

1 **Supporting Information to “Direct quantification of total**  
 2 **and biological ice nuclei in cloud water” by Joly et al.**

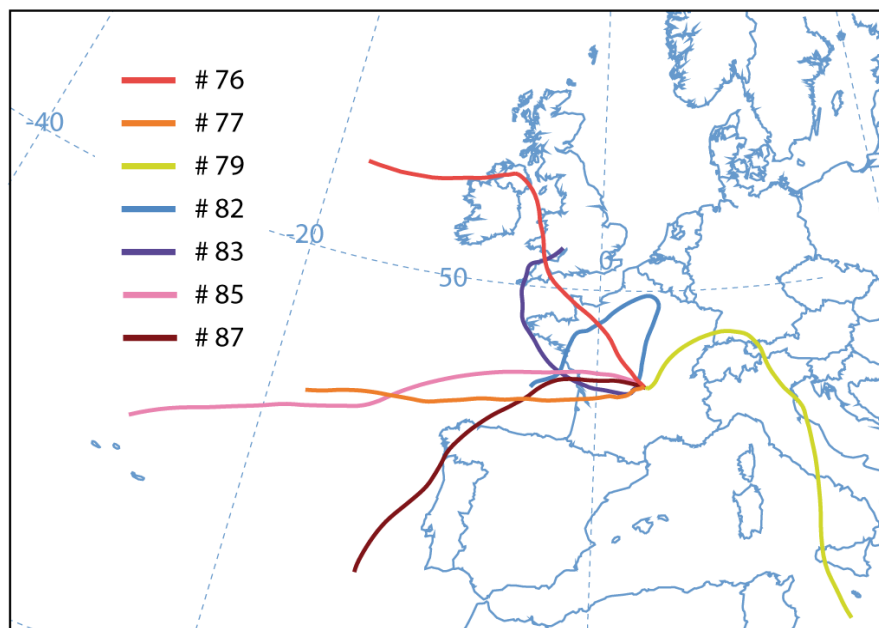
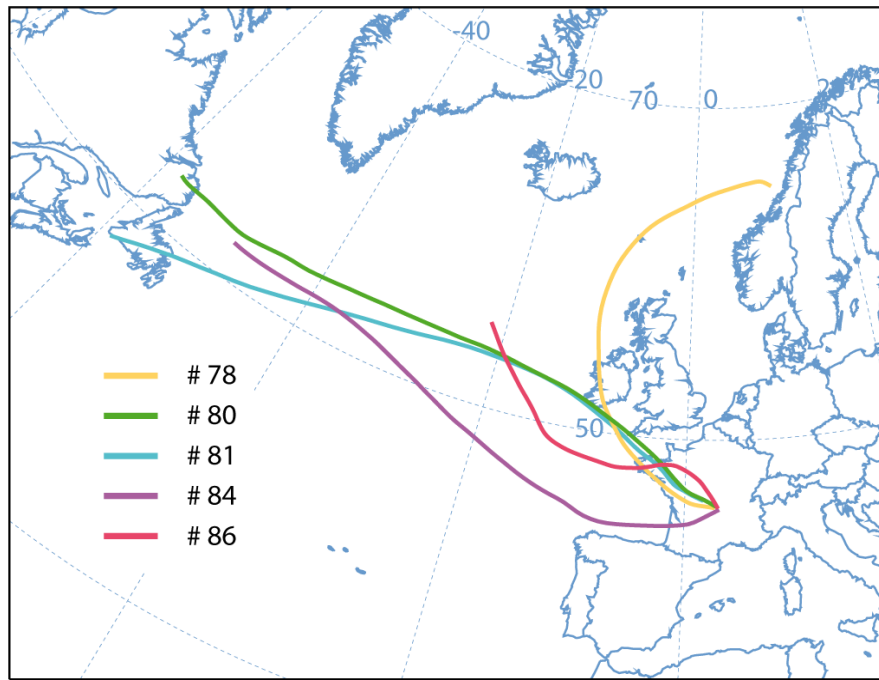
3  
 4 Table S1. Ion composition of the 12 cloud water samples studied.

