HURRICANE GILBERT: THE MEDIA'S CREATION
OF THE STORM OF THE CENTURY

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PREFACE

This paper is one of a series on research in progress in the field of human adjustments to natural hazards. The series is intended to aid the rapid distribution of research findings and information; it was started in 1968 by Gilbert White, Robert Kates, and Ian Burton with National Science Foundation funds but is now self-supporting.

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SUMMARY

A two-person field team spent five days videotaping local
and network news broadcasts, obtaining copies of local news-
papers, and interviewing local officials and media personnel
during the preimpact, impact, and postimpact periods during Hur-
ricane Gilbert's march toward the south Texas Gulf coast in Sep-
tember 1988. The research objectives were 1) to determine the
incidence of the media's mythical versus accurate portrayal of
the behavioral response to Gilbert and 2) to explain why the
media's portrayal was mythical or accurate. The team worked in
Houston, Corpus Christi, Brownsville, and Galveston. They also
briefly visited Matamoros, Mexico.

Upon returning from the field, the researchers conducted
additional telephone interviews of local officials and media
personnel. An analysis of the information gained during the
interview process, combined with that gained from a content an-
alysis of the broadcast and print media news stories on Gilbert,
has resulted in the following findings: First, the media were
fairly accurate in their overall portrayal of the behavioral
response to the threat posed by Hurricane Gilbert. They were
particularly accurate when it came to portraying rational be-
havior in preparation for the storm, in portraying the usual
disaster subculture behavior, and in portraying the usual altru-
ism. Second, however, the media exaggerated the evacuation
rates, shelter populations, and the gravity of weather changes.
Third, the disaster myths which were most often perpetuated were

looting, price gouging, and panic. And fourth, variation in accuracy was observed among the various media forms. Reasons suggested for this variation center around three themes:

1) Most news personnel subscribed to the disaster mythology which influenced their news gathering and reporting perspective. However, variation in organizational approaches to gathering and reporting news affected the extent to which the belief in the disaster mythology framed the accuracy of news reporting.

2) Norms governing local versus network news gathering and reporting affected accuracy; the local media were more altruistic, while the network organizations were more self-serving.

3) Differences between the organizational approaches to news gathering and reporting resulted in greater or lesser control of what constituted news, and hence, affected accuracy. The greater the control, the greater the inaccuracy, for control resulted in managing the news to reflect the (mythical) perception of behavioral response to Gilbert.

Local media personnel were governed by a norm which defined their role as being the information gatherer and disseminator to help save their community (an example of the altruism typically experienced by most would-be victims). Local news organizations tended to serve as a conduit for disseminating the information the local emergency management officials wished the public to have. These news organizations would broadcast the entire press conferences held by local emergency management officials, and the local print media would devote major stories to reprinting the

transcripts of these press conferences. Accuracy was therefore dependent upon the degree to which local officials subscribed to an accurate (versus a mythical) view of the behavioral response to disasters.

The network organization personnel functioned as pack animals, often setting up their cameras and satellite dishes away from the emergency operations center (EOC) and other emergency response organizations, preferring more picturesque settings like the sea coast. Once their satellite dishes were set in place they tended to bring interviewees to their location. This practice gave greater control of the news-making process to the networks. Network personnel were governed by a norm which defined their role as that of managing the news to provide a good pictorial story for their viewers. The news they created tended to conform to their perception of the behavior they expect during a disaster. Greater control over news management resulted in greater inaccuracy.

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BELIEF IN THE COMMUNITY BREAKDOWN MODEL

The average American believes that when a disaster strikes, the victims have to contend not only with immense damage, death, and injury, but also with the irrational and selfish behavior of the other survivors and those converging on the scene (Wenger et al., 1975). Americans commonly believe that a disaster normally results in the breakdown of the norms which govern our behaviors during non-emergency times. The behavior of the "human animal" during disasters is thus seen as more animal than human. The would-be victim is expected to react with total self-preoccupation. He or she is expected to seek personal gain rather than act for the common good (e.g., to engage in price gouging of customers). Furthermore, atavistic humans are expected to flee the impacting disaster agent in panic, with the great majority evacuating and, thus, jamming the roads and making escape impossible—behavior which, in turn, is believed to result in more panic. Most of these fleeing evacuees are expected to seek the safety of the nearest shelter, and, except when at the shelter, they are believed to engage in unseemly behavior. In the aftermath of the disaster, individuals are expected to loot and selfishly inflate the normal price of food stuffs. Martial law and the National Guard are viewed as necessary to maintain or restore order. Survivors are thought to be unable to fend for themselves until helping organizations arrive. Some victims are expected to be immobilized by shock.

Such a perception of behavioral response to disaster is

mythical. The common view of how we react comprises what students of disaster behavior often refer to as the "community breakdown model" (see, for example, Phillips and Neal, 1988; Fischer, 1988). The sociological literature on behavioral response to disasters (for example, Dynes, 1970; Wenger, et al., 1975; Scanlon, 1979; Quarantelli, 1980a and 1981; Wenger, 1980; Goltz, 1984; Fischer, 1985, 1987, 1988; Wenger and Friedman, 1986; Phillips and Neal, 1988) suggests that the actual response to disaster is quite different from what is commonly perceived. During the preimpact period of a disaster, most citizens refuse to evacuate; emergency management personnel have a very difficult time getting people to leave their homes. Damage, death, and injury estimates, as well as estimates of the number of people who have evacuated and gone to shelters, tend to be greatly exaggerated. Survivors are usually very altruistic and not selfish at all, often giving food and other needed items away, or selling them at or near cost. The incidence of deviance tends to decrease, not increase, as the members of an affected community pull together to help one another.

As a result of the common belief in the myths surrounding disaster, when disasters do occur, governors continue to activate units of their National Guard to forestall panic and prevent looting. The media frequently report the declaration of martial law, the increase in postimpact crime, and the evacuation of massive numbers of victims, and, as with the Chernobyl nuclear power plant incident, estimates of physical damage, casualties,

and deaths as well as sheltering of victims are commonly por-
trayed as extremely high, resulting in the donation of often
unneeded clothing and other materials by well-meaning citizens
and governments. Typically, the public feels compassion for
disaster victims thought to be suffering from shock that leaves
them dazed for hours after impact.

Even training films produced by emergency management agen-
cies present inaccurate portrayals of behavioral response and
need (Fischer, 1985). Yet, emergency managers and public offi-
cials make decisions on how to allocate emergency resources based
upon their perception of the public's likely behavioral response
to the impact of a disaster agent. If their perception is based
upon belief in the community breakdown model, then their disaster
plan will likely result in preparation for events that do not
occur, as well as poor preparation for events that could have
been anticipated. Belief in the disaster mythology costs com-
munity members in two ways: it causes unnecessary fears and
results in increased tax dollars.

THE RESEARCH QUESTION

Several students of disaster research have sought to deter-
mine why the community breakdown model continues to be the
definition of the situation, i.e., the explanatory model, for the
vast majority of Americans (for example, see Wenger, et al.,
1975). Why do people continue to believe in the common occur-
rence of widespread panic and flight, the declaration of martial

law, psychological dependency, convergence to the scene by non-victims for the purpose of looting and other forms of deviant behavior, immoral competition for necessities and price gouging, the mass evacuation of the majority of potential victims, the massive number of personal injuries and deaths, massive property damage, the occurrence of disaster shock, contagion behavior, and the mass sheltering of a majority of the would-be victims? Some researchers have suggested (Quarantelli, 1980b) that Hollywood movies may play a roll in forming our frame of reference. Perhaps expectations of deviant responses to disaster come from the images of self developed by this celluloid approximation of reality.

Disaster researchers frequently return from the field noting that the media's portrayal of both disaster events and the subsequent behavioral response has not been altogether accurate. Some (Wenger and Friedman, 1986; Fischer and Bischoff, 1988) have suggested that the media actually perpetuate the community breakdown model. Until recently, little empirical research had been done to assess the accuracy or inaccuracy of disaster media coverage. Scanlon et al. (1978) and Goltz (1984) found such coverage to be highly accurate in the broadcast and local print media. Wenger and Friedman (1986) found the coverage to be mixed, both accurate and inaccurate, in the local print media's coverage of Hurricane Alicia. In studies of the "national print media" (news magazines) Fischer and Bischoff (1987) observed many inaccuracies which tended to perpetuate the community breakdown

model. Hence, a debate exists among disaster researchers (Quarantelli, 1987), the central questions being: To what extent do the media perpetuate the community breakdown model? If they do, why is this the case? If they do not, why not? Furthermore, does accuracy vary by media type, i.e., local versus national media and print versus broadcast media?

The focus of the quick response field research discussed here was 1) to empirically determine the extent to which the local media (print and broadcast) perpetuate the mythology sur- rounding behavioral response to disaster, and 2) to determine why this mythology is perpetuated, to the extent that it is, during emergencies. The objective of the quick response trip to the Texas Gulf coast during Hurricane Gilbert in September 1988 was to gather data which would provide empirically based answers to these questions.

METHOD

On-Site: In the Field

Shortly after its inception in the Caribbean, Hurricane Gilbert was dubbed the "Storm of the Century" by the national weather service as it became a category five hurricane. Following this declaration, the American media began to flood the airwaves and printed page with predictions of what one could expect in terms of damage, devastation, and behavior in response to such a storm. Great numbers of media personnel began to converge on the Texas Gulf coast. Local, regional, national, and international news

personnel took their positions in Houston, Galveston, Corpus Christi and Brownsville.

