

CONSERVATION

North American birds

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SUEFFELBERG / ISTOCK / THINKSTOCK

Climate change offers a potentially fundamental challenge to the effectiveness of existing protected areas for conserving biodiversity. It is hoped that predicting the impact of climate change on the distribution of species will aid conservation planning in the face of these challenges.

Gary Langham from the National Audubon Society, Washington, US, and co-workers assessed the potential for geographic range shifts for 588 North American bird species, for both breeding and non-breeding seasons, under a range of emission scenarios to 2100. They found

that 314 species (53%) were projected to lose more than half of their current geographic range by 2100. Of these, 126 were not expected to compensate for this loss by expanding their range elsewhere. Species designated with higher conservation priority were not found to be any more climate sensitive, and neither did the authors find clear patterns of response across habitat affinities or migration strategies.

These findings imply there is a pressing need to include climate sensitivity in conservation planning and to develop management strategies that address shrinking and shifting geographic ranges. *AB*

TEMPERATURE TRENDS

Global versus local

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Discussion of climate change typically concentrates on global mean surface temperature change. Although this is an important measure, we need to consider if it provides the necessary information to understand climate change at local and regional scales.

Rowan Sutton and colleagues from the National Centre for Atmospheric Science, University of Reading, UK, analyse observations to investigate the link between changes in global temperature and local climate on decadal timescales. They then use climate model simulations to interpret the observations.

Global temperature change is shown to mainly provide information on forced responses, with little influence of internal variability. For local changes, internal variability has an important role but

the forced climate change signal is also emerging. The authors show that for decadal and longer timescales, global mean changes explain at least 60% of local change for most of the planet. Thus the relationship between the two can, in the main, be used as a simple method for detecting climate change. *BW*

CRYOSPHERE

West Antarctic ice stability

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MARION BOUGAMONT

The glaciers of West Antarctica, including the Ross Sea ice streams, have shown a gain in mass over recent years. This is due to the slowdown of the glaciers' flow to the sea. Changes in ice flow are related to internal ice-sheet instabilities such as processes at the base of the glaciers including temperature change, hydrology and lateral shear. What is not known is whether the current gain in mass will persist.

Marion Bougamont of the Scott Polar Research Institute, University of Cambridge, UK, and colleagues use a 3D ice-sheet model to investigate the various factors affecting ice flow along the Siple Coast, West Antarctica, for 250 years. By considering the various processes together, the authors identify the tributaries of the currently dormant Kamb Ice Stream, one of six major ice streams in the region, as a source of regional instability. This instability could lead to major restructuring of flow in the coming decades, with net loss within two centuries. This loss of ice would result in an additional 5 mm of sea-level rise by 2100. *BW*

Written by Alastair Brown, Mat Hope and Bronwyn Wake.

CLIMATE POLICY

Accidental activist

Energ. Policy **87**, 229–239 (2015)

The International Energy Agency (IEA) was established in 1974 to coordinate responses to oil supply disruptions. So how has it become one of the leading voices calling for action on climate change?

Harald Heubaum from the University of London, UK, and Frank Biermann from Utrecht University, The Netherlands, conducted interviews and document analysis to trace the IEA's evolution. They found that the organization's recent activities have been crucial in bringing the energy and climate change governance agendas together, albeit somewhat unintentionally.

The IEA's expanding efforts to collect and disseminate emissions data was a first step towards such integration, bringing the Agency into partnership with the United Nations Framework Convention on Climate Change (UNFCCC). Meanwhile, the IEA's work on renewables led to cooperation with the International Renewable Energy Agency (IRENA). As the policy architectures came together, the IEA's widely respected leadership embraced the challenges of transitioning to a low-carbon energy system.

Such advocacy will be a significant element in persuading traditionally detached partners to face up to the symbiotic challenges facing energy and climate change policy in the coming decades. *MH*