



Validation of 30-50 ^{14}C ka ages from marine shells by amino acid D/L values

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Old ^{14}C ages are always suspicious because samples with very low ^{14}C content are sensitive for contamination with recent or young ^{14}C . We have obtained 32 radiocarbon ages in the range 29-48 ^{14}C ka BP on marine shells from Novaya Zemlya, Arctic Russia, suggesting that the Barents-Kara Ice Sheet was completely absent during much of Marine Isotope Stage 3 (Mangerud et al. 2008). This would be an important finding for paleo-glaciological and paleo-climatological reconstructions and the reliability of the dates is therefore crucial. Amino acid racemization is a chemical reaction that progresses independently of the decay of ^{14}C . We found a close correlation between ^{14}C ages and D/L values from aspartic and glutamic amino acids which strongly support the reliability of the ^{14}C ages.

Reference

Mangerud, J., Kaufman, D., Hansen, J. & Svendsen, J.I. (2008). Ice-free conditions in Novaya Zemlya 35 000-30 000 years B.P., as indicated by radiocarbon ages and amino acid racemisation evidence from marine molluscs. *Polar Research* 27, 187-208.