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Requirements for hydrological models to be used as part of decision support systems in integrated water resources management

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Abstract Today there are numerous hydrological models available for calculating water balance components at different spatial and temporal scales. So, a selection of one suitable hydrological model, which serves as a module in a more complex decision support system for integrated water resources management, should not be a problem. However, more closely reviewing the specific requirements of hydrological modelling in IWRM reveals that not many models really fulfil all the needs. This contribution presents a hybrid modelling framework for IWRM, discusses requirements of a hydrological model as part of such a system, and then compares the three different hydrological models: HEC-HMS, WASIM-ETH and SWAT regarding their suitability for such a task. The results show that none of the models fulfils all requirements in an optimal sense, and that there is still a lot of work to do on hydrological modelling for integrated water resources management.

Key words hydrological model; water balance; integrated water resources management; metamodel; decision support system