



Use of cartography in historical seismicity analysis: a reliable tool to better apprehend the contextualization of the historical documents

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Historical studies, including historical seismicity analysis, deal with historical documents. Numerous factors, such as culture, social condition, demography, political situations and opinions or religious ones influence the way the events are transcribed in the archives. As a consequence, it is crucial to contextualize and compare the historical documents reporting on a given event in order to reduce the uncertainties affecting their analysis and interpretation.

When studying historical seismic events it is often tricky to have a global view of all the information provided by the historical documents. It is also difficult to extract cross-correlated information from the documents and draw a precise historical context. Use of cartographic and geographic tools in GIS software is the best tool for the synthesis, interpretation and contextualization of the historical material. The main goal is to produce the most complete dataset of available information, in order to take into account all the components of the historical context and consequently improve the macroseismic analysis.

The Entre-Deux-Mers earthquake (1759, Iepc= VII-VIII) [SISFRANCE 2013 – EDF-IRSN-BRGM] is well documented but has never benefited from a cross-analysis of historical documents and historical context elements. The map of available intensity data from SISFRANCE highlights a gap in macroseismic information within the estimated epicentral area. The aim of this study is to understand the origin of this gap by making a cartographic compilation of both, archive information and historical context elements. The results support the hypothesis that the lack of documents and macroseismic data in the epicentral area is related to a low human activity rather than low seismic effects in this zone. Topographic features, geographical position, flood hazard, roads and pathways locations, vineyards distribution and the forester coverage, mentioned in the archives and reported on the Cassini's map confirm this hypothesis. The location of the recently explored documentary sources evidence that there was no notarial activity in this particular area at that time. The importance of the economic and political dominance of Bordeaux during the XVIIth-XVIIIth centuries has to be taken into account in order to apprehend the way the earthquake was reported by the population at the regional scale. Elements related to chimneys forms or construction techniques could in turn help in identifying regional peculiarities allowing better quantifying the vulnerability aspects of the region.