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*Supplement of*

## **800-year ice-core record of nitrogen deposition in Svalbard linked to ocean productivity and biogenic emissions**

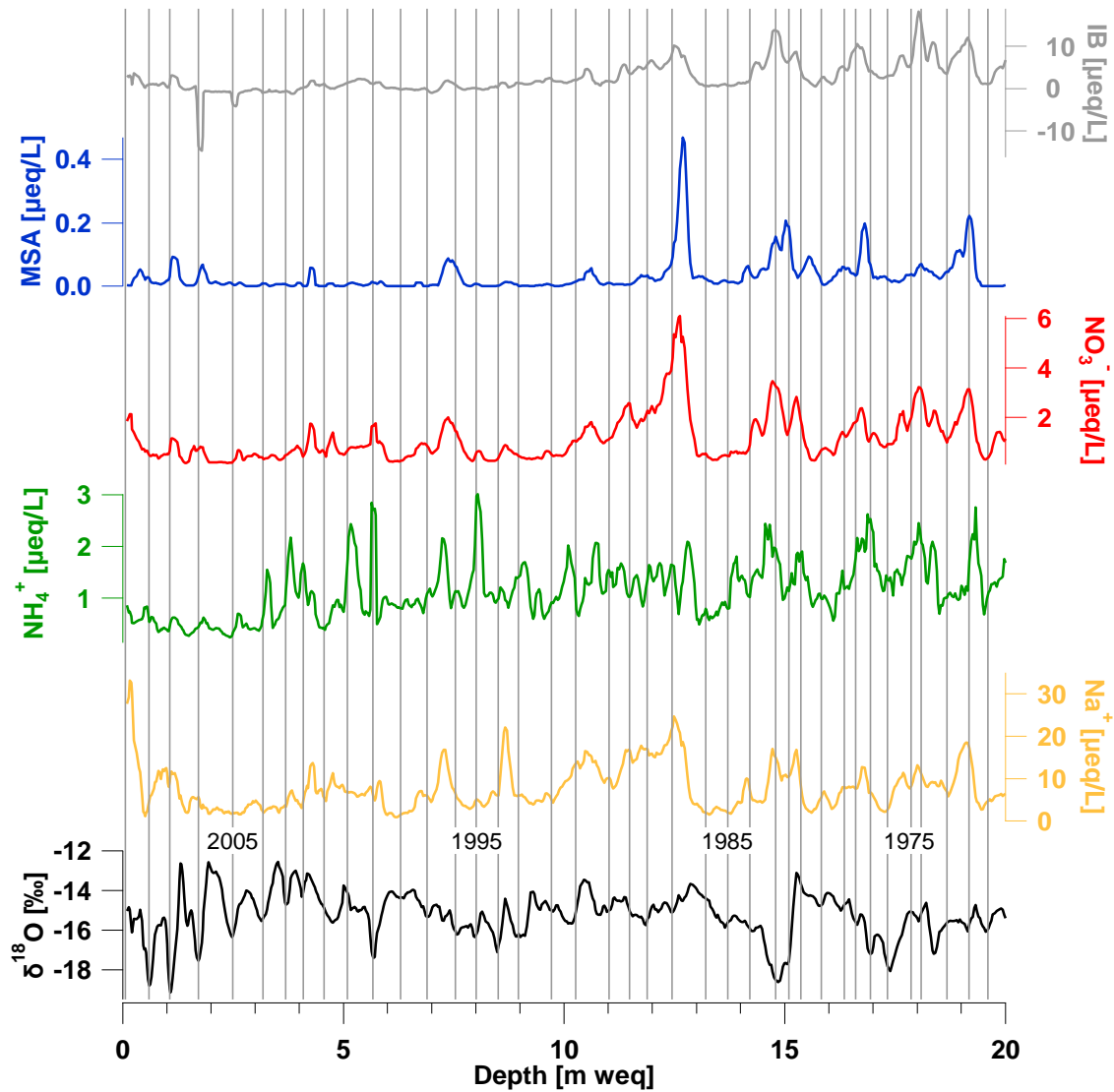
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1 **Supplementary material**

