



ON HISTORICAL EARTHQUAKES ATTESTED TO BY SPARSE DATA

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Parameters for historical earthquakes have to be derived using written documentary materials. The information that can be extracted from the available materials may be sparse, meaning that the parameters cannot be resolved unequivocally. The incompatibility between written documents and parameters is raised. A lack of information typically increases the level of expert judgment. The analyst may select the final solution over a mental edifice that involves assumptions and preferences. Therefore, there is a need for more transparent documentation of deriving parameters for historical earthquakes on the basis of sparse data.

This study attempts to quantify when the amount of information is sufficient to derive earthquake parameters, when error limits can be assigned to them and when it is best to reconstruct so-called earthquake scenarios of the past. It is argued that the steps involved can be approached through a defined theoretical framework using precise terminology (Mäntyniemi et al., 2014). More pervasive use of the concept of ordinal variable is advocated when discussing macroseismic intensity. The essential information available for parameter derivation consists of macroseismic intensities and hierarchies between them as a function of space.

REFERENCE

Mäntyniemi P, Tatevossian RE, Tatevossian TN (2014) "Uncertain historical earthquakes and seismic hazard: theoretical and practical considerations", *Geomatics, Natural Hazards and Risk*, 5(1):1-6

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