

Dr. Lars Gerlitz
Deutsches GeoForschungszentrum - GFZ
Sektion 5.4 – Hydrologie
Haus C4
Telegrafenberg, 14473 Potsdam
lars.gerlitz@gfz-potsdam.de
Telefon: +49 (0)331 288-28990

Potsdam, August 17th 2016

Dear Ladies and Gentleman,

please find enclosed our revised manuscript „A statistically based seasonal precipitation forecast model with automatic predictor selection and its application for Central and South Asia”.

Please note, that the Title of our manuscript has been slightly changed and that we modified the order of the contributing authors.

As recommended by our reviewer Matthew Barlow and by the Editor Mr. Wang, we completely revised our evaluation strategy in order to better quantify the overall skill of our precipitation forecast model. Therefor we conducted a 4-fold split sample test, which is describes in detail in the manuscript. The use of the same data set for predictor selection and model calibration (as proposed by Mr. Wang) is unfortunately not feasible since it leads to strong overfitting and thus to a considerable decline of the model skill.

Since it has been seen, that the model skill for the small headwater catchments is low, we now applied the model to three larger target regions in Central and South Asia. The increase of the size of the target regions resulted in a distinct improvement of the model results, indicating that precipitation amounts in small catchments are highly variable due to mesoscale atmospheric processes which are difficult to forecast.

Further, we revised our sensitivity study. We believe that the description of the approach is better comprehensible in the revised manuscript and think that this analysis gives some advanced insights into the large scale climate and precipitation variability of our target regions.

However, we resigned from the utilization of alternative approaches (such as Bayesian Model Averaging), but might consider them for our future model development.

Eventually, as we assured in our primary response, we tried to consider all minor comments of the reviewers.

We believe that the manuscript has been improved considerably and again would like to thank the editor and the reviewers for their recommendations.

Yours,

Lars Gerlitz et al.