Record warm summers cause extreme ice melt in Greenland

An international team of scientists, led by Dr Edward Hanna at the University of Sheffield, has demonstrated that recent warm summers have caused the most extreme Greenland ice melting in 50 years. The new research provides further evidence of a key impact of global warming and helps scientists place recent satellite observations of Greenland´s shrinking ice mass in a longer-term climatic context.

Dr Hanna of the University´s Department of Geography, alongside some of the World´s leading Greenland glaciologists and climatologists, analysed a combination of key meteorological and glaciological records spanning a number of decades as part of the research.

The findings, published in *Journal of Climate*, show how the Greenland Ice Sheet responded to more regional, rather than global, changes in climate between the 1960s and early 1990s. However the last fifteen years has seen an increase in ice melting and a striking correspondence of Greenland with global temperature variations, demonstrating Greenland´s recent response to global warming.

Summer 2003 was exceptionally warm around the margins of the Greenland Ice Sheet, which resulted in the second-highest meltwater running off from the Ice Sheet of the last 50 years. Summer 2005 experienced a record-high melt, which was very recently superseded in summer 2007 – a year almost as warm as 2003.

The team of researchers includes some of the leading Greenland glaciologists and climatologists from the Free University of Brussels, University of Colorado, Danish Meteorological Institute and NASA Goddard Earth Science and Technology Center, University of Maryland Baltimore County, as well as four members of the University of Sheffield.

Dr Edward Hanna said: "Our work shows that global warming is beginning to take its toll on the Greenland Ice Sheet which, as a relict feature of the last Ice Age, has already been living on borrowed time and seems now to be in inexorable decline. The question is can we reduce greenhouse-gas emissions in time to make enough of a difference to curb this decay?"

Source: University of Sheffield

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