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Geo Web Services and risk communication - the "Mountain Risks" experience.

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The risk communication is a critical but primary branch of risk governance, considering the transfer of knowledge as an essential component of disaster resilience within a society. The scientific community provides a well-structured analysis on natural hazard and vulnerability assessments. However, there is often a discrepancy between the information provided by the scientists and the real needs of respective stakeholders and end-users. Through the EU funded "Mountain Risk" project, different Geo Web Services frameworks have been developed. These include practical examples of training, data sharing and decision-making support, based on open-source techniques and flexible customizations. For example, WebRiskCity is a web-based support framework to a distance education course guiding the participants through the entire process of risk definition. The course is applying a case study of a city exposed to multiple hazards in a developing country (Tegucigalpa, Honduras). It is composed by large sets of exercises, with online guides, answer sheets and GIS data and a direct explanation of analysis obtained by risk assessment, risk evaluation and risk reduction methodology. Another example is Barcelonn@, which is a visual interface to gather, organize and share a wide range of information related to natural hazards. All this information is available for the Barcelonnette Basin, South French Alps (e.g. orthophotographs, satellite images, topography, DEM and DSM, land cover, built environment, geology, geomorphology, regulatory documents, elements at risk) on regional and local scales. Data is initially arranged in geodatabase directories but future WMS solutions (Web Map Service, standard protocols for serving georeferenced map images over Internet) and a total open-source database system migration (POSTRESQL) is planned to improve an interaction with other institutes or agencies and a quicker access to the information.
Another example is Historic@, an on-course web service to spatially compare historical database obtained in last two hundred years on landslides and floods events with evolution of population at municipality scale. Hereby, the study area is the Mountain Consortium Valtellina di Tirano, Italy. The purpose is to supply an interactive graphical support of risk perception in mountain areas and to compare a dataset between natural events with population trend and citizen behaviour.
In all examples, two common steps have been performed to accommodate the required structures: the creation of a hierarchical database that includes all information available for the study areas spread at municipality or regional level using different switches and the definition of a common open-source web technique. WebRiskCity, Barcelonn@, Historic@ are designed with the same client-server platform. It is arranged by CartoWeb, an open-source architecture composed by Mapserver as spatial component and different customized plug-ins to assemble a complete Geo Web Service. Visualization, output, comparison, exporting, querying, research on the entire dataset are actions enabled for the users by web protocols.
The web-service is firstly a way to decrease the gap between scientific community's results and stakeholders' practical needs (simple interface, easy-to-use buttons in a generally user-friendly approach). Secondly, the wide collection of assorted information (e.g. records of historical events, conditioning and triggering factors, information on elements at risk and their vulnerability, modelling results, administrative data) and the data comparison offers a clear support in the decision-making process and the awareness on natural events. However, there are still open questions such as maintenance of established services, related responsibilities of administration, accuracy of the results, and legal issues such as user-rights to access the information, to name some future research issues only.