗		1D	WG	C	2	✓		
Deltaflume2006	DP02	✗	✗		1D	WG	C	2	✓		
Deltaflume2006	T01	✓	✓		1D	WG	C	2	✓		
Deltaflume2006	T01_zebra	✗	✗		1D	WG	C	2	✓		
Deltaflume2006	T02	✓	✓		1D	WG	C	2	✓		
Deltaflume2006	T03	✓	✓		1D	WG	C	2	✓		
Deltaflume2006	T04	✓	✓		1D	WG	C	2	✓		
DeltaflumeH298	T1	✓	✓		1D	WG	C	1	✓	✓	
DeltaflumeH298	T2	✓	✓		1D	WG	C	1	✓	✓	
DeltaflumeH298	T3	✓	✓		1D	WG	C	1	✓	✓	
DeltaflumeLIP11D	1B	✓	✓		1D	WG	C	1	✓		
DeltaflumeLIP11D	1C	✓	✓		1D	WG	C	1	✓		
DeltaflumeLIP11D	2E	✓	✓		1D	WG	C	1	✓		
Deltaflume_H4731	T11	✓	✓		1D	WG	C	1	✓	✓	
Deltaflume_H4731	T12	✓	✓		1D	WG	C	1	✓	✓	
Deltaflume_H4731	T14	✓	✓		1D	WG	C	1	✓	✓	
Deltaflume_M1263_III	Test-1	✓	✓		1D	WG	C	1	✓		
Deltaflume_M1263_III	Test-2	✓	✓		1D	WG	C	1	✓		
Deltaflume_M1263_III	Test-3	✓	✓		1D	WG	C	1	✓		
Deltaflume_M1263_III	Test-4	✓	✓		1D	WG	C	1	✓		
Deltaflume_M1263_III	Test-5	✓	✓		1D	WG	C	1	✓		
Deltaflume_M1797	T01	✓	✓		1D	WG	V	1	✓		

Table 3.1: Status overview skillbed tests

Test	Run	Status	Matlab	Default settings	Configuration	Waves*	Water levels**	Fractions	Morphology	Hard layers	Groundwater flow
Deltaflume_M1797	T02	✓	✓		1D	WG	V	1	✓		
Drifters	default	✗	✗		2D	?	C	1			
GWK86	T01	✓	✓		1D	WG	V	1	✓		
GWK86	T02	✓	✓		1D	WG	V	1	✓		
GWK86	T03	✓	✓		1D	WG	V	1	✓		
GWK86	T04	✓	✓		1D	WG	V	1	✓		
GWK86	T05	✓	✓		1D	WG	V	1	✓		
GWK86	T06	✓	✓		1D	WG	V	1	✓		
GWK98	A9	✓	✓		1D	WG	C	1	✓		
GWK98	B2	✓	✓		1D	WG	C	1	✓		
GWK98	C2	✓	✓		1D	WG	C	1	✓		
GWK98	F1	✓	✓		1D	WG	C	1	✓		
GWK98	H2	✓	✓		1D	WG	C	1	✓		
MICORE_Cadiz_Urb...	north	✓	✓		1D	WG	V	1	✓		
MICORE_Dziwnow_Spit	386	✓	✓		1D	WG	V	1	✓		
MICORE_Kamchia_S...	pr04	✓	✓		1D	WG	V	1	✓		
MICORE_Lido_di_Dante	mar201...	✓	✓		1D	WG	V	1	✓		
MICORE_Mariakerk...	s116a	✓	✓		1D	WG	V	1	✓	✓	
MICORE_Praia_de_Faro	event9	✓	✓		1D	WG	V	1	✓		
Netcdf	default	✗	✓		1D	ST	C	1			
Ningaloo_reef	default	✓	✓		1D	WG	V	1	✓		
River_Outflow	default	✓	✓		2D	ST	C	1	✓		
Scheldtflume_H4265	T01	✓	✓		1D	WG	C	1	✓		
Scheldtflume_H4265	T02	✓	✓		1D	WG	C	1	✓		
Scheldtflume_H4265	T02a	✓	✓		1D	WG	C	1	✓		
Scheldtflume_H4265	T03	✓	✓		1D	WG	C	1	✓		
Scheldtflume_H4265	T11	✓	✓		1D	WG	C	1	✓		
Scheldtflume_H4265	T12	✓	✓		1D	WG	C	1	✓		
Scheldtflume_H4265	T13	✓	✓		1D	WG	C	1	✓		
Scheldtflume_M1819_I	T01	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T02	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T03	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T04	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T05	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T06	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T07	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T08	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T09	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T10	✗	✗		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T11	✗	✗		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T12	✗	✗		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T13	✓	✓		1D	WG	V	1	✓		

