

The whole story: rumours and science communication in the aftermath of seismic events

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Controversies that stir the public debate on geological matters in Italy often pertain to two specific aspects: the actual trigger of geological phenomena (i.e. natural vs anthropogenic) and the trustworthiness of the experts who provide information and advise on the phenomena. A typical example of such difficulties is the case of the 2012 Emilia seismic sequence, which struck an area of moderate seismic hazard. At the same time, geophysical prospecting was planned to assess the potential of a reservoir for gas storage, near the town of Rivara. The low frequency of important seismic events in the area, associated with the ongoing industrial planning prompted widespread rumours of an anthropogenic origin of the 2012 earthquake. Since then, public concern has been risen several time by the occurrence of anomalous surface phenomena (among which heating of well water). While these phenomena always occurred in the area, and were recently explained in terms of a shallow, exothermic oxidation of methane, popular belief tends to establish a causal link between anomalous temperature and seismic activity. The ambiguity in the definition of the size of seismic events may further hinder communication efforts: such size may be expressed in different ways, and may assume different values depending on the adopted computational technique and on the size and geometry of the available seismic network. As a result, different institutions may release different numbers to express the magnitude of the same earthquake, casting doubts on the reliability of the estimate. We'll present and discuss different activities that INGV (Sezione di Bologna) pursued through the years, in collaboration with various local and national institutions, to provide an effective dissemination of scientific information and to reinforce mutual trust between our research institute and the local population.