



## **Glacier dynamics and lake development on South Georgia during the late-glacial and early Holocene.**

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Geochemical records from lakes on South Georgia provide data on glacier variation and lake development since 18.6 ka. Glaciers retreated and lakes had developed already by 18.6 ka BP.

The retreat was probably a response to the increased insolation combined with sea-ice decline that also have been suggested to be the key factors responsible for the pre-18 ka BP warming registered on the Antarctic peninsula. South Georgia glaciers responded earlier compared to glaciers located in southernmost South America and in the New Zealand Alps. The lake records show a terrestrial response to the Antarctic Cold Reversal (ACR) confirming, together with marine evidence, the extent to which an Antarctic climate pattern is registered in the Southern Ocean at this time. The timing of glacier retreat after 12 ka BP on South Georgia coincides with major glacier recession in Southern South America and New Zealand. Our data indicate that the glaciers on South Georgia kept a relatively advanced position until ca 8 ka BP after which they retreated rapidly to above 200 m a sl. The South Georgia lake records reveal a terrestrial response, but of opposite sign, to changes in the North Atlantic during the late glacial indicating that a link exist between terrestrial sub-Antarctic and the Northern Hemisphere during deglaciation.