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Trends in ostracod distribution and water chemistry in subarctic Canada: Churchill (Manitoba) lakes and ponds revisited

FA Viehberg (1,2), G. Côté (2), and R. Pienitz (2)

(1) Technische Universität Braunschweig, Institut für Umweltgeologie, AG Geosysteme, Braunschweig, Germany (finn.viehberg@tu-bs.de, 49 531 391 8130), (2) Centre d'Études Nordiques, Pavillon Abitibi-Price, Université Laval, Québec, Québec, CANADA, G1V 0A6

Ecosystems change in response to factors such as climate variability, invasions, and natural hazards over a short period of time (IPCC 2007). The individual organism has to react to complete its life cycle and eventually to reproduce successfully. Under extreme conditions the survival of the total population depends thoroughly on the genetic diversity/potential and thus the ability to expand its biogeographical range or to run extinct. The knowledge of the specific plasticity in time is essential to interpret signals of biological proxies in palaeo records.
We investigated 13 lakes/ponds in the surrounding of the Churchill Northern Studies Centre (CNSC; 58° 43.989'N, 93° 49.219'W), Churchill, Canada in 1997. 9 years later we revisited the same localities in 2006. In addition, faunistic data of microcrustaceans in the local study area is available from the late 80's (Havel et al 1990 a, b). and further instrumental climate records from Churchill (Manitoba, Canada) are daily filed since 1943 by Environment Canada.
Thus we were able to pinpoint local warming trends and changes in the water chemistry from our short term records in the subarctic study area. The microcrustacean fauna change consecutively. e.g., freshwater ostracods adopted to short open water periods during the summer, strong variations of water temperatures in the shallow waters and mostly low ionic contents of the host waters are not present in the current record.

References:
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