Reply to referee comment C. Baffaut

We would like to thank C. Baffaut for her time and effort spent reviewing out manuscript. We are very grateful for the clear, structured, and relevant remarks. On the following pages we respond to all comments, questions and remarks. The first column contains the question or the comment from the referee, the second column is our response and clarification to said question and the third column is changes we made to our manuscript.

Referee comment	Authors answer	Changes in manuscript
The paper clearly shows significant discrepancies between the CFSR and WLRC precipitation data (section 3.1 and table 4). I don't understand why the authors go further and present the results of the modelling using CFSR data as inputs. What are the chances to have useful results? Why is there a need to go through the analysis of model results with CFSR data? Is there evidence in the literature or in the policy world that these considerations are not well taken into account?	This is indeed a valuable question and we would like to respond in the same way we answered the that question in the other review: The SWAT website seems to suggest that the CFSR data is available for any place on the globe and that hydro-meteorological data can be downloaded and used without preoccupation. There is no warning about discrepancies or variations in CFSR data, which could lead to very wrong modelling results and subsequently wrong deductions. What we wanted to show was not only deviations in rainfall patterns (which are obvious), but also discrepancies in seasonal patterns and their implications for SWAT discharge and sediment loss modelling. We wanted to clearly show that despite calibration of SWAT rainfall data has a strong influence, which has a multiplying effect on discharge and sediment yield.	- see answers to detailed comments from referee LB - The particular point about the added value of hydrological modelling has been added to the "Introduction" section and the "Conclusion" section: Introduction: **However, the applicability of the CFSR data for small-scale catchments in the Ethiopian Highlands has not been adequately investigated yet. Aforementioned studies did not focus on small-scale watersheds but mainly on large basins, which tend to balance errors from CFSR data.** **A first evaluation, carried out by our research group, of CFSR-modelled rainfall data with that measured by the Water and Land Resource Centre (WLRC) in Ethiopia, formerly the Soil Conservation Research Programme [SCRP]) has shown substantial differences in daily, monthly, and annual rainfall. So far, few studies have been conducted in the Ethiopian context on the impact of rainfall data on streamflow simulations. Fuka et al. (2013) used CFSR data in a 1200 km^2 watershed in Ethiopia with SWAT suggesting CFSR data performs as good as or even better than conventional precipitation. Worqlul et al. (2014) correlating conventionally recorded rainfall with CFSR data over the Lake Tana basin (15'000 km^2). They suggested that seasonal patterns could adequately be captured although the CFSR data did uniformly overestimate and underestimate measured rainfall. A recent study from Dile and Srinivasan (2014) evaluated the use of CFSR data for hydrological prediction using SWAT in the Lake Tana basin, Ethiopia. The study achieved satisfactory results in its simulations for both CFSR and conventional data. While the outcome was better with conventional weather data, the study concludes that CFSR could be a valuable option in data-scarce regions. Other studies**

		using CFSR data not in the Ethiopian context (Alemayehu, 2015 and de Almeida Bressiani, 2015) and with large to very large catchments (13'750 to 73'000 km^2) concluded that CFSR data gave good to very good results and the SWAT model responded reasonably. One CFSR application in the Dongi and Puli river basins in China by Yang et al. (2014) with watershed sizes from 366 to 1098 km^2 concluded that CFSR data was significantly different and that the CFSR data spatial distribution might be the cause for the weak performance. Conclusion: **The SWAT modelling showed that CFSR rainfall pattern and rainfall yearly total amount variations were so significant that SWAT model calibration could not adequately represent measured discharge and sediment yield.**
Table 2: Unless a reader is familiar with the SWAT-CUP specific notation, the parameter names and values will not be understood.	Thank you very much for that comment. Table 2 has been adapted accordingly	- Added description for parameters - Added initial values of parameters