

## SUPERSTORM SANDY, 2012

### The progress of 'Superstorm' Sandy

Sandy began in the Western Caribbean on 22 October 2012, towards the end of the Caribbean/North American hurricane season. The very fact that Sandy begins with the letter S, so far down the alphabet, shows just how eventful the 2012 season had been.

Hurricane Sandy was quickly referred to in the press as a 'superstorm', due to its strength, speed and extent both northwards and inland in North America. It hit wealthier and poorer (Caribbean) nations alike (Figure 1), though the impacts on the USA dominated news space. No recent storm event has affected as much of the US coastline as Sandy. Because its area was so huge and its duration so long (from 22–31 October 2012), it caused far more damage than 'normal' hurricanes.

### Sandy's impact in the Caribbean

#### Haiti

With all the news coming from the USA, it is easy to forget that Hurricane Sandy first hit the Caribbean. It must be remembered that Haiti had still not recovered fully from the earthquake of January 2010 or Tropical Storm Isaac (August 2012). It rained for two months after Isaac – and then Sandy hit. Subsequently, Haiti faced a sudden and dramatic food shortage. On 13 November 2012 the BBC reported the UN headline: 'Haiti faces food shortage after Hurricane Sandy'. One and a half million people were at risk of food shortage throughout 2013 due to the destruction caused by Hurricane Sandy, coming on top of the country's previous natural disasters. Moreover, Haiti suffered from drought in early 2012, limiting crop production. 70–80% of the crops which had been successfully produced were simply washed away by Sandy – yams, maize, bananas and vegetables. Haiti's government estimated it needed in the region of £24 million to replace lost food supplies and distribute them where needed. Nevertheless, people who had lost everything were left sleeping in the streets.

Figure 1: Track and areas affected.

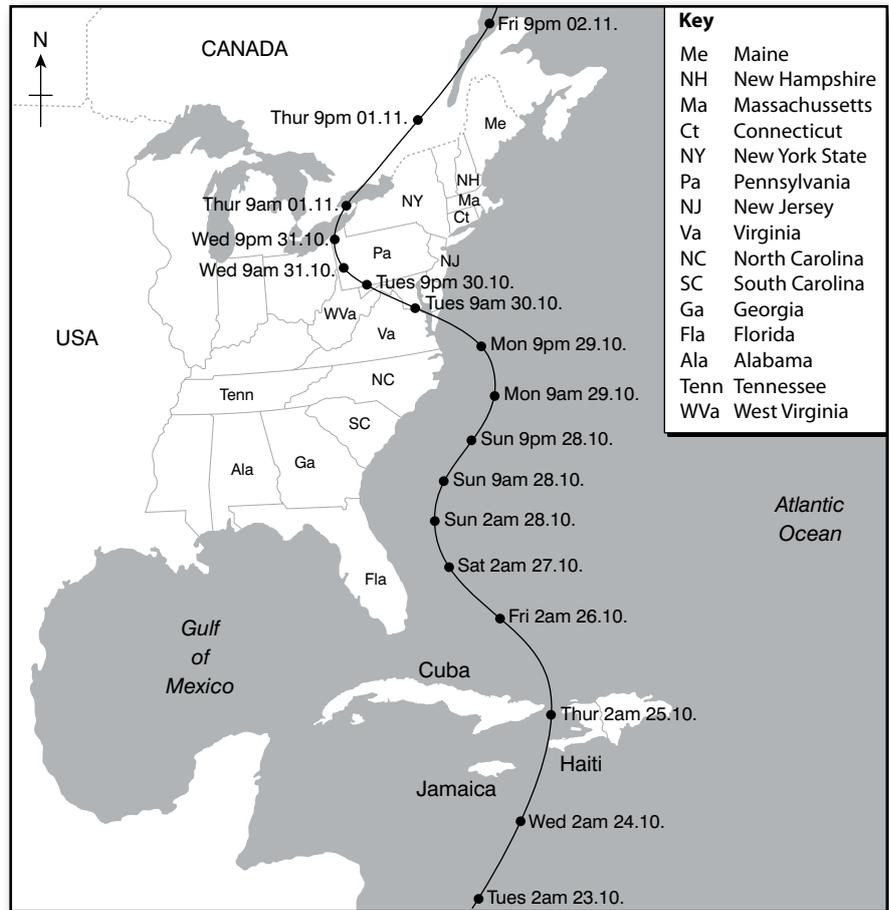


Figure 2: A satellite image of Sandy approaching the US coastline



Source: US National Oceanic and Atmospheric Administration

The UN aimed to deliver food to stricken areas, but found many enclaves cut off and inaccessible. Isolation proved a great problem. The Red Cross and other organisations

