

# RISK PERCEPTION AND COMMUNICATION IN CATALONIA

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## Introduction and Objectives

In the last years the trends in mass media are changing: slight decrease in newspaper readers and quickly increase in use of Internet and social networks: in Spain there are more than 29,000,00 users of Internet (62.6% of all population) and more than 11,000,000 users of Facebook. The communication is changing. In these context it is necessary to design new and more effective ways of communication of risk.

The main objective of this work has been to analyse the perception of natural risks in Catalonia (NE of Iberian Peninsula) and the potential role of some communication media in the risk awareness and social knowledge. This analysis will help to identify the most vulnerable sectors and the potential strategies to be developed in the future.

## Data and Methodology

### RISK PERCEPTION STUDY

In order to estimate the different degrees of perception, five questionnaires have been built and distributed by the Civil Protection of Catalonia, during five campaigns developed between October 2008 and October 2010. During each campaign more than 1000 people have been consulted (age>16 years old). The sample has been selected proportionally to the population of each county, distribution by sex and age, following data provided by the Catalan Institute of Statistics. Results have a confidence level of 95%.

### RISK COMMUNICATION STUDY

**Press data:** A systematic press database on natural hazards and climate change in Catalonia (NE of Spain) has been built for the period 1982-2007 (Llasat et al., 2009b). It contains more than 14,000 news related with those issues published by the oldest still-active newspaper in Catalonia (La Vanguardia).

**Internet data:** Results of searches in Google, Google Insights for Search, Youtube, Twitter and Facebook.

### STUDY AREA:

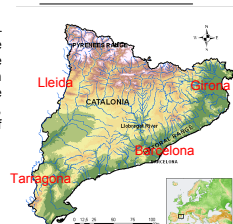


Figure 1. Map of Catalonia with provinces name in red colour

## Results – 1. Questionnaires

### 1.1. Do you think that there is any natural phenomena in your area that could be a risk for the population?

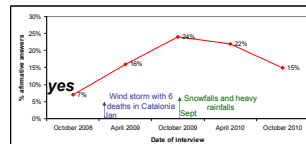
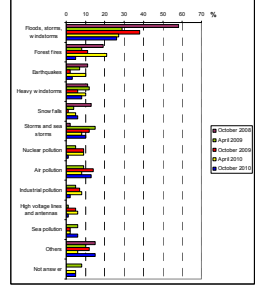


Figure 2. Evolution of percentage of positive answers along the 5 campaigns.

### 1.2. What is the most important risk in your region?



In general, floods, sea storms, wind storms, snowfalls and forest fires are the risk perceived as the most dangerous.

However, the perception level is very influenced by specific events at short term. The historic memory and the correct knowledge of the regular risks that each region is submitted is relatively poor.

Figure 3. Percentage of the people that said 'yes' in question 1.1, and identify each risk as one of the most important in their region

Following INUNCAT more than 40% of Catalan municipalities have a high or very high flood risk.

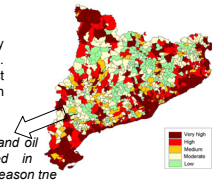


Figure 4. Map of flood risk in Catalonia according to INUNCAT (Flood prevention Plan in Catalonia).

## Conclusions

**Perception**  
The population have a short term memory in relation to regular risks. For this reason, periodic campaigns are needed. Some specific events (not all of them) can increase the risk awareness and perception. Elderly people, housewives, and people with low education level are the sectors with a lower risk awareness.

### Communication

Habitual mass media have a role in risk collective knowledge construction. TV and internet are the most important ones  
It is necessary the improvement of risk communication and awareness strategies to population.

### Channels and strategies

The TV, press and local administrations are the channels through the population receive more information about risks.  
Internet is a channel with a lot of opportunities. Nevertheless, there are a lot of information, some of this with problems in accuracy.

## Abstract

People do not necessarily share the same perceptions of the significance and underlying causes of different risks and how to proceed in front of them. Whyte (1986) distinguish three groups of factors influencing amplification of the perceived risk: personal characteristics, situational factors (media attention and others) and risk characteristics. Besides this, the risk communication involves many agents like government agencies, universities and research centers and the media. How are developed the risk communication by these agents? Among the recipients are some population groups that do not receive this information correctly. The identification of these sectors and the deficits in the communication chain are key steps to improve communication strategies. With this aim, the present contribution shows the result of the integration and synergy between the studies on risk perception developed by the GAMA team of the University of Barcelona and based in the analysis of media and social networks and internet (Llasat et al., 2009a, 2009b; Llasat-Botija et al., 2010), and the analysis developed through questionnaires by Civil Protection of Catalonia as well as their own experience on risk communication to society.

This contribution starts from the analysis of the newspaper articles on natural hazards published since 1982 by a Spanish journal (Llasat et al., 2009b), analyzes the breakpoint produced on last years, and its evolution, as a consequence of the introduction of news in internet as well as social networks, blogs, Youtube, distribution lists and other applications, and analyzes the results obtained from the surveys about natural risk perception conducted by the General Direction of Civil Protection in Catalonia, for the period 2008-2010, with a sample composed by one thousand people approximately. According to this study, only 15% of surveyed people consider that their region can be affected by risks associated with natural phenomena like floods, windstorms, snowfalls or forest fires (in this order), although some scientific studies and reports show that more than the major part of the population in Catalonia lives in regions that can be frequently affected by heavy rains, floods or other hydrometeorological risks. The study also shows that people living in small towns have a lower risk perception level, while there are sectors of the population with low risk awareness, particularly between young people and people with low educational level or immigrants. This result corroborates not only the hypothesis of White, but also corroborates the conclusion of Hoffman and Oliver-Smith (2002) that consider risks that are constructed socially are experienced differently by different individuals or groups of individuals within one particular society, thereby leading to multiple individual perceptions of one and the same event. Finally, the poster shows some potential answers to these deficiencies. The last objective is to establish new and innovative ways to transfer the natural hazards knowledge to practitioners, to overpass the short term interest in natural disasters during the crisis and non-crisis period, and to improve the disaster risk reduction approach following the Hyogo recommendations.

