Open source integrated modeling environment Delta Shell

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In the last decade, integrated modelling has become a very popular topic in environmental modelling since it helps solving problems, which is difficult to model using a single model. However, managing complexity of integrated models and minimizing time required for their setup remains a challenging task.

The integrated modelling environment Delta Shell simplifies this task. The software components of Delta Shell are easy to reuse separately from each other as well as a part of integrated environment that can run in a command-line or a graphical user interface mode. The most components of the Delta Shell are developed using C# programming language and include libraries used to define, save and visualize various scientific data structures as well as coupled model configurations.

Here we present two examples showing how Delta Shell simplifies process of setting up integrated models from the end user and developer perspectives. The first example shows coupling of a rainfall-runoff, a river flow and a run-time control models. The second example shows how coastal morphological database integrates with the coastal morphological model (XBeach) and a custom nourishment designer.

Delta Shell is also available as open-source software released under LGPL license and accessible via http://oss.deltares.nl.