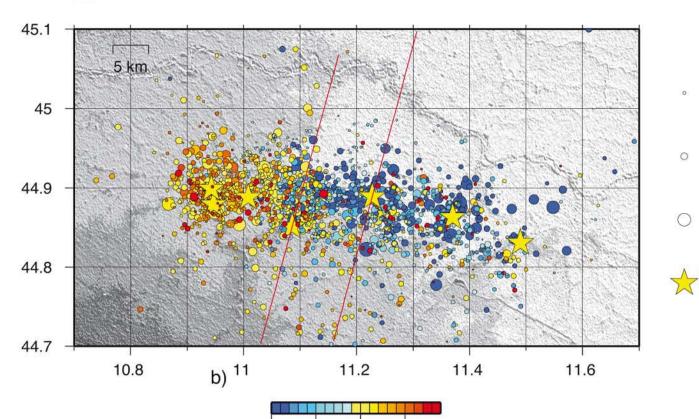
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Rumors about the Po Valley earthquakes of 20th and 29th May 2012 La Longa F., Crescimbene M., Camassi R., Nostro C.

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1. Introduction







On May 20, 2012 (02:03:53 UTC), a Mw 5.86 (Ml 5.9) earthquake struck the Po Valley (Northern Italy regions: Emilia-Romagna, Lombardia, Veneto), causing 🖺 five deaths and material damage in various municipalities and in the cities of Ferrara and Modena. After the main event, the seismic sequence included six earthquakes of magnitude greater than 5.0. The biggest shock occurred about 7,5 miles west of the first main shock and had a Mw 5.66 (MI 5.8). The earthquake that occurred on May 29, 2012 (07:00:03 UTC) can be considered a second main shock. After this event, the official assessment of the impact of the seismic sequence reported a death toll of 17, 13,000 persons homeless, and serious damages to the economy of the regions involved.

The occurrence of a strong earthquake generates social awareness regarding the issue of risk, which is also expressed in the form of a request for <mark>ru</mark> information and knowledge. This need for information is particularly felt on the passing from person to person, usually by word of mouth, withou occasion of seismic sequences of long duration and with a certain level of clear evidence of their truthfulness. Rumors are usually spread Have you checked it? If so, how? complexity. The information in all its aspects has a relevant influence on the from person to person by word of mouth, and the mass media How important is it for you? ability of the individuals and communities involved to deal with the emergency play a key role in their diffusion. The scientific study of rumors 239 rumors collected between 14 June 2012 and 12 November 2012

For this reason, as occurred during the L'Aquila earthquake sequence in 2009, to spread about World War II. The U.S. government responde following the events of May 2012 in the Po Valley a long and complex training by setting up committees with the intention of fighting rumors and information initiative was launched and, between May and September deemed dangerous to people's morale and to national security 2012, involved the entire population. This endeavor was organized and Social scientists proposed the so-called Rumor Clinics (Chicago, managed by the Department of Civil Protection (DPC), the National Institute of 1942). These were the operational structures of the larger Rumor Geophysics and Volcanology (INGV), the Emilia Romagna region in Project involving several agencies of the Government. Rumors collaboration with the Network of University Laboratories for Earthquake were collected and cataloged throughout the country. Every Engineering (RELUIS), the Emilia Romagna Regional Health Service, and Sunday newspapers such as the Boston Herald published voluntary organizations of civil protection in the area.

The initiative, which assumed a predominantly psycho-social support profile, proved to be particularly important because of the complexity of the sequence underway, that had alarmed a large, densely populated area, and because of the "viral" circulation of urban legends, rumors and false news that put a strain on the ability of the individuals involved to adequately address the emergency and hampered the proper management of organizational and social problems.

2. Psycho-social support intervention

In recent years, international guidelines for this sector (IASC and WHO in particular) have begun to emphasize more and more the need to integrate traditional approaches of emergency psychology, primarily clinical action-oriented (individual or group), with a pronounced emphasis on the psycho-social, community and intercultural dimensions of the intervention conducted.

