

# **Quick Response Report #81 NEWSPAPER REPORTING IN WAKE OF THE 1995 SPRING FLOODS IN NORTHERN CALIFORNIA**

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## **ABSTRACT**

Field surveys were conducted within the first week after the California floods were first reported over national television. This study investigated newspaper reporting of the disaster. It looked at the differences in coverage at different media levels (local, state, regional, and national). Through their news-gathering and editing processes, news media impose a spatial bias on how a news event is perceived. A

and national). Through their news-gathering and editing processes, news media impose a spatial bias on how a news event is perceived. A widespread natural disaster may appear to be concentrated in certain limited areas, reflecting editorial decisions rather than true concentrations in these areas. Use of a Geographic Information System (GIS) allows for the identification of these patterns. The California floods of January, 1995, serve as a case study of this phenomenon. The first disaster in the state's history to encompass all fifty-eight counties, the floods held national headlines for the better part of a week. Content analysis was performed on newspaper coverage of the flood event and maps were created to compare these results with actual damage totals and locations, revealing significant discrepancies. It is argued that since short-term responses to disasters are influenced by perceptions created by the media, an awareness of this influence can result in more equitable distribution of resources throughout the disaster area. It is further argued that maps represent the best means of communicating the spatial extent of a disaster, and as such, maps should receive equal billing with text and photographs in the newspaper layout.

## **INTRODUCTION**

Human perception of natural hazards is greatly influenced by the way information is communicated to the public. Research on risk communication in the United States usually centers on the role of mass media (television, radio, and print media), though such knowledge is also transferred through personal communication, classroom instruction, government publications, and other means. Palm (1990, p. 37) identifies some general conclusions concerning the way that risks are (mis)communicated through the media. One is that factors that make hazards memorable distort risk perceptions. Dramatic causes of death are overemphasized relative to those of a more pedestrian nature.

Dangers associated with rare events tend to be exaggerated compared to those associated with more common events. Extremes of temperature are systematically exaggerated through selective application of wind-chill factors and heat indexes.

A second conclusion regarding risk communication is the tendency to reduce probability to certainty, a manifestation of humankind's generally poor conceptualization of low-probability events. Minuscule risks tend to be discounted as equalling no risk, or the burden of risk is transferred to the realm of religion or the government, where it is beyond one's control. This is exemplified by the fatalistic approach many Californians have toward earthquake risk.

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Even the way that risk is communicated through "unbiased" scientific research and data collection is subject to distortion. Property damage estimates have a chronic tendency to be overestimated in industrialized countries and underestimated in developing countries. Data accuracy is also a function of disaster type, with short-term events such as earthquakes yielding much more accurate damage assessments than longer-term events such as droughts (Burton, Kates and White, 1993, 10). Density characteristics of tornados have been erroneously construed when population densities have not been taken into account, as a tornado that is not witnessed does not get recorded.

Risk communication via the mass media has been studied by numerous researchers in recent years. Spencer et. al. (1992) assessed public response to newspaper and television reports of an impending natural hazard by examining wholesale sales of bottled water. They conclude that "the two media may be differentially suited for disseminating different kinds of hazard-related information," with newspapers better suited for information about consequences and television better suited for information related to responses. Other examples of the study of risk communication via the mass media may be found in Dynes and Quarantelli (1979), Ledingham and Masel-Walters (1985), Slovic (1986), Spencer et. al. (1992), and Fisher and Harr (1994).

## **NATURE AND PURPOSE OF STUDY**

Researchers have established that media accounts of disaster events contain certain forms of systematic bias. This paper poses the question of whether spatial bias might exist as well - whether certain types of areas are more prone to receive coverage from newspapers. A relatively large hazard event of significant spatial extent was considered optimal in studying this question, and the January 1995 California floods met this criterion. The flood event was unique in that all of California's fifty-eight counties were affected, constituting California's first truly statewide disaster. Total losses of over US\$700 million from the January floods (as of May, 1995) combined with additional losses of US\$1,100 million from subsequent flooding in February and March made this disaster a large one by national standards, rivaling the 1993 midwest floods. The January floods were the product of outstanding meteorological events, with certain areas in coastal and central California receiving their average annual rainfall totals in the first two weeks of the year. The city of Santa Barbara received nineteen inches of rainfall in a single week. This study consisted of comparing newspaper accounts of the January 1995 California floods against damage amounts from these floods. The null hypothesis is that unbiased news coverage is spatially proportional

1995 California floods against damage amounts from these floods. The null hypothesis is that unbiased news coverage is spatially proportional to the amount of damage incurred: heavily affected areas receive heavy coverage, and lightly affected areas receive light coverage. Rejection of the null hypothesis indicates the presence of spatial bias.

