

SOCIAL PERCEPTION OF STORMS IN NORTHEASTERN SPAIN

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I. INTRODUCTION

Burton et al., (1987) argue that natural phenomena are neutral and that it is the place where a person lives, his or her actions and perceptions that categorize natural phenomena as resources or as dangers. Thus the individual and the social perception are essential in defining the term 'risk'. For example, snow is a natural resource when it falls on ski slopes, but if it falls on the roads it becomes a risk for those driving to winter resorts. It may be claimed then that "the concept of 'natural risk' is relative and it acquires full meaning only in relation with a number of cultural considerations." (García Codrón and Silió, 2000).

Whyte (1986) distinguished three groups of factors influencing the perceived risk: personal characteristics, situational factors (media attention and others) and risk characteristics. As far as risk characteristics are concerned, Enander (2005) argues that floods are a hazard that tends to be viewed as natural and familiar, and these features may reduce the perceived seriousness of the hazard. Storms follow a similar trend.

With respect to personal characteristics, the flood hazard literature demonstrates that personal experience is the most important factor in the development of the perception of flood risk in people living in floodplains. In fact, in communities with a 'flood-culture' pre-event adaptations and adequate in-event responses minimize tangible and intangible damages (Nunes Correia et al., 1998). Similarly, previous experience with storms regarding protection against lightning, hail falls or floods is essential in those areas where there is a high risk. Many of the casualties are to be found among newcomers who ignore the most basic protection rules concerning this meteorological risk.

Finally, situational factors are very important too, in particular media attention. The media are one of the most important sources of disaster information (Fischer, 1994) and they significantly influence or shape how the population and the government view, perceive and respond to hazards and disasters. Fisher (1994) points out that "if most Americans rely on the various forms of mass media to obtain their information about what occurs before, during, and after a disaster, then it stands to reason that the accuracy of their perception is dependent upon the media". Other authors go even further and claim that the perception

of risk is reflected by the media's coverage of these events. Studies suggest that the power of the mass media in the perception of a natural disaster, for example storms, is crucial.

This study will assess the perception of storm risk in the population of Aragón and Catalonia (northeastern Spain) on the basis of information provided by the mass media, in particular by the press, since it has been demonstrated that the mass media are a key element in constructing social perception (Fischer, 1994).

II. STUDY ZONE AND PRESS DATABASE

After floods, droughts are the most important natural hazard in Mediterranean countries, followed by windstorms and hailstorms. According to the Spanish Ministry of the Environment, floods are the natural phenomena that caused more casualties in Spain between 1995 and 2004, with 229 deaths (31% of the total), followed by sea storms (24%) and atypical cyclonic storms (18%). The northeast of the Iberian Peninsula is the region with the highest frequency of storms, especially between May and September, with an average of 60 storm days in that period. This type of convective storm often comes with lightning and hail – severe or non-severe – causing important damages to the local crops.

A database has been set up containing information published in the press in Aragón in order to assess the social perception of storm risk in the area. It has been compared with the results obtained from a similar database for Catalonia. For a single event, there can be several headlines because it may have been covered by several media or for several days. Because of this, in this paper we will distinguish between "events" and "headlines". The articles have been introduced into a database with more than twenty fields covering headline, key words, type of risk, place of event, newspaper, date of event, publishing date, page, pictures, casualties, compensations, etc.

Over 3,200 articles on meteorological risks in the northeast of Spain have been compiled covering the period 1982-2005. This database provides information for various types of analyses, such as the quantitative evaluation of the impact of each risk, or the evolution in the treatment of each type of risk by the press during the study period.

III. DISCUSSION

In the region of Aragón the meteorological risk with the highest impact in the press is the drought, with 60.4% of the articles. Most of these articles were published in 2005 during a drought that caused damages in the area amounting to 430 million €. Lozano (2003) argues that our modern society spreads information about catastrophes by saturating all information channels available, thus turning exceptional events into common events. In 2005 this was the case of the articles on droughts. When there is this level of saturation, the information on natural phenomena does not really help to understand them. A similar trend was observed in Catalonia, with 184 articles in 2005.

Next come floods and hailstorms, with 9.1% and 8.0%, respectively. Most of the flood events in the region are caused by convective storms. These results differ considerably with those found in other nearby areas, such as Catalonia (Llasat et al., 2006; Llasat, 2004). In this Mediterranean region the major frequency corresponds to the news on floods, followed by agrometeorological hazards that included drought, forest fires and hailstorms.

The *article/event* ratio (Llasat et al., 2006) shows that after the drought in 2005, the most widely covered event was the hailstorm on August 16th 2003 in Aragón, with a ratio of 38. This figure is extremely high when compared to the average 3.6 of the ratio for the same phenomenon in Catalonia (Llasat et al., 2006). What are the reasons for such a high ratio in Aragón?

On August 16th 2003 in the small town of Alcañiz (Zaragoza) the rain gauges collected 118 mm in 2 hours. There was torrential rain and a hailstorm that lasted for 35 minutes and produced hailstones the size of a tennis ball (9mm). In that area 8,700 ha of crops were affected by the storm, as well as 100% of the roofs and over 300 cars. The estimated cost of the damages was 60 million € and the town was declared emergency zone.

This event was featured in four covers of newspapers (second only to the 22 cover pages devoted to the drought in Aragón), and 56 pictures of the damages were published. The peculiar features of this event prompted a more in-depth study of the meteorological situation on that day and of the press data available.

As for spatial location, previous studies (Llasat et al., 2006) have shown that the social perception assessed using newspaper articles gives more importance to events occurring locally than to events occurring elsewhere, where the consequences do not affect that particular society directly. On the other hand, events occurring in large cities cover nearly 60% of all the news published on floods in the province of Barcelona (Llasat et al., 2006). In the case of Aragón, the value is 27.4% for floods, but it is not significant for hailstorms.

Finally, the relationship between articles and storm data has also been studied, as well as the evolution of the number of articles in the past few years. The increasing concern about climate change has led to a greater interest of the press in extreme phenomena in an attempt to identify local effects of a much larger global phenomenon.

To conclude, it is necessary to bear in mind all the factors that play a role when writing a piece of news and assigning it a space in the newspaper.

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