

# Humans to blame for storms: scientists

## Heat waves, floods due to climate change

BY ALISTER DOYLE, REUTERS JULY 27, 2012

OSLO – Scientists are finding evidence that man-made climate change has raised the risks of individual weather events, such as floods or heat waves, marking a big step toward pinpointing local costs and ways to adapt to freak conditions.

“We’re seeing a great deal of progress in attributing a human fingerprint to the probability of particular events or series of events,” said Christopher Field, co-chairman of a UN report due in 2014 about the effects of climate change.

Experts have long blamed a buildup of greenhouse gas emissions for raising worldwide temperatures and causing desertification, floods, droughts, heat waves, more powerful storms and rising sea levels.

But until recently they have said that naturally very hot, wet, cold, dry or windy weather might explain any single extreme event, such as the current drought in the United States or a rare melt of ice in Greenland in July.

But for some extremes, that is now changing.

A study this month, for instance, showed that greenhouse-gas emissions had raised the chances of the severe heat wave in Texas in 2011 and unusual heat in Britain in late 2011. Other studies of extremes are under way.

Growing evidence that the dice are loaded toward ever more severe local weather may make it easier for experts to explain global warming to the public, pin down costs and guide investments in everything from roads to flood defences.

“One of the ironies of climate change is that we have more papers published on the costs of climate change in 2100 than we have published on the costs today. I think that is ridiculous,” said Myles Allen, head of climate research at Oxford University’s Environmental Change Institute.

“We can’t (work out current costs) without being able to make the link to extreme weather,” he said. “And once you’ve worked out how much it costs, that raises the question of liability for damage.

Almost 200 countries have agreed to work out a new deal by the end of 2015 to combat climate change, after repeated setbacks. China, the United States and India are now the top national emitters of greenhouse gases.

Field, professor of biology and environmental earth system science at the University of Stanford, said

that the goal was to carry out studies of extreme weather events almost immediately after they happen, helping expose the risks.

“Everybody who needs to make decisions about the future – things like building codes, infrastructure planning, insurance – can take advantage of the fact that the risks are changing but we have a lot of influence over what those risks are.”

Another report last year indicated that floods 12 years ago in Britain – among the countries most easily studied because of it has long records – were made more likely by warming. And climate shifts also reduced the risks of flooding in 2001.

Previously, the European heat wave of 2003 that killed perhaps 70,000 people was the only extreme where scientists had discerned a human fingerprint.

In 2004, they said that global warming had at least doubled the risks of such unusual heat.

The new statistical reviews are difficult because they have to tease out the impact of greenhouse gases from natural variations, such as periodic El Niño warnings of the Pacific, sun-dimming volcanic dust or shifts in the sun’s output.

So far, extreme heat is the easiest to link to global warming after a research initiative led by the U.S. National Oceanic and Atmospheric Administration and the British Meteorological Office.

“Heat waves are easier to attribute than heavy rainfall, and drought is very difficult, given evidence for large droughts in the past,” said Gabriele Hegerl of the University of Edinburgh.

Scientists often liken climate change to loading dice to get more sixes, or a baseball player on steroids who hits more home runs. That is now going to the local from the global scale.

Field said climate science would always include doubt since weather is chaotic. It is not as certain as physics, where scientists could this month express 99.999 per cent certainty they had detected the Higgs boson elementary particle.

© Copyright (c) The Montreal Gazette