were efficient at delivering aid to some places, but this represents short-term emergency relief only. Full recovery is much more long-term and will need huge funds.

‘Guernsey donates £25,000 to help Haiti after Sandy’ – this news headline of 22 November 2012 showed the empathy from one island to another. The Guernsey Overseas Aid Commission gave this sum to ActionAid UK’s Haiti appeal. This sum represented 12.5% of Guernsey’s entire overseas aid budget of £200,000. Again, this was emergency aid and could not tackle long term problems like the coast road that was washed away, a key infrastructure link that must be rebuilt. The coast road that was washed away, a key infrastructure link, must be rebuilt. Small businesses, the mainstay of the local economy, which may or may not have been insured, need to be re-launched. Deaths in Haiti were inevitable – 54 in total, of which 20 were in the second city of Cap-Haitien. There is no aid that can overcome the trauma of losing close family.

### Cuba

Cuba, too, struggled to help its affected citizens. The town of Siboney is one example of a settlement which Sandy tore through and left devastated. Houses were reduced to rubble. Those left standing often had holes torn in their walls. Across the island, 11 people died and 15,000 homes were swept away. A 9-metre storm surge hit Siboney. The sick and infirm had already been evacuated, but everyone else sat tight at home. People had insufficient time to protect or rescue even their basic belongings. Those who could do so, went to stay with family and friends further inland, watching the destruction from higher ground. Homes collapsed in on themselves or were squashed by external forces.

Sixteen days after the storm the town of Siborney still had no power, though compared with locations in the United States some time later, they were doing quite well. Eventually, power lines were reconnected, but restoring power to everyone is a huge task in a developing country. The resident UN coordinator, Barbara Pesca Monteiro, said that Santiago de Cuba (the island’s second city) ‘has not seen anything like this in at least 60 years. It goes far beyond what they are used to.’ Getting aid to smaller places like Siborney took a while longer, so people there simply had to wait. Many were left with only the clothes they were wearing.

Figure 3: The aftermath of Hurricane Sandy in Cuba



Source: Wikimedia Commons/US 20th Public Affairs Detachment/Sgt Ryan Hallock

Figure 4: Hurricane Sandy hits Atlantic City



Source: Wikimedia Commons/US Air Force

## The USA and Canada

In the USA Sandy affected 24 states, including the entire eastern seaboard (Figure 1). Damage in the USA was \$63 billion. The final death toll was 111 – 41 of these in New York City. These figures are high for the wealthiest nation in the world, indeed for any MEDC, and greater than the total 65 dead across the Caribbean.

By the time Hurricane Sandy eventually made landfall at Atlantic City, New Jersey, on Monday 29 October 2012, it had, surprisingly, just been downgraded to a tropical storm. By then much of the East Coast south of there had already

experienced 144 km/h winds. A 1600-km length of the continent was affected, from Florida to Ontario, bringing the worst rainfall in a century. The state of South Carolina suffered for a period of 50 hours. At least 30 people had been killed across eight states by the time Sandy moved onshore, some by falling trees, others in flooding, or in car crashes caused by the storm. One woman in Toronto was hit by flying debris. Figure 2 shows Sandy on 29 October covering a large area.

There was chaos in New Jersey coastal areas where the storm surge rose some 6–7 m, causing flooding well inland. At each succeeding record level high tide (a full moon made this worse), more

water rolled inland, compounding the disruption. Most roads were impassable. Atlantic City is a tourist resort known for its legal gambling and entertainment. Its famous boardwalk (a wooden promenade) was shattered and pieces scattered everywhere. New Jersey was the worst-hit state. Three towns were inundated with 1.5 m of water after a levee on the Hackensack River was overtopped by the storm surge. Fire and ambulance stations close to the coast had to relocate their bases to be able to operate. A million people were without power in New Jersey, and another 750,000 in neighbouring New York State.