Our two-person field team monitored Gilbert's progress through the Caribbean, across the Yucatan, and into the Gulf. After consultation with the Natural Hazards Center at the University of Colorado and disaster research colleagues around the country, we decided to depart for Houston so that we would arrive on-site by noon, Thursday, September 15, 1988, which would be (according to NOAA predictions) twenty-four to thirty-six hours before hurricane landfall. At the time of departure for the field, the National Hurricane Center felt the most likely impact area would be between Corpus Christi and Galveston. Since we were doing a media study, we felt that it would be most prudent to be on-site before, during, and after impact, since this was the "Storm of the Century." We would be able to gather data on the media's portrayal of behavioral response to Gilbert across all three of these emergency time periods.

As soon as we arrived in Houston, we set up our equipment in our hotel room. We videotaped and audiotaped the local television and radio broadcasts on Gilbert before going to the Houston Emergency Operations Center (EOC) late Thursday night. (It became too difficult, however, to tape both television and radio broadcasts as well as conduct interviews in the field, so we had to abandon our plan to systematically record radio news broadcasts and settle for a sporadic sample which did not enable us to conduct a proper analysis when we returned from the field).

While the EOC visit secured our safety (afternoon predictions suggested impact could occur during the early hours of Friday morning in the Galveston-Houston area), we were there primarily to interview the EOC and media personnel who came and went during our visit. By late Thursday night the forecast had changed, however. Impact was not expected until late Friday, and Gilbert had still not made its expected turn north toward our location. We returned to our hotel room, resumed taping, and began telephone interviewing.

Friday morning we continued to tape broadcast media reports as well as obtain copies of local newspaper coverage of Gilbert. Impact predictions changed; Gilbert was expected to reach landfall further south. Landfall was now expected to occur between Brownsville and Corpus Christi. Our field team decided to move closer to the expected impact area to gather data on media portrayals. We spent the remainder of the day, Friday, September 16, recording broadcasts, buying newspapers, and interviewing local officials and media personnel in Corpus Christi. When the prediction of landfall changed again, to the area between Brownsville, Texas, and northern Mexico, we moved again. We spent the remainder of Saturday, September 17, recording, obtaining newspapers and interviewing media personnel and officials in Brownsville. On our fourth day in the field, Sunday, September 18, the team returned to Houston to tape the postimpact media portrayal, to do some interviewing, and to prepare to enter Galveston on day five (Monday, September 19) to interview officials and media

personnel. Late on the fifth day we returned to our research center in Ohio.

When we interviewed local officials we had to assume the role of the researcher to facilitate admission and acceptance. We tended to follow our interview guide (see the Appendix 1) fairly closely, adding questions as it seemed pertinent to do so. When interviewing media personnel, however, we frequently assumed the role of an interested bystander, not acknowledging our research role. We found this approach highly beneficial, for we believe the information we obtained was far more honest than would have been forthcoming otherwise. We had the feeling that the media personnel were distrustful of anyone who might seek to make them "look bad," in the words of one interviewee who we had apprised of our research mission. By our assuming the role of a "would-be groupie," the media personnel seemed to be flattered and highly cooperative. However, when taking on this role, we had to be very flexible in our questioning and go with our instincts; hence, we did not follow the interview guide closely when interviewing media personnel in the field. (Telephone interviewing conducted after returning from the field was similar to that done with local officials both on-site and off-site; the guide was followed more closely and interviewees knew of our mission—and were far more guarded).

Off-Site: Back at the Research Center

After returning from the field, the team conducted follow-up

telephone interviews with media personnel and local officials. We spoke with those who were important to the study but were unable to meet with us while we were in the field. A complete analysis of the videotapes, audiotapes, newspaper reports, and interview data was then begun. We developed two content analysis forms (see the Appendix 2). One form was for use in analyzing the television news broadcasts, the other for analyzing the newspaper news stories. Telephone interviews were conducted to determine reporters' prior disaster experience, belief in the disaster mythology, and news gathering strategy. These interviews were conducted with the aid of an open-ended question guide (see Appendix 1, this question guide was employed when interviewing both in the field and by telephone afterward). Each of these research tools is briefly described below.

Content Analysis

A primary objective of the content analysis was to determine the incidence of myth portrayal by the local broadcast and print media. We were guided by the disaster literature reviewed earlier and sought to identify media portrayals of instances of panic flight, disaster shock, price gouging, looting, convergence for other forms of deviance, declaration of martial law, exaggerated estimates of the number of evacuees and persons sheltered, exaggerated estimates of the extent of damage as well as injury and death counts. We decided to also look for exaggerations of the weather conditions, since such distortion also seemed possible. The traditional definitions of what constitutes

each of these types of "disaster myth," as viewed in the disaster
literature, were employed in the study and will not, therefore,
be redefined here.

To determine if, in the media, a true disaster myth had been
portrayed versus an accurate portrayal of a behavior (e.g., a
looting incident that may have actually occurred), we interviewed
records personnel in the police departments of the cities we
visited to determine such things as actual arrests for looting,
price gouging, and means for estimating the number of evacuees
and so forth. In this way we could ascertain, for example, if
verified instances of looting had occurred and if evacuee estima-
tions were reasonably derived. We found the disaster literature
served as an accurate predictor of what actually occurred during
the response to Hurricane Gilbert.

There were two arrests for price gouging in Galveston, how-
ever, which took us several weeks to clear up. The first evening
in the field we were watching and recording a local news broad-
cast in which the reporter stated that two merchants had been
arrested for price gouging. We immediately turned to the phone
and called the Galveston city police records office, told them
what we had just heard on the evening news show, and asked for
confirmation. The policeman said there had been no arrests for
such behavior. Several days later, however, we read in the
Galveston newspaper that two Houston citizens, who were not mer-
chants, purchased truck loads of plywood and converged on
Galveston to sell each sheet at a 300% markup. They were re-

portedly arrested. When we contacted the city police records office again, the record-keeping process had been updated, and they confirmed that the newspaper had the correct story. The television broadcast did leave the impression that price gouging is a common occurrence in disaster settings and that it was being done by Galveston merchants. The newspaper was accurate while the television broadcast was not. This differential reporting was a familiar pattern, as the findings of this study show.

We also sought to determine the extent to which both behavioral and organizational response to disaster were accurately portrayed. For example, when burglaries were discussed rather than looting, we categorized this reference as an accurate portrayal. The burglary rate was usually qualified in those media reports as being lower than during normal times. Furthermore, the term "burglary" carries a much different connotation than that of looting. We also looked for instances where citizens were portrayed as behaving rationally (purchasing supplies in anticipation of the electricity going out), engaging in typical disaster subculture behavior (surfing), and behaving altruistically (helping others prepare for the storm).

We also sought data which would aid in the analysis. We identified the news source (the specific local newspaper, television station, or network); the news story reporter; the disaster period being reported on; the news type ("soft," "hard," mixture); the orientation of the news story (behavior, weather, human interest, damage, information dissemination, organizational

activities, hurricane history, or a mixture); and the location of the story in the medium (headline, front page story versus page 13 story, or lead-off broadcast news story versus an item buried later in a news program). The location of the news story proved to be a valuable piece of information, for we found that the information gathered by traditional content analysis examining for disaster myth incidence, yielded an incomplete quantitative picture of the substance of the news stories we examined. For example, by comparing the location of the news stories which contained mythical versus accurate portrayals of behavior before, during, and after Gilbert, with media type, we found what we believed to be a much more accurate quantitative picture, one which was compatible with the anecdotal information we gathered in the field and from the videotaped broadcasts and newspaper articles.

Interview Guides

In interviewing local officials and media personnel we had two primary objectives. The first was to ascertain the extent to which disaster mythology may or may not be mythology in the case of the behavioral response to Gilbert. The second was to determine the reasons why the mythology was perpetuated in the media to the extent that it was found to be doing so. We sought to determine the extent of prior disaster experience of both local officials and media personnel, and we sought to determine if interviewees believed in the disaster mythology or subscribed to a more accurate definition of the situation. For example, typi-

cally we would approach a broadcast reporter and start what appeared to be a casual conversation just after he or she completed a live feed, by asking, "You seem very experienced in dealing with storms like this; what kind of behavior do potential victims usually engage in, I'm curious?" The answer to this question fit a rather uniform pattern: the average reporter believes the disaster mythology is not mythology, but reality. One exception was two newspaper reporters who had learned about disaster mythology through educational or training experiences. The accuracy of their writing was far superior to that of other broadcast and print media personnel who believed in the mythology.

We sought to obtain an understanding of how the various media forms (local print, local television, and network television) approach coverage of such a news story in order to determine variations in organizational structure which may explain variations in news content, slant, and so forth. We observed distinct differences in how the various media managed the story. We believe that these differences were instrumental in producing different pictures for the viewing and reading audience. A person's perception of the behavioral response to the "Storm of the Century" may have depended on his or her chosen media form as a source of information.

FINDINGS

Hurricane Gilbert's Life Cycle and Path of Destruction

Gilbert's destructive life cycle lasted approximately one week—from Friday, September 9, through Friday, September 16, 1988 (see Appendix 3). It reportedly was responsible for several hundred deaths and caused billions of dollars of damage. On Friday, September 9, 1988, the storm which was to be Gilbert, had not yet been classified a hurricane. It passed by the Windward Islands (St. Lucia, St. Vincent, and Dominica) causing a reported $750,000 in damages to the banana crops on each island.

On Saturday, September 10, the storm increased in strength and became a hurricane. The northern edge of the newly dubbed Hurricane Gilbert crossed over Puerto Rico causing power outages and an estimated $200,000 in crop damage. Other nearby islands reported flooding and agricultural damage.

On Sunday, September 11, five deaths were attributed to Gilbert in the Dominican Republic. One hundred families were reported homeless, and there was widespread agricultural damage.

On Monday, September 12, Haiti reported ten dead because of Gilbert, serious agricultural damage, and many fallen buildings. Jamaica took a direct hit. There were reportedly 26 dead, an estimated 500,000 homeless, an estimated $8 billion in damages. Reportedly, 80% of Jamaica's homes were damaged, 20% were de-stroyed.

