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Hydrology and Earth System Sciences Discussions

Interactive comment on "SWAT use of gridded observations for simulating runoff – a Vietnam river basin study" *by* M. T. Vu et al.

Anonymous Referee #2

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The paper represents a new advancement in the rainfall-runoff modelling in ungauged catchments. It investigates the possibility of utilising rainfall data generated by different weather models to obtain rainfall data in ungauged catchments. The suitability of such data was examined by comparing the results of a rainfall-runoff model used those data as inputs against the results of different model used observed rainfall data in three weather stations as inputs. The SWAT model has been selected for the purpose of the rainfall-runoff modelling in this paper. The method used in this paper is very good and the findings obtained after applying this method are also good. In my opinion the paper can be improved further and brought to a level which can then be accepted for publication if the following points have been addressed:

(1) Page 10680: Abstract: The abstract is well written and summaries most of the paper but it doesn't include any mentioning to the results of the paper.

(2) Page 10681: Introduction: The introduction is missing a review of other studies where rainfall gridded data was used in rainfall-runoff modelling.

(3) Page 10682 Line 10: Please revise the second sentence according to the following comment. The SWAT model uses the skewed distribution or the mixed exponential distribution to generate rainfall data when no actual rainfall is available. To obtain the spatial distribution of the rainfall data over the catchment SWAT is using different procedure explained in the user manual of the model.

(4) Page 10683: Study catchment: From the sensitivity analysis the model seems to be sensitive to parameters related to baseflow. Therefore the study catchment description should also describe the groundwater and the types of aquifer in this catchment.

(5) Page 10684 Line 13: Was the definition of the Potential evapotranspiration been suggested by the authors or it has been found somewhere else. Please clarify.

(6) Page 10684 line 23: Hydrological Response Units (HRUs). Please describe the discritisation of the study catchment into sub-basins and HRUs.

(7) Page 10688 Line 24: Model calibration and validation should be revised based on the following comment. It will be good if the model is calibrated by taken data of the period from 1995-2000 and the remaining data is used for validation. The results from this calibration validation scenario should be compared against the one already done in order to find the best model parameters which can be used in the subsequent analysis in the paper.

(8) Page 10692 Line 7: Evaluation of model performance can be extended further by considering the following comment. It is worthwhile to have a table or graph showing the percentage of error in the rainfall from the various gridded data versus the percentage of error in the runoff estimation. This allows of investigation the influence of the

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rainfall estimation error on the runoff estimation error.

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Interactive Comment