

# Hurricane Historian Says This Season Worst In Record In Many Ways

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"Whether this season is the worst on record or even in recent memory depends on the criteria used to define 'worst,'" says Eric Gross, associate professor of history at Harding University in Searcy, Ark., who studies hurricanes and other natural disasters.

It's hard to predict how this season will be remembered, he adds, since Rita has not yet made landfall and the season still has over two months to run.

He offers the following thoughts about the 2005 season so far.

"It will be the worst hurricane season on record in terms of destruction of property and economic consequence," he says.

"Damages from Dennis, Katrina and Ophelia will almost certainly top 100 billion dollars. This figure not only exceeds the previous most costly single hurricane (Andrew, 1992) by a factor of four, but the most costly season (2004) by a factor of three.

Furthermore, most of this damage is almost entirely accounted for by Hurricane Katrina, the most expensive natural disaster in our nation's history, even when damages are converted to a constant-dollar figure to account for inflation over time.

"It is the worst hurricane season ever in terms of the physical area of the nation damaged by storms. Again, most of this is due to Katrina, which inflicted complete structural failure to superficial exterior damage on structures across an area of some 90,000 square miles. As has often been mentioned on the news, this is an area approximate in size to Great Britain – a truly staggering expanse of territory.

"It is the first time in nearly a century – 99 years – that a major America city has been either

physically or functionally destroyed by a disaster (the last being San Francisco in 1906.) No previous hurricane has so crippled a city of comparable size to New Orleans in U.S. history.

"In terms of lingering economic consequence, this season will likely be the most significant in U.S. hurricane history. The disruption of the nation's oil production, refining and storage capacity has already had dramatic impact on oil prices – which affect every avenue of American commercial and private life.

In addition, Rita could bring significant damage to our second national center of the oil industry – the Texas refineries and storage facilities. At this time there is no clear idea of how long it will take to return the offshore oil wells and mainland refineries to their former productive capacity.

The impact of this on near-term economic growth, winter natural gas and heating oil availability and the personal finances of all Americans is impossible to precisely predict – but it will certainly be disruptive and painful.

"For Louisiana and Mississippi, the economic fallout of this season will be devastating and very long-term. New Orleans is the financial heart of Louisiana; revenues from taxes, tourism and trade will effectively cease for at least the last quarter of this year.

For Mississippi, the effective destruction of its entire coastal chain of tourist attractions, hotels and casinos will lead to high unemployment and a crippling loss of tax revenues.

Both Louisiana and Mississippi ranked in the lower tier of states in many indices of economic and social development before Katrina; the immediate and long term costs of the disaster will only further exacerbate the difficulties these states have faced in improving education, infrastructure, health care

and economic opportunity.

The only major mitigating factor in this will be the level and duration of federal funding of relief and reconstruction – as of yet unknown and unknowable.

"No disaster in American history, let alone a hurricane disaster, has displaced as many Americans from their homes as Katrina – current estimates are over 1 million people. Historically, in most major hurricane disasters the destroyed or heavily damaged area is limited enough and the adjacent infrastructure is intact enough to allow a relatively quick return of much of the displaced population in order to begin rebuilding.

Katrina, however, created such a swath of destruction and left enough long-lasting obstacles to return that hundreds of thousands of refugees will be forced, or elect to, start life over again somewhere else. Not only will this lead immediate loss of population in the affected areas, it will likely serve as catalyst to some period of net out-migration and a reduction in the normal economic and population growth rate for those regions.

"In terms of deaths, this is not the worst hurricane season nor is Katrina the deadliest U.S. hurricane on record. That distinction still belongs to the year 1900 and the great, unnamed hurricane that destroyed the city of Galveston, Texas.

Estimates of the dead in that storm range from 4,000 to 8,000. In 1893, two major hurricanes, one in Louisiana and the other at the South Carolina/Georgia border, killed nearly 4000 people between them. In 1928, a category four hurricane hit south Florida and left an official death toll of 1876, though estimates range as high as 2400.