On Tuesday, September 13, Gilbert hit the Cayman Islands with 130 mile per hour winds. Widespread flooding was reported

with reputed destruction of between 5% and 10% of all houses.

On Wednesday, September 14, Mexico's Yucatan Peninsula was directly hit by Gilbert with 180 mile per hour winds and 18-foot waves. There were 17 reported deaths and millions of dollars in reported damage.

On Thursday, September 15, the day the field team left for the southern Texas Gulf coast, Gilbert was believed to be heading for the Galveston-Corpus Christi-Brownsville area and was expected to regain its category five strength. Neither occurred, however.

On Friday, September 16, Gilbert maintained winds of 120 miles per hour and made landfall at approximately 5:35 p.m., 120 miles south of Brownsville, Texas. It primarily impacted the Mexican coast in an area almost totally devoid of people. The torrential rainfall did cause flooding in areas further inland, such as around Monterrey, Mexico, and reportedly killed over 200 persons. Tornadoes were spawned by Gilbert in Mexico and Texas, with significant damage but no deaths.

Assessment of Actual Behavioral Response

As outlined earlier, certain behaviors are commonly assumed to occur during disasters, and during our on-site research in Brownsville, Corpus Christi, Galveston, and Houston, we sought to determine the degree to which any of these occurred. For example, while we did not collect specific numbers of persons sheltered, we visited shelters, police stations, and so forth to ob-

serve and interview appropriate personnel.

We found no verified instance of panic, looting, or disaster shock. Martial law was not declared, and the numbers and behavior of evacuees and persons in shelters was as expected, i.e., the evacuation rate was approximately 10%, and most evacuees stayed with relatives, friends, or in motels/hotels. Only a small percentage of evacuees appeared to actually stay in shelters. As mentioned above, a few out-of-town citizens, not merchants, did converge to Galveston to sell truck loads of plywood at inflated prices (300% above normal). There were two arrests for such activity in Galveston. (Broadcast media mistakenly reported that these were local merchants committing a sin that they said typically occurs in disasters; the local print media published an accurate story on this price gouging.) There were no verified instances of price gouging by local merchants or local citizens generally. In fact, examples of altruism were abundant as were examples of very rational preparatory behavior and the usual disaster subculture activities. The most common disaster subculture activities observed during Gilbert included surfing, hurricane (beer) parties, and converging on the beach to watch the tide rise. In each city, burglary rates actually declined from normal.

While weather is not included in the list of disaster myths, we want to note that the only time we experienced any mildly severe weather personally was on Friday, the night of September 16, when we were along the Gulf coast in Corpus Christi. Wind

gusts were between 50 and 65 miles per hour. On all other occa-
sions, whether in the motel, on the road, in an EOC, walking
along the beach, interviewing media personnel, we had difficulty
believing we were in a hurricane area. When we watched CNN re-
porters broadcasting live from the cities we were in, we some-
times went to our motel door and opened it to make sure we were
not missing something; the news report did not correspond with
our own experience; we wondered if the reporters were talking
about the same event we were experiencing.

The Media's Portrayal of the "Storm of the Century"

A hurricane has a slow onset time. It is therefore possible
to monitor its development, follow its life cycle, attempt to
predict its landfall, and prepare for its impact. When Gilbert
began its march of destruction through the Caribbean, the growing
ferocity and size of the storm (it became a category five storm
approximately 500 miles in diameter at its peak) not only cap-
tured the attention of the National Hurricane Center, weather
personnel generally, and Gulf coast emergency management person-
nel and residents, it also captured the attention, and sometimes
the imagination, of the local, national, and even international
television, radio, and print media. Our research team spoke with
television and print media reporters and crew personnel from
numerous Texas communities, from communities in California,
Oklahoma, New York, and Florida, from the national networks, and
from such nations as Holland, Japan, and Australia. Media per-

sonnel converged onto the southern Texas Gulf coast. Friday
evening we stood along the coast in Corpus Christi, for example,
and saw an endless line of tripods strung along the sidewalks,
parking lots, streets and marinas. Mass media had invested
heavily in covering this "Storm of the Century." With such an
opportunity at hand, we decided to also examine network news
coverage of Gilbert in addition to the local broadcast and print
media coverage.

Our findings of the media's coverage of Gilbert are based on
our analysis of 243 television news broadcast stories or seg-
ments, 311 local newspaper stories, and 53 interviews. We inter-
viewed local emergency management personnel, local government
officials, local residents (evacuees and non-evacuees), local
media personnel, and national media personnel. Interviews were
conducted both on-site face to face and by telephone, as well as
off-site by telephone.

Broadcast Media

We recorded 243 news stories broadcast by the local Texas
Gulf coast television stations (Houston, Corpus Christi, and
Brownsville) and the networks (ABC, CBS, CNN, and NBC) during our
five days on-site. While we were not able to record every broad-
cast made by CNN, which broadcasts continuous news twenty-four
hours a day, we were able to record virtually every Gilbert-re-
lated news story broadcast by the other networks. We also re-
corded all the local television news programs which were broad-
cast while we were on-site during the preimpact, impact, and

postimpact periods. We recorded and analyzed a total of 95 local television news stories and 148 network stories (see Appendix 4, Table 1). This disparity reflects the continuous coverage given Gilbert by CNN, which virtually ceased normal broadcasting during the immediate preimpact, impact, and immediate postimpact periods. The other networks devoted the majority of there normal evening news broadcasts to Gilbert during these time periods, but provided little more than occasional minute updates. The local television stations continued normal programming throughout Gilbert's life cycle. Some listed shelters which were open by running announcements across normal programming during the day; otherwise, the only coverage given Gilbert consisted of the normal evening news broadcasts devoted almost entirely to storm coverage.

As previously mentioned, we were able to record 243 Gilbert news stories: 148 from the networks and 95 from local stations. Of the 95 locally broadcast news stories, nine were from Brownsville, 23 from Corpus Christi, and 63 from Houston (Appendix 4, Table 1). In perhaps a crude fashion this variation is indicative of the attention given the storm over it's life cycle. We were recording in Houston during the preimpact (and somewhat during the postimpact) period, in Corpus Christi during impact and immediate postimpact, and in Brownsville and Houston during postimpact. Broadcast media attention to Gilbert gradually increased through the preimpact period which extended over the better part of a week (though we were recording only one day),

and the incidence of this coverage peaked just prior to impact.
Coverage during impact was intense, but the impact period lasted
for only a few hours. Coverage gradually declined following
impact. This process is illustrated (in Table 1) by the fact
that we recorded 126 broadcasts during the preimpact period, 54
during impact, and 63 during postimpact.

With regard to the type of news (soft versus hard) being
broadcast, two out of three news stories broadcast were thorough-
ly intertwined with both soft and hard news. Of the remaining
third, soft news was broadcast more often than hard by a margin
of approximately two to one (Appendix 4, Table 1).

The focus of the stories varied (Appendix 4, Table 1). How-
ever, the plurality (42%) concentrated on the behavioral response
to Gilbert before, during, and after impact. Approximately a
fourth (28%) of the news stories focused on weather reporting,
while less than a sixth (16%) focused on reported the damage
created by Gilbert. The remaining news stories (14%) focused on
various items including public information (e.g., shelters avail-
able, how to prepare), organization activity (e.g., Red Cross
efforts, actions of city officials), the history of previous
encounters with hurricanes in the area (e.g., the 1900 Galveston
storm in which 6,000 are believed to have died—the worst hurri-
cane death toll in U.S. history), and various human interest
stories (e.g., the hurricane travel experiences of one reporter).

Examining the results of the traditional elements of our
content analysis which, as noted earlier, do not tell the whole

story, we find that the television news stories were fairly ac-
curate in their portrayal of the behavioral response to Gilbert
(Appendix 4, Table 2). We examined 243 news stories for evidence
of mythical versus accurate portrayal in ten behavioral categor-
ies: panic flight, looting or other forms of storm-related de-
viance, price gouging, evacuating, sheltering, injury and death
toll reporting, damage estimate reporting, acting rationally,
engaging in disaster subculture behavior, and behaving altru-
istically. Hence, there were a possible 2,430 instances of such
behavior being reported (243 stories multiplied by the ten be-
haviors we looked for). Most of the time (2,204 instances), the
behavior in question was not addressed in the story, e.g.,
stories dealing with weather did not focus on behavior. Behavior
was addressed in 226 instances (103 stories addressed behavior in
some way, and in some instances multiple behaviors were included
in one story, hence 226 instances from 103 stories). Looking at
the 226 instances in which the behaviors were addressed (Appendix
4, Table 2), we find that two out of three times the behavior is
described accurately, e.g., potential victims are behaving
rationally and not fleeing in panic flight. In only a third of
the cases is the community breakdown model perpetuated, e.g.,
fear of looting is reinforced. Hence, on the basis of these
numbers alone, one could conclude that the broadcast media pro-
vided knowledgeable coverage of the behavioral response to
Gilbert.

Our traditional approach to content analysis failed to take into account that the existence or occurrence of every mythical portrayal or accurate portrayal does not influence the viewer (or reader in the case of a newspaper) equally. We argue that it is reasonable to assume that the headlines and stories on page one of a newspaper or the lead story(s) of the evening news are more influential in forming reader/viewer perceptions of the behavioral response to a disaster than the articles that appear later. We are not saying that the appearance of accurate or mythical portrayals anywhere in the story do not influence the viewing or reading audience, but we are suggesting that impact can be rank ordered. Lead stories and headline stories are more likely to influence perceptions than those which appear in a later story or are buried on page 33 of a newspaper. An examination of the results of a traditional content analysis will suggest that there are few differences among media types regarding accuracy in news stories. As researchers who were on-site and who have thoroughly examined the data, and as consumers of the news stories on Hurricane Gilbert, we felt there were subtle differences, however. Therefore, we used an alternative approach to categorize the data in conducting our content analysis—a technique which, we believe, is more revealing of the potential impact news stories may have on forming accurate versus erroneous perspectives of the behavioral response to disaster.

