

## CLIMATE SCIENCE

### North American cold spells

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CARLOSBEZZ / ISTOCK / THINKSTOCK



A number of studies have indicated that the probability of longer duration and more frequent heat waves is increased by climate change. The impact on cold extremes such as the one experienced in many parts of the US over the 2014–2015 winter is, however, less clear.

To address this Yang Gao from the Pacific Northwest National Laboratory, USA, and co-workers examined changes in the projected occurrence of cold air outbreaks (CAOs) in North America using a multi-model ensemble of global climate simulations (including wind-chill temperature effects) combined with high-resolution regional climate simulations that account for the potential impacts of snow cover.

They find an overall reduction in CAO duration across North America, but with

proportionally smaller reductions from western Canada to the upper mid-western US. CAO changes are explained largely by mean warming, but the decrease in temperature variance and changes in skewness, a statistical moment strongly regulated by atmospheric blockings, have clear impacts on the spatial pattern of CAO changes. Taken together the multi-model projections show that cold extremes can be expected to continue under climate change with the most extreme CAO events still having the potential to occur. **AB**

## CLIMATE POLITICS

### Institutional ignorance

*Climatic Change* <http://doi.org/4cf> (2015)

Lawmakers in the United States have never managed to pass comprehensive climate change legislation. One possible explanation for this is that the seriousness of climate change has been miscommunicated to politicians, known as the information deficit theory.

A team of US researchers led by Xinsheng Liu from Texas A&M University suggests that this is not the case, however. They conducted a content analysis of 1,350 testimonies given by scientists to congressional committees between 1969 and 2007. They found that the scientific information transmitted to Congress was not substantially different from general agreement in the scientific community at the time: that climate change is happening and is at least partially caused by humans. They also found that almost all the

scientists giving evidence to Congress supported implementing policy to tackle climate change.

They conclude that while there are many social, economic and political reasons that may explain why Congress has failed to act on climate change, ignorance of the problem is not one. **MH**

## ECOLOGICAL IMPACTS

### Sea turtle persistence

*Glob. Change Biol.* <http://doi.org/4cc> (2015)



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In most reptiles the sex of hatchlings is determined by incubation temperature, which is affected by environmental temperature. However, the sensitivity of this temperature-dependant sex determination (TSD) to climate change and potential effects on species persistence remain unclear.

Pilar Santidrián Tomillo from the Institut Mediterrani d'Estudis Avançats, Spain, and co-workers simulated the response of leatherback turtle populations to increasing nest temperatures and compared the results with a theoretical population with fixed (genetically determined) sex ratios. They found that leatherback populations with TSD could mitigate the negative effects of higher temperatures by increasing production of female offspring resulting in increased fecundity. However, the effective range of this TSD adjustment mechanism is limited so that projected temperature increases are still expected to yield a negative effect. **AB**

*Written by Alastair Brown and Mat Hope.*

### Correction

In the print version of the Research Highlight 'Wetland footprints' (*Nature Clim. Change* **5**, 410; 2015), the name of the author of the highlighted paper was misspelt; it should have read Ana Petrescu. Corrected after print 23 April 2015.

## ADAPTATION POLICY

### Forget no regrets

*WIREs Clim. Change* <http://doi.org/4cd> (2015)

Politicians increasingly tout short-term climate adaptation as a 'no regrets' strategy. But it's becoming clear that such policies can sometimes unexpectedly increase vulnerability.

Lisa Dilling and colleagues from the University of Colorado Boulder and the National Center for Atmospheric Research, USA, surveyed over 150 pieces of literature that assess climate adaptation policies, including the latest Assessment Report of the IPCC. Policies were deemed to be no regrets options if they were "considered worthwhile in their own right, independent of climate change considerations".

The researchers found that although many policies reduced vulnerability to current climatic events, they sometimes increased communities' vulnerability in other ways. For instance, building flood defences led to greater numbers of people living on flood plains, increasing exposure to catastrophic events should the defences be breached. In another case, Ghanaian workers started producing charcoal to supplement farming and fishing livelihoods that were at risk from climate change. But the charcoal production led to longer-term forest degradation that put the communities at greater risk.

Dilling and colleagues call for a more critical appraisal of supposedly no regrets climate adaptation policies. Such policies must be considered as part of a connected system, they argue, in an attempt to decrease overall vulnerability to future climatic events. **MH**