

Interactive comment on “The value of integrating information from multiple hazards for flood risk management” by J. T. Castillo-Rodríguez et al.

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First of all, we would like to thank Mr. Fiedler for his work and comments which will undoubtedly improve the paper.

We agree with all corrections suggested by Mr. Fiedler (see comments 2-13, 16, 19-21), which will be included in the final version of the paper after the discussion process. In addition, answers to comments 1, 14, 15, 17 and 18 are provided for clarification.

— Referee comments are numbered from 1 to 21 (answers are preceded by "AC:");

1. The value of integrating information from multiple hazards for flood risk management. Abstract, page 3306, line 12 – Please define SUFRI.

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AC: Sustainable strategies of Urban Flood Risk Management to cope with the residual risk

2. Introduction, page 3307, line 4 – consider changing “in terms of loss of life as” to “in terms of loss of life, such as”.

3. Risk definition and components, page 3309, line 24 – change “probability includes also exposure” to “probability also includes exposure”.

4. Risk definition and components, page 3310, lines 22 – 24 – sentence reads “In general, risk cannot be entirely eliminated since structural measures handle the consequences of a specific severe event, typically called design event.” It seems more correct to say “In general, structural measures are designed to reduce the potential consequences of a specific severe event, called a design event.”

5. Risk definition and components, page 3310, line 27 – would change “cannot be prevented” to “cannot be absolutely prevented”.

6. Risk definition and components, page 3311, lines 7 – 8, would change “depending on whether they provide or not” to “depending on whether or not they provide”.

7. Risk definition and components, page 3312, line 1 – 2 – Change sentence to read “In addition, the use of risk models and F-N curves allows the main variables to be identified and to reduce uncertainty in the analysis.”

8. Risk definition and components, page 3312, line 4 – change “and improve” to “and to improve”.

9. Risk definition and components, page 3312, line 6 – change “There exist” to “There exists”.

10. Phase VI: risk calculation, page 3318, lines 19 – 20 – change “The event tree allows to estimate conditional probabilities and consequences: : :” to “The event tree allows conditional probabilities and consequences to be estimated:

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11. Phase IX risk evaluation, page 3320, line 5 – change “to determine whether societal” to “a determination as to whether”.

12. Demography, page 3323, line 9 – change “working reason” to “working populations”.

13. Loads, page 3325 line 4 – change “20 km far” to “20 km”

14. Situation with non-structural measures of public education and warning, page 3330, lines 12 – 13 read “: : : fatality rates associated with this situation are established at level 10 from the classification: : :”. It would be helpful to explain what this category means or implies.

AC: ...level 10 (highest level of flood severity understanding from advance risk communication and public education programmes and highly-coordinated emergency services).

15. Situation with non-structural measures of public education and warning, page 3330, lines 20 – Should “Therefore, reduction of potential economic damages: : :” be changed to “In addition, reduction of potential economic damages: : :”?

AC: We think that “Therefore” is more suitable for this sentence.

16. Conclusions and further research lines, page 3334, line 20 – change “this plan before start operating the dam” to “this plan before operation of the dam is initiated”

17. Table 6, page 3344 – the night factor used to calculate the Time category probability values appears to be incorrect. Instead of 0.369 it should be 0.396. This will allow the total of the day night probabilities to sum to 1.0.

AC: 0.396 is the correct value, Table 6 must be changed

18. Table 10, – “slippage” should be changed to “sliding” throughout; “three uplift laws” and “six uplift laws” are referenced in FM2 and FM3. It is not clear what these are – clarification would help.

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AC: Different assumptions on the uplift distribution were made to account for three different hypothesis on the permeability of San Fermín Fault (very low, intermediate, and very high) and two on the performance of the drainage system (good, bad). Depending on the definition of the failure mode, either 3 or 6 (3 times 2) possible uplift resulting laws had to be then considered to account for all the combinations.

19. Table 10, FM2, 2nd line – consider changing “not included on the basin (baffle blocks)” to “not included in the overflow section”; line 4 – change “a degradation surface” to “degradation of the surface”.

20. Table 10, FM5, 1st line – change “erosion of the” to “and involves erosion of the”; line 2 – change by upwards erosion or concrete continuous degradation.” to “by headcutting or continuous concrete degradation.”

21. Table 10, FM6, line 2 – change “until uncovering the downstream toe” to “until the downstream toe is uncovered”.

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