Defra / Environment Agency
Flood and Coastal Defence R&D Programme

R&D Technical Summary W5C-021/2a/TS

Protocols For Minimum Standards In Modelling

Background to R&D project

This project, W5C-021 (Part 2a), was initiated by the Flood Forecasting and Warning Theme Advisory Group of the Flood and Coastal Defence Research Programme, its aim being to create a generic set of 'protocols' to be followed during development of river models for real time forecasting. The Protocols are intended as one element within a suite of tools and guidance material relating to quality assurance and audit of modelling practices within the EA's flood forecasting business. Specifically, the Protocols are to be applied as retrospective checks at each main stage of the model building and calibration cycle, to test that key tasks have been undertaken with adequate consideration and that a minimum standard has been achieved. A further requirement of the project was to review existing EA documentation on modelling procedures to produce a formal outline technical specification for hydrological and hydraulic modelling.

Results of R&D project

Consultation carried out in the course of this project revealed concerns relating to the risk of creating additional 'red tape' for experienced modellers and some differences of opinion regarding the level of detail of the Protocols. It was therefore important to propose Protocols that would ensure compliance with a minimum technical standard whilst avoiding any sense of imposing restrictions on the solutions adopted. The Protocols have also been structured to fit in with a proposed modelling strategy for flood forecasting consisting of five main stages; inception, conceptualisation and configuration, review, calibration and validation and testing. Guidance on these topics given in the outline specification has been incorporated into the Protocols where relevant.

The finalised Protocols take the form of a series of statements, which address key steps or considerations that are generic to all types of forecasting models or modelling approaches. However rather than being prescriptive or regulatory, the emphasis of the statements is on promoting consistency in modelling work. In all there are 27 protocol statements spread over the five stages, each supported by between one and fourteen 'checklist' questions. The checklist 'answers' provide both a means to evaluate whether the Protocols have been achieved and a documentary record of the evaluation process.

R&D Outputs and their use

The Protocols are presented and discussed fully in the R&D Technical Report, to which the Outline Modelling Specification is included as an appendix. An interactive Word proforma setting out the Protocol statements and checklist questions in tabular format has also been developed, and is being made available on the EA's intranet.

The users of the Protocols will be both the various modelling teams in the Agency and their modelling Consultants, i.e. applying the Protocols is likely, in practice, to be a modelling activity, but 'signing them off' will be a management activity.

This R&D Technical Summary relates to R&D Project W5C-021/2a and the following R&D outputs:

- **R&D Technical Report for Users - *Protocols for Minimum Standards in Modelling.*** Published January 2005.

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