

Performance of hydrological models in the historical period and credibility of climate impact projections

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Two approaches can be distinguished in climate impact studies when accounting for issues related to impact model performance: 1) using a multi-model ensemble disregarding performance, and 2) using models after their evaluation and considering models' performance. Implications of both approaches will be discussed in terms of reliability of simulated water indicators for climate change adaptation. A hypothesis that "a good performance of hydrological models in the historical period increases confidence of projected impacts under climate change, and decreases uncertainty of projections related to hydrological models" will be discussed based on literature and own research results and confirmed. Recommendations on how to calibrate/validate hydrological models for impact assessment and rules for rejecting models from an ensemble as outliers will be suggested. Based on that, the authors find the second approach more reliable and recommend applying it for impact studies, especially if results should be used to support adaptation strategies.