

Green business

Climate negotiations may have been floundering in the lead up to the United Nations conference in Durban. However, businesses and national governments are forging ahead with their own low-carbon standards. In a Commentary, Åsa Persson and Johan Rockström explain this progress, suggesting that, at least in the short term, the most important function of international policy may be in creating expectation and anticipatory action rather than a legally binding agreement.

[Commentary p426]

Joined-up policy benefits

There are three key objectives driving energy policies: security of supply, climate change mitigation and air-pollution reduction. In a Commentary, David McCollum and co-workers show that these goals have generally been addressed separately, and argue that such a poorly integrated approach fails to recognize important policy synergies that could make energy policy cheaper and more effective. Policies to mitigate climate change are advocated as an effective entry point for achieving society's multiple objectives for energy sustainability.

[Commentary p428]



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Costly changes to fisheries

Globally, marine fisheries are underperforming economically because of overfishing, pollution and habitat degradation. Added to these threats is the growing challenge of climate change. A Perspective by Rashid Sumaila and co-workers draws on observations, and experimental and modelling studies to show that climate change would further exacerbate the economics of global fisheries through changes in primary productivity, shifts in distribution and changes in the

potential yield of exploited marine species. Despite the gaps in understanding of climate change effects on fisheries, the available information highlights the need for mitigation and adaptation policies to minimize impacts.

[Review Article p449]



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Water-stressed forests

Drought-induced forest dieback has emerged as a global concern, and is expected to increase worldwide under projected climate change. Now a study by Changhui Peng and co-workers using long-term forest plots provides quantitative estimates of drought-induced increases in tree mortality across Canada's boreal forests. These forests constitute an important terrestrial carbon sink, accounting for about 30% of boreal forests worldwide. The study found that tree mortality rates increased by an average of 4–7% per year from 1963 to 2008, with higher rates of drought-induced mortality increase in western than eastern regions.

[Letter p467; News & Views p444]

It's all about the ambiance

Both greenhouse-gas emissions and changes in land use and land cover have modified the Earth's climate since pre-industrial times. A modelling study by Andrew Pitman and co-workers now shows that the impact of land-cover change on regional climate depends critically on how snow cover and rainfall change under increased levels of greenhouse gases. This is because increased greenhouse-gas-driven changes in snow and rainfall affect the reflectivity of the Earth and the supply of water, which in turn control evaporation. These changes largely control the net impact of land-use and land-cover change on regional climate.

[Letter p472]

Misperceptions that matter

A significant proportion of the US public believe that climate scientists widely disagree about climate change. Now a survey-based study by Edward Maibach

and co-workers investigates whether this misperception is important. The findings indicate that it is strongly associated with reduced levels of policy support and injunctive beliefs (that is, action should be taken to mitigate global warming). In short, individuals who believe there is broad scientific disagreement tend to feel less certain that global warming is occurring and show less support for climate policy.

[Letter p462]

Cutting knowledge

Budget cuts in April this year to the US Energy Information Administration — the agency that collects and analyses US energy data — have been worrying industry experts. In a News Feature, Mason Inman investigates the vital role of the Energy Information Administration and some of the consequences of its 14% budget cut. Resulting programme cuts could mean that businesses and policymakers lack vital information needed to make decisions regarding infrastructure, such as building design and grid deployment.

[News Feature p430]



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Narrowing mitigation choices

Long-term climate warming is primarily constrained by cumulative emissions of carbon dioxide. Now research by Pierre Friedlingstein and co-workers explores the potential efficacy of differing mitigation responses in meeting the target of limiting warming to 2 °C. They show that links between near-term decisions, long-term behaviour and climate-sensitivity uncertainties constrain options for mitigation of emissions. Consequently, it will probably only be possible to meet this target if steep reductions are implemented within the next two decades and emissions eventually fall to zero — findings that demand an ambitious target from the Durban policy negotiations.

[Letter p457]