First we looked at each news broadcast (and each issue of a newspaper) as a unit of analysis (instead of the story itself).

We tried to view the data from the perspective of a potential
news consumer, i.e., we looked at the nature of the lead-off
story(s) (or headlined articles on page one of a newspaper). We
categorized such stories as either prominently (lead story, front
page article) or nonprominently (late in the news program, buried
in the back pages of the newspaper) displaying myths or exaggera-
tions or as containing no myths at all in any stories. This
analytical approach yielded some very interesting results. The
lead stories on the network news (Appendix 4, Table 3), especial-
ly CNN, portrayed elements of the disaster mythology (deviance
and exaggerations) in a majority (53%) of programs, while less
than a fifth (18%) of the local news programs contained elements
of the mythology in their lead stories. Conversely, a fourth of
the network news programs were myth-free, whereas almost two-
thirds (64%) of the local news programs were. Further anecdotal
evidence is cited throughout this report illustrating the quali-
tative differences between network and local news coverage of
Gilbert and demonstrating possible reasons for this variation.

Local versus network television news stories. Again, the
total story of the television coverage of Hurricane Gilbert is
not told by a traditional content analysis. Reducing human be-
havior to quantitative dimensions necessarily results in the loss
of some substance. This is true for the current analysis. The
field team, both while in the field and while reviewing the tele-
vision news videotape, detected a clear, unmistakable difference
in the focus of the local news versus the national news treatment

of Hurricane Gilbert. The interview process substantiated what we felt we saw, but the difference was not as clearly revealed by traditional content analysis.

To review our findings, however, we will first return to the traditional analysis to consider what it does indicate.

Table 4 (Appendix 4) indicates that the story of a majority (54%) of the local news stories focused on behavioral responses to the hurricane while approximately a third (35%) of the national stories did the same. On the other hand, approximately a third (32%) of the national news stories also focused on weather aspects of the hurricane, while less than a fourth (22%) of the local stories did this. Additionally, approximately a fifth (21%) of the national news stories focused on hurricane damage, while less than one in ten (8%) of the local stories did so. On the other hand, more than a tenth (12%) of the local news stories provided basic hurricane information (e.g., shelter locations for potential evacuees) and information on organizational activities and decisions (e.g., if and when an evacuation decision will be made), while almost no national news stories (3%) engaged in this kind of reporting. Hence, the analysis indicates there was a subtle, but distinct, difference between local and national news reporting regarding the hurricane. Local news tends to focus more on behavioral response and information giving, while national news focuses more on weather and damage.

This trend was also evident in the background video shown during reporter's comments. Although we do not have hard data to

support our observations, during our analysis of the videotaped news broadcasts we noted that local news broadcasts tended to include reports from on the scene roving reporters with there mini-cams reporting from city hall, an evacuation shelter, a beach, a damaged home, a police roadblock, and so forth. National news broadcasts, on the other hand, tended to contain reports that appeared to be on the scene, but actually were not (at least to the extent that local reports were). The network news rotated from one coastal city to another to get a live, on the scene report from their man or woman. In virtually every case, the reporter was physically stationed along the beach with rising tide pictured in the background. To the unknowing television viewer the reporters appeared to be on the scene watching for the hurricane to hit land, with waves (more or less) crashing on shore, wind blowing through the reporter's hair, and so on.

Since we were on-site we could observe the behind the scenes activity of the news organizations and interview relevant news personnel. A picture emerges which points to a very different normative and social structural-organizational approach to how local and national organizations covered Hurricane Gilbert. The local news crews are familiar with the local officials and the local organizations charged with responding to an emergency. In some cases they are on a first name basis with these officials, and in many instances they know who they can trust to get an accurate assessment of the situation. The local news organization is, in a sense, an extension of the local political and

emergency structure. To be sure, the local news organization is a separate entity, and often a critical one at that, but local norms seem to dictate that it willingly join in the mission to get out information to help the people in the community.

Traditional content analysis does not reveal the slant of news stories. The above observation, i.e., that the normative mission of the local emergency organizations and the local news organizations are parallel, became apparent to us through anecdotal data gathered both on-site and during the analysis of news video. Through our interviews with local news media personnel it became apparent that the dominant norm governing their behavior during an emergency event is to get out the information that will help their community. Of course, they are trying to get good stories, but their driving motivation is truly the quest for news that will describe the nature of what is happening in such a way that the viewing audience will be aided, e.g., in deciding to evacuate and determining what to do and where to go if they do. The norm of getting good information for the community audience is reinforced by the belief that this audience is motivated to watch local broadcasts for the information that may govern their decisions.

National news reporters, however, have a very different mission. Our interviews with reporters and anchors for network news organizations, combined with our observations of their news presentation activities, led us to conclude that the driving norm of the national news organization is to get a good pictorial

story—dramatic video which will motivate the viewing audience to stay tuned rather than change stations. The national news organization does not see itself as broadcasting to a local audience which is attempting to get information upon which to make decisions. Network news is engaged in a ratings battle. Unfortunately, a good story and good news are not the same product.

To demonstrate these differences between local and national coverage, we offer synopses of several interviews and some personal observations. The evening we were in Corpus Christi we informally interviewed several members of a network news team preparing live satellite feeds from Corpus Christi. The general view was summarized by one crew member who said:

> A great deal of creativity (read: imagination) goes into these newscasts. He (anchor) positions himself in front of those palms and out in the rain for effect . . . high drama, all drama . . . we spent the day driving all up and down the coast looking for something exciting to tape for background video tonight, nothing, there was nothing (the storm is a fizzle here). They (network) put so much money into this thing, we have to report something . . . so, drama, high drama.

While our sources were talking, we observed that the anchor/reporters, who had been standing under the overhang of the hotel they were reporting from prior to the live feed, were no longer standing under it, instead they were standing in the drizzle in front of a palm tree which had branches just above the head of the reporter and whose branches appeared to move most freely and dramatically (of those they could have chosen) when the wind blew. One reporter, an anchor, even deliberately messed his hair just before air time ("drama, high drama").

Local news organizations did not engage in such a quest for drama. As noted earlier, the norm governing their news gathering and reporting behavior appeared to be distinctly different: to relay a precise description of what was occurring to facilitate local preparation for and recovery from impact. These organizations appear to feel a responsibility to their community and therefore seek to be an active part in preparation and response activities by gathering and disseminating information.

In addition to normative differences, we detected a structural difference between local and national news organizations which appeared to influence the news produced. The local news personnel, as previously noted, were more likely to know some of the key decision makers in local emergency response organizations. Hence, with their portable cameras they could travel to these officials and provide information directly to their audience. Local officials tended to plan their news conferences with the local news broadcast hour in mind. Therefore, the local news could provide live coverage of the emergency management official who wanted to get up-to-date information to the citizenry, and the local media's altruism resulted in their essentially turning the airwaves over to such officials. While the national news personnel attended some staged, previously announced press conferences and also did some additional on-site interviewing, they had a greater tendency to bring those they wanted to interview to their location.

This may appear to be an insignificant difference, but we argue that it impacts dramatically on the slant of the news broadcast. Interviewees were brought to the location of the network's satellite dish for the live feed. This location (e.g., the Corpus Christi coast with rising tide and blowing palm leaves in the background) usually provided "maximum drama." By selecting and bringing local officials to this location, the network maintained greater control over what was broadcast. They selected who would speak, who would represent what is happening in the community. Those selected were more likely to tell the story from the perspective that the news personnel believed to reflect the situation accurately; the network producer and director, as well as the reporters, were in control.

In such a situation, if the news personnel believe in the community breakdown model myths, they may be inclined to select interviewees who report observing or fearing such activities. The reporter believes he is accurately reporting on disaster events by selecting reports on these dramatic events, mythical though they may actually be. Such interviewees are typically flattered to be on national television and are often willingly led by the reporter.

To reiterate, the local news personnel, in contrast, functioned in their communities as a conduit. While they hunted for interesting stories and novel ways to present to their viewing audience what was happening, they tended to put the local officials on live while they were presenting their prepared state-

ments; when interviewing one on one, they seemed to focus more on individuals they had some working relationship with and whom they trusted to provide "the truth."

National news personnel tended to offer more superficial treatments based on more tenuous relationships. Typically, they would arrive on-site and would determine where the press was meeting local officials for interviews and press conferences (following or acting like a pack animal, as Scanlon and Fischer, 1988, have described). They would announce their presence and begin interviewing the official who appeared to know what he or she was talking about. This judgment as to who was knowledgeable was not made on the basis of a prior working relationship, but on the basis of the perceived presence, the apparent credentials, and the apparent veracity of the speaker (i.e., the concordance between the speaker's beliefs about behavioral response to disaster and the reporter's). For example, in one instance, we were interviewing a city manager when an out-of-town crew arrived and asked to interrupt our interview. We readily agreed, seeing this as an opportunity. During the taping of this interview of a city manager, one of us interjected some information in response to a question that the city manager was having difficulty answering. We had previously prepared credentials hanging around our necks to facilitate entree, so we looked very professional and (we believe) sounded knowledgeable. The television reporter took notes as if what we were saying was Gospel. We probably could

have told her anything and it would have been believed or at least reported.

