

Palynology of the late Holocene in Disko Bugt, West Greenland: evidence for centennial variability in sea-surface conditions.

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The palynological analyses of a sediment core collected in Disko Bay (core 343310; 68°38,861'N, 53°49,493'W) provide a dinocyst record of the last 1500 years with 5-30 year time resolution and thus permit reconstruction of changes in surface water, including sea-ice cover, temperature and salinity. Dinocyst assemblages are characterized by high taxonomic diversity (18 taxa) with dominance of *Islandinium minutum*, *Pentapharsodinium dalei*, *Brigantedinium* spp. and *Islandinium? cezare* and by very high concentrations ($>10^5$ cysts.cm⁻³) leading to calculate fluxes of the order of ($>10^4$ cysts.cm⁻².years⁻¹). The modern analogue technique (MAT) was applied to dinocyst assemblages to quantitatively reconstruct paleo-sea-surface conditions. The seasonal sea ice cover shows large amplitude variations from 2 to 8 months.yr⁻¹(sea ice coverage $>50\%$), with maxima at 1050-1300 AD, 1400-1500 AD, 1550-1600 AD and 1770-1800 AD, which reflect episodic cooling during the last millennium. In the overall record, sea ice cover and salinity variation are correlated with increase sea ice extent corresponding with decrease salinity and vice versa, which suggests strong linkages between the regional freshwater/meltwater budget and winter sea ice. Relationship between sea ice cover and the North Atlantic Oscillation (NAO) is also possible. The increased sea ice being associated with dominant NAO+ mode can be linked with change of the regional properties of the West Greenland Current, the marked by lower influence of warm and saline Atlantic waters relative to an increase influence of the polar and low salinity in Arctic waters from East Greenland Current under NAO+ situation.