

Interactive comment on “Stochastic approach to analyzing the uncertainties and possible changes in the availability of water in the future based on a climate change scenario” by G. G. Oliveira et al.

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General Comments The paper addresses relevant scientific questions within the scope of HESS. It presents novel concepts and ideas with substantial conclusion with valid and clearly outlined scientific methods and assumptions and therefore sufficient to support the interpretations and conclusions. The authors of the paper have also given proper credit to related work and clearly indicated their contribution

Specific comments a) Title: It does not clearly reflect the contents of the paper. the title "Stochastic approach to analyzing the uncertainties and possible changes in the availability of water in the future based on a climate change scenario" gives indication of

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analysis availability of water in the future based on a climate scenario i.e scenario A1B of IPCC SRES. However, the A1B scenario is supplied by the global coupled ocean–atmosphere HadCM3, in four members (versions) of disturbance in the global model – (no disturbance – CNTRL; low sensitivity – LOW; medium sensitivity – MID; high sensitivity – HIGH). Therefore, the key message should be anchored on the sensitivity of the climate system under the A1B scenario. Therefore, it is my opinion that the title " based on a climate change scenario" should read " based on scenarios of climate sensitivity" b) Language: The language used in the paper is not fluent and precise. Most of the sentences are very long. To improve readability, the authors should consider breaking them into multiple sentences. Moreover, most sentences have a good mix of both past and present tense. c) in text Page 2-Line 2/3: The sentence "for purposes of this study, it was adopted the period between 2011 and 2040" should be changed to read "for purposes of this study the period between 2011 and 2040 was adopted". Page 2-Line 25/26: The sentence "On this topic the IPCC (Intergovernmental Panel on Climate Changes)" should be changed to read "On this topic the Intergovernmental Panel on Climate Change (IPCC)" Page 4-Line 5: The authors indicate the 1961–1990 as "present climate". This should be change to "baseline". It should also be noted that the current baseline period for climate change analysis recommended by World Meteorological Organization is 1981-2010 Page 4-Line 13: The sensitivity experiments used are based on A1B SRES scenario. However, since the authors acknowledge the recent IPCC assessments (AR5), would it be appropriate to also use the recommended emission scenarios i.e. Representative Concentration Pathways (RCPs) as per the AR5 Page 9 Section 2.4: would it be critical to clearly state the criteria used to select the climate scenario (i.e. the A1B SRES scenario) used for sensitivity studies Page 21 Section 3: Since the study is using both observed and simulated climate data, would it be appropriate to briefly discuss the spatial/temporal patterns of the climate variables in the basin for both past and future to enable the reader link results provided to possible changes in the availability of water in the future based on a climate change scenario.

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