Climate change is producing deadlier disasters

A look at how hurricanes, wildfires and floods are affected by climate change

By Jay Dyer, Science Editor
Tuesday 20 November 2018

Image: Department of Defence

In recent decades, natural disasters around the world have become more destructive. Hurricanes, floods and wildfires are particularity impacting, and we might be set to see more frequent and more devastating instances of these types of catastrophes.

Many scientists, and organisations such as the Environmental Defense Fund (EDF) put this down to climate change and, consequently, the land and ocean temperatures warming. In the case of hurricanes and storms, rising temperatures are causing increasing evaporation across large water bodies, meaning that storms pull more water vapour into their systems as they move across the oceans. Tselioudi, a prominent scientist in this field, said: “If we are creating an atmosphere more loaded with humidity, any storm that does develop has greater potential to develop into an intense storm.”

Hurricanes are also more frequently accompanied by storm surges, which are tsunami like coastal floods that make storms even more damaging, and are associated with low pressure weather systems. The shallowness, orientation and tidal times of the coast are all known factors that can increase the severity of a surge. However, climate change is complicating the effect by adding additional factors that are intensifying storm surges, such as the rise of sea levels and altering temperatures of currents. In 2008 for example, hurricane Ike produced storm surges of 15-20 feet above normal tide levels in the Bolivar Peninsula of Texas, causing property damage of about $24.9 billion.

There are also additional risks. Currently hurricanes (also called typhoons in the Northwest Pacific Ocean, and cyclones in South Pacific and Indian Ocean), only occur at the mid-latitude due to the warm and

humid temperatures over the oceans. Warmer global temperatures might increase the amount of water vapour, and therefore the humidity at latitudes further from the equator. If this occurred at the poles, which have cold and dry air, it would cause the global temperature difference between the poles and equator to decrease. Although this might slightly reduce the amount of small storms in the mid-lattidue regions, as they are fuelled by that temperature difference, it means low pressure system storms could occur much further north and south than they currently do.

As with so many problems related to climate change, this would cause a snowball effect. If large storms can occur in a grater range of latitudes, with more water vapour in the atmosphere due to the rising global temperature, and decreased equator-versus-pole differences in temperature, the consequences could be detrimental. It would likely cause an increasingly intense cycle of droughts and floods, and more precipitation would be falling at once in single, larger storms.

This would hit rural areas and vulnerable urban populations the worst, as harvesting would become more difficult and precipitation increasingly erratic. The larger storms, which would bring more storm surges and flooding would also cause more deaths, especially in areas already hard hit by cyclones (hurricanes) and flooding, such as Bangladesh, where roughly 5 000 people are killed by flooding every year already.

Flooding and increased precipitation would also lead to further snowballing, making mudslides and landslides more frequent and severe. Water increases the chance of these slides by altering the pressure within the slope and lubricating the surface of lower, impermeable layers of rock, enabling the upper layers to slide more easily. Therefore some areas, especially islands like Japan, are going to be subject to an increased number of typhoons, floods, and landslides due to climate change.

Hurricanes and other wet storms are not the only natural disasters affected by climate change. With higher temperatures and longer dry seasons, wildfires have also become more widespread and ruinous. California had its biggest and deadliest wildfire earlier this year, which burned through 150 000 hectares. The fire, breaking an 85 year old record, killed over 70 people and forced hundreds more from their homes.

While this may not seem like much compared to other disasters, it is a very high death toll for a wildfire in North America. It is not only the US that has suffered this year, as the UK, Spain and Greece have all experienced unexpected major fires in rural areas. This is due to the unprecedented hot weather drying out moorland, grasses and other plants, and the lack of rainfall increasing the chance of an incendiary blaze.

All this goes to show how climate change is having increasing negative effects on our environment, and that is just in relation to natural disasters. It is a problem that is affecting more and more spheres worldwide, in both social and environmental regards and therefore needs to be addressed with ever increasing urgency, and the longer we take, the more damage it will cause, both now and in the future.

Most Read Discussed

1. A closer look at Pot Noodles
2. The York flood fiasco: Where did all the water come from?
3. Fishing methods are devastating seas
4. Revolutionary biotech to combat deadly diseases
5. World Penguin Day: Overfishing and climate change impacts penguin populations
6. What is the environmental impact of print media?

Write for Nouse Science

Get in touch with the editors

Join the Facebook group

More in Science

Revolutionary biotech to combat deadly diseases

Could a snake have legs?

Fishing methods are devastating seas

Poaching is driving vulnerable species to the brink

Microplastics: are they as bad as we feared?

Are we watching the same game? Science says yes!