A strong sink

Substituting fossil fuels with bioenergy from forests, as well as thinning forests to reduce wildfire emissions, has been proposed as a means of cutting carbon dioxide emissions. Now a study by Tara Hudiburg and co-workers based on inventory data for US West Coast forests shows that in most ecoregions, substituting fossil fuels with forest bioenergy would not increase the carbon sink. In fact, these policies could lead to 2–14% higher emissions than current management practices over the next 20 years, find the authors. This may change, however, if the carbon sink in these ecoregions weakens below the current level owing to insect infestations, fire emissions or reduced primary production, say the authors.
[Letter p419]

Ten-year window

In recent years, international climate policy has focused on limiting global average temperature rise to 2 °C above pre-industrial levels. The development 'pathway' that the world needs to follow to stay within this threshold remains uncertain however. Now an analysis by Joeri Rogelj and co-workers takes account of both the processes that link emissions to temperature, and the technical and economic implications of reducing emissions. They show that unless emissions peak in the next decade and then fall rapidly, there is little chance of achieving the goal of constraining temperature rise to 2 °C.
[Letter p413; News & Views p395]

Shrinking from the challenge

It is well recognized that species are shifting their distributions and the timing of key life events in response to climate change. What is less appreciated is that many species are also shrinking in body size in response to higher temperatures and more variable precipitation. If this trend continues, it could have profound implications for food security and the stability of ecosystems. In a Perspective, Jennifer Sheridan and David Bickford examine the evidence implicating current climate change in the shrinking size of both warm- and cold-blooded organisms, look at exceptions to the rule and argue that this trend will become much more pervasive in the future, negatively impacting both crop plants and protein sources that are important for human nutrition.
[Perspective p401]

Lights, camera... action?

Changing people's behaviour around energy use is no easy task, and it's well known that simply providing more information is inadequate because of the complex emotional and social factors that drive human behaviour. Al Gore's film *An Inconvenient Truth* was an explicit attempt to make global warming real to the public on both rational and emotional fronts. But how successful was the film in changing the way people think and feel about climate change? In a Commentary, research psychologist Geoffrey Beattie investigates this question, drawing on research into the emotional state of people before and after viewing the film. Beattie shows that both mood and explicit attitude to climate change were significantly influenced, at least in the short-term, and points to lessons for future communication efforts.
[Commentary p372]

Valuing wild relatives

Feeding a growing population in a hotter world is likely to present significant challenges to agricultural production. In a Commentary, Luigi Guarino and David Lobell discuss the role of crop wild relatives in meeting the challenge of enhancing production under changing climatic conditions. They argue that to increase yields, far greater crop diversity will be needed, and that crop wild relatives represent a hugely valuable gene resource for this purpose. They outline the practical steps required to more successfully harness crop wild relatives for agriculture.
[Commentary p374]

When to act

Climate change projections are usually presented as 'snapshots' of change at a particular time in the future. In a Perspective, Manoj Joshi and co-authors alter the focus of projecting climate impacts from attempting to answer the question 'what might happen?' to 'when might it happen?' They demonstrate that lowering future emissions will delay the point at which temperature thresholds are crossed and buy valuable time for adaptation planning. On regional scales, however, the 2 °C threshold will probably be exceeded over large parts of Eurasia, North Africa and Canada by 2040 — well within the lifetime of many people living now. This type of information is likely to be particularly useful for adaptation planning, providing insight into when adaptation measures might be required.
[Perspective p407]

Weathering the storm

The global economy is in a crippling recession. With budgets tightening, how is funding for climate change research fairing? In a News Feature, Lisa Palmer investigates climate change science spending in the US and the UK along with trends in foundation grants and science collaborations with developing countries. She finds — perhaps surprisingly, given the austerity measures and the continuous clamouring for cuts — climate research spending continues relatively unscathed.
[News Feature p376]