From Atlantic City, Sandy moved inland. By the Tuesday it was primarily affecting Pennsylvania; by Wednesday and Thursday it was over New York State and by Friday it was in Ontario, Canada, well inland (Figure 1). President Obama declared New Jersey and New York State major disaster areas.

One thing that was unusual about Sandy was the extent to which it affected inland states. Indiana never thought it would be in the firing line. Across the region, communications were badly hit. This weather system travelled further and faster than anyone ever expected.

More than a million people were forced to evacuate their homes along the storm's path. Some people had to be persuaded to leave their homes – it is a natural reaction to want to stay and protect one's property. Governor Chris Christie (New Jersey) was quoted as saying 'This is not a time to be stupid. This is a time to save yourself and your family.' The Red Cross sheltered over 11,000 people across 16 states. 8.1 million homes and businesses were without power across the East Coast region, though Hurricane Irene (2011) affected an equivalent 8.4 million. Nineteen states experienced power outages. 145,000 households in Ontario also suffered in this way.

#### **New York City – the most newsworthy disaster location**

In NYC construction sites were at risk. One crane collapsed. Bridges and road tunnels were closed and part of the subway (underground rail) system was flooded by the storm surge. The city was virtually at a

Figure 5: Hurricane Sandy causes flooding in Manhattan's East Village



Source: Wikimedia Commons/David Shankbone

standstill, apart from the emergency services. To put more key workers on the ground, the National Guard already on duty were doubled. Day-to-day life in NYC was severely disrupted, whatever people's wealth, status or occupation.

Many commuters were stranded because the travel networks were severely disrupted. Those trying to get to work faced dreadful traffic chaos. Fuel shortages led to queues hours long at petrol stations, only a quarter of which had any fuel to sell. Mayor Bloomberg of NYC imposed a number plate-based rationing system to help everyone get at least some of what they needed.

NYC's three airports – JFK, La Guardia and Newark – were immediately closed down. People were stranded all over the world trying to return to the USA, and others were stuck in NYC and other US airports wanting to travel elsewhere. Thousands of flights were cancelled and planes were not flying normally until 3 November (Figure 5).

Neighbourhoods along the Hudson and East Rivers in Manhattan were inundated, especially the low-lying streets around Battery Park at the southern tip of Manhattan, near Wall Street. Flooding hampered fire-fighting in the Borough of Queens, where 80 homes were destroyed by fire. There were 23 fires across the city.

To add to it all, an unseasonably early snowstorm hit New York State and City plus the surrounding region of southern New England

on Wednesday 7 November, compounding the misery for residents and power workers trying to restore supplies. High winds up to 80km/h exacerbated the problems. 30cm of snow in Connecticut left 300,000 households without power. Sandy's warm tropical air had met with cold polar air from the Arctic to produce this unwelcome precipitation.

Homes without heating quickly became uninhabitable as temperatures fell. Residents who had survived the hurricane in their own homes found themselves forced to leave. Mayor Bloomberg was persuasive: 'You can die from being cold. You can die from fires started when you use candles or stoves to heat your apartment. If you don't know where to go, stop a cop on the street and say please tell me where to go. They'll help you. But we have to make sure that you are safe for a few days and that you have food and water for a few days.'

40,000 people had to be rehoused as a result of the snow and low temperatures following Hurricane Sandy. Many could have coped, had Sandy not lost them their power supplies already. Empty apartments and hotel rooms were sought for those left in distress. In some areas, where crime is endemic, the power outage allowed crime to flourish in darkened corridors and stairways.

New York's marathon was cancelled, but some of the runners joined an impromptu fundraising run to help those in need, and others gave their time to deliver rations to those in trouble.

## Political and economic impacts of Sandy

Coming a mere week before polling day, Hurricane Sandy interrupted the presidential election campaign. President Obama had to stay abreast of the storm management and cancelled three days of appearances and engagements. His Republican opponent, Mitt Romney, had to do the same. Both were photographed whilst involved in the relief operation, which had to be positive publicity. Republican Governor, Chris Christie of New Jersey, a strong Romney supporter, praised Obama's management of the emergency situation.

