



Geoethical suggestions for reducing risk of next (not only strong) earthquakes

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Three relatively recent examples of earthquakes can be used as a background for suggesting geoethical views into any prediction accompanied by a risk analysis. L'Aquila earthquake (Italy - 2009): L'Aquila was largely destroyed by earthquakes in 1315, 1319, 1452, 1461, 1501, 1646, 1703 (until that time altogether about 3000 victims) and 1786 (about 6000 victims of this event only). The city was rebuilt and remained stable until October 2008, when tremors began again. From January 1 through April 5, 2009, additional 304 tremors were reported. When after measuring increased levels of radon emitted from the ground a local citizen (for many years working for the Italian National Institute of Astrophysics) predicted a major earthquake on Italian television, he was accused of being alarmist. Italy's National Commission for Prediction and Prevention of Major Risks met in L'Aquila for one hour on March 31, 2009, without really evaluating and characterising the risks that were present. On April 6 a 6.3 magnitude earthquake struck Aquila and nearby towns, killing 309 people and injuring more than 1,500. The quake also destroyed roughly 20,000 buildings, temporarily displacing another 65,000 people. In July 2010, prosecutor Fabio Picuti charged the Commission members with manslaughter and negligence for failing to warn the public of the impending risk. Many international organizations joined the chorus of criticism wrongly interpreting the accusation and sentence at the first stage as a problem of impossibility to predict earthquakes. - The Eyjafjallajökull volcano eruption (Iceland - 2010) is a reminder that in our globalized, interconnected world because of the increased sensibility of the new technology even a relatively small natural disaster may cause unexpected range of problems. - Earthquake and tsunami (Japan - 2011) - the most powerful known earthquake ever to have hit Japan on March 11. Whereas the proper earthquake with the magnitude of 9.0 has caused minimum of deaths (incomparably lower than tragic events from 1923) the tsunami has broken any known record. The existing anti-tsunami measures have appeared to be appropriate to expectations given by unsatisfactory safety limits extended to the human memory experience.

Conclusions of geoethics: a) a new legal interpretation of „false alarms“ and reasonable risk and danger levels is to be established (up-dating internationally acceptable definitions and protection measures); b) any positive prediction for any known real natural disaster (whoever made it) is to be precisely analysed by competent institutes avoiding any underestimation of „incompetent“ researchers and amateurs and respecting diversity of scientific research “schools”; c) a reciprocal respect between scientists and the population is to be based on the use of a reciprocally understandable language; d) scientists as well as media are obliged to respect and publish the complete truth about facts with clearly defined words to avoid any misinterpretation of results; e) consequences of relatively "minor" earthquakes are no more limited only to an adjacent local area; f) the appropriate programs for computerized predictions are to be under a permanent control of validity (using alternative parameters and incorporating verified or supposed time-tables of events from the past); g) any scientist when accepting a function in a State organ has to accept his role with high personal responsibility for and respect to the goals, work and results of such a commission; h) any effective prevention of the population is to be based on a mutual consensus preferring in any stage the common good instead of particular or personal interests and respecting human lives as the top value priority.