

Too late to stop global warming by cutting emissions: Scientists argue for adaption policies

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Governments and institutions should focus on developing adaption policies to address and mitigate against the negative impact of global warming, rather than putting the emphasis on carbon trading and capping greenhouse-gas emissions, argue Johannesburg-based Wits University geoscientist Dr Jasper Knight and Dr Stephan Harrison from the University of Exeter in the United Kingdom.

"At present, governments' attempts to limit greenhouse-gas emissions through carbon cap-and-trade schemes and to promote renewable and [sustainable energy sources](#) are probably too late to arrest the inevitable trend of global warming," the scientists write in a paper published online in the scientific journal, *Nature Climate Change*, on Monday, 14 October 2012.

The paper, entitled [The Impacts of climate change on terrestrial Earth surface systems](#), is published in the Perspective section of *Nature Climate Change* and argues that much less attention is paid by policymakers to monitor, model and manage the impacts of climate change on the dynamics of Earth surface systems, including glaciers, rivers, mountains and coasts. "This is a critical omission, as Earth surface systems provide water and soil resources, sustain [ecosystem services](#) and strongly influence biogeochemical climate feedbacks in ways that are as yet uncertain," the scientists write.

Knight and Harrison want governments to focus more on adaption policies because future impacts of global warming on land-surface stability and the sediment fluxes associated with [soil erosion](#), river down-cutting and [coastal erosion](#) are relevant to sustainability, biodiversity and food security. Monitoring and modelling soil erosion loss, for example, are also means by which to examine

problems of carbon and nutrient fluxes, lake eutrophication, pollutant and coliform dispersal, river siltation and other issues. An Earth-systems approach can actively inform on these cognate areas of environmental policy and planning.

According to the scientists, Earth surface systems' sensitivity to climate forcing is still poorly understood. Measuring this geomorphological sensitivity will identify those systems and environments that are most vulnerable to climatic disturbance, and will enable policymakers and managers to prioritise action in these areas.

"This is particularly the case in coastal environments, where rocky and sandy coastlines will yield very different responses to climate forcing, and where coastal-zone management plans are usually based on past rather than future climatic patterns," they argue.

The recent Intergovernmental Panel on [Climate Change](#) special report on extreme events and disasters and the forthcoming fifth assessment report, due 2013, include more explicit statements of the role of Earth surface systems in responding to and influencing climate forcing.

"However, monitoring of the response of these systems to climate forcing requires decadal-scale data sets of instrumented basins and under different climatic regimes worldwide. This will require a considerable international science effort as well as commitment from national governments," Knight and Harrison urge.

More information:

www.nature.com/nclimate/journal/nclimate1660.html

Provided by Wits University

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