

Katrina: seeking answers

Working in the Virginia State Climatology Office for five years while completing my graduate work in atmospheric science gave me an opportunity to follow hurricanes a bit more closely than the average person. The hurricane season, which runs from June to November in the Atlantic, was a time that my officemates and I spent many hours keeping tabs on the atmospheric conditions in the eastern Atlantic — the location where many tropical cyclones are born. Thus, given this past experience, as well as a “close encounter” that I had with a Category 4 hurricane in July, my curiosity was heightened at word of Katrina’s landfall in Florida. Having followed the storm pretty closely since then, there are many important questions that remain unanswered. The one question that warrants our consideration, perhaps more so than any other, is: “Who is responsible?” As easy as this question rattles off the tongue, a meaningful response requires a great deal of thought. First of all, we are compelled to follow it immediately with the qualifier, “responsible for what?” There are so many things to which one might attribute responsibility, including, but not limited to, the strength of Katrina (i.e., wind speed, storm surge, duration), the awareness of the residents in affected areas, the preparedness and response of the emergency personnel, the physical damage incurred, the media “spin” in its aftermath, and the long-term economic and psychological support to the victims. As a climatologist and environmental scientist, I will focus on two of these aspects. As a recent visitor to Mexico and a resident concerned about the welfare of fellow citizens, I will respond to another.

First, with regards to the strength of Katrina, hurricanes derive their energy from the water below them — warm ocean water evaporates (a process that takes energy from the surface), rises, and condenses forming thick clouds (a process that releases energy). Thus, the warmer the ocean water, the more energy is available to build the storm. So when Katrina left the southwestern part of Florida (as a tropical storm, having diminished in intensity because of its loss of a fuel source while it moved over land) and made its way in the Gulf of Mexico, it gathered strength quickly. It isn’t surprising to see storms pick up strength this way, but it was remarkable to see how quickly Katrina intensified. At 11 AM Friday morning, Katrina was a Category 1 storm (with a central pressure of 981 mbar and maximum wind speeds of 80 mph). Only 48 hours later, Katrina was a Category 5 storm (with central pressure of 907 mbar and maximum wind speeds of 175 mph). What caused this incredible growth in such a short time and was this growth expected? The ocean waters over which Katrina was moving had temperatures at 90°F, at the very high end of the range usually observed in the Gulf. So warm water had a lot to do with it. And since climate change models do predict increasing oceanic temperatures over the Gulf, it is very possible that Katrina’s rapid expansion is a sign of things to come (assuming we do little to curtail the emission of greenhouse gases which are expected to continue to warm the planet). Consistent with this trend as well, a recent paper published in the most prestigious scientific journal, *Nature*, provides additional evidence that wind speeds and durations of Atlantic and Pacific hurricanes are increasing quite substantially over the past 30 years. Regarding whether we should have expected Katrina specifically, consider that her torrential impact on the New Orleans area was predicted 60 hours before landfall. On Friday afternoon, the National Hurricane

Center forecasted that Katrina would become a major hurricane and that it would hit New Orleans on Monday morning. Now, while it is true that hurricanes can behave in unpredictable ways, if governmental leaders had taken this warning seriously, and prepared for what was anticipated, many fewer lives would have lost and much less trauma and suffering would have occurred.

Second, with regards to the physical damage incurred, one should not be surprised about what happened (despite how tragic it may have been). Everyone has been repeatedly told that New Orleans resides below sea level. Not surprisingly, then, the levees are the only impediments preventing this city of nearly a half a million residents from being inundated on a normal day. Yet even with these extensive levees in place, nearly five years ago, FEMA warned that a major (here Category 4 or 5) hurricane hitting New Orleans would be a disaster of unprecedented proportions. From this information, some might conclude that the damage observed this past week was inevitable. Unfortunately, this conclusion fails to consider two very important developments. A levee system on the Mississippi River, which extends for over 2,200 miles, has prevented the river delta from receiving its needed sediment. Without the sediment, the Mississippi delta can no longer serve as a barrier to protect New Orleans from tropical weather systems. Over time, so much sediment has been washed into the Gulf that land loss in Louisiana represents 80% of the coastal land loss observed in the entire country. Our demand to control the Mississippi seems to have only increased the danger posed by hurricanes (as well as Midwestern rains, remember 1993). Additionally, massive development of the wetlands south and east of New Orleans has further endangered residents along the Gulf coast. Many environmental scientists have argued that we need to protect all coastal wetlands as a means of protecting ourselves (not to mention wildlife, both on land and in the ocean). Katrina should convince everyone of this basic ecological principle.

