

Other hydraulic and coastal engineering programs available from Aalborg University:

## AwaSys

AwaSys is a Windows® program for 2D/3D wave generation and active wave absorption. In addition to regular waves, waves can be made according to a variety of irregular wave spectra as well as user defined spectra and surface elevation time series. Two different techniques of wave generation syntheses are implemented:

- Random phase method
- White noise filtering method

AwaSys allows the user to perform wave generation synthesis as well as reflection analysis simultaneously with running active wave absorption.

A wave generation can be saved to file for later replay. Hereby different model setups can be exposed to the exact same wave series

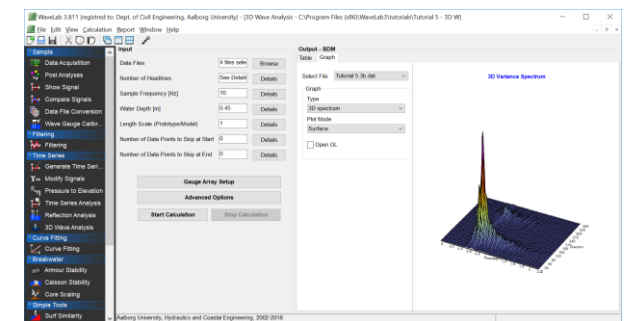
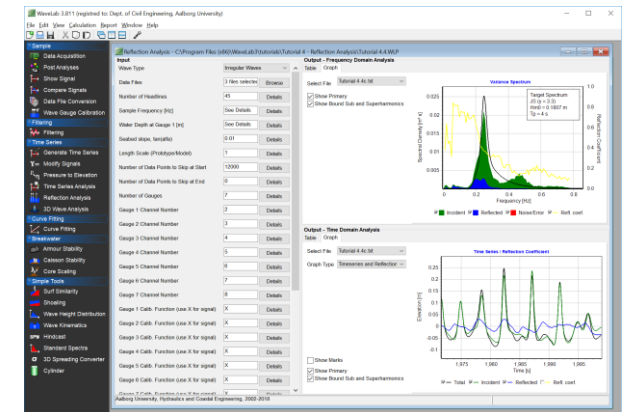


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# WaveLab 3

**A comprehensive data acquisition and data analysis package for wave laboratories**



## WaveLab 3

WaveLab is a comprehensive Windows® program specifically designed for data acquisition and analysis in wave laboratories. WaveLab has been growing very fast within the last app. 10 years and is now a very important tool at several wave laboratories worldwide.

WaveLab includes several useful tools for planning, performing and analyzing experiments where the most important ones are highlighted below.

### • Data Acquisition Group:

- Data Acquisition (Data Translation and National Instruments data acquisition hardware supported)
- Quick plot of signals
- Compare signals
- Wave Gauge Calibration
- Data File Conversion

### • Filtering Group (Bandpass, average, dynamic amplification correction filter and user defined filters)

### • Time Series Group

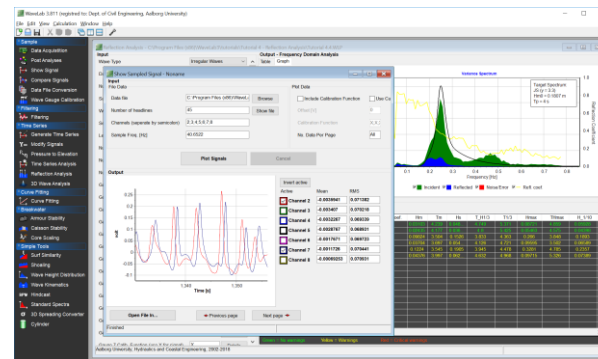
- Generate Time Series
- Modify Signals
- Pressure to Elevation Converter
- Time Series Analysis (regular and irregular wave elevations, forces and run-up/run-down)
- 2D Reflection Analysis (separation in frequency and time domain to give incident, spectra and elevation time series. Possibility also to use nonlinear method that separate into bound and free harmonics. Cross-mode quantification also possible).
- 3D Wave Analysis (Calculate the directional wave spectrum from an array of wave gauges using the BDM or MLM method)

### • Nonlinear Multi Parameter Curve Fitting (comes with a large number of predefined models but user defined models are also possible)

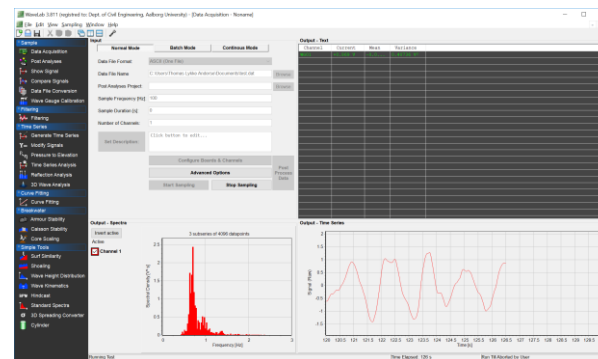
WaveLab has a user-friendly graphical interface, which makes it easy to use for first time users as well as experienced users. Due to WaveLabs fast processing engine and its ability to process multiple files and channels in one operation the time spent on data acquisition and analysis can be reduced considerably. For fast processing of several files WaveLab takes advantage of multi-core CPUs and parallel processing.

Moreover, the risk of drawing false conclusions from the results is highly reduced as the results are marked in green, yellow or red depending on the data quality and the reliability of the analyses. In case the results are marked in yellow or red there are given warnings to the user with possible reasons and solutions to the problem.

Measurements and analyses results are organized in projects, which can be saved to disk. This allows for later modification of input parameters or additional inspections of the outputs.



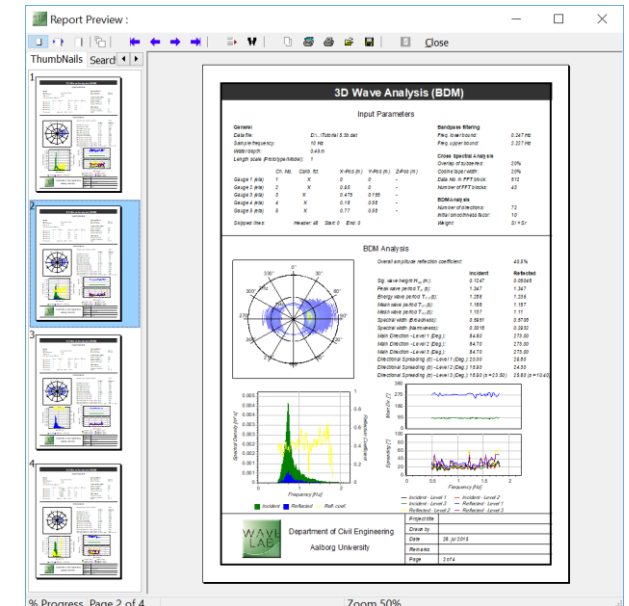
Example of user interface with two projects open.



Example of data acquisition component.

For the less experienced user WaveLab comes with some default settings that are suitable for most applications. However, the experienced user has the possibility to customize WaveLab to meet his/hers personal preferences.

For further processing, data and figures can easily be exported to other programs (e.g. Excel). Moreover, a report can be generated to print or file, with a layout that presents the results in a practical manner for discussion or as documentation in a report.



Example of report from 3D wave analysis

For additional information, please check web address and contact information on the back of this brochure. From the webpage is a demo version of WaveLab also available for download.