Geophysical Research Abstracts
Vol. 14, EGU2012-7691, 2012
EGU General Assembly 2012

Stratigraphy of three mid-late Weichselian tephra layers from the Faroe Islands margin

T.L. Rasmussen (1), J. Olsen (2), S. Wastegård (3), and E. Thomsen (2)

(1) Department of Geology, University of Tromsø, Tromsø, Norway (tine.rasmussen@uit.no), (2) Department of Geosciences, University of Aarhus, Aarhus, Denmark, (3) Department of Physical Geography and Quaternary Geology, Stockholm University, Stockholm, Sweden

We have investigated the stratigraphical position of three discrete tephra layers in marine sediment cores from the Faroe Islands margin. Two of the tephra have recently been reported from the Greenland ice cores and thus provides key tie-points between marine and ice-core records. One tephra is the Fugloyarbanki Tephra, also referred to as Faroe Marine Ash Zone II (FMAZ-II). FMAZ-II has previously been carbon-14 dated from ENAM93-21 and several other cores from the Faroe Islands margin. The tephra occurs above the warm phase of interstadial 3 in both the marine cores and the Greenland Ice core. The other tephra is the Faroe Marine Ash Zone III (FMAZ-III). It occurs in the warmest peak of interstadial 8 in both the marine cores and the ice core. In the present investigation we compared these datings with two new records from the same general area, namely LINK15 from the central Faroe-Shetland Channel (1600 m water depth) and LINK16 from the Fugloy Ridge (773 m water depth). In LINK15, FMAZ-II was dated at 4 cm intervals below, above and within the ash, while FMAZ-III was dated at 2 cm intervals. Previous dates of FMAZ-II from 5 different cores gave an age span of 22,850-23,900 14C years BP (400 year reservoir correction). The new result from LINK15 dates the peak tephra fall-out of FMAZ-II to 23,050±245 14C years BP, while the peak fall-out of FMAZ-III is dated to 33,153±191 14C years BP. The dates were calibrated to 27,935±360 cal years BP and 37,970±465 cal years BP, respectively. In the Greenland ice core the two tephra are dated to 26,740±390 and 38,122±723 years b2k (before year AD 2000), respectively.
The third tephra is a hitherto unknown basaltic tephra recorded in the lower part of interstadial 12. This new tephra is named FMAZ-IV. Geochemical analyses of the tephra from five different core records from the Faroe Islands margin show that FMAZ-IV originated from the Icelandic Grimsvötn volcanic system. The FMAZ-IV tephra dates c. 44,000 14C years BP according to the age models, which calibrates to 47,050 years BP. By correlation to the ice cores we obtain almost the same age in ice core years.