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Hydrology and Earth System Sciences Discussions

Interactive comment on "A statistical analysis of insurance damage claims related to rainfall extremes" *by* M. H. Spekkers et al.

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General: The paper is well structured and well written and the content quite interesting. The paper focuses on identifying relationships between short term rainfall and insurance claims based on daily records. Based on the amount of data many models could be conceived and much more information extracted from the nice data set. However, the focus on one model can also be regarded as a virtue, since it makes the paper more focused and easy to follow. Below some comments that I think could be useful when considering to revise the paper. Page 6, line 1: Spekkers et al (2011) is important and only grey literature. Consider making it available or to include more information in the paper. Page 7, line 5: Removing data as indicated introduces a bias when assess-

ing the overall probability of damage when using the developed model. It is therefore important to indicate how much data is actually discarded, just like the rate of coverage of insurances is provided. Page 7, line 16: The discussion about distance between district centers and rain gauges can be discussed in a more quantitative manner based on correlation properties of precipitation extremes. I usually cite either Niemczynowicz or Mikkelsen for properties of Danish extremes. Most likely similar work has been done, if not for the Netherlands, then for Belgium. I would start by looking for literature by G. Vaes and/or P Willems. Page 8, line 6: The insurance companies uses data up to 3 days. I would suggest to expand the range of time windows to more than 4 hours. If it generates problems with the daily time steps of the claims I would consider a more event based procedure. This would also imply a discussion of what types of rainfall (convective or frontal) that are the main contributor to the observed claims. Page 9, line 14: I would have liked to have entered other covariates into equation (4). Allowing beta_0 to change over time and space as a function of wetness indices, urbanization, age of infrastructure and settlement, ... would be very interesting. However, it could also be postponed to another paper, since it might also impact the formulation of the modeling of the non-rainfall-related claims, which is critical to the study. Page 11 and onwards: Much emphasis is put on theta = 0.5. However, the logit-model could also be interpreted as an assessment of when the variable is significant. That implies that theta = 0.05 or 0.95 is much more interesting. I discussed this shortly in a paper in Nordic Hydrology in 1994 and believe that my co-author Spliid made some good publications on how to make such interpretations later. Page 13, line 6-24: This is really a discussion section. Please make that clear by adding a separate heading. Apart from what is discussed there I would suggest that some of my comments above are mentioned, if not incorporated into the final version of the paper.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 11615, 2012.