

Scientists warn on climate tipping points

March 17 2009

(PhysOrg.com) -- A survey of top climate scientists has revealed there is a real chance of key climate tipping points being passed with serious consequences for the planet.

In a major study involving 43 of the world's leading [climate](#) experts, scientists have for the first time worked out the likelihood of one of the major climate thresholds being breached.

Tipping points are used to describe a situation where damage due to climate change occurs irreversibly and at an increasing rate.

In this latest research - published today in the [Proceedings of the National Academy of Sciences](#) - the internationally-renowned climate team conclude there is a 1 in 6 chance of at least one threshold being passed with a rise of just 2-4 degrees in global [average temperature](#).

If the average increase in temperature is higher than this, then the probability becomes 1 in 2.

Newcastle University's Professor Jim Hall, Deputy Director, Engineering, of the Tyndall Centre on Climate Change and one of the five authors of the paper, said the aim was to produce policy-relevant information about the likelihood of a tipping point being toppled.

“For the first time we have managed to quantify the uncertainty of these phenomena and the take-home message is tipping points are serious and should play a key role in policy decision making,” said Professor Hall.

“Think of it as like taking out insurance cover. Insurers use probabilities to work out how much we should pay to protect ourselves in the event of something going seriously wrong.

“And it’s exactly the same for the climate. We have provided real data for these key climate indicators and what this has shown is there are good reasons why we should be taking urgent action now to reduce the possibility of something going catastrophically wrong in the future.”

What the study found

The research team asked 43 [climate experts](#) to estimate the likelihood of major impacts to five components of the [climate system](#) in the 21st and 22nd centuries under different warming scenarios.

The five systems concerned major changes in the North Atlantic Ocean Circulation, the Greenland and Western Antarctic ice sheets, the Amazon rainforest and El Nino.

The probabilities given by the experts varied, but on average they assigned significant chances to a major tipping point being passed in this or the next century for at least the high to medium warming scenarios.

The authors conclude that uncertainty among experts about the prospect of triggering major changes in the climate system does not necessarily imply that such events are remote.

Newcastle University’s Professor Hall added: “In the past, tipping points have been studied in isolation. Here we have looked at them as one Earth system and how one tipping point being passed may have an impact on the others.”

[More information](#): Imprecise probability assessment of tipping points in

the climate system. Elmar Kriegler, Jim W. Hall, Hermann Held, Richard Dawson and Hans Joachim Schellnhuber. Published in: *Proceedings of the National Academy of Sciences*.

www.pnas.org/cgi/doi/10.1073/pnas.0809117106

Provided by Newcastle University

Citation: Scientists warn on climate tipping points (2009, March 17) retrieved 28 April 2024 from <https://phys.org/news/2009-03-scientists-climate.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.