The "pack animal" nature of the national media, was further demonstrated when we were in Corpus Christi on the evening the hurricane hit the Mexican coast. We were amazed at the lineup of tripods and satellite dishes along the coast. Crews from all over the country and world were parked up and down the street running along the shore. The crews were staying in hotels along this street and set up shop to report from literally right outside their hotel rooms. They were on-site only to the extent that they were in the city which was expected to be dramatically affected or impacted by the hurricane. Network people did drive through the city, but they primarily focused on finding local spokespersons, gathering dramatic video, and sending their live feeds back from the coast—right outside their hotel rooms. It was quite a sight to see television equipment and personnel lined shoulder to shoulder, block after block. Were they getting the scoop or trying not to be scooped? Since they looked like pack animals, the latter seems more accurate than the former.

These anecdotal observations are shared in order to provide an accurate analytical focus to the qualitative differences that do exist between the local and national news broadcasts (recall Table 3). We argue that both normative and structural differences between local and network news gathering and reporting result in differences in accuracy.

Variation in broadcast accuracy. Table 5 (Appendix 4) shows that 80% of the local news stories were accurate when discussing behavior associated with the community breakdown model myths, while only 52% of the network news stories contained accurate references. Conversely, 37% of the network stories contained mythical references while only 22% of the local news stories did so. Hence, it appears that the local news stories were more accurate overall than the network stories.

There was little difference in the reporting of accurate or mythic behavior between local and network news when it came to their treatment of panic, looting, price gouging, and injury and death estimates. The most striking differences concerned the handling of evacuation, sheltering, and damage estimates as well as references to rational behavior, disaster subculture behavior, and altruism.

Disaster researchers (Quarantelli, 1987, for example) know that the number of evacuees is usually overestimated by local officials. In most instances approximately 10% of the potential-ly affected population evacuates. In the case of the cities of the southern Texas coast during Hurricane Gilbert, we suspect the evacuation rate may have been higher than the norm given the previous experience that these communities had during other re-cent hurricanes. There is no evidence, however, to support the claims of the network news reporters that the towns along the coast were "ghost towns, with most people having left-all but a few stragglers who refuse to go." When we drove up and down the

streets of these cities, we found the neighborhoods full of
people preparing for the storm. These people flooded shopping
centers to buy munchies for the kids and spouses who were un-
expectedly at home and in need of entertainment. They were in
their yards securing lawn furniture and boarding up windows. We
do not believe the estimated evacuation rates of between 60% to
80% which were reported in national broadcasts, and suspect that
an estimate of 20% would be high.

Again, one reason for the exaggerated evacuation estimates
is the tendency of network reporters to work as "pack animals"
from the central business districts where the hotels were lo-
cated. More than one network reporter stood in the deserted
streets, sometimes at 3:00 a.m. citing the empty backdrop as
evidence of the massive evacuation of the city. When downtown
stores are closed so that employees can go home to prepare for a
storm and possible evacuation, it is unlikely that people will be
downtown window shopping. (In addition, even in nonemergency
times, most people do not window shop at 3:00 a.m.) What struck
us as even more remarkable was that such claims of massive evacu-
ation, rendering the city a ghost town, were frequently followed
by video of the shore which showed that hundreds, perhaps
thousands, of locals were strolling the beaches, surfing and
otherwise engaging in typical disaster subculture behavior. The
contradiction usually escaped most reporters. To be sure, local
reporting also included some broadcasts which overestimated evac-
uation figures, but their level of accuracy was distinctly

greater than the networks' (14% of the local news accounts dealt with evacuation estimates accurately versus only 5% of the network reports, see Appendix 4, Table 5).

The literature on behavioral response to disaster (Dynes, 1970, for example) observes that most evacuees do not go to shelters but stay with relatives or friends or rent motel/hotel rooms instead. In conjunction with the exaggerated estimates of evacuees, the numbers of persons sheltered are usually exaggerated. Indeed, some local and network broadcasts exaggerated the population sheltered from Gilbert. We visited some shelters in Corpus Christi during the impact and immediate postimpact periods and found less than two hundred persons sheltered. The director of one shelter indicated that only a few of the city's shelters were open, because the local disaster plan stipulates that as one shelter fills up, another will be opened. Even if every shelter had been opened and filled to capacity, the total sheltered population would not have equaled the estimates being broadcast.

The network news regarding shelters was more inaccurate than the local news in two ways. First, the estimates were even further inflated on the network news than on the local news, and second, a higher percentage of network news stories dealt inaccurately with these estimates (8% versus 2%, see Table 5). We suspect that this greater inaccuracy on the part of the network news is the result of two influences. First, the network news was governed by a norm (get good video, offer a good story) that led to exaggeration. Second, the "pack animal" behavior of net-

work news personnel leads to a kind of "whisper down the lane" phenomenon. For example, one CNN reporter said, on air, that "someone around here said that perhaps as many as 60,000 are housed in shelters." The someone he was referring to was a fellow reporter from an affiliate. The direct live feed form of reporting facilitates such inaccuracy, for normal editing processes are short circuited as Wenger and Friedman (1988) have observed.

Another example of theatrics in national coverage (but not an example of myth reinforcement) was the networks' exaggeration of weather conditions in communities from which reporters were broadcasting. For example, a CNN reporter stated that the "wind is picking up now" and suddenly stepped backward as though to catch himself from falling in response to a wind gust. The wind gusts were not exceeding 35 miles per hour at that point (far below hurricane strength) and the wind had, in fact, not been picking up before, during, or for hours after that broadcast. Interviewed crew members suggested that "when you broadcast continually and invest this much equipment and personnel in a story, there will be a story."

We now turn from myths per se to three areas that the disaster literature (see, for example, Quarantelli, 1987) identifies as typical disaster behavior but behavior that varies distinctly from that expected according to the community breakdown model. First, students of disaster research have found that victims and potential victims tend to behave in a very rational manner. They

prepare themselves if time permits, e.g., by purchasing bottled water, food, flashlight batteries, and so forth. Second, as mentioned, many localities that are frequently affected by disasters, tend to develop what Wenger (1980) labels "disaster subcultures." For example, people in hurricane-prone areas will sometimes throw hurricane parties and surf in the large storm-created waves. Third, most victims and potential victims tend to not respond to disaster events selfishly (as looters or price gougers), but tend to be altruistic. They help one another, give food away, organize search and rescue groups long before emergency organization personnel arrive on the scene, and so forth.

In our content analysis we sought to assess the extent to which the local and network broadcast media portrayed such disaster behavior. We found them portrayed more accurately and more often among local news reports than in broadcasts by the networks (see Appendix 4, Table 5). Rational behavior was portrayed on 30% of the local news reports, but on only 12% of the network stories. Disaster subculture behavior was accurately portrayed by the local news 10% of the time but only 5% of the time on the network news. Finally, altruistic behavior was accurately portrayed in 7% of the local newscasts compared to only 1% of the national newscasts.

Our interviewing of local and network personnel suggested that the primary reason for these differences was organizational/ structural differences in the two levels of television news broadcasting. It became very clear that almost all news person-

nel believe the community breakdown model is a real description of how people behave during an emergency. We "played dumb" and asked reporters, for example, "how do people usually behave during these things, since you have seen so many you must have a clear picture?" To a person, they provided a complete description which essentially formed the community breakdown model: looting, price gouging, antisocial behavior generally, "crazy behaviors," selfishness, panic, and inability to respond to subsequent events (shock). Reporters frequently ask public officials if there has been any looting, price gouging, and so forth. One anchor asked a reporter who was broadcasting live on-site (in front of his hotel), if there had been "any crazy behavior, looting and price gouging and so forth." The reporter responded that local officials felt that they "had things under control and did not expect such to occur." Even if they reported that these behaviors did not occur, the questions were asked and answers reported in a way that would lead one to believe that such behavior usually did occur during disasters.

Again, the local news seemed to be more accurate in reporting such behavior because they see their role as getting necessary information out to their community. Thus, they concentrate on televising such things as local press conferences of local emergency management officials. Even though many local reporters believe in the community breakdown model, their control over what is broadcast results in reporting that is qualitatively different from the networks. With network news, where the control is not

local, the goal is to create a dramatic stage from which to feed the big story to their largely unaffected "arm chair" audience nation- and world-wide.

If this analysis is correct, the accuracy of the local news is limited by the extent and accuracy of local emergency officials' knowledge. In most instances, we found the local officials and emergency management personnel in Texas coastal communities to be fairly knowledgeable and accurate in their perception and understanding of the behavioral response of citizens to disasters. However, these were mostly designated spokespersons. Other individuals within the organizations were often far less knowledgeable and more likely to believe in the community breakdown model. To illustrate, one emergency management official acknowledged during an interview that it would be impossible to evacuate his city, because it would take too long to get that many people out of the area. In another city the city manager repeatedly went on local television warning citizens to prepare and leave the area rather than wait for an official evacuation declaration. He acknowledged the difficulty in getting people to leave. The one major mythical behavior that he perpetuated during interviews was an apparent belief in looting. He stated that roadblocks and police patrols were in place to "guard against looting in those areas where citizens have evacuated." When we interviewed this city manager, he spontaneously acknowledged that looting does not normally occur during disasters, but he had to "convince the people that it was guarded against; otherwise they

would never leave, but would stay to 'protect their property' against imagined looters." So he was using the media to counter the public's belief in disaster myths. Of course, in communities where previous training and disaster experience has not enlightened officials regarding these myths, the "news" broadcast directly from official spokespersons may be erroneous and perpetuate the community breakdown model, even though the altruistic norm of getting information out to save the community may still govern local news personnel behavior.

Local Print Media

We analyzed 311 Hurricane Gilbert news stories published in the Brownsville Herald, the Corpus Christi Caller Times, the Galveston Daily News, and the Houston Chronicle. We were able to obtain copies of every issue of the Galveston newspaper published for the week comprising the preimpact, impact, and postimpact periods. We were not able to obtain every issue of the remaining newspapers which were often sold out before we were able to reach these cities. Most (88%) of the news stories were written by the newspaper staff, while approximately a tenth (12%) of the hurricane news stories were written by AP or UPI staff members (see Appendix 4, Table 6).

