Department for Environment Food & Rural Affairs

Environment Agency

Benchmarking the latest generation of 2D hydraulic flood modelling packages

Project Summary SC120002/S

The Environment Agency has published new results illustrating how different 2D hydraulic flood models perform for different types of applications in Flood and Coastal Risk Management (FCRM).

2D Hydraulic flood models are a vital tool in assessing flood risk and the effects of interventions. They support a variety of practical applications including flood mapping, wider risk assessment and appraisal of options as well as supporting the design of structural measures such as flood defences.

A wide range of hydraulic modelling tools are available and due to scientific and technological progress, modelling algorithms and tools continue to evolve and improve through time. To aid Environment Agency decision making, we worked in partnership with Heriot Watt University to develop a set of standard benchmark tests for 2D hydraulic modelling software. These allowed us to assess the ability of available modelling packages to simulate flooding under different conditions and for a variety of flood risk management purposes.

The original suite of benchmark tests and the open and transparent approach has been immensely successful and attracted interest from all over the world. Commercial model developers and academics alike have referred to these standard tests to assess the performance of new 2D models.

The accompanying technical report describes the latest results from this benchmarking exercise. Working in collaboration with modelling tool developers, it assesses the current generation of 2D hydraulic modelling tools for a variety of purposes in flood risk management to support Environment Agency decision making.

This research produced up-to-date evidence of which hydraulic modelling packages are suitable for which types of flood risk management modelling applications so that Environment Agency operational teams and practitioners can apply available flood modelling tools with confidence. It also promotes continuous improvement in the flood model developer community and has helped to raise modelling capabilities and standards.

The Environment Agency may use the results from this study to help decide which models and model types are suitable for its own purposes. The results within the technical report, alongside other information from software developers, may also help other users of 2D modelling tools make their own decisions about whether any software is fit for their purposes.

This summary relates to information from project SC120002, reported in detail in the following output:

Report: SC120002/R Technical report on latest benchmarking results
Report: SC080035/SR Technical report on theoretical basis

Note that this new report (SC120002/R) supersedes the previous report Benchmarking of 2D Hydraulic Modelling Packages (SC080035/SR2, SCHO0510BSNO-E-P, 2010) which has been withdrawn.

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