Moving in this direction - and capitalizing on the valuable experience gained in the L'Aquila earthquake of 2009 - a series of meetings with the population were held for the following purposes: to inform people about the seismic sequence, to respond to concerns and expectations, to develop a capacity of adaptation of the population by increasing the level of knowledge and self-awareness.

Specifically, the psycho-social intervention sought to:

• Give the people a basic understanding of their own emotions and the reactions of both individuals and groups in an emergency situation. As already experienced in the L'Aquila earthquake in 2009, psychological information flanked information on the seismic sequence. The former focused on the theme of emotions and emotional reactions related to an emergency situation, the realization of a state of anxiety and exposure to rumors, the recognition and development of individual and collective response capacities in an emergency situation.

• Orient the population to facilities and professionals able to provide assistance and social and psychological support. In close collaboration with local health structures and local institutions, a network of psychological and psychotherapeutic response to the population was organized. During the meetings some simple guidelines on how to find one's way around and learn about the services locally available were given.

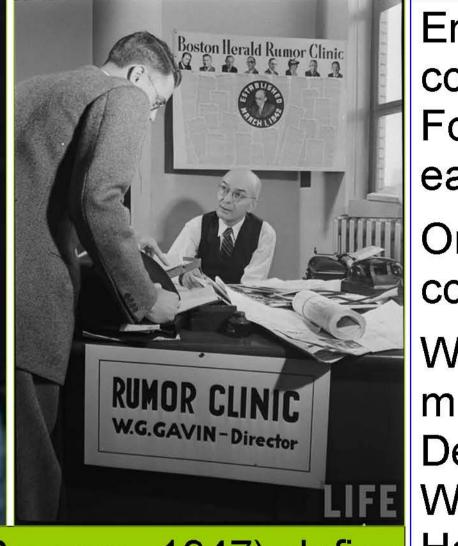
• Counter rumors and urban legends about the earthquake. A concrete campaign for the collection and classification of rumors was conducted by using institutional websites. The awareness heightening and education of the population in this sense helped lower the level of anxiety and potential social tension among both people and institutions.

• Encourage and promote opportunities for discussion and meeting places for the communities affected by the earthquake where all the institutions involved were present at the same time. These spaces for discussion and encounter properly managed and with a strong "therapeutic" value helped to defuse tensions and conflicts, and provided crucial help to the affected people.

• Encourage the active participation of citizens and the initiatives of local communities. This aspect is a reversal of perspective in relation to the management of some past emergencies. The whole system of civil protection no longer assumes a "welfare" value in which the affected population is considered "incapable" or "sick", but the civil protection system will promote a "healing" effect vis-a-vis responsible citizens and "things" damaged or destroyed by the earthquake.