Because we obtained all issues of the Galveston paper published during the life cycle of the storm, more articles were analyzed from the Galveston Daily News (39% of the total) than from any other paper. (One should not conclude that the variation in distribution of Hurricane Gilbert articles presented in

Table 6 is indicative of the quantitative treatment given by the various newspapers.) Since the Galveston newspaper is the only newspaper for which we had every issue, we used the Galveston publication as a base from which to compare our findings across all the newspapers we examined. There were no differences observed between the data from the Galveston newspapers and the total data generated by the four newspapers from which articles were analyzed.

The second largest percentage of articles was obtained from the Houston newspaper (36%). The particular issues examined, including the Sunday edition and immediate pre- and postimpact editions, were editions in which newspapers would tend to devote a larger percentage of the news to the disaster story. The Houston paper has a larger circulation which includes the other cities (Brownsville, Corpus Christi, and Galveston) threatened by the hurricane. The Houston paper contained many more pages per issue; hence, even if the same percentage of the news were devoted to the storm, with the Houston paper more newsprint would be involved than with the smaller newspapers.

A majority (57%, see Table 6) of the news stories were devoted to preimpact activities, more than a tenth (13%) were devoted to impact activities, a quarter of the stories (25%) focused on postimpact activity, and the remaining 5% reported on a mixture of activities during two or more disaster time periods. This variation is attributable to several factors. First, we could not obtain every issue of each newspaper for the entire

life cycle of the storm. Hence, we had Houston papers which reported on preimpact and postimpact activity. The Houston paper is a larger newspaper, and therefore contained more articles written about the storm. Second, because hurricanes are slow-onset events, the preimpact period is often the longest time period of the storm's life cycle (the case with Gilbert). Finally, the impact period is typically the shortest time period of the life cycle of the storm. One would thus expect fewer stories to be written about activity during this period.

In contrast to television news stories about Gilbert, which primarily consisted of soft news or a mixture of soft and hard news, the local print media focused primarily on hard news (60%) (Appendix 4, Table 6). Only a third (34%) of the hurricane printed news stories were soft, with the remaining 6% being a mixture of the two. This difference in orientation between the broadcast and print media probably indicates a significant difference between the two. In our analysis, we noted that the print media were similar to the local broadcast media in that they seemed to be governed by the altruistic norm of gathering and disseminating information that would be helpful to the local community. However, the depth of detail is, of course, much greater in the print media. Local staff reporters are not competing to offer the best thirty-second sound bite; they are competing to write the most accurate, thorough story—in this case, on a particular event related to the hurricane.

The range of news stories published in the print media was also significant. Table 6 indicates that, for the print media, the number of stories focusing on behavioral response to the storm were equal to the number of stories reporting on storm-related organizational activities (29% each). While the broadcast media (Appendix 4, Table 1) also primarily focused their stories on storm-related behavior, they did so far more often (42% versus 29% of the time) than did the print media. The broadcast media had few stories (3%) on storm-related organizational activity, whereas the print media, as just noted, had 29%. The print media also devoted a larger proportion of space to pure information dissemination (where shelters were, etc.) than did the broadcast media (13% versus 4%).

Like the broadcast news stories, we found that the print news stories were fairly accurate in their portrayal of the behavioral response to Gilbert (Appendix 4, Table 7). We examined 311 news stories for evidence of mythical versus accurate portrayal of the ten behavioral categories mentioned above. Hence, there were 3,110 possible instances of such behavior being reported. Most of the time, in 2,806 instances, the behavior in question was not addressed in the story. Behavior was address in 304 instances. Within these 304 instances (in Table 7), 77% of the time the behavior was described accurately. In less than a fourth (23%), the community breakdown model was perpetuated (e.g., fear of looting). The inaccuracies that did occur were primarily centered around the perpetuation of the looting and

price gouging myths. Inaccuracies occurred slightly less fre-
quently than they did in broadcast media news stories (compare
Tables 2 and 7). Additionally, the print media were distinctly
more accurate in their published estimates of evacuees, sheltered
persons, and damage. The print media are similar to the local
broadcast media (and unlike network news personnel) in that they
are likely to have working relationships with key leaders and can
discriminate between those who are knowledgeable and those who
are not.

Even when myths about deviant behavior were portrayed in the
print media, they were usually either in articles buried in the
newspaper (not headline news) or received only passing notice in
other articles. On the other hand, the broadcast media tended to
highlight behavioral responses to the storm that perpetuated the
breakdown model. To be sure, most print reporters, but not as
many as among the broadcast media, believe in the disaster myth-
ology. Their stories, however, were less sensational than broad-
cast media stories. The norm governing their news gathering and
reporting behavior was not to get the equivalent of "good video,"
but to report accurately on the varied activities of individuals
and organizations in preparation for impact and cleanup. A hard
news orientation coupled with organizational norms distinctly
different from those of the broadcast media (particularly of the
networks), led to a more even-handed and accurate presentation of
the behavioral response to the storm.

Table 8 (Appendix 4) demonstrates that, in perpetuating disaster myths, the print media follow a pattern similar to the local broadcast news. Most (78%) of the newspapers examined either did not prominently display articles which contained behavioral myths or had articles which contained no myths. Only 22% of the newspapers prominently displayed articles which portrayed disaster mythology. Comparing network news broadcasts with both types of local media combined indicates the divergence between the national news and local news coverage. While a majority (53%) of the national news programs led off with stories that perpetuated disaster mythology, such inaccuracies occurred in only 21% of the local media.

We observed earlier that local broadcast media behavior appeared to be more altruistic than national coverage in that it seemed to be intended, at least in part, to help the community. Of course, this may result from the local broadcast personnel living in the area and defining themselves as potential victims along with the other local residents; whereas the network personnel are outsiders converging on the scene to get a story that will attract viewers and, possibly, promote their career. If the local broadcast personnel were seeking to get information out that would help their community obtain a complete picture of what was occurring during the storm, the local print media were doing the same to a much fuller extent. In comparison to the broadcast media, the print media reported in detail on virtually every aspect of the storm.

While the network media devoted most of their hurricane air time to live reports from their reporters stationed in the coastal cities, the local broadcast media devoted most of their hurricane coverage to reports—some live, some filmed—on multifaceted storm-related activities from various settings within and without their threatened community, and the local print media devoted the bulk of their hurricane newsprint to an even greater variety of storm-related news and information. In viewing the network news one feels excitement or hype; when reading the newspaper accounts one feels informed about many aspects of the experience of preparing for and living through the storm in the given locale.

Local staff writing versus wire service writing. Similar to our analysis of local and national broadcast media, we attempted to determine if there was variation in reporting between local newspaper writers and those from the wire services. The parallel is not totally analogous, however. Local newspaper personnel decide which AP or UPI articles to publish in their local papers; the wire services do not disseminate directly to the public as do national television networks. Therefore, the primary result of our analysis is an understanding of the local print media's accuracy with respect to community breakdown myths, but this understanding is presented in a format which breaks the data down by writing source—local staff versus wire service.

Table 9 (Appendix 4) shows that the story line of a plurality of the staff stories focused on behavioral responses to the storm (31%) and organizational responses (31% also). On the

other hand, the focus of the wire stories published in the local

newspapers was on damage (26%) and weather (21%), followed by

stories dealing with storm preparation information (16%).

Stories focusing on behavioral and organizational responses to

the storm were relatively few (11% and 13% respectively).

Most of the wire service stories did not have a byline pub-

lished with the story, so we were not able to interview wire

service writers. We did, however, interview staff reporters from

each newspaper. As with broadcast media reporters, newspaper

reporters generally believed in the community breakdown model,

thus the occasional focus on resident fears of looting and price

gouging. However, these reporters also shared the same approach

to news gathering as the local broadcast media, resulting in a

similarly high degree of accuracy in reports on other behavioral

responses to the storm. Again, being a part of the local social

fabric, these news people had working relationships with numerous

community leaders whom they would seek out during such emergen-

cies. Of course, just as with the local broadcast media, the

print media reporters are constrained by the accuracy of these

local officials. Since we found many local officials in the

cities threatened by Gilbert to be rather knowledgeable concern-

ing human response to disasters, the perpetuation of disaster

mythology was limited in the reporting on Gilbert. Many re-

porters still asked leading questions which reflected their own

belief in the mythology, but since the local officials were fair-

ly knowledgeable and since the reporters were essentially acting

as an information disseminating extension of the local emergency officials, the print news stories were fairly accurate (some reporters took pains to write articles that talked about burglaries as opposed to looting and to note that the burglary rate actually decreased during the emergency—the result of information given them by a knowledgeable local official who suggested the story orientation). The print media assumed that local officials were their best source for the most complete picture of what was occurring in their community—a perception that could be characterized as an example of the "command post" view of disasters (Quarantelli, 1981). The press assumes the validity of the command post view which, of course, may not always be a safe assumption.

Variation in print media accuracy. While the news stories published in local newspapers were fairly accurate, there were lapses in this accuracy, as noted above. Deviant behavior, e.g., looting and price gouging, was the most common myth to appear. This inaccuracy was counterbalanced, though, by the special attention given to the rational behavior, typical disaster subculture behavior, and altruism that occurred. We found differences, however, between the degree of accuracy in local staff writing and that of the wire services (see Appendix 4, Table 10).

