First, we would like to thank István Zsuffa for the very careful reading of our manuscript and useful suggestions.

**C1: I am not sure if the word 'Yellow' in itself is sufficient. This river is usually referred to as 'Yellow River'.**

Answer: We added description at page 855 line 15:

"The Yellow River (hereafter called Yellow) source region above the gauging…."

**C2 (p852 l1): Comment: include "of"**

Answer: Included:

"…less studies can be found which intercompare hydrological models and study propagation of uncertainty along the entire model chain **of** General Circulation Model (GCM) – Regional Climate Model (RCM) – impact models.

**C3 (p852 l6-l8): include "the"**

Answer: Included:

"A comprehensive intercomparison of hydrological models has been done, e.g., in the Distributed Model Intercomparison Project (Reed et al., 2004; Smith et al., 2004) comparing **the** performance of 12 hydrological models in three North American river basins."

**C4 (p854 l5): Something is not clear here:**
**These five 'climate scenarios' are based on ghg projections, aren't they. How are these projections linked to the projections of the four RCPs mentioned in the next sentence? Maybe these sentence should talk only about the five applied GCMs. Later on it can be mentioned that these GCMs have been driven by the ghg projections of the four RCPs in order to generate the climate scenarios (at least this is what Fig. 4 suggests). This means a total number of 20 climate scenarios for each river - so not 5.Do I misunderstand something?**

Answer: We used bias-corrected climate scenarios from five GCMs driven by four RCPs (i.e. 20 different time series). We changed the text as follows:

"The bias-corrected climate scenarios from five GCMs (HadGEM2-ES, IPSL-CM5ALR, MIROC-ESM-CHEM, GFDL-ESM2M, NorESM1-M) driven by four Representative Concentration Pathways (RCPs) were provided by the ISI-MIP project (Hempel

et al., 2013) and used as input for impact assessment. The four RCPs are covering a range of emissions and land-use change projections."

**C5 (p856 l10) : Wrong altitude was given.**

Answer: Changed:

 "The altitude in the drainage area ranges from 4275ma.s.l. in Swiss Alps to **0** ma.s.l. at Rotterdam."

**C6 (p858  l3):  Include "the"**

Answer: Included:

"The advantage of HBV is that it covers **the** most important runoff generating processes"

**C7 (p860  l11-l12): Delete "the"**

Answer: Deleted:

"For the raster based model VIC a grid resolution of 0.125° was used for ~~the~~ all basins."

**C8 (p860  l22): "According to Section 3.1 and Table 3, MSE was not used. NSE was used in all three hydrological models."**

Answer: The text is correct. PEST minimized MSE (mean square error) and not NSE (Nash and Sutcliffe Efficiency). Later we use the more common NSE for the model validation and for model comparison (and not MSE).

**C9 (p860  l22):  Use plural.**

Answer: Changed:

 "As **an** objective function**s** the…"

**C10 (p860  l27):  Wrong citation style.**

Answer: Changed:

"As an objective function the Nash and Sutcliffe Efficiency **(** Nash and Sutcliffe **(**1970)"

**C11 (p861  l23): Wrong citation style.**

Answer: Changed:

"The convergent iterative numerical algorithm for the MM-estimates was provided by **(**Yohai **(**1987) "

**C12(p862  l14):  What are $N_{Hyd}$, $N_{Gcm}$ and $N_{Rcp}$?**

Answer:  $N_{Hyd}$, $N_{Gcm}$, $N_{Rcp}$ describe the number of hydrological models, the number GCMs and the number of RCPs, respectively. This explanation is given at page 863 line 13.

**C13 (p862  l14):  The five GCMs should also be mentioned here.**

Answer: Changed .

**C14 (p866 l21): "actually only two  (see Fig 4) "**

Answer: Yes you are right. Now corrected:

"Panel (B) shows for the Upper Niger a decrease in $P$ with increasing $T$ projected by **two** models (IPSL, Nor), and an opposite trend projected by MIROC and GFDL, with the highest increase in $P$ simulated by MIROC. The projected Had $P$ shows the largest differences for RCP 2.6 and the smallest differences for RCP 8.5 in contrast to the four other GCMs."

**C15 (p867  l3):  Actually I see only one: GFDL (at 8.5)**

Answer: Our formulation refers to monthly changes. So it should be correct.

**C16 (p867  l5):  ?**

Answer: Sentence was improved.

Original: "For the Rhine, four climate models show a decrease of $P$ with increasing $T$ (though with some variations), except the projections by Nor, which firstly show a decrease, and then an increase."

Change to: "For the Rhine, all GCMs project an increase in precipitation for RCP 2.6.  Except for Nor all the   other GCMs show smaller increase in P for all the higher level RCPs. "

**C17 (p868 l25):   Figure caption lost.**

Answer:  Added.

**C18 (p868 l2):   Figure caption lost.**

Answer:  Added.

**C19 (p874 l8):   Delete "the"**

Answer: Deleted:

"The projected impacts show ~~the~~ best agreement in the Rhine basin,…,"


**C20 (p874 l12):   Replace "do" by "draw"**

Answer:  Replaced:

"For the Upper Niger in Africa, having a monsoonal type of climate, scenarios from Climate models are the largest uncertainty source, and therefore clear conclusions on the projections for future are difficult to ~~do~~ **draw**."


**C21 (p891  Fig.4):  Indicate the scenario periods!**

Answer:  Included.


**C22 (p893  Fig.6):   Not clear: Why do simulated flows from the reference period (1961-1990) depend on RCP projections? I understand that they do depend on the chosen hydrological and climate models. But projections are for the future! From the past we have to use historical GHG data as boundary conditions for the climate models.Note that unlike flows simulated P and T from the reference period do not depend on RCPs (see Fig. 4).What is the difference between these graphs and the graphs given on Fig. 5?Do I misunderstand something?**


Answer:  You are absolutely correct.  The simulations for the reference period depend only on GCMs.  This is the reason why the 4 plots in the first column of the 4x3 plot matrix   are identical. We found it easier to compare between the reference period and the scenario period, when plots are arranged in this way. To avoid the   misunderstanding, now we moved the Y axes notations to the right.
Also regarding Fig.5 you are right.  The 4 plots in the first column of the 4x3 plot matrix are identical to that given in Fig.5.   We decided to include Fig.5 separately and with more details because in Fig. 6 the different lines (5x3) are hardly distinguishable.  We thought that the details of hydrological model runs in the  reference period are important to show.  Also the observed discharges are given in Fig.5 (in contrast to Fig.6).