

## Unless we curtail carbon emissions, every attempt to adapt is doomed



In the first week of January last year I placed an €80 bet that 2013 would be among the top 10 hottest years since global records began in 1850. The odds: 1/80. This week, I collected my stake plus meagre one-euro winnings. I was right; so too were the bookies, hence the dismal odds on offer. The year 2013 has been confirmed as the 7th hottest globally on record.

Astonishingly, all 10 of the hottest years have occurred in just the past 15 years. Following – literally – hot on the heels of a tumultuous 2012, last year was again marked by weather extremes, according to the [World Meteorological Organisation](#). “The coldest years now are actually warmer than the hottest years before 1998,” said the organisation’s secretary-general, [Michel Jarraud](#).

[Australia](#) endured its hottest ever year in 2013, while China, Japan and South Korea experienced their warmest summers on record. The giant Brazilian plateau in 2013 experienced “the largest rainfall deficit since records began”, while what the organisation categorised as “extreme precipitation events” rocked [Germany](#), [Poland](#), the [Czech Republic](#), Switzerland and Austria, which endured their worst flooding events in more than 60 years.

[Ireland](#), North America and northern Europe shivered through the bitter spring of 2013, as the jet stream dipped down, drawing Arctic conditions in its wake. Our excellent summer was a welcome break from weather woes, but it turned out to be little more than a lull before the current wave of storm systems that have battered both Ireland and the UK.

While recovering slightly from its all-time low in 2012, Arctic summer sea ice extent last year was still 500,000sq km below its 1981-2010 average. That’s an area of Arctic ice six times the size of Ireland

that no longer exists. Loss of Arctic ice cover is radically perturbing climate systems in the northern hemisphere.

“Global warming has increased the loss of summer sea ice in the Arctic, which has altered atmospheric conditions in a manner that stacks the deck in favour of more severe winter outbreaks,” according to Prof [Charles Greene](#) of [Cornell University](#) in the US.

### **The wrong question**

“The answer to the oft-asked question of whether an event is ‘caused’ by climate change is that it is the wrong question,” argues Prof [Kevin Trenberth](#) of the US national centre for atmospheric research. “All weather events are affected by climate change because the environment in which they occur is warmer and moister than it used to be.”

Climate change means more energy in our atmosphere, rising sea levels and warmer ocean surfaces. When combined with high spring tides, as in Ireland in recent days, the effects can be severe.

The global atmosphere today carries some 4 per cent more water vapour than in the 1970s. This may sound like a small increase, but it has major impacts. The Intergovernmental Panel on Climate Change found “high confidence that the intensity of extreme precipitation events will increase with warming, at a rate well exceeding that of the mean precipitation”.