New York's Stock Exchange was closed for two days. People could not reach work and power outages were a huge issue. This was the first closure of the Stock Exchange since 11 September 2001, after the terrorist attacks on the World Trade Center. Tens of millions of dollars in revenue were lost. Business reports from companies and countries around the world were delayed due to lack of power and people on the ground at work. Banks closed across the north-eastern states and people had restricted access to their funds.

The second largest oil refinery on the East Coast was closed due to flooding and a power outage. However, the largest refinery in the region was further inland in Philadelphia and it escaped damage, and was able to ramp up operations to cover pipelines and terminals that were struggling with a variety of difficulties.

Impacts on ordinary people, apart from the obvious trauma of the storm event itself, varied according to how well people were insured. It is all too easy to make the assumption that everyone living in an MEDC is insured. This is by no means true – Hurricane Katrina in 2005 highlighted this only too well, as the poorest districts of New Orleans tended to be the worst affected.

It seems that Sandy caused greater economic losses than Hurricane Irene in 2011, which, to date, held the record. Losses of \$20 billion were predicted, only half of which were likely to be insured losses. If these statistics are true, this would make Sandy the fifth-worst hurricane of all time, in terms of

economic costs. Who knows how statistics may proceed in the future?

## Is Sandy a wake-up call to the USA on global warming issues?

In 2001 the Bush administration abandoned its participation in the Kyoto Protocol, a global agreement to limit carbon emissions and thereby control global warming. Many environmentally aware Americans do not believe their government is anywhere near sufficiently committed, though the Obama government has taken some steps to limit climate change, even whilst it admits that more could and should be done. Any American government is in the Catch-22 situation whereby environmental legislation limits the activities of its key companies, with a knock-on effect on the economy, employment and perception of American success. All governments try to work within policy constraints that allow their re-election. Thus, the amount they can do towards sorting out the global warming issue has its limits.

The International Energy Agency has warned that global increase in energy use resulting from current rates of economic development will push the 2°C global temperature rise prediction well beyond that mark. The higher the ocean temperature, the greater is the hurricane risk. To avoid warming of greater than 2°C, two-thirds of existing fossil fuels will have to remain in the ground between 2012 and 2050. Carbon emissions will have to drop by 80%, based on a radical shift in energy use. The World Bank predicts global temperature rise of 4°C, leading to a massive disruption in our systems. Coastal cities could become unviable due to sea level rise and an increased risk of storm surge. In 2013's world with its 7 billion people, one billion have a high standard of living

dependent on high energy use. By 2050, in a world of 9 billion people, many, many more will aspire to this lifestyle. Energy demand will be huge in comparison. Despite the fact that more frequent, larger storms are the likely consequence of global warming, quotations in the news from some flooded-out New York residents show the message still has not got through.

## Conclusion

People are basically willing to help their neighbours in trouble, but in the case of Hurricane Sandy things got rather out of proportion. Too many bags of clothing were offered to support centres; some looked like oversubscribed charity shops. The Red Cross and other official relief agencies set up several centres across the affected areas. The less well-organised civilian efforts also did a great deal of good, delivering blankets and food to those in need. They rented trucks to do it in volume. Thousands of New Yorkers and others volunteered their help, but sometimes it seemed like an excuse for people clearing out their closets and feeling good about giving at the same time.

Perhaps too much is better than too little! There was a lack of organisation of those who wanted to help, because the timescale was short and the goodwill was immense. There were incidents of looters posing as aid workers and stealing from those already in trouble. No society is perfect.

## Website

ABC news report from 29.10.12:  
[www.youtube.com/watch?v=YeutC1WN6dc](http://www.youtube.com/watch?v=YeutC1WN6dc)

## FOCUS QUESTIONS

1. Identify and discuss the ways in which Hurricane Sandy was unusual in its behaviour.
2. Compare the likely recovery of Haiti and Cuba with that of the USA and Canada. Explain the differences you have identified.
3. Comment on the extent to which extreme climate events may be the result of human-induced global warming.