Interactive comment on "Moving beyond the cost-loss ratio: Economic assessment of streamflow forecasts for a risk-averse decision maker" *by* Simon Matte et al.

Anonymous Referee #2

The paper introduces the application of the Constant Absolute Risk Aversion (CARA) utility function in flood warning systems. The function enables the consideration of risk-averse behaviour of decision makers. The paper thus presents new and innovative scientific work. In general, the paper is well organised and well written. In the revised version, a few things should be changed.

Abstract:

- No abbreviations should be used in the abstract without explanation.

- A sentence summarising the main conclusion of the work should be added.

Introduction:

- Again, abbrevations are not well explained. Please provide the full term when the abbreviation is used for the first time. Please check in the whole paper.

- p. 2, line 7/8: What does this mean? Could you provide examples?

- In general, a more structured review of the literature on uncertainty is missing. For example, different types of uncertainty (epistemic versus aleatoty/natural uncertainty) could be distinguished since they may have different effects on decisions and decision makers because epistemic uncertainty can be reduced by better data or models while aleatory uncertainty cannot. Later in the paper, this should also be discussed in the context of the study.

- The von Newman and Morgenstern utility function should already be briefly explained in the introduction (p. 2, line 31/32).

- p. 3, line 2: delete "forecast" once.

Section 2

- If you use a section 2.1 there should also be a section 2.2. One subheading does not make sence. Consider to delete the headline.

- The economic model and the utility functions should be better explained. The content of the chapter referenced in line 30 (p. 3) should be briefly summarized.

- A paragraph that bridges this section to the next should be added.

- Starting on p. 4: Check the numbering of the equations; add numbers to all equations on p. 4, 9 and 12.

Section 3

- Typo in line 20 (p. 4): THE

- p. 4, line 28/29: consider rephrasing, check logic

- In Table 1, the potential damage should be added fpr each return period.

- p. 5, line 8/9: consider rephrasing ("cause" is used twice in this short sentence)

- p. 5, line 31: This is unclear. The calibration performed by DEH should be explained (as well as the meaning of DEH - see my comment on the use of abbreviations)

- Again, there shouldn't be a section 3.3.1 only. Please re-organise the text.

Section 4

- p. 8, line 14: The use of 12 categories should be justified or better explained.

- p. 8, line 19-21: The content and use of the data for the 2014 flood is unclear. Please add some information.

- p.9, line 4-6: The basis/source of the mentioned losses is unclear. Please explain how these values were derived. In line 27, a damage curve of Leclerc et al. (2001) is mentioned. This comes too late and too vague. Explain how the curve looks like, whether it is applicable in the catchment under study or/and whether and how is was adpated to your case study.

- p. 9, line 4 and line 10: consider using "losses" instead of "damages".

- p. 10, line 3 to 15: Most of this should be shifted to the dicsussion section.

- In general, the section 4.3 is somewhat unclear and contains too many issues for dicsussion. Consider to shorten it to the main point that are necessary for the model application.

Section 5

- p. 12, line 3: discuss how the true distribution of streamflow could be determined or whether it is possible to check the validity of the used distribution.

Section 6

- p.13, line 22: What do you mean by "sharpness"? Accuracy?

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- p. 14, line 23: What do you refer to when you mention "relatively rare and comparatively small flood events"?

Section 7: —

Section 8: p. 17, line 19: typo "AND in terms.."

Figure 3, 4 and 10: Explain the abbreviation in the figure caption.