"This is not the worst hurricane season in terms of the number of hurricanes striking the U.S.," he says. "This record is held by the years 1916 and 1985, in which 6 hurricanes struck the nation."

"This season, as of yet, is not the most active season on record. That distinction belongs to the year 1933, in which there were 21 storms that reached tropical storm strength. The year 1995 saw

19 tropical storms, and 1969, 18.

"Of course, evaluating the severity of the 2005 season is really a moot endeavor at this point, as the season does not officially end until November 30. Historically, the last week of September and the first couple of weeks of October can be a very active period, and it is certainly possible for the U.S. to experience one or more hurricane landfalls after Rita. This includes the real possibility of yet another major hurricane of category 3 intensity or higher. Statistics favor the 2005 season equaling or passing 1933 in the total number of tropical cyclones.

"From 2004 to this point, we have seen a very active period in the tropics, and so far six hurricanes have hit the nation in this period. Is this unusual? Does it mark some kind of major climate shift, perhaps one associated with global warming?"

"The answer there is, so far, no. Historically we have observed that tropical activity follows a long-term cycle of roughly 30 year periods of increased and then decreased tropical activity. This pattern is traceable to several oceanic and atmospheric variables that interact in certain ways over time.

"Even though hurricane activity has definitely increased over the past decade, the period 1996 through 2005 to this moment has not produced as many major landfalling U.S. hurricanes (6; perhaps 7 with Rita) as the period 1941 to 1950, when 10 such storms hit the nation.

"So, is this the worst season on record? Yes in some ways, no in others; one must pick more precise terms in which to phrase the question. Is the activity we have observed last year and this year 'abnormal?' Here the answer is no, at least in terms of what we know of hurricane cycles in the Atlantic, Gulf and Caribbean, and what is statistically probable.

What we have experienced in the last year or so seems abnormal because it is a marked increase in activity over the past 30 years, or recent human memory. That period was defined by a marked lull in hurricane activity.

The severity of recent storms is amplified in the public mind because of the intensity and size of Hurricane Katrina and its landfall at the most hurricane vulnerable spot on the U.S. coast. Alarm has further been raised because of the close proximity in time of Hurricane Rita, which reached the status of third most intense hurricane on record.

But the understandable dismay related to these events must be tempered by the knowledge that Katrina was neither the most severe hurricane on record or the most severe to strike the U.S., and that Rita is neither the strongest hurricane recorded or likely to be the most intense to strike the U.S. Both storms, though extreme, fall within the normally observed margins of hurricanes.

"Much of the very dramatic physical and psychological dislocation related to the hurricanes of the past year stems from the unfortunate conjunction of two trends in time. One is the lull in general hurricane activity and in U.S. landfalls of major hurricanes that has dominated the past 30 or so years.

The other is the simultaneous explosion of population and development along our coasts. Quite simply, there are an order of magnitude more Americans, and an order of magnitude more structures sitting at hurricane ground zero than ever before in our history; an order of magnitude more than were there during the last cycle of increased hurricane activity in the 1930's through mid 1960's.

Living at the juncture and end of those two trends, when we see the storms begin to strike in more numbers and ferocity than we ever remember, and we see the inevitable carnage they bring, we have nothing in common experience by which to judge the events. To many, the only logical conclusion is that something is wrong, something is different, something extraordinary is happening.

"For now, as far as our knowledge can take us, the answer is something entirely different. The natural cycles and rhythms of our dynamic, living planet are just following the paths that they have traveled since long before man walked the beaches of our continent. It is not they that have changed – it is us.

In an incomprehensibly brief instant of time compared to vast scale and life of earth's climate, we have appeared on the scene and set up civilization directly in harm's way. Because of an accident of timing, we were allowed a relative period of atmospheric grace in which to do so. Now that blessed interval has ended, and now we must face the turn of the atmospheric wheel and deal with the inevitable consequences."

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