# 1. General

This section provides some generic information on Delft3D and Delft-FEWS. Also, examples of existing Delft3D-FEWS applications are provided for the interested reader.

Delft3D | Delft-FEWS | Delft3D-FEWS

## Delft3D

Delft3D is the main 3D modeling package of Deltares. The package consists of a number modules, each of which has a specific purpose. Available modules are:

- Delft3D-FLOW: Module for 2D and 3D hydrodynamic simulations.
- Delft3D-WAQ: Module for 2D and 3D water quality simulations. Can be used with hydrodynamic flow fields determined by Delft3D-FLOW.
- Delft3D-PART: Module for particle tracking simulations. Can be used with hydrodynamic flow fields determined by Delft3D-FLOW.
- Delft3D-WAVE: Module for ....

For more information on these modules, see Delft3D website.

## Delft-FEWS

Delft-FEWS provides an open shell system for managing forecasting processes and/or handling time series data. Delft-FEWS incorporates a wide range of general data handling utilities, while providing an open interface to any external (forecasting model). The modular and highly configurable nature of Delft-FEWS allows it to be used effectively for data storage and retrieval tasks, simple forecasting systems and in highly complex systems utilising a full range of modelling techniques. Delft-FEWS can either be deployed in a stand-alone, manually driven environment, or in a fully automated distributed client-server environment. For more information, see FEWS WIKI.

## Delft3D-FEWS

Subject of the present WIKI is the Delft3D-FEWS adapter. This adapter provides the interface between Delft3D and Delft-FEWS, based on the FEWS design philosophy. This implies that:

1. FEWS manages data streams and workflows to execute model simulations / forcasts.
2. Delft3D is used to perform model simulations / forcasts based on data provided by FEWS.
3. The adapter provides the interface between both; it converts output data by FEWS to native model input files, manages model state handling, executes model simulations, converts model output data to the FEWS PI XML file format.
   In this way, the Delft3D model adapter allow to embed a Delft3D model in a operational FEWS system.

Whereas FEWS was originaly setup to fascilitate 1D/2D operation runoff modelling, the system has also found its way into the 3D realm of open waters and lakes. The combination of Delft-FEWS with the 3D Delft3D modeling package offers a range of new possibilities in this sense. For example, with regard to operational surge modelling in open waters
and water quality modeling, where vertical variability may be essential.
Up to this date, a number of pilot projects have been performed at Deltares to exploit these benefits. A short summary of these projects is provided below.

**Algenbloei FEWS application**

ADD INFORMATION

**StPetersburg DSS Demonstrator FEWS application**

ADD INFORMATION