



Uniqueness of place: uniqueness of models. The FLEX modelling approach

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The current practice in hydrological modelling is to make use of model structures that are fixed and a-priori defined. However, for a model to reflect uniqueness of place while maintaining parsimony, it is necessary to be flexible in its architecture. We have developed a new approach for the development and testing of hydrological models, named the FLEX approach. This approach allows the formulation of alternative model structures that vary in configuration and complexity, and uses an objective method for testing and comparing model performance. We have tested this approach on three headwater catchments in Luxembourg with marked differences in hydrological response, where we have generated 15 alternative model structures. Each of the three catchments is best represented by a different model architecture. Our results clearly show that uniqueness of place necessarily leads to uniqueness of models.