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Contribution to the study of historical seismicity in the Maghrebian region, Catalogue of historiacal seismicity of the Maghreb region

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The seismic risk assessment in countries with moderate seismic activity is a very delicate action as well as a high priority one in land use management and urban rehabilitation.

The credibility of this assessment is based mainly on the effects of destructive earthquakes whose maximum intensities become a reference for determining the level of protection. This knowledge requires a detailed study of the damage caused by major earthquakes over a long period of time.

In this context, a broad scale research about past earthquakes started in the Geophysics Laboratory, now called the National Geophysics Institute (ING) within the National Center for Scientific and Technical Research in Rabat, Morocco. It supported a thorough study which included critical historical texts scattered in various local and foreign archives. The pursuit of this study, under the project called PAMERAR, which was launched in the early 80's aimed at reducing of earthquake risk in the Arab region, led us to investigate the origin of these texts according to various public and private libraries, as in Spain and France.

The scientific interest in the historical seismicity in Morocco was highlighted at the beginning of the twentieth century in several reports and catalogs but with several gaps in time and space, further research was thus necessary especially to explore documents in particular from origin sources. This interest in historical archives is within the scope of understanding the natural hazards over long period to evaluate the recurrence of earthquakes.

This study leads to significant results covering 11 centuries, from AD 846 to the present. We continued to study the effects of recent earthquakes on humans and buildings heritage, this work has led to a study in the footsteps of local seismic culture.

Since earthquakes do not recognize the limits of political geography, since 1993 we have undertaken to extend the research to include the entire Maghreb region. We then used the database available to study the effects of earthquakes on humans and their social environment.

The historical seismic catalog compiled for the maghrebian region is relatively homogeneous and complete covering the past twelve centuries. The seismic events are plotted on an appropriate Maghreb map.

We started the study of the acquired seismic culture by identifying clues and traces left in the methods of construction and building measures taken on the old buildings that have enabled then to withstand strong earthquakes found in particular in the Moroccan catalogs and in the western mediterranean in general.