Table 3.1: Status overview skillbed tests

Test	Run	Status	Matlab	Default settings	Configuration	Waves*	Water levels**	Fractions	Morphology	Hard layers	Groundwater flow
Scheldtflume_M1819_I	T14	✗	✗		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T21	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T22	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T23	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T24	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T25	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T26	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T27	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T28	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M1819_I	T29	✓	✓		1D	WG	V	1	✓		
Scheldtflume_M18...	T01	✓	✓		1D	WG	V	1	✓	✓	
Scheldtflume_M18...	T02	✓	✓		1D	WG	V	1	✓	✓	
Scheldtflume_M18...	T03	✓	✓		1D	WG	V	1	✓	✓	
Scheldtflume_M18...	T04	✓	✓		1D	WG	V	1	✓	✓	
Windflume_M1263_I	AT33	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	AT47	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	AT61	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	AT71	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	AT91	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	AT95	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT13	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT15	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT17	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT23	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT25	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT27	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT45	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT62	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT72	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT92	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	BT96	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT14	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT16	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT18	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT24	✗	✗		1D	WG	C	1	✓		
Windflume_M1263_I	CT26	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT28	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT46	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT63	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT73	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	CT93	✗	✗		1D	WG	C	1	✓		
Windflume_M1263_I	CT97	✓	✓		1D	WG	C	1	✓		

Table 3.1: Status overview skillbed tests

Test	Run	Status	Matlab	Default settings	Configuration	Waves*	Water levels**	Fractions	Morphology	Hard layers	Groundwater flow
Windflume_M1263_I	DT34	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	DT48	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	DT64	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	DT74	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	DT94	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_I	DT98	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	101	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	105	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	111	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	115	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	121	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	122	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	123	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	124	✓	✓		1D	WG	C	1	✓		
Windflume_M1263_II	125	✗	✗		1D	WG	C	1	✓		
Windflume_M1263_II	126	✗	✗		1D	WG	C	1	✓		
Windflume_M1263_II	127	✗	✗		1D	WG	C	1	✓		
Windflume_M1263_II	128	✗	✗		1D	WG	C	1	✓		
Zelt_Case1	default	✗	✗		2D	WG	C	1			
Zwin_T01	default	✓	✓		2D	ST	V	1	✓		
long_wave_propag...	default	✓	✓		1D	ST	C	1			
longcrested_refr...	1bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	1bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	1bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	3bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	3bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	3bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	5bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	5bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	5bin_a...	✓	✓		2D	WG	C	1			
longcrested_refr...	10deg	✗	✗		1D	ST	C	1			
longcrested_refr...	2p5deg	✗	✗		1D	ST	C	1			
longcrested_refr...	5deg	✗	✗		1D	ST	C	1			
longcrested_refr...	snellius	✗	✗		1D	ST	C	1			
tideonly	blanke...	✓	✓		2D	ST	V	1			
tideonly	default	✓	✓		2D	ST	V	1			

* ST = stationary, WG = wave groups, NH = non-hydrostatic
** C = constant, V = varying