



## **Holocene and Lateglacial tephrochronology on the North Icelandic shelf**

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In recent years the importance of tephrochronology in palaeoclimatic and palaeoceanographic studies in the North Atlantic, the Nordic Seas and the surrounding land areas, has become increasingly clear. Tephrochronology has proved to be an important tool for chronostratigraphical correlation and dating of Quaternary sedimentary sequences. Three sediment cores MD992275, MD992273 and MD992271, taken on the North Icelandic shelf, have been investigated in terms of existence of primary tephra in the sediments and factors that can provide information on sedimentation, palaeoclimate and palaeocurrents in the area. The cores were obtained during the IMAGES-V cruise on the French research vessel Marion Dufresne in 1999. The cruise was organised by IMAGES (International Marine Past Global Change Study). The average time resolution in core MD992275 is 5 year per 1 cm slice and in core MD992271 15 years per 1 cm slice. Tephra layers that are found on the shelf have been correlated to written records where eruptions are described and with tephra layers that have been dated with  $^{14}\text{C}$  in soil sections on land. Nine tephra layers that are both in core MD992275 and in key sections on land have been identified. These layers are; Vv 1717, Vv 1477, Vv 1410, Hekla 1300, Hekla 1104, Settlement layer, Katla 9th century, Snæfellsjökull 1 and Hekla 3. Tephra layers identified in core MD992273 are; Vv 1717, Hekla 1300, Hekla 1104, Hekla 3 and Hekla 4. Five tephra layers have been identified in core MD992271 including the two major regional markers, Hekla 1104 and Hekla 3. Tephra layers that can be traced from the Icelandic source volcanoes to marine sedimentary environments provide independent control on radiocarbon dates from the environment. Thus it is possible to compare an age model based on tephrochronology to an age model based on  $^{14}\text{C}$  dates in the same core. This comparison can give an idea about changes in the reservoir age in the area. By establishing a tephrochronological framework a unique opportunity is provided to date rapid changes

seen in various proxies from the North Icelandic shelf in a reliable way. This can be invaluable in correlating marine, terrestrial and ice-core records.