

## **Palynology of IODP Site U1307 at the Pliocene to Pleistocene transition: sea-surface conditions in the Labrador Sea and pollen input from the Greenland vegetation**

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We investigate the marine and terrestrial palynological record from marine core sediment collected in the Labrador Sea off southwest Greenland (IODP 1307, 58.5058°N, -46.4005°W) in order to assess on the vegetation over southern Greenland from pollen and spore and reconstruct oceanic condition from dinocysts during the Pliocene to Pleistocene transition (around 2.58Ma), when permanent ice started to developed in the Northern Hemisphere. The study sequence that encompasses from 3.0 to 2.5 Ma is characterized by high species diversity of dinocysts, most of the assemblages being characterized by modern taxa. The dominance of *Bitectatodinium* sp., *Operculodinium centrocarpum*, *Nematosphaeropsis labyrinthus* and *Brigantodinium* sp., suggest cool, low saline environment characterized by stratified surface water mass, not unlike those prevailing presently along the the southeast Canadian margins. However, the overall palynological assemblage contains abundant acritarcha, notably *Cymatiosphaera* sp. and *Lavradosphaera* sp., which probably belong to Prasinophytes (green algae) and are often associated with epicontinental marine environments in the fossil marine records. The pollen assemblages are characterized by high proportion of *Pinus* sp., which has exceptional dispersal properties often resulting in long distance transport and making it difficult to identify precisely the location of the source vegetation. Nevertheless, the occurrence of *Picea* sp., *Tsuga* sp., *Corylus* sp., *Alnus* sp. and *Betula* sp. in late Pliocene assemblages suggest input from boreal-type forest located in a relatively proximal source, likely the southwest Greenland. In the early Pleistocene, lower pollen concentrations together with higher proportion of herbaceous taxa may indicate that more open tundra-like vegetation established in the source area.