A New Online Intensity Data Point Database for Portugal

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Macroseismic Intensity Databases openly available on the web are becoming common tools all around the world.

Portugal is still missing such a resource of well-organized and easy-accessible information.

The *Instituto Português do Mar e da Atmosfera* (IPMA), formerly the *Instituto de Meteorologia* (IM), has among its short term objectives to compile a first version of the database and to give free access to it on the web.
Macroseismic Data in Portugal

Basic input material for a macroseismic database are the macroseismic intensity data points (often referred as MDP).

Since 1947 the IM has been compiling, evaluating and publishing the macroseismic information of felt earthquakes in Portugal.

Information for previous periods has inhomogeneous quality, mainly depending on the time window. Periods with quite complete information are alternated with periods for which only sparse data are available.

Cover of one of the last published issues of the “Anuário Macrossísmológico de Portugal”.
Implementing a new macroseismic database for Portugal

Three main tasks are required:

1. Compilation of the available macroseismic information *(digitization)*

2. Revision of the archived material, in order to obtain a consistent result *(data analysis)*

3. Setting up a software for browsing the data on the Internet *(web publication)*

Searching, transposing to a digital format and updating the archive is an extremely time-consuming effort.

Information about the 23 August 1356 earthquake contained in the “livro de Noa”, an old Portuguese manuscript.
Database Software implementation

Within the European project NERIES, the NA4 module "Distributed Archive of Historical Earthquake Data" developed an open source software called MIDOP ("Macroseismic Intensity Data Online Publisher", http://emidius.eu/MIDOP), which allows publishing macroseismic data on the Internet.

MIDOP can convert unappealing data tables into interactive and easily personalized maps ready to be put on the Internet.

This software package has been selected to implement the new Portuguese macroseismic database.
Present Status of the Intensity Database at IM (IPMA)

At present, MIDOP software is now up and running internally at IM on trial and it is used to keep data organised and accessible for analysis.

A preliminary database for the XX Century Portugal mainland has been assembled on the basis of information contained in the database of macroseismic information from 1947 to the present.

So far, the main problem of the elaborated database is the lack of homogeneity of the input data. At least six different intensity scales are used and data sources for earthquakes in the period 1900-1947 are dissimilar.

Cumulative number of earthquakes per year retrieved and already digitized.
Future Developments

It was expected to have a public version of the database available for this meeting, but the quality checks on the raw data still to be completely addressed before making all this huge amount of data publicly available on the Internet.

We are currently working on:

• increasing the number of MDPs (Macroseismic Data Points) by extending the coverage in space and time

• revising and homogenizing the XX century data

• including intensity data available for the Azores and Madeira islands

Example of the seismic history output for the “freguesia” of “Lisboa – Sé” (Lisbon – Cathedral)

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