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**COMMUNICATION UNDER UNCERTAINTY: THE L'AQUILA 2009 EARTHQUAKE
CASE**

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The death toll of natural hazards is dramatically increasing since a few decades. This is mainly a consequence of the increase of population density and of vulnerability of many hazard prone areas. False and missed alarms have been harshly questioned by the population and sometimes by governmental authorities.

An extreme case is the first level condemn of seven Italian scientists for the information given to the public before the Mw6.3 earthquake hitting the city of L'Aquila (Italy) and surrounding municipalities on April 6, 2009. Similar and greater disasters occurred after 2009 due to natural hazards, such as the Tohoku exceptionally violent earthquake and tsunami hitting Japan in 2011, the Christchurch earthquake sequence in New Zealand, the large floods covering central and south eastern Europe in 2006 and 2013, the floods triggered by Hurricane Irina in NE USA in 2012 etc. Reactions of public and legal authorities have been different, not reaching the extremes of L'Aquila sentence.

The reactions of people and authorities to scientific information appear to be strongly conditioned by the level of risk-awareness and memory of past events. However, all the reactions of public and administrators have a common background: the lack of consciousness that we live in a probabilistic world where all scientific assessments concerning natural hazards and risks have a probabilistic character and a related uncertainty. This concept is missing in the legislation of many countries.

The court of L'Aquila sentence had immediate negative consequences, at least in Italy, triggering a strongly defensive attitude in all the actors of a crisis management during a natural event, hindering the implementation of innovative methodologies, such as those of early warning, that can save many lives but have inherently significant levels of false and missed alarms. Future scenarios of science-decision making-people interactions must consider seriously pros and cons of the rapidly growing role of social networks in immediate pre or during crisis information. The complexity of future communication scenarios can be approached by a widespread and transparent use of probabilistic approach in risk governance, an advanced pre-event formation of people and administrators, the establishment of operational risk reduction guidelines. Finally a reformulation, where necessary, of the legislation on the management of risks should clarify duties and responsibilities and introduce the concept that false and missed alarms may be significant in any risk management method.