Lastly, with regards to the preparedness and response of emergency personnel, I am astonished how unprepared our government seems to have been in advance (as well as in the wake) of Katrina. I was staying in Playa del Carmen, Mexico this summer (from June 10-August 1). While there, another major Atlantic Hurricane (Emily by name) landed just a few miles south of where I was staying. And while I was able to escape by literally pushing my way on to a bus less than 24 hours before Emily’s arrival, I was still able to witness the build up to Emily as well as the clean up afterwards (as I returned to Playa del Carmen only two days after Emily passed). In contrast to what happened in Katrina, anticipating the potential loss of human life, Mexico’s President Vicente Fox ordered the deployment of thousands of military personnel and truckloads of emergency supplies to the Yucatan peninsula in advance of the storm (not several days afterwards). As far as I know (and final reports are limited), very few lives were lost due to Emily, despite it being a storm of the same intensity to Katrina. Perhaps most amazingly, electricity was restored within less than 24 hours to most areas of Playa del Carmen (the coastal community that received the heaviest winds, ~135 mph). Upon my return to Playa del Carmen post-Emily, it was amazing to witness how quickly things returned to normal. Just the next weekend, I was still able to take a cultural tour of

Coba, one of the more remote ancient Maya villages. And while the native monkeys that I observed while walking in the jungle neighboring Coba were obviously shaken and disoriented by the pounding that their habitat had obviously endured (large trees had clearly been toppled by Emily’s fierce winds), human welfare wasn’t noticeably diminished in this rural village (even though one of their water wells had been damaged). It is disturbing for me to recall these memories in light of all that we have observed on our TV screens over the past week-and-a-half. When we consider that Mexico is a much, much poorer country, where large numbers of residents of the Yucatan still live in structures made of wood, I am nonplussed by the lack of attention paid to Katrina by our national leaders. I shudder to think how many lives could have been saved if our leaders had acted with the foresight and aggressiveness that I witnessed elsewhere. (In saying this, I do not want in any way to take away from the praise and gratitude that we all feel for those

brave and dedicated individuals that put (and continue to put) their lives in harms way trying to rescue and protect victims of the storm.)

In conclusion, Katrina was an immense storm that may have derived some of its power from an ocean under the influence of hyper-industrialization. The damage that it did to our coastline as well as our brothers and sisters can be attributable to human developments that have made our coasts more susceptible to natural forces. And, lastly, the lack of proactive or immediate response to Katrina created a tragedy of unimaginable proportions. May we all continue to question and seek answers, so that we can better understand what really happened in Aug-Sept 2005.

Peter Schwartzman is associate professor and chair of the Environmental Studies Program at Knox College. He is a climatologist with publications in the area of climate change and human population growth.

Alun Thomas

An American tragedy

By now the images of third world conditions in New Orleans have probably desensitized most viewers, bombarded with repeated images of decay, misery and death which at first were truly shocking but played back so often that many probably turned a blind eye to them eventually. To me these are the most crucial scenes of poverty and waste witnessed in this country in the time I have lived here. The rage and anger which enveloped the homeless and displaced is understandable. Their only crime? Being poor. Is there any other reason help took so long to appear? All the madness that took place in the city is just a manifestation of a system dead in the water. It had to happen.

I wonder how long help would have taken to arrive if the stranded had been a group of A-list celebrities. Imagine turning on the TV and seeing Tom Cruise, Katie Holmes, Brad Pitt, Colin Farrell, Jessica Simpson and Oprah all waving for help. In ten minutes a special search and rescue team would have airlifted them to safety while the other besieged just stood and looked as their pleas for food and water went unheard. Is there anyone who can honestly tell me this isn’t true? If it did happen like that then hopefully a marauding gang would have raped Cruise and Pitt and slashed their throats and left them to rot in the middle of the street.

But the majority of the victims were poor Blacks. What were the authorities thinking as they saw them on TV and did not immediately react? How mad would you be if you were left barren and deserted for days before any kind of help arrived? In that regard the looting and mayhem was merely an extension of the anger. Much like the Rodney King riots of 1992 there is at some point always going to be an incident that triggers this type of urban violence. The hurricane wasn’t the reason. The lack of support for a group of people already at their lowest was.

When watching the shameful events you had to wonder where you were. The victims resembled starving tribes in far flung Africa. They did not look like Americans. Couldn’t there have been more steps taken to ensure the safety of newborn infants? And the elderly? How many died needlessly in the heat and pungent conditions is sickening. Do their lives have no value? Of course not, they’re not famous so they aren’t interesting. What does this say about the nation? It only values the rich and powerful. As a famous writer once said, if you’re not making it in the USA then you’re nobody. This country’s obsession with celebrities, wealth and fame single handedly exceeds everything.

After 9/11 that type of attitude supposedly changed as everyone declared the new heroes were the common man, the firemen and policemen who gave their lives trying to save others. It didn’t take long for that to become a distant memory. Hopefully this incident puts a face on the state of the poverty stricken in the nation. Give them some coverage. Forget the latest insignificant shenanigans of some worthless actor and focus on what is necessary. But I’m certain many will say ‘those people looting, they should be shot on sight, losers should get a job.’ Is there anyone out there who understands how angry these people were? Are we all so comfortable in our dull lives that we forget what a struggle it is?

By now the city has been cleared out and New Orleans left alone to collapse. Even Bush admitted the rescue took too long. It is a national disgrace. Some of the events that occurred in the city were horrendous, but just a result of the bitterness felt to the way they were treated and handled. If they had been all white would it have taken so long? I’m starting to think it wouldn’t. That it took a disaster of this magnitude to expose the treatment of the poor is the biggest tragedy of all.