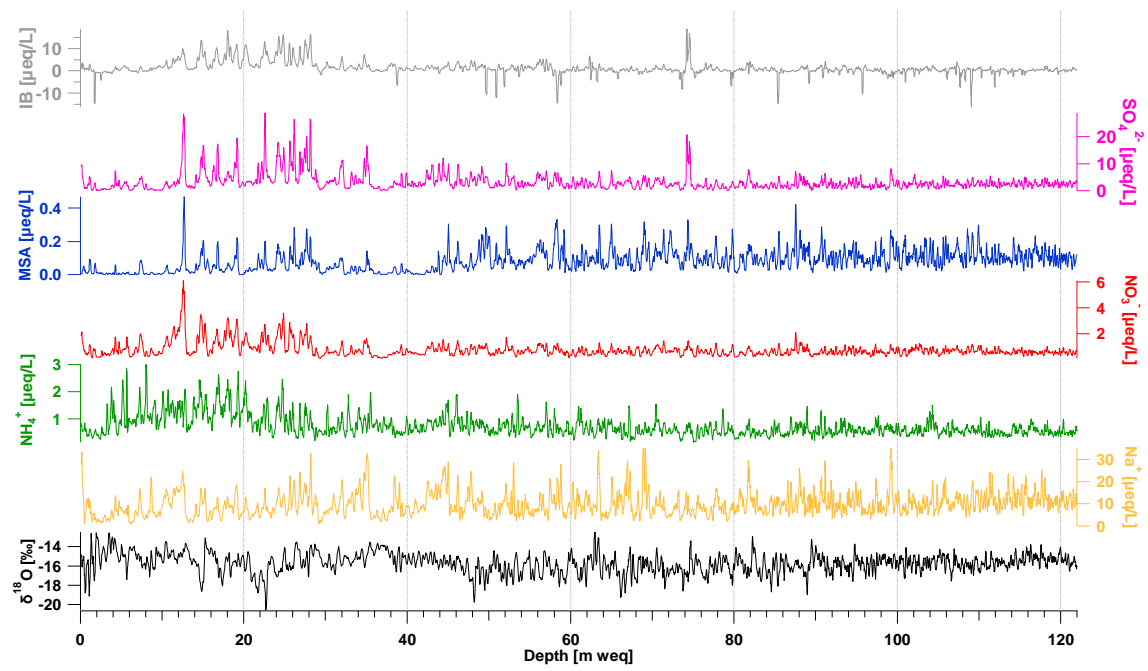
2 Here, an example for the annual layer counting (ALC) for the core section between 0 and  
3 20 m weq (Figure S1) is displayed, followed by the raw data for the ionic species (Figure S2)  
4 and the melt percent (Figure S3) of the Lomo09 ice core along depth in m weq.



5

6 Figure S1 Example for annual layer counting (ALC) for the core section between 0 and 20 m  
7 weq using the records of  $\delta^{18}\text{O}$ ,  $\text{Na}^+$ ,  $\text{NH}_4^+$ ,  $\text{NO}_3^-$ , MSA, and IB (ion balance, sum of anions-  
8 sum of cations). Data are five-point-moving averages to facilitate the identification of the  
9 annual cycles. Grey vertical lines indicate the single counted years; numbers within the graph  
10 give the resulting year.

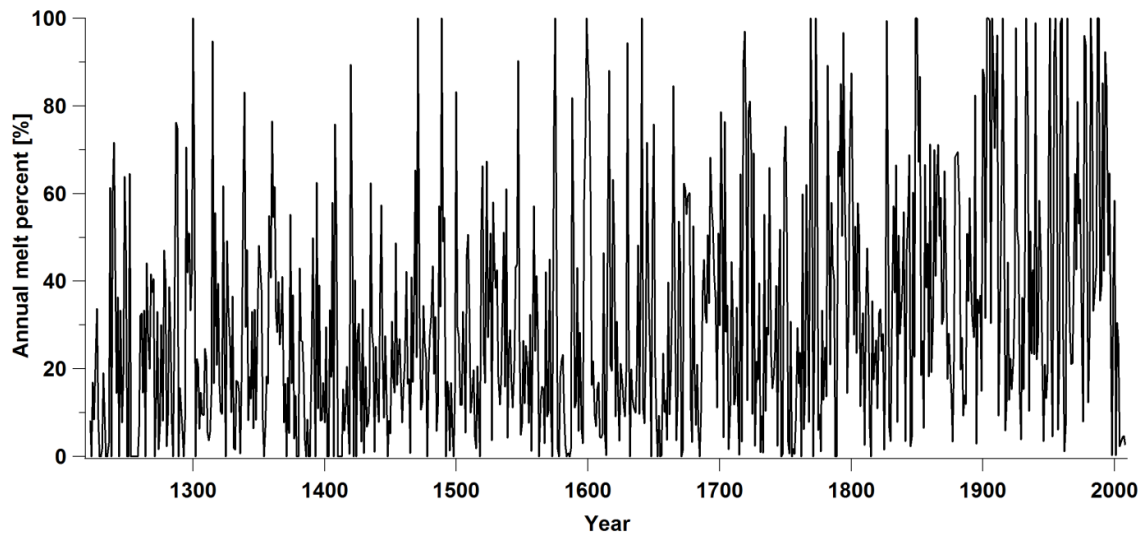
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2 Figure S2 Raw data of  $\delta^{18}\text{O}$ ,  $\text{Na}^+$ ,  $\text{NH}_4^+$ ,  $\text{NO}_3^-$ , MSA ( $=\text{CH}_3\text{SO}_3^-$ ),  $\text{SO}_4^{2-}$ , and of the ion  
 3 balance (IB, sum of anions-sum of cations) of the Lomo09 ice core versus depth in m weq.  
 4 Data shown are 5-point-moving averages for better visibility, especially for the IB.

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2 Figure S3 Annual melt percent of the Lomo09 ice core versus age.