

Interactive comment on “Modeling global water use for the 21st century: Water Futures and Solutions (WFaS) initiative and its approaches” by Y. Wada et al.

Anonymous Referee #2

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I read the manuscript by Wada et al. with great interest. This is a well written article and presents interesting and important results. The paper presents the multi-model estimates of regional and global water use. Three global hydrological models are selected and the results are compared. I do not see any major issues with the article, so I believe that it can be published after minor revision for the following issues:

- I do not see any validation of the models for the past. I assume that some of these models have been validated for certain types of water uses but no information is provided in the article. The authors note that validating models is not the aim of this paper but I think it is important to provide some information for the reader.

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- Results from different models are surprisingly different, and in some cases even the sign of change differs among models. For example, why does H08 model project decrease in industrial water for SSP1 over time while others project an increase? Please provide more discussion. I would be curious to know how the results of the hydrologic response to climate change, in general, look like from these different models. Please add discussion if there are any studies and you may want to relate this to provide additional explanation on whether the differences in future water use arise from the differences in model physics that results to highly different ET, runoff etc., or if the differences are mainly due to the differences in the algorithms used to calculate water use.

- Irrigation is the largest water consumer, so changes in agricultural demand may significantly affect the overall water use pattern in the future. However, changes in land use and irrigated areas are not taken into account in this study which I think is a significant shortcoming. Please add discussion on the potential implications of using the same land use/irrigated areas for the future.

Interactive comment on Geosci. Model Dev. Discuss., 8, 6417, 2015.

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