3. Studies on rumors



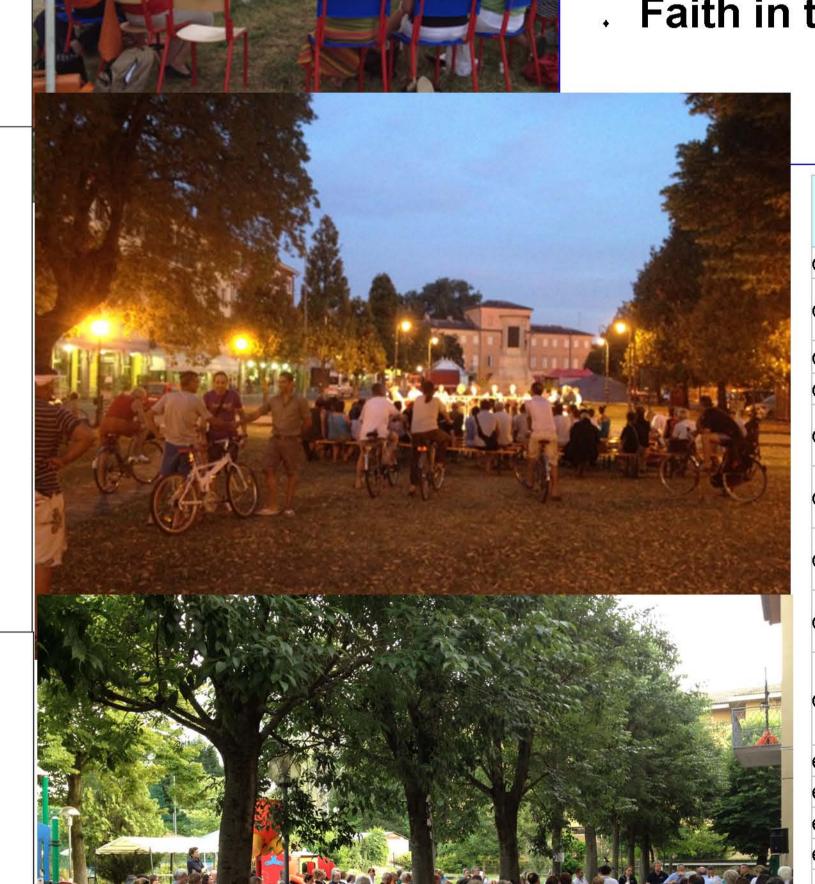


umor heading reported facts to dispute it.

rumor most frequently detected during the week, and under

Levels of Faith





4. The collection of rumors in the Po Valley

| Emerging at the very outset of the encounters held for the population affected was the need to respond to and counter the rumors that were circulating in a massive and uncontrolled manner after the seismic events.

For this reason, having data available about the rumors during the encounters of the "Let's talk about the earthquake together" campaing was considered of vital importance.

On the websites of the institutions sponsoring the campaign (DPC, Emilia-Romagna, INGV, Edurisk Project) a collection of online rumors was launched.

Web users were asked to provide some data (Name, Age, level of education, sex, occupation, province and municipality of residence) and answer a series of questions about the rumor.

Rumors Classificatior

Description of the rumor. Who told you that?

Have you told anyone?

To whom and to how many people did you pass it on?

† Do you believe it?

and were classified into 6 categories:

- explanatory
- conspiracy
- catastrophic
- paranoid
- positive

other effects

Further processing made it possible to calculate the strength of rumors according to the formula of Allport and Postman (The Psychology of Rumors, 1947)

$R = i \times a$

Strength of Rumor (R) = importance of the theme (i) x the degree of ambiguity (a).

The importance of the issue (i) was assigned the value of 1 for every rumor considered, insofar as the earthquake the emergency phase was pursued issue was deemed certainly important for the population that had just suffered one.

The state of ambiguity of the subject (a) was calculated by assigning a numerical value to questions about rumors that were related to: the source, the spread and the faith of the subject in the rumor.

- Source: Who told you that?
- Spread: Have you told anyone? To whom and to how many people did you tell?
- Faith in the rumors: How much do you believe it? Have you checked it? How important is it for you?

Based on the above mentioned formula the rumors were classified according to their strength, which helped to focus attention on the more dangerous and frequent ones (see the following table).

