

Supplemental data

Composition, isotopic fingerprint and source attribution of nitrate deposition from rain and fog at a Sub-Arctic Mountain site in Central Sweden (Mt Åreskutan)

CARMEN P. VEGA ^{1,2 # †}, E. MONICA MÅRTENSSON ³, ULLA WIDEQVIST ⁴, JAN KAISER ⁵, PAUL ZIEGER ⁴, and JOHAN STRÖM ⁴

¹ School of Physics, University of Costa Rica, San José, Costa Rica;

² Centre for Geophysical Research, University of Costa Rica, San José, Costa Rica;

³ Department of Earth Sciences, Uppsala University, Uppsala, Sweden;

⁴ Department of Environmental Science and Analytical Chemistry (ACES) and Bolin Centre for Climate Research, Stockholm University, Stockholm, Sweden;

⁵ Centre for Ocean and Atmospheric Sciences, School of Environmental Sciences, University of East Anglia, Norwich, United Kingdom

* Corresponding author e-mail: c.vega.riquelme@gmail.com

†Previously at [3]

Article DOI:

<https://doi.org/10.1080/16000889.2018.1559398>

Table S1. Mean daily precipitation estimated as the mean of daily precipitation at the three SMHI stations near Åre: Medstugan, Digernäset and Vallbo, and mean, median, standard deviation (1σ), maximum, and minimum precipitation values for the three stations (considering the study period, i.e. 77-days).

Date	Mean daily precipitation (Combining the three stations) (mm d ⁻¹)	Date	Mean daily precipitation (Combining the three stations) (mm d ⁻¹)	
Jun28	2.1	Aug05	13.0	
Jun29	1.1	Aug06	9.9	
Jun30	8.0	Aug08	0.2	
Jul03	2.3	Aug09	1.8	
Jul05	1.1	Aug10	1.8	
Jul06	1.5	Aug11	0.7	
Jul07	3.4	Aug12	0.2	
Jul08	0.5	Aug13	1.3	
Jul11	0.5	Aug14	2.6	
Jul12	1.6	Aug17	7.2	
Jul13	4.5	Aug18	12.1	
Jul14	0.1	Aug19	0.7	
Jul15	5.1	Aug20	6.2	
Jul17	10.4	Aug21	7.2	
Jul18	1.3	Aug22	2.7	
Jul19	0.7	Aug23	3.3	
Jul20	0.3	Aug24	3.3	
Jul22	1.9	Aug25	2.0	
Jul23	1.3	Aug26	1.3	
Jul25	4.3	Aug27	0.6	
Jul26	1.9	Aug28	0.2	
Jul27	1.3	Aug30	0.9	
Jul29	4.2	Aug31	0.6	
Jul30	1.6	Sep01	0.4	
Jul31	3.0	Sep02	0.5	
Aug01	3.7	Sep07	0.1	
Aug02	1.3	Sep08	0.1	
Aug03	3.1	Sep09	0.2	
Aug04	9.5	Sep11	1.4	
Statistics considering the 77-day period				
Station	Combining the three stations	Medstugan	Digernäset	Vallbo
Mean (mm)	2	3	2	2
Median (mm)	1	0	0	1
1 σ (mm)	3	6	4	4
Maximum (mm)	13	26	23	19
Minimum (mm)	0	0	0	0.0

Table S2. Days in which fog was present at the sampling site and mean liquid water content $\gamma(\text{H}_2\text{O})$, for each sample interval.

Sample	Date	Mean $\gamma(\text{H}_2\text{O})$ (g m^{-3})	Sample	Date	Mean $\gamma(\text{H}_2\text{O})$ (g m^{-3})		
F1	Jul04	0.18	F12	Aug14	0.26		
	Jul07			Aug15			
F2	Jul08	0.42		Aug16			
	Jul013			Aug17			
F3	Jul14	0.23		Aug18			
F4	Jul15	0.37		Aug19			
	Jul16			Aug20			
F5	Jul17	0.32		Aug21			
F6	Jul18	0.23		F13		Aug22	0.21
F7	Jul19	0.01		F14		Aug23	0.31
	Jul24		Aug24				
	Jul25		Aug25				
	Jul26		Aug26				
F8	Jul28	0.26	Aug27				
	Jul29		Aug28				
F9	Jul30	0.26	Aug29				
	Aug01		Aug30				
	Aug02		Aug31				
	Aug03		Aug31	0.22			
	Aug04		Sep02				
	Aug05		Sep03				
	Aug06		Sep04				
	Aug07		Sep05				
	Aug08		Sep06				
	Aug09		Sep08				
F10	Aug10	0.19	Sep09				
	Aug11		F16	Sep10	0.38		
F11	Aug12	0.02	Sep11				
			Sep12				

