

## **Effects of large-scale tephra deposition on vegetation and environment: evidence from three lakes in Northwest Iceland**

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The environment of Iceland is one of the most dynamic in the world, shaped by complex interactions of climate and volcanic activity. The country was uninhabited until about AD 870 and therefore Icelandic paleoecological records offer a unique look at undisturbed environments for most of the Holocene.

Using lake sediment records from three different environments in Northwest Iceland, from highland, lowland and oceanic settings, we examine the effects of two of the largest Holocene tephra depositions on the environment. They are the silicic Hekla 4 (c. 4200 cal. yr BP), which produced c. 9 km<sup>3</sup> of tephra and the basaltic Saksunarvatn tephra (c. 10,300 cal. yr BP) which dispersed >15 km<sup>3</sup> of tephra across the North Atlantic.

To examine whether the tephra affected vegetation communities we examine pollen and plant macrofossils prior to, and following, both tephra falls. Lithological proxies such as magnetic susceptibility and organic matter content provide information about landscape stability prior to and after the events. Both tephra deposits affected the environment. However, the magnitude of environmental change and rate of recovery observed in the sediments is dependent on the vegetation in the vicinity of the lakes at the time of the tephra fall, climate and the characteristics of the tephra.