Nat. Hazards Earth Syst. Sci. Discuss., 2, C1235–C1236, 2014
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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "A proposal for a new parametrization of historical intensity data providing a better handling of uncertainties" *by* M. Mucciarelli

Anonymous Referee #2

Received and published: 30 June 2014

GENERAL COMMENTS

The paper addresses a very interesting and classical issue related to handling uncertainties in macroseismic intensity assessment, which can be applied both to historical and recent earthquakes.

Similar approaches were already applied, e.g., in late 80's to assign probabilities to the maximum annual intensity in model source zones for intensity-based hazard assessment using Bayesian techniques (Garcia-Fernandez and Egozcue, 1989). The probabilities were considered in that work random variables with mean following an

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exponential law.

SPECIFIC COMMENTS

Table 1 suggests a possible conversion rule of the degree-of-belief to probability which limits it to five discrete values. The uncertainty analysis carried out in section 3 (page 3564 line 4 and following) allows for a random value between 0 and 1 for the intensity classes. It would be interesting to know if these results (Figure 1 and 2) could be similar with random realizations of only the five probabilities suggested in Table 1.

How significant is the discussion on relative errors considering that integer intensity values are not completely homogeneous, i.e., one intensity unit difference (absolute error) in low intensities probably is not the same 'size' as in large intensities?

It would be also interesting to see if there would be any differences applying the two proposed Monte Carlo procedures (page 3564 line 23 and page 3565 line 1) both for site and source intensities.

Figure 6 is showing the average (mean) vs standard deviation, or vs variance? In a Poisson distribution the mean is equal to the variance.

REFERENCES

García-Fernández, M. and Egozcue, J.J. (1989) Seismic hazard assessment in TERESA test areas based on a Bayesian technique, Natural Hazards, 2, 249-265.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 3561, 2014.