

# [Katrinomics hiroshima nuclear bombs, making more further dangerous.](https://assignbuster.com/katrinomics-hiroshima-nuclear-bombs-making-more-further-dangerous/)

KatrinomicsAbstractThe case study is about thehurricane Katrina occurred in 2005 in USA. It is one of the lethal andcostliest hurricane to ever hit United States. It happened on the 29thAugust, which passed through the Gulfport, Mississippi, New Orleans, Louisiana, and other regions between them. The storm impacted the low-lying coastal plainsthe most and survey exhibits that the lower floorsof well-planned buildings were harmed by the combined surgeof seawater and related wave activity, while the upperfloors carried a very little amount of wind damage. Over its lifetime, oneof these massive storms have very high potential and can emit as much energy asa million Hiroshima nuclear bombs, making more further dangerous. The brutalityof each annual hurricane season changes according to decadal variation andbecomes very difficult to predict its accuracy and level of impact.

With thepatterns observed, there is now strong evidence to suggest global warming couldbe making hurricanes more frequent and unpredictable Hurricane Katrina affectedover 15 million people in different ways varying from having to evacuate theirhomes, rising gas prices, and the economy suffering 1. Sincedisasters tend to quicken existing financial, social, and political patterns, the huge losses in lodging, population, and business after Katrina are likelyto continue and, at best, as it somewhat been recover. With the increasingpopulation and economics along the coastal region, the damage caused by thesestorm increasing. 1.  IntroductionIn 2005, storm Katrina hada devastating effect on the Gulf Coast of theUS, taking off a catastrophe zone of 230, 000square kilometers in its wake and causing harm evaluated at$75 billion. Katrina whipped up maintained winds of225 kilometers per hour and a 5 to 9 meter-high storm surgeof ocean water 2. Indeed the Hurricane Katrinawas the costliest natural disaster in the American history and one of the topfive deadliest hurricanes in the United States. 1.

1. Evolution: HurricaneThe evolution step for stormarrangement is a cluster of rainstorms over warm tropical waters. After theformation, the storms will be frame and develop when sea-surface temperaturesgoes beyond 27°C and the encompassing air is calm. For the northern half of theglobe these necessities are met between June and November. Under theseconditions, large quantities of water evaporate and condense, which ultimateleads to the evolution of clouds and heavy rain. These process will releaseheat in the process. When these released heat energy combined with the rotationof the earth, it will eventually form the Hurricane. The low pressure is causedwhen the warm column of the air from the sea surface first begins to rise.

Thisevent will cause the heavy motion on the wind and due to high deflection, thedirection of the air will change and it draw into the area. This wind drags upmore moisture-laden air from the sea surface in a positive feedback processthat swells the storm. This will result in backing of the cold air outside thestorm and directs it to the surface of the ocean.

The tropical depression iscauses as the wind speed travels at 37 kilometers per hour, leads in theformation of the mild, and wet and grey weather systems 3. Eventuallywhen the hurricane hits the land it transfers all the energy to hit and it lossesits source of energy, and gradually it becomes weak and it perishes. On 23rd August 2005, HurricaneKatrina formed in this way over the south-eastern Bahamas and was labelledtropical depression 12 of that year. Over the next two days the weather systemgathered strength, Hurricane Katrina started to gather massive force andinitiate the cause of devastation resulting in landfall between Miami and FortLauderdale, Florida, as a category 1 hurricane. If this formation took placeaway from the equator, then this could lead to massive spinning in the weathersystem due to the formation of Coriolis force, which is attached to therotation of the earth.

