

Interactive comment on “Intensification of the hydrological cycle expected in West Africa over the 21st century” by Stella Todzo et al.

Anonymous Referee #2

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Review of "intensification of the hydrological cycle expected in West Africa over the 21st century" by S. Todzo, A. Bichet & A Diedhiou

This paper looks at the intensification of the hydrological cycle over West Africa, a small part of the CORDEX Africa region, using a number of the CORDEX simulations. Results are given for the multi-model mean.

The paper is clearly written and describes the observational and model datasets used. The methods used to analysed the data are not novel but are clearly described and referenced. The supplementary data is used to show how well the individual regional simulations and the multi-model mean for the current climate agree with observations.

One thing the paper omits is any justification of using a multi-model mean and any

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discussion of the set of CORDEX regional simulations chosen in Table 1. 8 of the 18 members using the same regional model SMHI-RCA4_v1. Does this impact on the results? Looking at Figure 3 to 5 it looks as though some of the results from the other regional model are on the edges of the ensemble of points.

Dosio et al 2019 (Climate Dynamics) is not referenced and gives a comparison of the CORDEX Africa regional model results.

Knutti et al 2010 (J Clim) Challenges in combining Projections from multiple models.

Specific Comments:

Page 2, L46 The first mention of CORDEX-AFRICA has no references.

Page 8 L 221 There are now published results for West Africa from a convection permitting resolution simulation over Africa. Berthou et al 2019 (Geophy Res Let).

Interactive comment on Earth Syst. Dynam. Discuss., <https://doi.org/10.5194/esd-2019-38>, 2019.

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