Exeter's world-leading climate change research showcased

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University of Exeter research into the impact of climate change will be featured at a prestigious science event in the USA, held this week.

Professor Tim Lenton, Chair in Climate Change and Earth System Science, and Dr Stephan Harrison, Associate Professor of Quaternary Science - both from Exeter's Geography department, will present their world-leading research at the high-profile international event.

Thousands of leading scientists, engineers and policymakers will hear about two ongoing studies at the American Association for the Advancement of Science (AAAS) Annual Meeting at Washington DC. The annual meeting is held to discuss recent developments in science and technology.

Professor Lenton will speak about the social and policy implications of climate change "tipping points". These critical thresholds have the potential to dramatically alter the climate and tip the climate system past a point of no return.

During his seminar, titled The Social and Policy Implications of Climate Tipping Points, Professor Lenton will explain which tipping points have been observed, and which are anticipated in the future. It is thought measuring tipping points can help show early warning signals and he will say they should lead to more decisive global action being taken to tackle the causes of climate change.

Professor Lenton said: "At the meeting I will explore the prospects for gaining early warning of approaching climate tipping points. I will show examples of early warning signals prior to past abrupt climate changes, and in models being gradually forced past climate tipping points.

"I will show an example from observational climate data - a pronounced slowing down of North Pacific sea surface temperature fluctuations over the last century. This has important implications for well-known marine ecosystem 'regime shifts' in the North Pacific. As surface ocean temperature variability slowed down, marine ecosystems became prone to greater variability, and became more likely to cross tipping points."

Dr Stephan Harrison will outline his research into glacial lake outburst floods during his presentation, called Worldwide Occurrences and Attribution of Moraine-Dammed Glacier Lake Outburst Floods.

Most mountain glaciers have been receding during the last century and this trend has accelerated largely as a consequence of global warming. One consequence of this is the development of glacial lake outburst floods, which have severe impacts on downstream communities and infrastructure.

Dr Harrison will describe how Exeter academics have produced a global database of the dam failures which lead to glacial lake outburst floods.

Dr Harrison said: "The data show an abrupt increase in the frequency of these floods from around 1930, a peak in their frequency in most mountain regions in the 1960s to 1980s and a reduction in frequency since then. This is attributed to a possible delayed response to the climate becoming warmer, but our research does not support a link between human-caused climate change and recent floods."