



Tackling Cenozoic variations of palaeoceanographic pathways in the sub-Arctic and North Atlantic Ocean (PATHWAYS - *cluster PLATES & GATES, International Polar Year*)

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The goal of PATHWAYS is to test the hypothesis that tectonic activity can exert a critical influence on global climate through the modification of thermohaline circulation patterns at oceanic gateways. This will be effected through an examination of the linkages between changes in palaeoceanographic pathways and tectonism within the North Atlantic-Arctic region and over Cenozoic timescales (<65 Ma). The Sub-Arctic and North Atlantic region represents an ideal study area, not only because there is ample evidence of tectonic movements, but because it contains a Cenozoic stratigraphic record from which geological and geophysical data have been acquired over several decades of scientific exploration and, more recently, deep-water hydrocarbon exploration. The intention of the project is therefore to take advantage of the wealth of available geological and geophysical information within a critical region, in order to examine changes in the operation of several Earth systems (oceanographic, tectonic, climate) at appropriately large spatial and temporal scales.

PATHWAYS addresses a regional-scale problem of Earth system dynamics and seeks to stimulate the exchange of ideas and information, thus establishing a basis for longer-term research initiatives. The project involves a multidisciplinary approach, in which an understanding of the sedimentary processes governing sediment drifts deposits, as well as of Cenozoic changes in tectonism and in climate, are combined with geological and geophysical analyses to test a model for changes in oceanic pathways.

PATHWAYS is part of the IPY cluster PLATES&GATES aiming at the understanding

of opening of polar oceanic gateways and their role in the global paleoceanic circulation system.