

Interactive comment on “Evaluation of five hydrological models across Europe and their suitability for making projections under climate change” by W. Greuell et al.

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Point 1 We will add text to provide the interpretation of the metrics in Eqs. 1-3 and write for which part of the evaluation the metrics of Eq. 1 is used. We think these aspects are already clearly mentioned for the metrics of Eqs. 4 and 5. We cannot fully rely on the Taylor diagrams for two reasons: 1) Taylor diagrams cannot be used in the evaluation of scalar-value statistics like mean, low and high discharge, and of the annual cycle. They can only be used for evaluating interannual variation (among the aspects of the hydrograph we consider) and indeed we do that. 2) The diagrams only provide an illustration of the model performance. For a comparison between models,

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quantification is needed. So, the Taylor diagrams of Figure 4 and the metrics of Eqs. 2-4 both evaluate the interannual variation, the Taylor diagrams in the form of figures, the metrics in the form of numbers.

Point 2 The motivation to show only selected figures is to save space in the publication. To make the paper more transparent regarding this issue, we will show additional figures in the supplementary material and motivate better why certain panels have been selected for the publication. More specifically: - We will show the annual cycles of all other stations in the supplement (for Figures 6 and 11) and motivate the selection of the six stations shown in Figure 6 (geographical spread, Europe's largest river, one in Central Europe, one for the Alps, three different regimes in Fennoscandia). In Figure 11, we chose the Danube since it is Europe's largest river. - Figures 5, 8, 9 and 10 deal with other aspects of the hydrograph (other than the annual cycles) and are available for all 5 models. For Figure 8 we will show all 5 (instead of only 3) models. Regarding the other three figures (5, 9 and 10), we will leave them in the main part of the paper as they are and put panels showing the results of the other (3 or 4) models into the supplement. We will motivate the selections made.

Point 3: We will extend the analysis of low and high flow by evaluating their interannual variation in the same way as we did for the mean in Section 6.3, using Taylor diagrams and the metrics of Eqs. 2-4. That makes the analysis of mean, low and high flow nicely consistent and forms a valuable extension of the paper. However, we do think that we evaluate the interannual variation (of the annual mean) and the long-term mean annual cycle systematically in Section 6.3 and 6.4.

Point 4: This point was already discussed in our reaction to point 2. Results for one or two models should be shown to illustrate the effect of replacing EOBS by WFDEI forcing but since all hydrological models have almost the same type of reaction to changing the forcing, displaying the results of one or two (Figure 9 shows the two extremes among the models) models in the main text is sufficient. We will show panels for the other models in a supplement.

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