



The Greek Database of Seismogenic Sources: state-of-the-art on the northern Greece pilot area

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We present the state-of-the-art of the Greek Database of Seismogenic Sources (GreDaSS). The major goals of this international scientific project are (i) the systematic collection of all available information concerning active faults, potentially active faults and seismogenic volumes within the broader Aegean Region; (ii) the quantification of the principal seismotectonic parameters of the different sources as well as their degree of uncertainty; (iii) to supply an integrated view of potentially damaging seismogenic sources for a better assessment of the seismic hazard of Greece. The informatic framework of the database follows closely that used for the Italian Database of Individual Seismogenic Sources (DISS), which represents the result of more than ten years experience of its Working Group (e.g. Basili et al., 2008).

This preliminary version of GreDaSS is focused on northern Greece, where we distinguish two main categories of Seismogenic Sources based on their attributes, their expected use, the nature and reliability of data used to define them:

- "Individual Seismogenic Sources" (GGSources) are obtained from geological and geophysical data and are characterized by a full set of geometric (strike, dip, length, width and depth), kinematic (rake) and seismological-palaeoseismological parameters (average displacement, magnitude, slip rate, recurrence interval) and by a rating of the associated uncertainties. Individual Seismogenic Sources are assumed to exhibit "characteristic" behaviour with respect to rupture length/width and expected mean and maximum magnitude. They are tested against worldwide databases for internal consistence in terms of length, width, average displacement and magnitude. This category of sources favours accuracy of the information supplied over completeness of the sources themselves. As such, they can be used for deterministic assessment of seismic hazard, for calculating earthquake and tsunami scenarios, and for tectonic and geodynamic investigations.

- "Seismogenic Areas" (SASources) are still obtained from geological and geophysical data and characterized by geometric (strike, dip, width, depth) and kinematic (rake) parameters, but their length is more loosely defined and spans two or more Individual Sources. They are not assumed to be capable of a specific earthquake but their potential can be derived from existing earthquake catalogues. A Seismogenic Area is essentially inferred on the basis of regional surface and subsurface geological data, that are exploited well beyond the simple identification of active faults or youthful tectonic features. Opposite to the previous case, this category of sources favours completeness of the record of potential earthquake sources over accuracy of source description. In conjunction with seismicity and modern strain data, Seismogenic Areas can thus be used for regional probabilistic seismic hazard assessment and for investigating largescale geodynamic processes.

It has been also planned to enrich GreDaSS with other 'layers' of information like, for example, the "Fault Traces" associated with latest Pleistocene-Holocene 'linear morphogenic earthquakes' (Caputo, 2005) that affected the investigated region.

Each individual source of GreDaSS will be associated with additional information such as bibliographic references, literature data, geological, seismological or paleoseismological data as well as the most relevant maps, graphs, pictures and drawings. All the information is organized as major layers of a GIS System that enables the user to explore all data types at different scales and levels.