Supplement of

Observation and modeling of high- ^7Be events in Northern Europe associated with the instability of the Arctic polar vortex in early 2003

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^{210}Pb & Winds, 2003

Figure S1. Simulated monthly mean ^{210}Pb surface concentrations (mBq/SCM). Arrows represent winds in the MERRA-2 meteorological data. The dots indicate the locations of the sampling sites: 1=Ivalo, 2=Umea, 3=Helsinki, 4=Kista, 5=Harku, 6=Risoe.

Figure S2. Time series plots of observed daily $^7\text{Be}/^{210}\text{Pb}$ concentration ratio at the two stations of Helsinki (60.21°N, 25.06°E) and Sodankylä (67.367°N, 26.629°E).

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Figure S3. Temporal variation of MERRA-2 daily average height of thermal tropopause during February 2003 at the Sodankyla station in Finland.