Geophysical Research Abstracts,
Vol. 11, EGU2009-2036, 2009
EGU General Assembly 2009

On the involvement of the Citizens for an improved earthquake response

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Because of their key role in earthquake response, the Civil Protection Agencies are more interested in the effects of an earthquake rather than on the phenomenon itself. An earthquake effects are not easy to predict from seismological data only. Firstly because the many elements required to estimate these effects are either affected by non-negligible uncertainties (e.g. earthquake depth and location, site effects, seismic attenuation) and/or poorly constrained (e.g. building vulnerability, distribution of the population with time...). Secondly, because the reaction of the population is not always easy to predict especially in areas of low seismic hazard where there is little or no experience of felt earthquake.

In order to complement its services of rapid earthquake information, the Euro-Med Seismological Centre (EMSC) developed a number of tools to rapidly collect in-situ observations of the earthquake effects and better evaluate the reaction of the population. The first tool is an original development by EMSC. It uses the observed surge of traffic on EMSC web site (www.emsc-csem.org) to rapidly (within 5 to 10 minutes of the earthquake's occurrence) map the area where an earthquake was felt and it determines whether there has been significant widespread damage. When an earthquake is felt, people rush on the Internet to find out the cause of the shaking generating brutal surge of traffic on our web site. The area where the earthquake was felt is determined by locating the IP addresses and identifying the localities which exhibit a significant increase of visitors. Damaged areas are characterised by a lack or an absence of connections. This approach, which is the fastest way to collect in-situ observations on earthquake effects, is being implemented in several institutes in Europe.

Online macroseismic questionnaires in more than 20 languages complement this first approach. It provides a refined description of the effects and shaking levels through a quantitative scale, however it takes 60 to 90 minutes to collect enough questionnaires to draw a reliable map.

Witnesses have now the opportunity to share their pictures of the damage. Once validated by a seismologist they are shared on the EMSC web site. This proves valuable to provide local constraints on the actual damage but also for documenting the earthquake phenomenon and rare pictures have already been collected from Chile to Greece.

Finally, it should also be noted that involving the citizen in earthquake response make them actors of the risk management and contribute to the development of a culture of risk.