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Interactive comment on “Future hydrological extremes: the uncertainty from multiple global climate and global hydrological models” by I. Giuntoli et al.

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Anonymous Referee 1 Received and published: 21 January 2015

ERRATA CORRIGE / Specific Remarks Due to Misplaced / Missing text, we provide an updated version of the 'Specific Remarks' section of the previous document - AC C17: 'AC to Referee 1 comment C1: Review of the Manuscript' from 04 Feb 2015. We apologize for the inconvenience. [In the previous document the 2nd comment was missing, and answer to the 1st comment was misplaced].

Comment Page 3 Line 6 mentions multi-model ensembles. However, the manuscript

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continues with single model studies (e.g. Sheffield and Wood 2008). The reader expects a summary of multi-model simulations; maybe move this line to later in the manuscript when multi-model studies are discussed.

Answer We will address this in the manuscript by moving (in Page 3) the block of Lines 6-to-10 to Line 20, just before the introduction of the model inter-comparison projects.

Comment Page 4 Line 19-20 I believe the sentence should be ... all GCMs for each GCM averaged over all of the GCM or am I mistaken?

Answer As described by the authors (see Schewe et al. (2013), caption of Fig. 1, and Dankers et al. (2013), caption of Fig. 1), the GCM variance of the change is computed across all GCMs for each individual GHM, and then averaged over all of the GHMs.

Comment Page 7 Line 11-13: This $SN2 > 1$ is rather arbitrary. Could there be a more statistically proper way to define this $SN2$ threshold?

Answer $SN2 > 1$ was chosen to facilitate the visualization of the model agreement on the maps. In our case, we wanted to remain consistent with Prudhomme et al. (2014) to facilitate comparisons.

Comment In general: Which dataset was used to computer the Koppen-Geiger climate classifications? I can assume they are different between the GCMs and different datasets. Please specify in the manuscript.

Answer The dataset we used for the Koppen-Geiger climate regions is based on present-day following the global data classification from Kottek et al. (2006) (a link is provided at the end of Table 1 in the manuscript - http://koeppen-geiger.vu-wien.ac.at/pdf/kottek_et_al_2006_A4.pdf). Therefore, there is no difference between models: all gridded model outputs have been assigned a Koppen-Geiger climate region from the Kottek et al. (2006) dataset. We will clarify this in the manuscript, in particular in the Data and Methods section (Page 8, Line 7). We are aware that region boundaries can change with time (as investigated by e.g. Wanders et al. (2014)); however, in our study we were seeking changes in projections with a present baseline as reference.

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