Natural Hazards
and Earth System
Sciences

Discussions

# Interactive comment on "Maximizing the usefulness of flood risk assessment for the River Vistula in Warsaw" *by* A. Kiczko et al.

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Dear Anonymous Referee # 2,
We are very grateful for your comments and remarks. As in the case of the previous review, our responses will be placed after quotations.

1. *Kiczko et al. wrote that the aim of this work is an analysis of the influence of model simplification on flood inundation mapping... (p. 2698, row 13-14). It is not clear what kind of model simplification do they mean?*

   The text will be changed to make that point clearer: ..(i) the analysis of the influence of model simplifications (an application of a steady state flow routing model)

   on flood inundation mapping;

2. *A citation is required when they wrote that "The roughness is parameterised from available observed historical flood waves (p. 2700; row 4-5).*

   The parametrisation of Manning coefficient was performed using 27 observed historical floods from the period 1984–2010. The flow data were provided by the Institute of Meteorology and Water Management (IMGW), Poland. The roughness coefficients were optimized for each flood wave. The dependency between roughness parameter, computed in this way, and discharge revealed a linear character.

3. *Closer explanation is expected for the term "design flood wave" (i.e. p 2703 row 8) as the FFA is conducted only on the base of annual peak discharges.*

   The term should read "design flood" and it is defined as a hypothetical "1-in-N year flood". The term will be corrected and properly defined.

4. *Please correct the numbers on p. 2704 row 12 "p = 0.1 or p = 0.01, equivalent to 100 yr or 1000 yr flood" (for "10 yr or 100 yr flood").*

   Our misspelling, it should read: "p = 0.01 or p = 0.001".

5. *The value of river width of 7500 m at 507 km of the Vistula River needs to be checked as it seems to be too large (p. 2706 row 5).*

   It should be: "river valley width". The text will be corrected.

6. *The expression of "the amplitude of the flood wave" (p. 2707 row 8) is not clear and should be explained.*

   We agree that the term is misleading. It will be changed to "the maximal discharge" to make it more clear.

7. *The FFA presented on the p. 2707 row 12+ should also specified from which period the annual peak discharges has been taken for the analyse, as well as why discharge data from only 90 years has been considered as it is widely known that period of hydrological observation in Warsaw is over 200 years.*

   The FFA was performed for the observation period of 1921-2010 which was the longest available homogeneous time series. The available observations are much longer. The gauging station in Warsaw was set up in 1789. However, the previous records were mostly limited to water levels, and due to changes in the gauging station location and its datum, it is difficult to evaluate the rating curve and calculate discharges. Additionally, the observations of water levels and discharges for 1914-1918 are missing. The explanation will be added in the text.

8. *It is suggested to replace the expression "probability of occurrence" (i.e. p. 2698 row 27-28) by probability of exceedence.*

   The expression will be corrected.

9. *Please specify closer the institution - Water Resources Council (WRC) p.2708 row 1.*

   This will be corrected. The log-Pearson II method is recommended by US Water Resources Council. This distribution was described in well-known guidelines for flood frequency analysis, Bulletin 17B. "Guidelines for Determining Flood Flow Frequency," Bulletin 17B of the Hydrology Subcommittee, Interagency Advisory Committee on Water Data, U.S. Department of the Interior, Geological Survey.

10. *Please specify the discharge(s) for which validation of the MSS model on 2010 yr flood event (presented on Fig. 4) has been conducted.*

    The discharge of the 2010 flood event was equal to $5898\ m^3/s$. The value will be given in the text.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 2695, 2013.