The climate of Iceland, 1701—1784

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ABSTRACT
In this paper, variations in temperature in Iceland during the years 1701 to 1784 are discussed. For the period 1601 to 1780, a decad al winter-spring thermal index for the whole of Iceland, and also for the north, south and west has been constructed. A sea-ice index for these years is also presented. Discussion is centred on the eighteenth century; however, because of current interest in the Skaftafeldar (Laki) eruption of 1783, the weather during the years 1781 to 1784 is also considered in detail. The data used are taken from descriptions of the weather in contemporary historical documents, primarily annals and official letters. As continuous meteorological observations were not begun in Iceland until 1846, the information gathered is of great value, despite its qualitative nature. When data from the whole of Iceland are taken into account, the mildest decade of the period can be seen to be 1701 to 1710. The coldest decades are the 1740s and 1750s. Apart from this, the most noticeable features of the climate of Iceland during this time are its variability, both spatially and temporally (as during the present day), and its severity. With the exception of 1781, the years immediately before and after Skaftafeldar were also very cold.

INTRODUCTION
Continuous, systematic weather observations exist in Iceland from 1846 onwards (Sigfúsdóttir, 1969). Before this time, the climate of the historical past may be reconstructed by using documentary evidence: written accounts of what the weather was like at a particular place and time. A reconstruction of the climate of Iceland based on such evidence, and covering the period from medieval times to 1780, has recently been completed (Ogilvie, 1981, 1984). In addition to all previously used sources, this reconstruction also included material that had not been used by the pioneers of Icelandic historical climatology, Thoroddsen (1916/17), Koch (1945) and Bergþórsson (1969). All sources were carefully analysed for historical veracity, and unreliable material that had crept into earlier works was eliminated.

Much of the new material presented in Ogilvie (1981) covers the eighteenth century; and it is this period, specifically 1701 to 1784, which is considered here. Because of the extremely cold weather which prevailed in Iceland (and in the rest of Europe) at this time, it is a particularly interesting period from a climatological viewpoint. It should, however, be noted that, although the eighteenth century as a whole may be considered typical of the so-called Little Ice Age, mild seasons and years did occur.

In the first part of this paper, decad al temperature and sea-ice variations from 1701 to 1780 are discussed. (Analysis of data for the period 1781 to 1800 is currently in progress.) In the second part, particular attention is paid to the years 1781 to 1784. In 1783, a major volcanic eruption occurred in Vestur-Skaftafellssýsla in the southeast of Iceland — Skaftafeldar. In the non-Icelandic literature, this eruption has generally been referred to as the “Laki” eruption. This is inappropriate, however, as, although the eruption occurred in the vicinity of Mount Laki, there were no fissures on Laki itself. The lava flows and, especially, the poisonous substances in the volcanic dust adversely affected vegetation, and thereby caused the deaths of numerous domestic animals. In the ensuing famine, which came to be known as “Móðuhrðindin” or “The Famine of the Mist” from the volcanic dust haze, more than 9,000 people died (Finnsson, 1970). Because of current interest in the 200th anniversary of Skaftafeldar (see Gunnlaugsson et al., 1984), it was decided to include a detailed discussion of the weather during the eruption year, plus the years immediately before and after it. A summary of conditions during these years is given in Table 3.

SOURCES
The data sources used for this study are contemporary historical documents. For the most part, these can only supply qualitative information, and therein lies