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Hydrologic comparison between a lowland catchment (Kielstau, Germany) and a mountainous catchment (XitaoXi, China) using KIDS model in PCRaster

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Abstract. The KIDS model (Kielstau Discharge Simulation model) is a simple rainfall-runoff model developed originally for the Kielstau catchment. To extend its range of application we applied it to a completely different catchment, the XitaoXi catchment in China. Kielstau is a small (51 km^2) lowland basin in Northern Germany, with large proportion of wetland area. And XitaoXi is a mesoscale (2271 km^2) mountainous basin in the south of China. Both catchments differ greatly in size, topography, landuse, soil properties, and weather conditions. We compared two catchments in these features and stress on the analysis how the specific catchment characteristics could guide the adaptation of KIDS model and the parameter estimation for streamflow simulation. The Nash and Sutcliffe coefficient was 0.73 for Kielstau and 0.65 for XitaoXi. The results suggest that the application of KIDS model may require adjustments according to the specific physical background of the study basin.

Full Article in PDF (PDF, 420 KB)

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