

# PRESS RELEASE

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## Scientists reveal rapidly failing health of Iceland's glaciers

**New work published today, by scientists from the British Geological Survey (BGS), shows how the very rapid retreat of Iceland's glaciers during the last 10 years – unprecedented in over 80 years of measurements - is due to a combination of interlinked processes driven by warmer summers.**

BGS scientists have been monitoring a retreating glacier in southeast Iceland for over 15 years, making detailed measurements of its health and the dramatic changes currently occurring. In the last 5 years, its health has noticeably deteriorated: the front of the glacier has retreated at a rate of around 40 m per year, or almost 200 m in total since 2007. The new work not only identifies these recent rapid changes but suggests that this accelerated retreat is due to more than a decade of warmer than average summers. These warm summers have caused enhanced glacial thinning and ice stagnation resulting in a new, more unusual (and more rapid) style of glacier retreat by ice margin collapse.



*Glacier's health failing: Rapid ice margin collapse, identified in this study, is speeding up glacier retreat in Iceland*

Recent data collected by BGS scientists, in collaboration with the Icelandic Met Office, as part of a long-term monitoring study at the margin of Iceland's most climatically sensitive ice cap, show clear evidence of this accelerated glacier retreat since 2005. Using laser scanning techniques (LiDAR), an array of digital time-lapse cameras, and high-resolution GPS surveys, the BGS team has captured a cm-accurate 3-D model of the glacier at the end of every summer since 2009 - like taking a digital plaster cast of the glacier each year. These are being precisely compared to quantify the real-time ice loss at the glacier and the changes to the surrounding land. Importantly, the BGS Glacier Observatory at Virkisjökull in SE Iceland preserves a digital reference or baseline index against which future changes can be measured.

In summary, this new work shows that the link between warmer summers and increased glacier melting is not simply linear, with the glacier crossing an important threshold recently relating to its long-term health. This research shows that in addition to warmer temperatures over the past decade, other feedbacks – relating to ice thinning and slower ice flow – have further hastened glacier demise since 2005.



The findings have been published today as a free open-access article in the international peer-reviewed scientific journal BOREAS. Tom Bradwell of the BGS says 'our findings are interesting and the rates of change are unprecedented, but perhaps more importantly is that we've made the results freely available online; it's fully open-access to everyone'

**\*Ends\***

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Available for interview:

- Dr Tom Bradwell, British Geological Survey, Edinburgh
- Dr Jez Everest, British Geological Survey, Edinburgh

**Notes for Editors**

The findings can be read in full as a **free open-access** article in the international peer-reviewed scientific journal BOREAS:

**Bradwell, T., Sigurðsson, O. & Everest, J. 2013: Recent, very rapid retreat of a temperate glacier in SE Iceland. *Boreas*, 10.1111/bor.12014. ISSN 0300-9483.**

<http://onlinelibrary.wiley.com/doi/10.1111/bor.12014/pdf>

Photographs are available from our ftp server:

[ftp://ftp.bgs.ac.uk/pubload/bgspress/Glacial\\_Retreat/](ftp://ftp.bgs.ac.uk/pubload/bgspress/Glacial_Retreat/)

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**The Natural Environment Research Council**

The Natural Environment Research Council (NERC) is the UK's main agency for funding and managing world-class research, training and knowledge exchange in the environmental sciences. It coordinates some of the world's most exciting research projects, tackling major issues such as climate change, food security, environmental influences on human health, the genetic make-up of life on earth, and much more. NERC receives around £300 million a year from the government's science budget, which it uses to fund research and training in universities and its own research centres. [www.nerc.ac.uk](http://www.nerc.ac.uk)