Table S1. List of mineral dust episodes identified by peaks in mineral dust species above background concentrations, with the start and end date of measurements in UTC.

Episode label	Start and end date (UTC)
Dust_2016_01	28/02/2016 04h – 01/03/2016 16h
Dust_2016_02	21/03/2016 07h – 23/03/2016 16h
Dust_2016_03	05/04/2016 20h – 09/04/2016 05h
Dust_2016_04	23/07/2016 08h – 25/07/2016 17h
Dust_2016_05	27/08/2016 20h – 30/08/2016 05h
Dust_2016_06	16/09/2016 19h – 19/09/2016 16h
Dust_2016_07	07/10/2016 07h – 10/10/2016 16h
Dust_2017_01	25/02/2017 19h – 27/02/2017 04h
Dust_2017_02	25/03/2017 19h – 27/03/2017 16h
Dust_2017_03	29/03/2017 19h – 01/04/2017 16h
Dust_2017_04	19/05/2017 08h – 20/05/2017 17h
Dust_2017_05	24/05/2017 20h – 26/05/2017 05h
Dust_2017_06	11/07/2017 08h – 13/07/2017 05h
Dust_2017_07	04/08/2017 20h – 06/08/2017 05h
Dust_2017_08	03/09/2017 09h – 05/09/2017 18h
Dust_2017_09	23/09/2017 21h – 24/09/2017 18h
Dust_2017_10	05/10/2017 21h – 08/10/2017 06h
Dust_2017_11	15/11/2017 09h – 18/11/2017 06h
Dust_2017_12	30/11/2017 09h – 01/12/2017 18h
Dust_2017_13	15/12/2017 09h – 19/12/2017 06h

Figure S1. Scatterplots of Cl, Mg, K, Ca, Na and SO_4^{2-}/S concentrations (in µg m^{-3}) obtained by ion chromatography and XRF analysis showing the slope and distribution of data as well as the Pearson correlation coefficient (R^2).

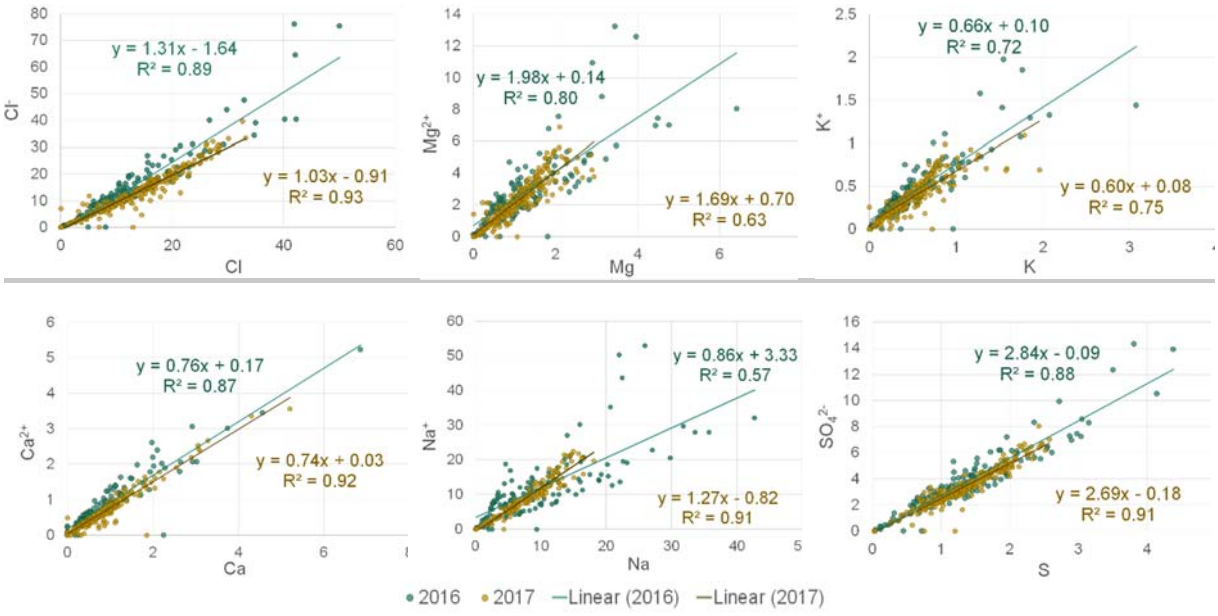

Figure S2. Gridded frequency plot of the variability of the 72-h air mass back-trajectories run for sampling periods in 2016 and 2017 (except the long-range transported air masses in September 2016 and November 2017, which show air masses arriving from as far south as 74°S) run for 21 of the 26 filter sampling periods. Back-trajectories were initiated at 250 m agl. The grid colour indicates the percentage of trajectories of the total trajectories run for all sampling periods, passing the over the 1° x 1° grid.