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Discussions

Interactive comment on "Future changes in flash flood frequency and intensity of the Tha Di River (Thailand) based on rainfall–runoff modeling and advanced delta change scaling" *by* S. Hilgert et al.

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Dear Referee,

Thank you for your comment on our manuscript. You stated that the extrapolation capacity of the hydrological model is not properly discussed.

You are right to question the ability of HBV-Light or any rainfall-runoff model to precisely transform rainfall input data, especially when outside the calibrated range, into discharge output. We were able to show that the model generally performs well for a reasonably long observation series, covering both very wet and very dry periods and

years. We wanted to achieve a model calibration that can be used for both the wetter A2 and the drier B2 scenario. For this purpose, different combinations of calibration and validation periods were tested to find out the optimal values for the calibration. Given the good performance even for the erratic inter-seasonal rainfall patterns within the catchment, we know the model to be robust. At the same time, the remaining underestimation of high flows due to the limited number of rain gauges in the headwaters was approached by applying separate cumulative distribution functions for flood thresholds for measured and modeled discharges, as is discussed in section 5.1.

We therefore believe that this important issue is sufficiently accounted for in the climate change scenario model runs shown here.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 7327, 2015.