

# Revisiting the tragic Italian earthquake manslaughter verdict

*Trying to be a little fairer to the Italian prosecution that sentenced seven men to prison for failing to 'adequately warn' about the L'Aquila earthquake.*

**Dan Murphy, Christian Science Monitor, 10-26-12**

A few days ago I wrote about the L'Aquila earthquake verdict in Italy, that saw seven Italians, some of them the country's most eminent seismologists, sentenced to prison for failing to "adequately warn" about an earthquake that claimed 300 lives in the central Italian city in April 2009.

I wrote on Monday "today, a court in the central Italian city of L'Aquila... sentenced six scientists and a government bureaucrat to six years in jail on manslaughter charges for their failure to predict a 2009 earthquake that left more than 300 people dead."

Longtime Monitor science reporter Pete Spotts pointed out that my story may have overstated the case, and directed me to a good article in Science, "Aftershocks in the courtroom," that was written ahead of the verdict but is one of the better pieces on English about the background to the court case that has drawn condemnation from around the globe and seen a number of top Italian government scientists resign their posts in protest. (The Science article is paywalled).

The nuance I missed? The prosecution did not seek manslaughter convictions for the seven men strictly on the basis that they "failed to predict" the earthquake. Instead, the complaint was that they downplayed the probability of a major earthquake around the time that L'Aquila was hit, and were therefore liable for the deaths because they had unduly reassured the public. If the scientists had been more alarmist, the reasoning seems to go, residents of the L'Aquila area would have been more inclined to sleep in cars or outdoors, and therefore fewer would have died in building collapses.

This distinction feels a little like hair-splitting to me, since the demand is still that they should have known that an earthquake was more likely than their own predictions indicated. But since predicting an earthquake at a particular time and place is impossible, so is assigning precise probabilities. If you ever hear someone say that there's a 72 percent chance of an earthquake in your town next Tuesday, know that you are talking to a charlatan.

Nevertheless, some of the people involved in communicating to the public ahead of the L'Aquila quake, in which a "swarm" of tremors had heightened local concerns that a big one might be on the way, certainly got their science wrong.

In late March of 2009, Bernardo De Bernardinis, who was then the deputy head of Italy's Civil Protection Department, appeared on a L'Aquila area local television station to address fears that a major earthquake was on the way. According to Science, Mr. De Bernardinis said recent tremors did not increase the risk, and that "the scientific community continues to confirm to me that in fact it is a favorable situation."

Science writes: "The ongoing tremors helped discharge energy from the fault, De Bernardinis explained. Trial witnesses later said this was particularly reassuring because it suggested the danger decreased with each tremor."

the case. And while a swarm of tremors sometimes passes without a major quake, they sometimes presage one. To say that a series of tremors has lessened the chance of a major earthquake is as incorrect as saying they mean one is definitely coming.

At around that time, L'Aquila Mayor Massimo Cialente told another local TV station that "there should be absolutely no risk" of major damage to local buildings. That was an unknowable at the time (and clearly wrong given later events) and Mr. Cialente's reassurance was inappropriate, to say the least.

But Cialente was not one of the men sentenced to prison this week. De Bernardinis was among the seven, the only of the convicted who isn't a geologist. All seven men appeared at a press conference in L'Aquila on May 30, 2009. Science summarizes the tone of their overall remarks "as reported in newspaper articles and television reports, was: Stay calm; it's not possible to predict earthquakes, but we don't expect a major quake is on the way."

Well, they were wrong. But in any given time window, it's more likely that a major earthquake will not occur than that one will. The L'Aquila quake struck on April 6, seven days later. Had the men been more alarmist would people have stayed outside of buildings for the next seven days, saving lives? Perhaps, though that seems unlikely.

Lead prosecutor Fabio Picuti complained in his indictment against the men that they were culpable because they had provided "inexact, incomplete and contradictory information."

Well, of course. Neither can an earthquake be predicted accurately, nor can precise probabilities be assigned. University of Rome Volcanologist Franco Barberi had said during a meeting ahead of the May 30 press conference that a "seismic sequence doesn't forecast anything," a point that Mr. Picuti strongly took issue with, though in a strict sense, Mr. Barberi was right.

Science writes of Picuti's summation.

Picuti pointed out during his summing up that L'Aquila's 1461 and 1703 quakes were also preceded by foreshocks—and argued that the defendants knew this and should have taken it into consideration. "Why," he asked, "didn't another commission member say: 'No, Professor Barberi, we can't make such a definite statement; let's instead talk in terms of probability—that very rarely a seismic swarm can evolve into a strong tremor'? If this had been written in the minutes, I certainly wouldn't be spending my time here discussing this."

So in essence, he pursued the prosecution because a scientific commission had failed to say that "very rarely a seismic swarm can evolve into a strong tremor." The assertion that this would have saved lives seems risible.

New Scientist has been kinder to the verdict than many other outlets, however, and their point about public communication and science is worth considering:

Employed by Italy's Major Hazards Committee to assess earthquake risks and communicate them to the government and the public, the seismologists got the science right, but left the job of public communication to a civil protection official with no specialist knowledge of seismology. His statement to the press was, to put it mildly, a grossly inaccurate reflection of the situation: "The scientific community tells us there is no danger, because there is an ongoing discharge of energy. The situation looks favourable." At this point, the seismologists should have stepped in. But they did not, and the message stuck.

More commentators argue that the L'Aquila verdict will have a chilling effect on the profession of scientific

However, it should also encourage scientists who take on those roles to think long and hard about the responsibilities that come with them. It is tempting for scientists to defer communication with the public to others who are supposedly "experts" in doing so. But this approach often leads to confusion, as evidenced by a litany of failures in the past: BSE [mad cow disease], vaccines, genetically modified crops and many more.