Articles written by local staff tended to be more accurate than wire service articles when it came to evacuation estimates (14% versus 5%), descriptions of rational behavior (21% versus 5%), and disaster subculture behavior (7% versus 0%). The ob-

served differences appear to result more from the variation in story orientation between local staff and wire service articles rather than from an increased tendency for the wire services to perpetuate myths; as noted above, wire service articles focused more on damage, death, and injury than on behavior. Both staff and wire service articles reflect a high degree of accuracy in these areas.

CONCLUDING SUMMARY AND OBSERVATIONS

A rank ordering of the news sources we analyzed yields the following: the local print media most accurately reported behavioral and organizational response to Hurricane Gilbert; they were followed by local television broadcast media, and then by the network news, which was the most likely to exaggerate. When myths were portrayed, those most likely to appear in either medium were myths perpetuating belief in increased deviance during disaster, such as looting and price gouging. The behaviors most likely to be reported accurately were those dealing with rational preparation and clean-up activities engaged in by individuals and their families, typical disaster subculture activities such as surfing, and instances of altruism such as search and rescue activities. Typical exaggerations involved evacuation and shelter population estimates. Again, degree of accuracy did vary by media type.

To summarize our findings and observations on the local and network television news broadcasting regarding Hurricane Gilbert,

we found the television news, generally, to be fairly accurate.
There were some references to panic, looting, price gouging, and
other imagined forms of deviant behavior which perpetuated the
community breakdown model. Property damage, injury, and death
estimates were also fairly accurate. However, exaggerations in
evacuation and sheltering estimates did occur. Altruism, in-
stances of typical disaster subculture behavior, and the rational
behavior of local citizens preparing for and cleaning up from the
storm were all portrayed.

An underlying cause of the myth perpetuation which did occur
was the widespread belief in the community breakdown model among
news personnel. Their mistaken definition of the situation
framed their news gathering and reporting perspective. Even when
officials were not mistakenly reporting such behaviors, reporters
frequently asked if any had occurred, implying that their occur-
rence is normal and to be expected.

Differences in accuracy were observed between local and
network reporting. The news gathering and reporting behavior of
local news personnel was primarily governed by an altruistic
norm. They sought to gather and disseminate information their
communities needed in order to adequately prepare for, protect
against, and recover from the hurricane. Even though most local
news personnel believed in the community breakdown model, the
accuracy of their reporting was enhanced by their organizational
approach to the news. They tended to devote large portions of
their coverage to the prepared statements of emergency management

spokespersons. Hence, the accuracy of their news depended on the accuracy of those officials. The spokespersons in the communities under study were reasonably accurate.

The news gathering and reporting behavior of network news personnel, on the other hand, was primarily governed not by altruism, but by self-interest. The network personnel were not from the community, but converged on it for the purpose of covering the "Storm of the Century." As it became clear that the storm would not impact directly on the Texas coast, they had to go ahead and gather "good pictures" and, in a sense, create the drama they expected of such an event. Weather was exaggerated, evacuation rates and the number of persons sheltered were exaggerated. Personnel staged events that they thought were indicative of what was really happening. The trouble with their organizational approach (i.e., pack animals staging events that they thought were symbolic of what was really happening) was that they were wrong about what they thought people typically do during a disaster.

To summarize our findings and observations on the print media, we again found the reporting to be reasonably accurate. There were, again, some references to panic, looting, price gouging, and other imagined forms of deviant behavior which perpetuated the community breakdown model. Property damage, injury and death estimates were again fairly accurate, but again, the usual exaggerations in evacuation and sheltering estimates occurred. Altruism, instances of typical disaster subculture be-

havior, and the rational behavior of local citizens preparing for and cleaning up from the storm were all portrayed.

As with the broadcast media, print media personnel believe in the disaster mythology (community breakdown model), and this belief frames their news gathering and reporting perspective. Again, even when officials were not mistakenly reporting such behaviors, print reporters asked if any had occurred, again implying that their occurrence is normal and to be expected. The print media stories were far more diverse than those broadcast in the television news, particularly network news; a more complete picture of the behavioral and organizational response to Gilbert could be obtained from the printed stories. The broadcasts were generally rather superficial, and the network news was often more fable (as Nimmo, 1984, observed) than fact.

As noted above, the network media personnel in particular behaved as "pack animals" (Scanlon and Fischer, 1988) and gathered in herds along the coastal beaches of those southern Texas cities most likely to be affected by the storm. They tended to bring interviewees to their satellite locations and sent film crews around the area to obtain dramatic video, which they would use as a backdrop for their brief reports regarding the behavioral and organizational response to Gilbert. The network productions were far more staged than the local broadcast and print media stories, which focused on information that would be helpful to local citizens. Apparently, the network organizations saw their audience as more global than did the local media,

and perceived their mission more as entertaining than informing.

While reporters from all media functioned under the "command post" view (Quarantelli, 1981) of disaster response, local reporters (both broadcast and print) devoted more of their reporting to what local officials were saying than did network reporters. In the case of Gilbert, this facilitated greater accuracy, for many of the officials cited were fairly knowledgeable with respect to the community breakdown model. In contrast, the network crews sought to manage their news to present a story of what they believed occurs in disasters. Their creative efforts, however, tended to result in greater inaccuracy. Their erroneous definition of the situation, coupled with their organizational structure which allowed them to stage what they sought to broadcast, produced a "fable" version of the "Storm of the Century."

The irony in the reporting on the "Storm of the Century" is that when the network personnel came into a city, locals were impressed and somewhat intimidated by these national stars, even though local officials were more knowledgeable about behavioral responses to disaster.

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APPENDIX 1

SCHEDULE I
QUICK RESPONSE MEDIA STUDY:
OPEN-ENDED INTERVIEW QUESTIONS FOR MEDIA

1. When and under what circumstances did you first hear of the current disaster event?

2. Would you please outline the activities you engaged in as part of covering this event.

3. What individuals (govt. officials, victims, relief workers, etc.) did you interview?

4. Why did you decide to interview these individuals?

5. Do you feel that you obtained an accurate picture of the disaster response through these interviews? Why/Why not?

6. What problems of behavioral and organizational response do you most worry about in the aftermath of a disaster (from the perspective of a citizen, media person)?

7. Which of these have you observed occurring during the current disaster event/aftermath?

8. Of those which have not occurred, why do you suppose they haven't this time?

9. How soon after impact did you get onsite? What did you see when you arrived?

10. How did this disaster differ/how was it similar to other disasters this area has suffered in the past?

11. What do your readers/viewers/listeners most like to read/ see/hear about a disaster event?

12. Who, in your organization, decides what stories to investigate; to air/print?

13. Do you seek to develop disaster coverage that is primarily hard news or soft news? Why? Does the emphasis change over time? If so, in what way and why?

14. Which type (soft or hard) do you feel "sells" best? Why?

15. What do you believe determines how much of the news hole will be devoted to any particular news story? Why?

16. Who makes the ultimate decision (about the amount of news hole thus used)?

17. When and what was the last disaster this community suffered?

18. How many newspapers does this city have? What are they, where are they, phone?

19. How many TV/radio stations does this city have? Where, phone?

20. Who, in your city, manages the community response to disasters (LEMA, Mayor, PD, FD, RC, etc.)?

21. How often were you in contact with this organization/office during and after the current disaster?

22. Does your community have a written disaster plan, where is it, how often updated, do you have a copy, does your organization have a role in designing it/carrying it out?

23. Does your community hold practice sessions to try out the disaster plan? How often, when last?

24. Does your organization disseminate disaster preparation information to the general public during normal time? How often, when last, what type of info?

SCHEDULE II

QUICK RESPONSE MEDIA STUDY:
INTERVIEW QUESTIONS FOR COMMUNITY ORGANIZATIONS

1. When and how did you first hear of the current disaster event?

2. Would you please outline the activities you engaged in as part of covering this event.

3. Were you interviewed by the press? When, how often, by which forms of media (paper, TV, radio)?

4. Were press questions relevant to the current disaster? How so?

5. Who else did they interview?

6. How soon after impact did you get onsite? What did you see when you arrived?

7. How did this disaster differ/how was it similar to other disasters this area has suffered in the past?

8. What problems of behavioral and organizational response do you most worry about in the aftermath of a disaster?

9. Which of these have you observed occurring during the current disaster event/aftermath?

10. Of those which did not occur this time, to what would you attribute their non-occurrence?

11. When and what was the last disaster this community suffered?

12. Who, in you city, manages the community response to disasters (CD, Mayor, PD, FD, RC, etc.)?

13. Is there a written disaster plan? Practice it? When last/ how often?

14. How often were you in contact with the PD, FD, RC/SA, CD, etc., during this disaster event?

15. Do the local media disseminate disaster plan info to the public during normal time? What kind of info, how often, when last?

