



Some Notes on Retrospective Evaluation of PSHA

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In usual practice, PSHA models are constructed by merging different models that are expected to sample the so-called epistemic uncertainty. The merging is usually made through a logic tree scheme where each model/branch is subjectively weighted. Noteworthy, neither the final PSHA model nor its components are usually subjected to a rigorous testing phase. Although the proper way to evaluate a model is through prospective testing (where the data are independent from the model calibration), here we discuss the benefit of the retrospective analysis of the whole PSHA model and/or of its components/branches. In particular, we i) introduce a consistent probabilistic framework for a meaningful evaluation (retrospectively and prospectively) of a PSHA model; ii) describe merits and limits of retrospective evaluation in the final assessment of PSHA model and in assisting experts to describe the epistemic uncertainty; iii) estimate the impact of aftershocks in evaluating PSHA models that are (almost always) based on declustering. All these issues are explored through real numerical examples.