Geophysical Research Abstracts
Vol. 14, EGU2012-7054, 2012
EGU General Assembly 2012

Towards a complete Holocene tephrochronology for the Faroe Islands

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The position of the Faroe Islands between Iceland and the European mainland is ideal for receiving tephra from volcanic eruptions on Iceland. Historical records show that fallout on the islands have occurred in connection with eruptions of Katla in the 17th and 18th centuries AD and from Hekla during the eruption in 1845. Tephra fall was also observed during the eruption of Eyjafjallajökull in 2010. Three widespread tephra horizons have been known since the 1960s from lake sediment and peat sequences on the Faroe Islands (e.g. Dugmore and Newton, 1998), the early Holocene Saksunarvatn tephra (c. 10.3 ka BP) and the mid Holocene Hekla-4 (c. 4.2 ka BP) and Hekla-S/Kebister tephras (c. 3.7 ka BP). Recent additions to the tephrochronology network of the Faroe Islands include the early Holocene Hässeldalen, Askja-S and Høvdarhagi tephras (Lind & Wastegård, 2011), the Suðuroy tephra (c. 8.0 ka BP; Wastegård, 2002), the Mjáuvøtn tephra (c. 6.8 ka BP; Olsen et al., 2010b), Hekla-3 (c. 3.0 ka BP), Hekla-1 (AD 1104) and the basaltic phase of the Landnám tephra (c. 870s AD) (e.g. Wastegård, 2002; Olsen et al, 2010a). Also several silicic layers from Katla ("SILK layers") have been found (Wastegård, 2002; Lind & Wastegård, 2011). In total more than 15 silicic and 5 basaltic layers have been found on the Faroe Islands, but since only a few sites have been investigated in detail, it is likely that many more tephra horizons remain to be discovered. The almost complete lack of basaltic tephra within peat bogs on Faroe Islands is striking even though many documentary records report tephra fallout from basaltic eruptions. Silicic tephra is thought to be generally more stable than basaltic tephra, which could be affected by chemical alteration or even complete dissolution in an acid environment, such as blanket peat (Pollard et al., 2003).

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