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Arctica islandica: a proxy for reconstructing North West European climate

K. Stott (1), W. Austin (1), R. Wilson (1), and M. Sayer (2)

(1) The University of St Andrews, School of Geography and Geosciences, Irvine Building, North Street, St Andrews, Fife, KY16 9AL, United Kingdom, (2) UK NERC Facility of Scientific Diving, The Scottish Association of Marine Science, Dunbeg, Oban, Scotland, PA37 1QA

This paper highlights the methods used to reconstruct past marine environmental variability in Scottish coastal waters through the investigation of annual growth increments measured from shells of the long-lived marine bivalve Arctica islandica (L.). This is achieved using a combination of sclerochronological and dendrochronological techniques. What are traditional dendrochronological techniques can be used to determine the age of specimens and to create growth chronologies. The detrending methods presented herein are done so to illustrate that chronologies can be derived that capture potential multi-decadal and longer scale environmental information. Using negative exponential detrending methods, a preliminary master chronology of Arctica islandica growth for the Lynn of Lorn, Scotland, has been produced and this indicates that from the 1960s to the late 1980s there was a period of suppressed growth. At this time we do not know exactly which environmental factors controls influenced this reduced growth phase.