Sample	Concentration ( $\mu\text{M}$ )										
	Na <sup>+</sup>	NH <sub>4</sub> <sup>+</sup>	K <sup>+</sup>	Mg <sup>2+</sup>	Ca <sup>2+</sup>	Cl <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	Acetate	Formate	Oxalate
# 76	n.a.	n.a.	n.a.	n.a.	n.a.	16.9	126.0	52.2	n.a.	n.a.	n.a.
# 77	124.8	408.5	22.8	26.8	148.5	12.8	47.9	19.6	58.3	109.6	12.3
# 78	22.7	32.7	9.2	12.3	7.1	24.1	10.4	7.1	3.3	11.3	3.0
# 79	0.6	52.7	1.6	0.8	3.2	0.3	5.0	1.3	4.3	5.6	1.0
# 80	80.6	39.3	6.1	12.0	5.2	13.3	2.2	1.8	7.4	5.3	1.1
# 81	145.7	188.6	6.2	20.3	9.3	23.4	11.2	4.8	15.3	15.6	6.7
# 82	1.0	75.4	0.1	0.9	6.1	0.2	2.0	1.6	4.2	6.2	3.0
# 83	93.5	531.1	10.7	14.3	34.6	12.2	49.9	10.7	b.d.l.	39.0	6.5
# 84	36.0	38.1	1.4	6.0	5.2	5.9	1.9	1.6	3.9	7.7	1.2
# 85	6.0	77.8	4.0	2.2	4.3	0.9	3.0	1.1	b.d.l.	18.2	3.3
# 86	8.8	16.8	5.5	1.3	4.5	1.0	1.0	0.5	3.2	3.2	1.0
# 87	21.2	39.3	7.6	8.3	2.3	26.7	10.9	5.3	4.0	13.6	0.7

5 n.a.: not available

6 b.d.l.: below detection limit.

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2 **Figure S1.** Composite images of 72-hours backtrajectory plots of the air masses analyzed.

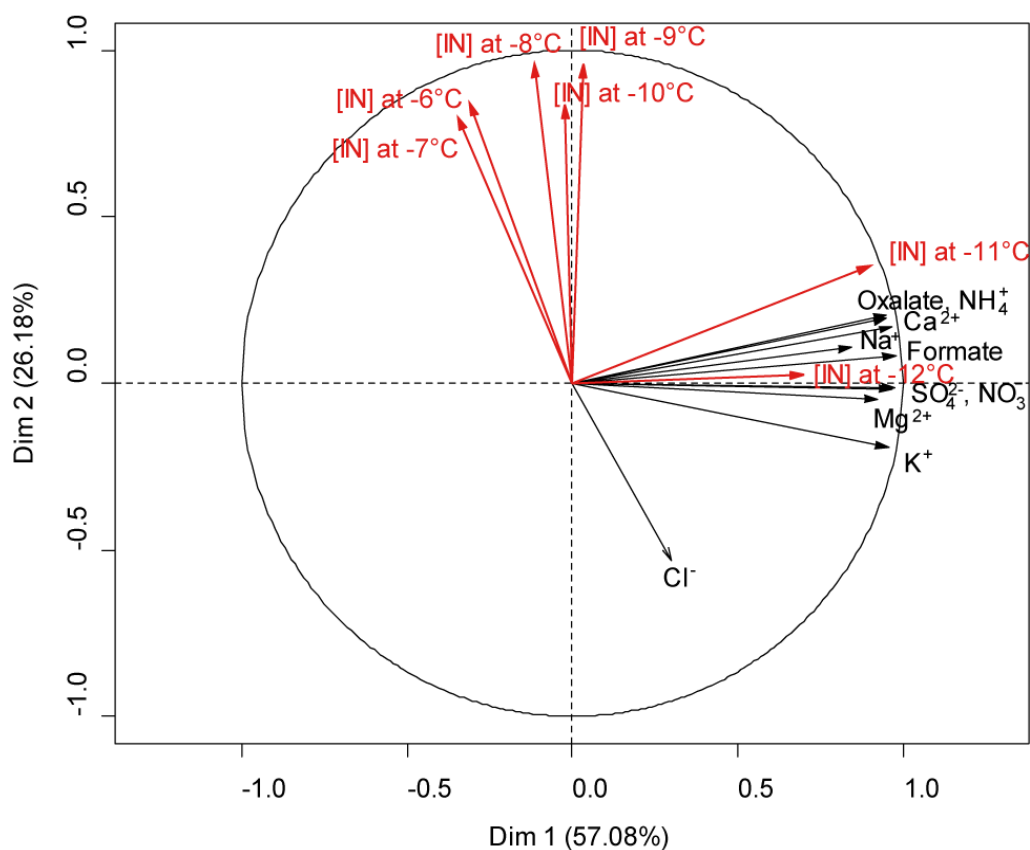
3 These are shown on 2 different maps for the sake of visual clarity. The plots were made using

4 the HYSPLIT model with the GDAS1 meteorological data archive and default settings

5 (Draxler and Rolph, 2010).

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### Variables factor map (PCA)



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2 Figure S2. Principal component analysis (PCA) map of the chemical variables (black vectors)  
3 and of the concentrations of total IN measured at temperatures from -6°C to -12°C (red  
4 vectors). The analysis includes the samples for which all these data were available (n = 9).

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