Geophysical Research Abstracts, Vol. 8, 03845, 2006
SRef-ID: 1607-7962/gra/EGU06-A-03845

MSA Records from the Antarctic Polar Plateau suggest Similar Variability on Century Time Scales

D. Divine (1,2), E. Isaksson (1), M. Kaczmarska (1), L. Karlöf (1), J-G. Winther (1), F. Godliebsen (1,2), H. Fischer (3), F. Fundel (3), P.A. Mayewski (4), M. van den Broeke (5), R.S.W. van de Wal (5)

(1) Norwegian Polar Institute, N-9296 Tromsø, Norway.

dima@npolar.no/Fax: +47-77750501

(2) Department of Statistics, University of Tromsø, Tromsø, Norway

(3) Alfred-Wegener-Institute for Polar and Marine Research, Columbusstrasse, D-27568 Bremerhaven, Germany

(4) Climate Change Institute, University of Maine, Orono, ME, USA

(5) Institute for Marine and Atmospheric Research, PO Box 80005, 3508 TA Utrecht, The Netherlands

1 We have compared methanesulfonic acid (MSA) data sets from two different Dronning Maud Land (DML) ice cores, B32 and M150 and one from South Pole in order to find out if there is a common signal or if these records are destroyed by post-depositional processes. We have applied several different statistical methods on the data sets. In summary, all three records show a co-phased variability at the scales longer than a century. The interannual to interdecadal scale variations do not display in turn a coherent behaviour, although the spectral peaks at periods of about 5, 7, 9-11 years, 13-17 years and 29 years are generally found in the time-series analyzed. The results suggest that despite all complicating factors including low accumulation rate and post-depositional loss these three MSA records from the polar plateau are surprisingly similar. The reproducibility of the MSA records between the two DML sites is better than for the δ^{18}O records for these cores. Our results strongly suggest that MSA concentrations can be attributed to the same physical processes on a regional scale but with the available data we cannot determine which the processes are.