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Earthquake Mechanisms of the Mediterranean Area (EMMA) version 3: an improved tool for characterizing the tectonic deformation styles in the Mediterranean.

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EMMA (Earthquake Mechanisms of the Mediterranean Area) database contains available literature data with the goal of making them more usable and available. EMMA is continuously improving by the addition of further focal mechanisms found in literature. At the present time, EMMA pre-release 3 includes more than 12700 focal solutions, about twice of previous official release 2.2 (Vannucci and Gasperini, 2004). They cover a time window from 1905 to 2006. In the new release, many added solutions are in areas not much covered or completely uncovered in the previous one (e.g. Bulgaria, Germany, Anatolia).

As in the previous versions (Vannucci and Gasperini, 2003 and 2004), we have uniformed the different formats and notations of the data available from different sources and we have tried to solve misprints, inaccuracies and inconsistencies that might make the data unusable for other investigations. By an automatic procedure based on several criteria, we have chosen the “most representative” (best) solution when more than one is available for the same earthquake. Thanks to this, we have obtained about 6000 best solutions. The end user can use the best solution obtained with our procedure or he can change criteria.

The database allows to make selections and to export data files suitable to be handled by graphic software and user generated scripts. In the new version, still MS-ACCESS based, we have added geographic information to the display of the focal solution, as well as we have integrated the hypocentral and magnitude data found on the original papers with those reported by regional and local catalogs and bulletins.

In order to make EMMA more accessible, a web version is currently in progress. Through an internet connection it will be possible data selection and export, without installation and configuration problems found in the past.

EMMA was already used in the past and will be (hopefully) useful in the future to better characterize the tectonic deformation styles (e.g. by moment tensors sum within given areas or over regular geographical grids) particularly in areas of the European region where seismicity is moderate and only few CMT solutions are available.

At the moment, we try to compute strain map for Mediterranean area, using EMMA data. In order to represent any recurrence in space, we identify small areas and apply to each one some spatial analyses. The work is still in progress, but preliminary results are satisfactory and in accord to previous studies.

Bibliografia

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