At this point one might question whether spatial bias is merely an interesting phenomenon or should be a legitimate concern within hazard communication research. This paper argues the latter. While there is little literature on the subject, anecdotal evidence suggests that short-term disaster responses can be strongly influenced by perceptions of where the disasters are concentrated. Schmidlin (1995a, 1995b) reports that the bulk of privately donated items in the wake of the March, 1994, Georgia and Alabama tornadoes ended up in Cherokee County, Alabama, where the greatest concentration of fatalities occurred. In fact, there were other communities along the length of the 400 km tornado path where relief needs were greater. Dymon (1992) reports how a request for diapers in a particular community in the wake of Hurricane Andrew was repeated through the national media and resulted in an extreme surplus. Resources had to be diverted from other areas to deal with the crush of misguided generosity.

## FINDINGS

The two national papers will be considered first. In both the *New York Times* and *USA Today*, the California floods merited front-page status on January 11 and 12. Coverage was also given by both papers on January 13 and by the *New York Times* on Saturday, January 14, a day on which *USA Today* is not published. At first glance it appears that *USA Today* coverage reasonably approximates disaster totals, with peaks in Los Angeles, Sonoma, and Sacramento counties. When a chi-square goodness of fit test was performed to test whether the two sets of proportions were statistically similar, however, the differences were found to be significant with a p-value less than 0.0001. Ignoring the counties in which less than 1% of the total damage was incurred (under the principle that newspapers could not realistically cover so many distinct and relatively unnewsworthy locations) only improved the p-value to about 0.001. The major contributions to the difference, in *USA Today*'s case, were its significant over-coverage in Sonoma and Ventura counties, and under-coverage of a number of north-central counties. While the *New York Times*' coverage was more spatially diverse, similar p-values were found. In the *New York Times*' case, significant under-reportage of Los Angeles County and over-reportage in Humboldt, Sonoma, and Sacramento Counties made up the key disparities. Next let us consider the three newspapers published within the disaster

Sonoma, and Sacramento Counties made up the key disparities. Next let us consider the three newspapers published within the disaster zone. Since the readership of each of these papers is localized, we would expect a spatial bias here, with an emphasis on coverage within the newspaper's circulation area. Table 1 reveals the extent of this "hometown bias." It is interesting to note that there are substantial differences in the relative weight that newspapers give to their own region's involvement in the disaster. The *Los Angeles Times* reveals itself to be much more of a statewide newspaper than the provincial San Francisco and Sacramento papers. Denizens of the respective cities end up with a quite dissimilar accounting of the natural hazard event.

Table 1. Damage and Coverage in Newspaper Market Areas\*

	% Damage in Core Market Area	% Coverage in Core Market Area	% Damage in Overall Market Area	% in
San Francisco 90 Examiner	3	22	20	
Sacramento 88 Bee	10	87	14	
Los Angeles 72 Times	46	61	64	

\*Core market area is determined by counties in which a newspaper reaches at least 20% of the households in the county. Overall market area includes counties in which a newspaper reaches at least 5% of the households in the county. Source: *Circulation*'95.

[Figure 1](#) indicates percentage of direct housing assistance by county. Percentages were used throughout this research so that the units of damage (dollars) could be directly compared with the units of newspaper coverage (quantity of text). Direct housing assistance was used as the measure of damage for several reasons. First, this is one of the only variables for which data was available at the county level. Other losses (e.g. public property, highways, agriculture) are only tallied on a statewide basis. Second and more importantly, direct housing assistance represents what is generally the first relief money to be distributed. It reflects short-term damage assessments based on urgent human need. Irrespective of the issue of spatial bias, newspapers are constrained in

reflects short-term damage assessments based on urgent human need. Irrespective of the issue of spatial bias, newspapers are constrained in the short term to reporting on what can readily be ascertained. Direct housing assistance fits this criterion. Note that only the counties specifically discussed in this paper are identified.

[Figure 2](#) displays the amount of news coverage received by county for each of five newspapers: the *New York Times* (national edition), *USA Today*, *San Francisco Examiner*, *Sacramento Bee*, and *Los Angeles Times*. The papers were collected while conducting field research. Dates used were as follows: *New York Times*, January 10-15, *San Francisco Examiner*, January 11-13, *Sacramento Bee*, January 10-14, *Los Angeles Times*, January 10-14. Limiting the sample to a common time period (i.e. January 11-13) was considered, however it was concluded that this would not significantly affect the results, and the decision was made to use all of the available data. Quantity of coverage was determined first by assigning each paragraph of text to the county (or counties) in which the action of the paragraph was taking place and then tallying the total numbers of paragraphs. Seventy-nine percent of the paragraphs were assignable in this manner. Paragraphs not set in California (e.g., the White House reaction, general discussion of the "El Nino" phenomenon) (17% of the total) or set broadly within California (e.g., describing "Southern California" or "The Coast") (4% of the total) were not assigned to any county. Descriptions of river valleys potentially spanning numerous counties relied on context; in the absence of context such paragraphs were credited to all applicable counties.

## POSSIBLE EXPLANATIONS

Clearly a spatial bias exists in newspaper coverage of a widespread disaster event. What accounts for these differences? It appears that in a widespread disaster event, newspaper editors select a small number of locations out of those where significant damages exist to give special emphasis, often developing the personal stories of a small number of individuals victimized by the disaster. The selection of these areas appears to have a systematic character, where the selection is based on convenience or the presence of a "hook."