On the next day, the temperature of the sea risesubstantially, which causes the storm to move north westerly Florida. Katrinawas the 11th tropical storm of the 2005 hurricane season at that time. Thestorm spent less than eight hours over land. It quickly intensified when itreached the warm waters of the Gulf of Mexico. Katrina only spent about 6hours over land and was in the Gulf of Mexico early on August 26th. Katrina underwent to periods of rapid intensification, between August 26 and28. On August 27th, HurricaneKatrina intensify to a category 3 hurricane, causing its top wind to exceedbeyond 115 miles per hour and the area covered was increased, nearly the entireGulf of Mexico intensity its impact, making it more dreadful. Early on August28 Katrina underwent a second rapid intensification, strengthening from aCategory 3 storm to a Category 5 storm with peak winds of 172 miles per hour.

It had become one of the most powerful Atlantic storms on record. On themorning of August 29, the storm became more dangerous and increased its impactand made a landfall as a category 4 hurricane at Plaquemines Parish, Louisiana, approximately 45 miles southeast of New Orleans. It continued on a course tothe northeast. Later that morning it made another landfall crossing the MississippiSound near the mouth of the Pearl River 4. Additionally, 8-10inches of rain or more fell across large parts of Mississippi and Louisianaalong and to the west of the track.

Fig1: Impactedareas by Hurricane Katrina1. 2. Impact: The majority of hurricane damageleads to wind induced failure such as launching of debris, removal of roof topsand breaking door and windows. US hurricanes are categorized by wind speedaccording to Saffir Simpson Scale.

The worst scale is category of 5. Thecategory 5 storm causes complete removal of roof top and extensive shatteringof glasses and windows. This is very dangerous as it can also cause shrubs andtrees to blow down and all signs are down. The minimal damage is causes whenthe storm hit with category 1. In this cases there are no real damage tobuilding but there can be damage to poorly constructed building 5. The impacts can be identify as: 1.

2. 1 Economic Impact: The 2005 hurricane season set newrecords as the busiest, the hurricane in US made greatest impact on theeconomic. The department evaluated and came out with all figures, whichindicated with 28 named hurricanes and tropical storms, and most devastating, with more than $61 billion in insured losses. Hurricane Katrina caused the greatestamount of the devastation and loss. According to the Insurance InformationInstitute, it is estimated that hurricane Katrina had caused the loss of about morethan $40 billion. The Congressional Budget Office estimated and calculated thatthe total value of energy infrastructure destroyed or devastated was about $18to $21 billion. The other industry infrastructure was between $16 and $32billion, and government structures and equipment, between $13 and $25 billion.

The hurricane Katrina had made greatest effect on employment of the people. Dueto storm people encountered lot of hard ship in their daily routine. As perLabor division around 600 thousand individuals have lost occupations from thetropical storms Katrina, Rita and Wilma. The storm also shut down refineries throughout the region. Sevenof the nine facilities that can refine up to 1. 5 million barrels of crude oil aday were up and running by November 2005. The hurricane Katrina caused lot ofeconomic disaster in its path to US 6.                                             Fig2: Economic of Disaster                                       Fig 3: Katrina as most expensive hurricanes 1.

2. 2 Environmental Impact: The US Geological Survey hasestimated 217 square miles of land was transformed to water by the hurricanesKatrina and Rita. It has caused complete devastation at the costal sites andthese leads to beach erosion which spread along greater areas of Gulf Coast. The hurricane caused the land unfertile which ultimately lost its breedinggrounds. It caused lot of death of sea animals. Due to the major devastationand keeping in mind the danger of barren land, it forced the closure of 16National Wildlife Refuges, in other words the deprivation of the shelters ofthe animals.

The impact of the storm made over 7 million U. S. gallons of oilbeing leaked, which gradually turns to be dangerous environmental effect andleads to spreading of dangerous diseases. It was reported the maximum fishdying because the water was contaminated and became very dangerous due tomixture of  raw sewage, bacteria, heavymetals, pesticides, toxic chemicals, and oil. Taking in consideration of thiscase, clean water was provided by pumping the flood water from New Orleans intoLake Pontchartrain.