Class	Rumor description	Source score	Spread score	Faith score	Strengnt	
catastrophic	Between July 13 to 16 in Emilia Romagna there will be an earthquake between 4.5 and 6.1	3	3	3	9	hight
catastrophic	this was only a premonitory sign. The big event is yet to come. Remember the date of December 21, 2012, attention is not a hoax. It is the date of the closing of a cycle and then earth will open a new cycle, as happened in the dinosaurs era	3	3	3	9	hight
conspiracy	They say that the stronger shocks that came were of magnitude higher than the officially declared	3	3	3	9	hight
conspiracy	The earthquake of 20/05 was actually a magnitude 6.1 instead of 5.9 as reported by the media with the support of the INGV.	3	3	3	9	hight
conspiracy	I have heard that the strength of these shocks was actually stronger but was not told because the state had to pay all damages and money they do not have	3	3	3	9	hight
conspiracy	The major shocks were officially under 6 but in reality have been stronger, in fact, at least one has been lowered after. This is a strange case, as it happens do not pay us for just under six earthquakes.	3	3	3	9	hight
conspiracy	Persistently circulating the rumor that concerns the magnitude of the shock of 29/05/2012 which would have been much stronger than reported (they say MI between 6.8 and 7.4)	3	3	3	9	hight
conspiracy	With more and more insistently we hear and read that the earthquake of 20/5 had a magnitude greater than 6 and which have been reduced because the Italian government, in the first case, would have to provide compensation to	3	3	3	9	hight
conspiracy	This earthquake is different from others. First of all, we are in seismic zone and is therefore not strange. Then all shook coincidentally took place just where are drilling. There are drilling in the course exactly where there was an earthquake and could tell us	3	3	3	9	hight
explanatory	The most common rumor is related to a possible liability to the assets of fraking.	3	3	3	9	hight
explanatory		3	3	3	9	hight
explanatory	The excavation for the storage of gas stimulate the movements of the earth's crust	3	3	3	9	hight
explanatory	The shock of Ravenna was caused by subsurface drilling for oil and gas	3	3	3	9	hight
explanatory	Fracking responsible for the earthquakes in Emilia, with the approval of the Monti's government! This technique is rejected by many countries, as France. The population kept unaware of the danger even after the earthquake of 17/07/1	3	3	3	9	hight
explanatory	The shocks that have hit us in this period are probably also caused by the drilling of Rivara. The excavations are also protected by the USA. Who signed the projects can not be found.	3	3	3	9	hight
explanatory	From the web site of Quattro Castella municipality: (After an advertisement drilling) LORDS prepare to wince: These works are the jobs that were performing in the areas of Modena where on 20 May and period following is verified the seismic event that all of us know	1	1	1	3	low

5. Strategies and actions to combat the rumors in the Po Valley

Although never validated and critically examined, the law on rumors postulated by Allport and Postman certainly seemed to us a good starting point for work

a The main criticism reported by some authors about the work of Allport and Postman (1947) was as follows:

- the observation that the importance of the subject can not be regarded as an essential predictor of the strength of rumors;
- the consideration that the importance of the subject and its degree of ambiguity are not sufficient to explain the strength of a rumor, because included had to be other factors such as the anxiety of the individuals

Both considerations seemed of less importance to us in our specific case, since, based on the characteristics of the earthquake event and the wellcircumscribed area affected, the subject had definitely been of great social importance over the period considered and the population could collectively be considered at a uniform high level of anxiety.

Activities against rumors had been designed and launched to increase the critical sensitivity of the population involved.

According to some authors (Chorus,

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1953, Di Fonzo, 2004) we believe that the strength of the rumors can be alleviated by adding the critical sensitivity factor (1/c), to the Allport-Postman formula, and where 'c' would denote critical sensitivity. The objective of developing this critical sensitivity in through a series of actions agreed

population.



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Before each meeting an encounter of professionals was held to analyze the more frequent rumor or rumors circulating in the area, and stemming forth from this analysis exercise were responses to be brought to the attention of the general public.

In general the responses agreed upon sought to encourage and promote a healthy skepticism and the development of a critical sense through:

- The promotion of an educational efforts regarding seismology and the psycho-educational aspects that influence rumors themselves (emotions, collective state of anxiety, uncertainty about the future, mechanisms of social psychology such as conformism).
- The advice to people not to take as true information provided by the traditional media and the new media, always double checking the sources of such news.
- The indication not to consider any source authoritative a priori (including institutions involved in the information campaign).

Lastly, it seems useful to consider what we deem to be the strategic choice to create direct contact with the population and local institutions (municipalities, AUSL, associations of municipalities and citizens, etc..) in order not to entrust communication during this important stage of the emergency to one media channel (ordinarily not that well known and difficult to control). In many meetings, "direct" contact with the population played an important role in building a relationship of trust and dialogue with the citizens.