APPENDIX 2

CONTENT ANALYSIS FORMS

Broadcast News

Network/Station:

Date/Time:

Reporter(s):

Location of Segment:

Disaster Period:	pre-impact	impact	post-impact
News Type:	hard	soft	mix

Story Orientation:	behavior	damage	organizational acts
	weather	info	hurricane history
	human interest		mixture

Video:

Audio:

	Accurate Portrayals	Mythical Portrayals
Panic		
Looting		
Price Gouge		
Martial Law		
Psych Depend		
Other Deviance		
Other Selfish		
Exagg. Evac.		
Exagg. Shelter		
Exagg. Damage		
Exagg. Injury		
Exagg. Death		
Exagg. Weather		
Dis. Shock		
Contagion		
Rational Behavior		
Dis. Subculture		
Altruism		

Newspaper

Newspaper:

Page:

Title:

Staff/Wire Service:

Reporter:

Column Inches:

Disaster Period:	pre-impact	impact	post-impact
News Type:	hard	soft	mixture
Story Orientation:	behavior	damage	organization
	weather	info	history
	human interest		mixture

	Accuracy	Myth
Panic		
Looting		
Price Gouge		
Martial Law		
Psych Depend		
Other Deviance		
Other Selfish		
Exagg. Evac.		
Exagg. Shelter		
Exagg. Damage		
Exagg. Injury		
Exagg. Death		
Exagg. Weather		
Dis. Shock		
Contagion		
Rational Behavior		
Dis. Subculture		
Altruism		

APPENDIX 3

HURRICANE GILBERT'S PATH
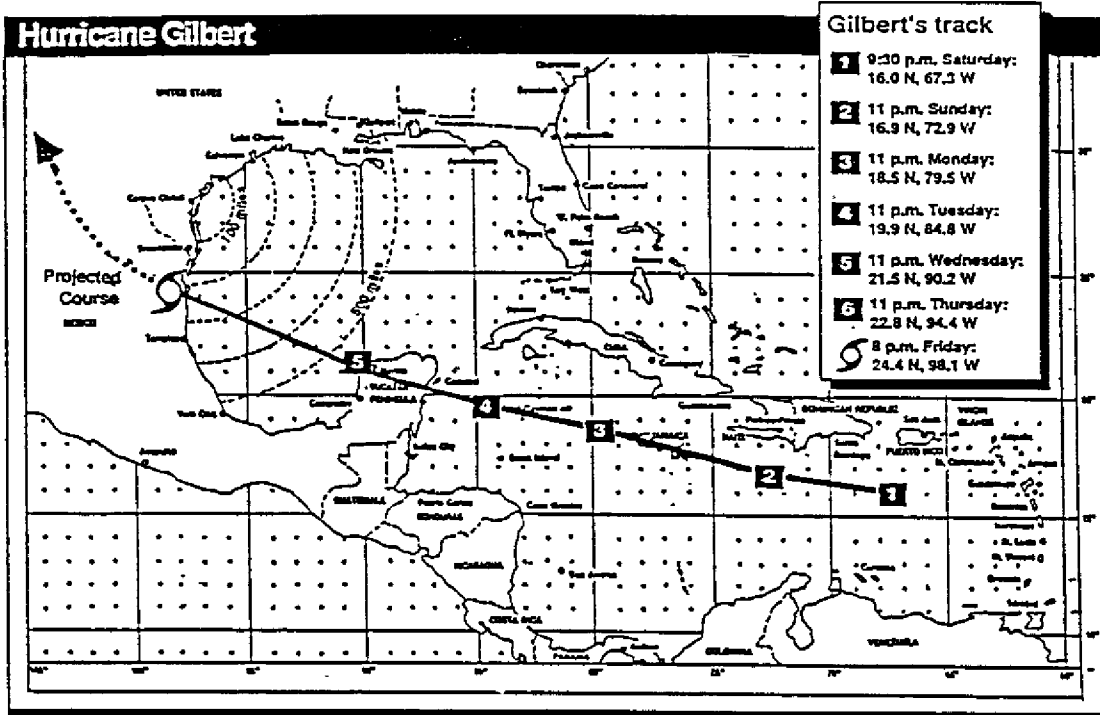
APPENDIX 4

TABLE 1
FREQUENCY DISTRIBUTION FOR BROADCAST NEWS DESCRIPTORS
(N = 243 unless otherwise noted)

News Source
Local TV	39%	(95)
Network TV	61%	(148)
	100%	

Broadcast Origin
Brownsville	4%	(9)
Corpus Christi	10%	(23)
Houston	25%	(63)
Network TV	61%	(148)
	100%	

Disaster Period
Pre-Impact	52%	(126)
Impact	22%	(54)
Post-Impact	26%	(63)
	100%	

News Type
Hard	13%	(32)
Soft	24%	(59)
Mix	63%	(152)
	100%	

Story Orientation or Slant
Behavior	42%	(103)
Weather	28%	(68)
Human Interest	1%	(3)
Damage	16%	(39)
Information	4%	(10)
Organizations	3%	(6)
Storm History	3%	(8)
Mix	3%	(6)
	100%	

TABLE 2
INCIDENCE OF DISASTER MYTHS IN BROADCAST MEDIA NEWS
(N = 243 totaled across the rows)

	Accurate		Myth		Nothing	
Panic	0%	(0)	1%	(2)	99%	(241)
Looting	0%	(0)	5%	(13)	95%	(230)
Price Gouging	0%	(0)	2%	(5)	98%	(238)
Evacuation	8%	(20)	14%	(33)	78%	(190)
Sheltering	3%	(7)	5%	(12)	92%	(224)
Injury/Death	3%	(8)	0%	(0)	97%	(235)
Damage	19%	(46)	3%	(7)	78%	(190)
Behave Rational	19%	(46)	1%	(1)	80%	(196)
Dis. Subculture	7%	(16)	1%	(2)	92%	(225)
Altruism	3%	(8)	0%	(0)	97%	(235)

TABLE 3
ANALYSIS OF BROADCAST NEWS PROGRAMS

	Network TV		Local TV	
Prominent Appearance of Myths	53%	(10)	18%	(2)
Non-Prominent Myth Appearance	21%	(4)	18%	(2)
No Myth Appearance	26%	(5)	64%	(7)
	100%	(19)	100%	(11)

TABLE 4
STORY LINE DIFFERENTIATED BY BROADCAST NEWS SOURCE
(Total N = 243 unless otherwise noted)

	Local TV	Network TV
Behavior	54% (51)	35% (52)
Weather	22% (21)	32% (47)
Damage	8% (8)	21% (31)
Info/Organizations	12% (12)	3% (4)
Misc.	4% (3)	9% (14)
	100% (95)	100% (148)

TABLE 5
INCIDENCE OF MYTHS DIFFERENTIATED BY BROADCAST NEWS SOURCE
(Total N = 243 unless otherwise noted)

	Local TV (N=95)		Network TV (N=148)	
	Acc	Myth	Acc	Myth
Panic	0%	2%	0%	0%
Looting	0%	5%	0%	5%
Price Gouging	0%	2%	0%	2%
Evacuation	14%	11%	5%	16%
Sheltering	3%	2%	3%	8%
Injury/Death	5%	0%	2%	0%
Damage	11%	0%	24%	5%
Behave Rational	30%	0%	12%	1%
Dis. Subculture	10%	0%	5%	1%
Altruism	7%	0%	1%	0%
	80%	22%	52%	38%

TABLE 6
FREQUENCY DISTRIBUTION FOR PRINT MEDIA NEWS DESCRIPTORS
(N = 311 unless otherwise noted)

<u>News Source</u>

Staff	88%	(273)
Wire Services	12%	(38)
	100%	

<u>Newspaper Origin</u>

Brownsville	11%	(33)
Corpus Christi	14%	(42)
Galveston	39%	(122)
Houston	36%	(114)
	100%	

<u>Disaster Period</u>

Pre-Impact	57%	(178)
Impact	13%	(42)
Post-Impact	25%	(77)
Mix	5%	(14)
	100%	

<u>News Type</u>

Hard	60%	(187)
Soft	34%	(105)
Mix	6%	(19)
	100%	

<u>Story Orientation or Slant</u>

Behavior	29%	(89)
Weather	10%	(30)
Human Interest	5%	(16)
Damage	11%	(34)
Information	13%	(41)
Organizations	29%	(89)
Storm History	1%	(3)
Mix	2%	(9)
	100%	

TABLE 7
INCIDENCE OF DISASTER MYTHS IN PRINT MEDIA NEWS
(N = 311 totaled across the rows)

	Accurate	Myth	Nothing
Panic	1% (4)	4% (13)	95% (294)
Looting	2% (7)	7% (21)	91% (283)
Price Gouging	2% (6)	3% (10)	95% (295)
Evacuation	13% (39)	3% (8)	84% (264)
Sheltering	3% (8)	3% (10)	94% (293)
Injury/Death	9% (28)	0% (0)	91% (283)
Damage	15% (46)	1% (1)	84% (264)
Behave Rational	19% (59)	2% (5)	79% (247)
Dis. Subculture	6% (18)	0% (0)	94% (293)
Altruism	6% (20)	1% (1)	93% (290)

TABLE 8
ANALYSIS OF BROADCAST NEWS PROGRAMS & DAILY NEWSPAPERS

	Network TV	Local TV	Print
Prominent Appearance of Myths	53% (10)	18% (2)	22% (4)
Non-Prominent Myth or No Myth Appearance	47% (9)	82% (9)	78% (14)
	100% (19)	100% (11)	100% (18)

	National TV	Local Media
Prominent Appearance of Myths	53% (10)	21% (6)
Non-Prominent Myth or No Myth Appearance	47% (9)	79% (23)
	100% (19)	100% (29)

TABLE 9
STORY LINE DIFFERENTIATED BY PRINT NEWS SOURCE
(Total N = 311 unless otherwise noted)

	Staff	Wire Services
Behavior	31% (85)	11% (4)
Weather	8% (22)	21% (8)
Damage	9% (24)	26% (10)
Info	13% (35)	16% (6)
Organizations	31% (84)	13% (5)
Misc.	8% (23)	13% (5)
	100% (273)	100% (38)

TABLE 10
INCIDENCE OF MYTHS DIFFERENTIATED BY PRINT MEDIA NEWS SOURCE
(Total N = 311 unless otherwise noted)

	Staff (N=273)		Wire Service (N=38)	
	Acc	Myth	Acc	Myth
Panic	2%	5%	0%	0%
Looting	3%	7%	0%	5%
Price Gouging	2%	3%	0%	3%
Evacuation	14%	2%	5%	5%
Sheltering	3%	3%	0%	5%
Injury/Death	8%	0%	16%	0%
Damage	15%	0%	16%	3%
Behave Rational	21%	2%	5%	3%
Dis. Subculture	7%	0%	0%	0%
Altruism	7%	0%	5%	3%
	82%	22%	47%	27%

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