This process that took 43 days to complete. 1. 2. 3 Social Impact: The hurricane Katrina causedmajor social reforms. It lead toredistributed over one million people from the central Gulf coast elsewhereacross the United States.

With the fear and the devastation causedby Katrina the population in New Orleans was reduce by half of its amount as itwas estimated at pre-storm population. By late January 2006, the population ofNew Orleans was about 200, 000 people. The devastation was on the large scale.

It took time for people to set back to the routine as all their property wasstill under construction and for them it was very difficult to rehabilitee onceagain. According to U. S Census Bureau the new population estimated, by July 1, 2006, for the state of Louisiana showed a population decline of 219, 563, or4. 87%. Many people were totally traumatized by the devastating effect ofhurricane Katrina. 2.  Methodology: The detection of Hurricane was extremely important as it helps to makethe mitigation plan stronger. Therefore, tracking the pattern and movement ofthe tropical cyclones is a constantly evolving science.

For a hurricane’spossible trajectory or the path it will follow is usually represented as acone, which reduces over time as the error in the prediction decreases. Meteorologistscan use many different models to predict the path of the hurricane and impactcan be caused in its upcoming.  The original best model was CLIPER(Climate and Persistence). It is designed and molded with combination of statisticalregression equation based on historical data and present climatologicaldata.  Till 1980’s, this was primary support and only model used forthe major forecasting.

Hence all the major decision and the action was reliedon this model. But today, this model has become the base and it is usedprimarily for testing and comparing new models.  NHC90 and BAM (Betaand Advection Model) are two models based on data gathered by planes. Theother different methods include using satellites and radar, and reconnaissanceaircraft.

The observations with the aid of above method across the Caribbeanalso greatly assist in tracking tropical cyclones 7. 2. 1) Satellites: Before the use of technology and launching the satellite for thedetermination of the hurricane, it was really hard task for meteorologists todetermine just where tropical cyclones were forming. The only reliable sourcebefore technology was the information from tropical island weather observationsand coastal radars. Hence the accurate prediction was not possible and this wasnot efficient way for predicting the up comings. Satellite images are veryimportant to forecasters because by putting into motion several hours ofsatellite pictures, they can gather information about the track and developmentof the tropical cyclone. Therefore for the meteorologist the satellite becameexcellent way to communicate the forecast and predict the outcomes by theperiodic observation send by the satellite. The images sent by the satelliteare very critical to forecasters.

The main reason is by putting into motionseveral hours of satellite pictures, they can gather information about thetrack and development of the tropical cyclone. 2. 2) Doppler Radar: The main purpose of Doppler radar is to forecast the amount of rainassociated with the cyclone. The most up to date era of Doppler radar givesforecasters with progressed information and with the upgraded information suchas amount of precipitation concentrated, the development of tropical tornados, tornado action that can go with a tropical tornado, and gauges of wind speedinside a tropical violent wind and also the estimated duration of theaction.

The Doppler radar covers about200-250 miles of the rains, considering the location of the radar and alsohelps to calculate the amount of precipitation. 2. 3) Reconnaissance Aircraft: The reconnaissance aircraft are critical in gathering of the tropicalcyclone information, including pressure, the eye location, wind speeds within a105 nautical mile radius of the eye, and storm size. The Chief, Aerial Reconnaissance Coordination, All Hurricanes (CARCAH)coordinates tropical cyclone reconnaissance flights.

The next step involvesforecasting the process which involves analyzing all of the data gathered bythe various observational platforms such as satellite, radar, ASOS and manymore. The different units within the NHC are present in the forecast process, including the Tropical Analysis and Forecast Branch (TAFB), HurricaneSpecialists Unit (HSU), and Hurricane Liaison Team (HLT). The coordination andthe proper communication between the national centers and local forecastoffices are done with aid of Tropical cyclone forecasts . After the NHC issues aforecast, local NWS Weather Forecast Offices (WFOs) use the information. The final decisionare taken by Emergency managers 8.