CARTOGRAPHIC REPRESENTATION OF THE RESULTS OF THE DIFFERENT PHASES OF A SEISMIC HAZARD ASSESSMENT STUDY IN CENTRAL AMERICA.

Introduction

In order to understand more deeply the high seismic activity of Central America, the cooperative project RESIS II, for regional and national seismic hazard assessment, is carried out with funding from the Norwegian government.

Five types of maps have been developed along the different phases of the study to represent graphically partial and final results. All these maps have been created within a Geographic Information System (GIS) that has permitted the integrated management of large data bases, geographical information and results of queries and analyses based on that. Information in the same environment. So, every map composed is not only a paper document, but a data base where the user can consult tables associated to any element represented geographically. Moreover, a Web Map Server allows to consult created layers that can be visualized and queried by users from all over the world.

This poster illustrates the different maps created and the more important decisions made along the cartographic process, taking in account data nature and the purpose, scale, end-users and means of visualization of each map. The cartographer has been in coordination with the authors of the maps (study researchers), discussing on several aspects of representation techniques (such as map design, symbols, maps projection, data classification, symbols, thematic analysis, cartographic process, etc.) during the construction of the map. The geometric structures and cartographic representation rules and conventions came into competition, with the aim of reaching a consensus solution.

All maps have in common...

- Reference System: WGS 84
- Map Projections: P D 84
- Base Map elements: boundaries, countries, main roads, railroads
- End-users: mainly professionals, the information by all parties will be used by planners, architects, civil engineers, risk managers and plan administrators.
- Final destination: dissemination of the results, from the Central American region.

Deep Classification

Region: regional / national.

Table: regional / national.

Tectonic: relating to, causing, or resulting from structural and/or tectonic activity.

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Earthquake epicenter: surface projection of an earthquake focus.

Seismogenic Zone: region in which seismic parameters (activity rate and magnitude distribution) are homogeneous. All parts of a seismogenic zone have similar seismic potential.

Earthquake epicenter: surface projection of an earthquake focus.


Fig. 1: RESIS II Working Group: Benito, B., E. Camacho, A. Climent, G. Marroquín, E. Molina, W. Rojas, E. Talavera, J.J. Escobar and G. Vargas.

Purpose: To show the largest earthquakes felt in an area during the past.

To look up the value of the ground motion parameter reaches maximum and the associated intensity is given. If the authors of the maps would extract more information from the map, the user can select the parameters.

Conclusions

A total of 43 maps has been composed in this work, which is used in different ways:

- During the work development, partial results needed to be mapped in order to facilitate their interpretation, thereby data analysis time was saved.
- Once the work is finished, achieved results will be used to revise and improve earthquake-resistant codes of the respective countries, making it possible to design and construct more safely and helping authorities in decision making for prevention of possible catastrophes.
- Further, these maps will be the basis for starting future seismic risk analyses, earthquake-triggered landslides hazard studies, etc.

In this work we have proved that analyzing and comparing data is relatively rapid thanks to the geographic representations and related tables in the GIS. At the same time, it has facilitated the study of the distribution of the seismic hazard, which would be much more complex if instead of reading a map, only alphanumeric data were available. So, it is clear that interaction between scientists, cartographers and end-users, and an adequate treatment of the information by all parties would improve the outcome of the work.

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References


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