Coastal Wave Simulation Workshop

15 - 17 (19) December 2014

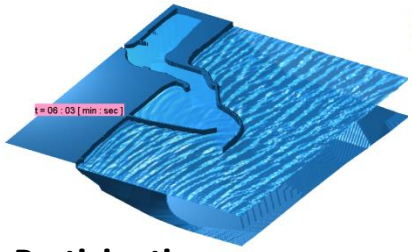
(12-14 (16) January 2015)

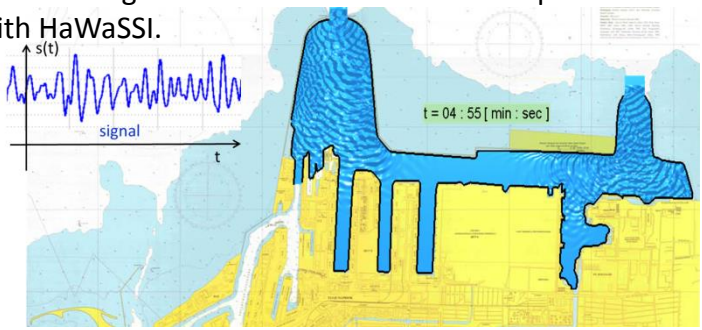
New software HaWaSSI-VBM

Get a free copy by evaluating the beta-version

In the first half of 2015 the new software package HaWaSSI is scheduled to be released to the coastal wave modelling community. A major part will be freely available; advanced options will be restricted to a licensed version.

The workshop is intended to get direct feed-back from participants about the performance and presentation of the software. After a short introduction the participants will start to evaluate test cases under guidance of the developers of the software. Participants can also bring their own coastal or harbour problem to test or compare simulations with HaWaSSI.





Participation

The number of participants for this workshop is restricted to 10; on 12-14 January 2015 a second workshop will be organized. Participants get a free version of the software to install on their own laptop that can be taken home for later use.

The workshop is scheduled for 3 full days, starting Monday 15 December 2014 at 9:00 at LabMath-Indonesia; if so desired, participants working on their own case can stay for 2 more days to get help from the developers of the code.

Participation is free of costs; lunch and coffee/tea will be provided.

For participation in this or the January 2015 workshop, please send an email with CV and a letter of motivation that explains your involvement and interest with coastal wave modelling to Dr. Didit Adytia, didit@labmath-indonesia.org .

You will receive a letter for participation for this workshop or for the next one in January depending on the amount of applicants.

The workshop will be held at the office of **LabMath-Indonesia**, Jl. Dago Giri 99, (besides Lawangwangi), 40391 Bandung

HaWaSSI-VBM

The acronym HaWaSSI stands for **Hamiltonian Wave-Structure & Ship Interaction**. 'Hamiltonian' refers to the way how the phase resolved wave dynamics is treated as a generalized set of nonlinearly coupled oscillators with exact conservation of energy. The 'Wave-Structure Interaction' refers to the possibility to perform simulations of waves that are diffracted by bathymetry and obstacles such as harbour walls

HaWaSSI-VBM is a version that is a Finite Element implementation in matlab of the **Variational Boussinesq Model**. 'Boussinesq' refers to the fact that only quantities in horizontal variables are used in the simulation; hence the interior fluid motion is not calculated directly (but can be recovered in a post-processing step), which leads to a dimension reduction and faster simulations. Dispersion properties can be optimized depending on the case to be simulated and can greatly improve simulation of short waves (and induced long wave generation). The weak nonlinearity of the code is sufficient for most applications.

Ingredients of the code include:

- Manual for easy operation and back ground modelling equations
- accurate wave generation in an embedded way
- efficient damping zones, walls for harbour lay-outs
- unstructured mesh generation above varying bottom
- optimized dispersion with one or more vertical profile functions for simulations up to *kh=10*
- test cases with harmonic, focussing and irregular waves above flat and varying bottom

HaWaSSI-VBM has been developed over the past years in collaboration between Labmath-Indonesia and University of Twente, with additional financial support of STW and KNAW.