

Interactive comment on “Water supply patterns in two agricultural areas of Central Germany under climate change conditions” by M. H. Tölle et al.

Anonymous Referee #3

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From the paper it is not obvious what new scientific question/result is dealt with. It discusses the impact of emission scenarios and climate model biases. This has been discussed in many papers already and a few examples are cited in the paper. It supports the conclusion that close together areas are potentially differently affected by climate change. But, this has been discussed by analyzing projections in two small areas only. It would be interesting to be able to make more general conclusions like “in temperate central Europe drought frequency changes by xx% within xx km on average” or “spatial heterogeneity decreases/increases with continentality”. Since REGNIE is used as precipitation reference data set at least the variability in Germany is easy to investigate.

In their reply to the comments of Reviewer #1 (www.biogeosciences-discuss.net/9/C1885/2012/)

the authors announce that a new version of this paper will assess the uncertainties of drought and flood projections by consideration of multiple emission scenarios and two regional climate scenarios. But, they still plan to use only one bias correction method (quantile mapping). A full investigation of the uncertainty sources would imply application of multiple global climate forcings and multiple bias correction methods. Especially, the latter is important here, since the discussion of the effect of bias correction on precipitation is discussed. The authors should also consider recent critical discussions on applicability of bias correction (e.g. Ehret et al. (2012) HESS Opinions “Should we apply bias correction to global and regional climate model data?”, Hydrol. Earth Syst. Sci. Discuss., 9, 5355–5387, doi:10.5194/hessd-9-5355-2012; Chun Kit et al. (2012) Calibration Strategies: A Source of Additional Uncertainty in Climate Change Projections. Bull. Amer. Meteor. Soc., 93, 21–26. doi: <http://dx.doi.org/10.1175/2011BAMS3110.1>)

The Standardized Precipitation Index (SPI) is used as an indicator of water scarcity in the climate projections. What is the effect of the bias correction of the precipitation time series on SPI? I guess a very minor with SPI standardizing the data.

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