### 1.3. Knowledge about emergence planning

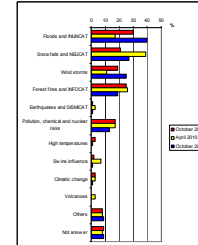


Figure 5. Plans remembered by interviewed people.

Only 19% of the surveyed people believe that there is a plan of prevention in its municipality. There is a significant lack of knowledge about the existence of emergency plans in the municipalities

Following INUNCAT, the 66% of the Catalan municipalities should develop a municipal emergency plan.

This 19% has a good knowledge of the plans.

The Communication campaigns take into account the diversity of the population.

### 1.4. Groups with lower access to information



Figure 6. Children in flooded zone (Altavilla, Tarragona province)

Groups with low level of risk information were detected: the elderly (65-75 years), people with low educational level, people that live in Catalonia since few time, the women who not gainfully employed and inhabitants of small municipalities.



Figure 7. Flood zone signs in Arenys de Munt (near Barcelona).

Regarding the groups better informed, factors that can be related are: a high educational level, connecting to the Internet daily or an active professional status.

### 1.5. Organism or media through which have you received information on risks

Question asked to the people who answered that they had received information on risks (33% of people surveyed)

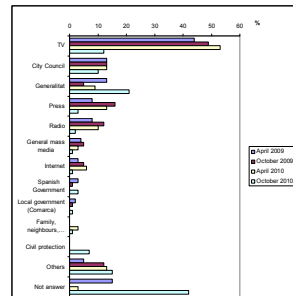


Figure 8. Percentage of media by which information about risks has been received

The TV is the most important channel and probably with a greater impact, especially for people that live in Catalonia for less than 10 years. The television was named by the 8% of men and by the 16% of women.

According to Science Perception National Survey, television is the most used channel for obtain science information. Nevertheless, Internet is the most important channel of scientific information to citizens under 34 years old and for people with university education.

Regarding the confidence in the scientific information, the mass media receive a 3 in a scale from 1 to 5, while the universities 4 (FECYT, 2010).

## Results – 2. Communication

### 2.1. Press

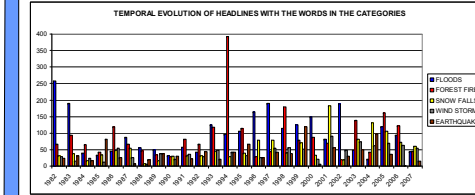


Figure 9. Temporal evolution of news of Press-GAMA database with these descriptors in the field 'keywords' for the period 1982-2007

Figure 10. Flood evolution estimated from the number of news items in Press-GAMA database and from hydrometeorological and impact information, for the period 1982-2006. A good relation has been found.

A clear positive trend of 0.12 flood/year has been found in the flood evolution. Indeed, immigrations of population to flood-prone areas located near the coast, as well as the increase of total population and tourism, have led to increased pressure on the territory and higher vulnerability (Llasat et al., 2009a).

### 2.2. Internet

#### Google insights for search

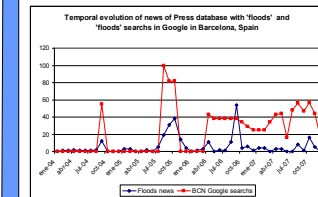


Figure 12. It is proposed the Google Insights for search like an indicator of people interests. A comparison between trend of Google searches for "floods" in Barcelona and news of Press-GAMA about floods has been made. A slightly relation between flood events and google searches has been found, more important as more Internet users.

### 2.3. Japan Earthquake and Internet

The news were online few instants after that the disaster occurred. Twitter network was the most active with almost 3 tweets per second.



Numerous groups have also been created in Facebook, mostly of solidarity kind. The social networks were used to contact family, neighbours... The IceRocket search engine, specializing in blogs, estimates that 525 posts were published (under the word "earthquake Japan 2011") and 3,017 ("earthquake Japan 2011") on 14/03/2011. In Youtube, between 14 and 26 March 2011, the results for 'tsunami' were doubled.

The analysis of the news in the Press-GAMA database shows that news regarding the floods are 30.5% of all the news, followed by the news of forest fires (28%). Increases are observed when an extraordinary event has happened, as in the case of floods of 1982 (with 258 news), wildfires of 1994 (392 articles) or earthquakes of 2004.



Figure 11. Some news from La Vanguardia

The press can be an important channel to improve the risk information of the population (Source of: La Vanguardia)

#### Results in Google searches

Between 26/3/2010 and 26/3/2011, there were marked increases of 100-300% in the terms searched in google, in respect the previous year (but in some cases there is even higher: 800% in landslides and 900% in tsunami). Other terms have decreased, like wind storm, storm, cold wave, hot wave, heat wave, forest fires and weather.

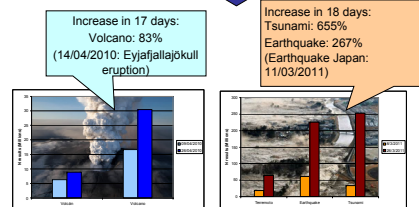


Figure 13. Number of results in Google for 'volcano', 'volcan' (Spanish), tsunami, earthquake and terremoto (Sp.) on different dates. After an extraordinary event, there is a significant increase in Internet contents related to this event. This "growth factor" is raising with the increasing of Internet users in the world.

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