Convenience refers to the ease of news gathering in some locations over others. Major cities have a large presence of news gatherers in place; why send reporters into the hinterland when there are stories to tell at home? Locations convenient to major airports would tend to attract more out-of-town reporters, particularly airports not subject to closure or extreme delays as a result of the disaster. A seat of government (such as Sacramento) is likely to be the home of press conferences and gubernatorial proclamations; it might make sense to send an extra

extreme delays as a result of the disaster. A seat of government (such as Sacramento) is likely to be the home of press conferences and gubernatorial proclamations; it might make sense to send an extra reporter to cover the capital rather than some alternate location. Areas near the onset of the disaster are prone to receive disproportionate coverage. If a paper sends a reporter to the first town with a breached levee, that reporter is likely to continue filing stories from that same location for the duration of the disaster. Such a practice allows for the emergence of depth and personality, but possibly at the expense of a realistic conception of the disaster's extent.

Story "hooks" (or, in Palm's words, "factors that make hazards memorable") come in many different forms. Presence of fatalities is an important one, especially fatalities of a dramatic nature. In the case of the California floods, a rescue operation of a homeless encampment along the swollen Ventura River that resulted in one fatality accounted for the bulk of the news coverage afforded to Ventura County.

Memorable landscapes also seemed to be a contributory factor, whether tales of damage to celebrity mansions in the dramatic canyons of the Malibu area or to the small farms of Rio Linda, a community of lower-income second- and third-generation Oklahoma emigrants presenting an interesting counterpoint to the encroaching suburbs of Sacramento. What makes a landscape memorable, of course, depends on the observer; this example was used because a Sacramento newspaper columnist wrote about how a particular *New York Times* reporter was only interested in the Rio Linda hook.

## **THE ROLE OF MAPS**

We can turn the research question around and ask whether it would be realistic that any newspaper coverage of a widespread disaster event could be spatially unbiased. The answer is probably no. Accounts of disasters that focus on the stories of a particular family or community are important to properly convey the human element of the disaster. As soon as this happens, though, other areas necessarily become mentioned. Even if the stories of all families or communities were treated with equal regard (as opposed to being influenced by convenience or a memorable feature), the mere process of focusing on something involves spatial selection.

This is all because the best way of representing space is not through words, but through maps. A good map can represent the best of both worlds: a reader can look at the map to gauge the spatial extent of a disaster, read some general information about the scale and scope of the incident to place it some sort of broad context, and then go on to read some larger-scale accountings of individual tragedies and/or heroism.

incident to place it some sort of broad context, and then go on to read some larger-scale accountings of individual tragedies and/or heroism. The problem is that newspapers do not necessarily do a good job of mapping in this way. Many maps only serve to identify the locations of places emphasized in accompanying stories, thus doing nothing other than reinforcing spatial bias. The maps appearing in each of the five newspapers were evaluated to ascertain what type of information they contained. (For an overview of map use in journalism, see Monmonier (1989)).

*USA Today* ran the California flood story for three consecutive days, with front page coverage each day. Only the first day's (January 11) stories were accompanied with maps. The first was a ten-million scale map of the entire state showing declared counties (unnamed), four flooded rivers, four flooded cities, and the location of Interstate 5. The second was a five-million scale map of the northern half of California, showing the same four rivers, nine cities (not all of which experienced flood problems), and eight highways. An accompanying table showed river levels of the four rivers. The third was a twenty-five million scale map showing California's relationship to other states, its major cities, and major interstates.

In the three editions of the *San Francisco Examiner* that were analyzed, only two maps appear, both on January 11. The first is a one-million scale map centering on the Russian River valley and the hard-hit towns along it. Highways and a state park are also identified. The second is an approximately two-million scale map of the seven-county San Francisco Bay area. Major roads and rivers are indicated, with five text boxes providing information about five specific locations.

All 5 maps appearing in national newspapers and all 13 maps appearing in California newspapers followed this trend. Thus we see that national papers tend to have extremely small-scale maps that act as simple locating devices, failing to convey much of a sense of scope or extent. Local papers, in contrast, use pretty detailed maps, but only of their core market areas. The rest of the state is ignored, cartographically. More information and more useful information could be conveyed with a greater emphasis on maps. Note also that thematic maps, other than the simple shading of counties declared disaster areas, were not employed by any of the papers.

## CONCLUSIONS

The research presented suggests that communication relying primarily on text and photographs fails to give a satisfactory spatial depiction of the scope of a disaster. Places are likely to receive proportionally more coverage based on accessibility and the presence of memorable



the scope of a disaster. Places are likely to receive proportionally more coverage based on accessibility and the presence of memorable characteristics. Information about spatial extent of a disaster could be better conveyed in the print media cartographically. Existing maps fail in this respect. They tend to be overly generalized in national newspapers or overly specific in local newspapers. Improved communication regarding the spatial extent of a disaster potentially carries certain direct benefits (Dymon 1992, Schmidlin 1995b), while also resulting in a more geographically aware and informed public.

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**Figure 1. Percentage of Direct Housing Assistance by County**

**Figure 2. Percentage of Newspaper Coverage Received by County**

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