

From eyewitnesses to macroseismic information services

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The EMSC provides real time seismological information for the public and for the scientific community. We offer various services: website (www.emsc-csem.org), Twitter (@LastQuake, @emsc), internet browser extension, webservice (www.seismicportal.eu) and a smartphone application (LastQuake) for Android and iOS.

All these communication tools create an efficient system to gather testimonies on earthquakes. With the popularity of mobile devices, we observe a clear trend: eyewitnesses share more and more of their feelings and they share them faster. At EMSC, more than 56,000 felt reports were collected in 2015 and 18,000 in the first 4 months of 2016. Our system is real-time and is known worldwide in all seismic regions.

In addition to seismometers, EMSC uses reports from eyewitnesses to collect information of the effects and to estimate the impact of earthquakes. Since July 2014 and the development of the smartphone application LastQuake, EMSC asks to the user to evaluate the intensity that best corresponds to his experience by picking a picture among 12 describing 12 levels of shaking. This scale differs from the well-known MMI and EMS-98 intensity scales based on questionnaires. However, this approach is fast, user friendly and removes language barriers.

Thanks to this system, EMSC collects intensity information on felt events within minutes. For example, for the M6.6 event in Pakistan the 10th April, we collected 400 reports in 10 minutes and to estimate the felt area in 2 minutes. Eyewitnesses of such events allow the EMSC to create a large dataset and in combination with clustering techniques show the ability to infer near real time macroseismic information.

Whithin the European EPOS project, the EMSC plays an important role in seismology. In addition to give access to our traditional seismological data, we are developing a webservice to share these eyewitness reports and to provide citizen seismological data to the scientific community. This is a response to the new perspectives challenged by EPOS to link the solid Earth science and the society.