

Reservoir safety – long return period rainfall

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SYNOPSIS. Recent research funded by Defra has developed a new statistical model of point rainfall depth-duration-frequency (DDF) for the UK, to replace the current Flood Estimation Handbook (FEH) DDF model. The project was commissioned in response to concerns expressed by reservoir engineers about the apparently high estimates produced by the FEH DDF model when it was applied to return periods in excess of its recommended upper limit of 1,000 years. Within the project, the framework of the FEH model has been retained, but each of its components has been substantially revised and the dataset of annual maxima rainfalls to which the model is fitted has been updated. Comparisons with the FEH model show that rainfall estimates from the new model are generally lower for a given return period, except for shorter durations in Scotland. Further work to develop a new software implementation to allow the model to be applied at any location in the UK is planned for 2010.