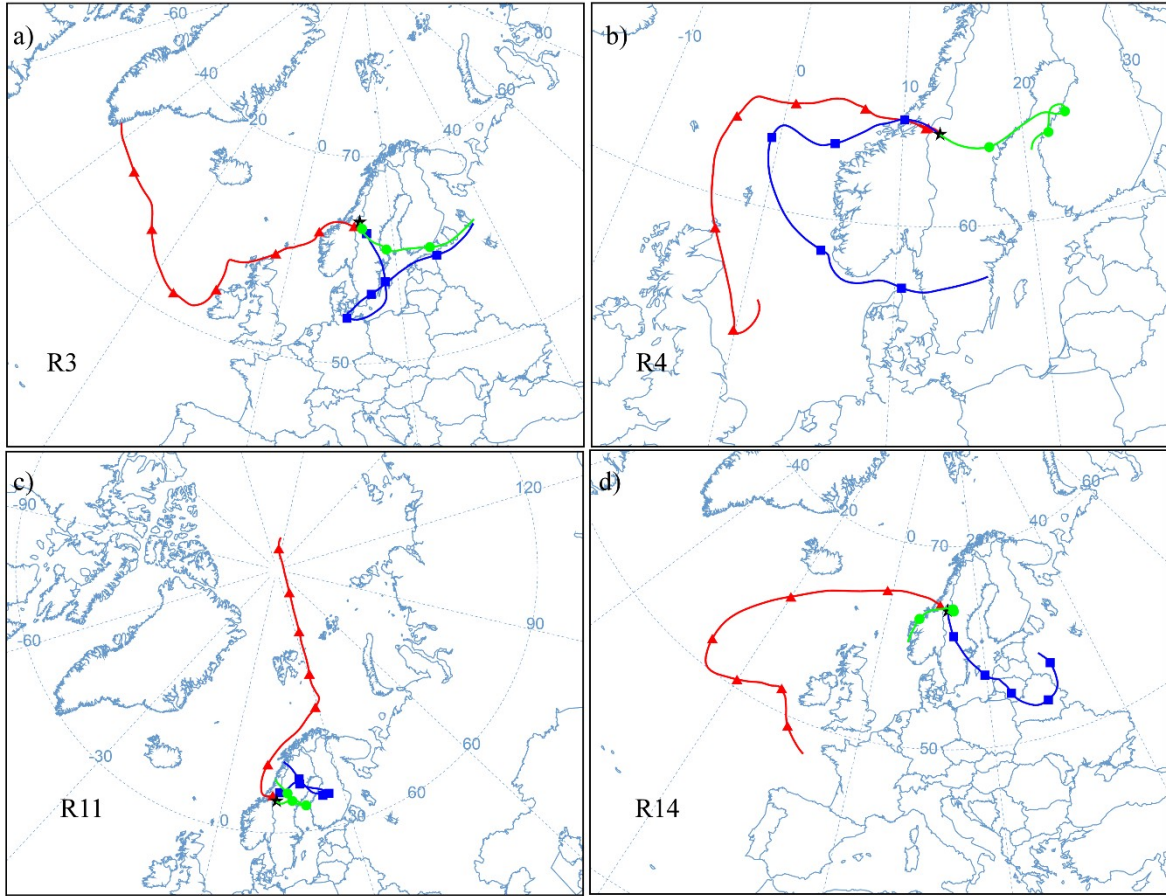


Figure S1. 7-day back-trajectories for samples a) R3, b) R4, c) R11, and d) R14. Start altitude is at an elevation of 500 m above ground level (a. g. l.). Each colour represents a back-trajectory restarted each 48 h: initial back-trajectory (red line and triangles), restarted after 48 h (blue line and squares), and restarted after 96 h (green line and circles).

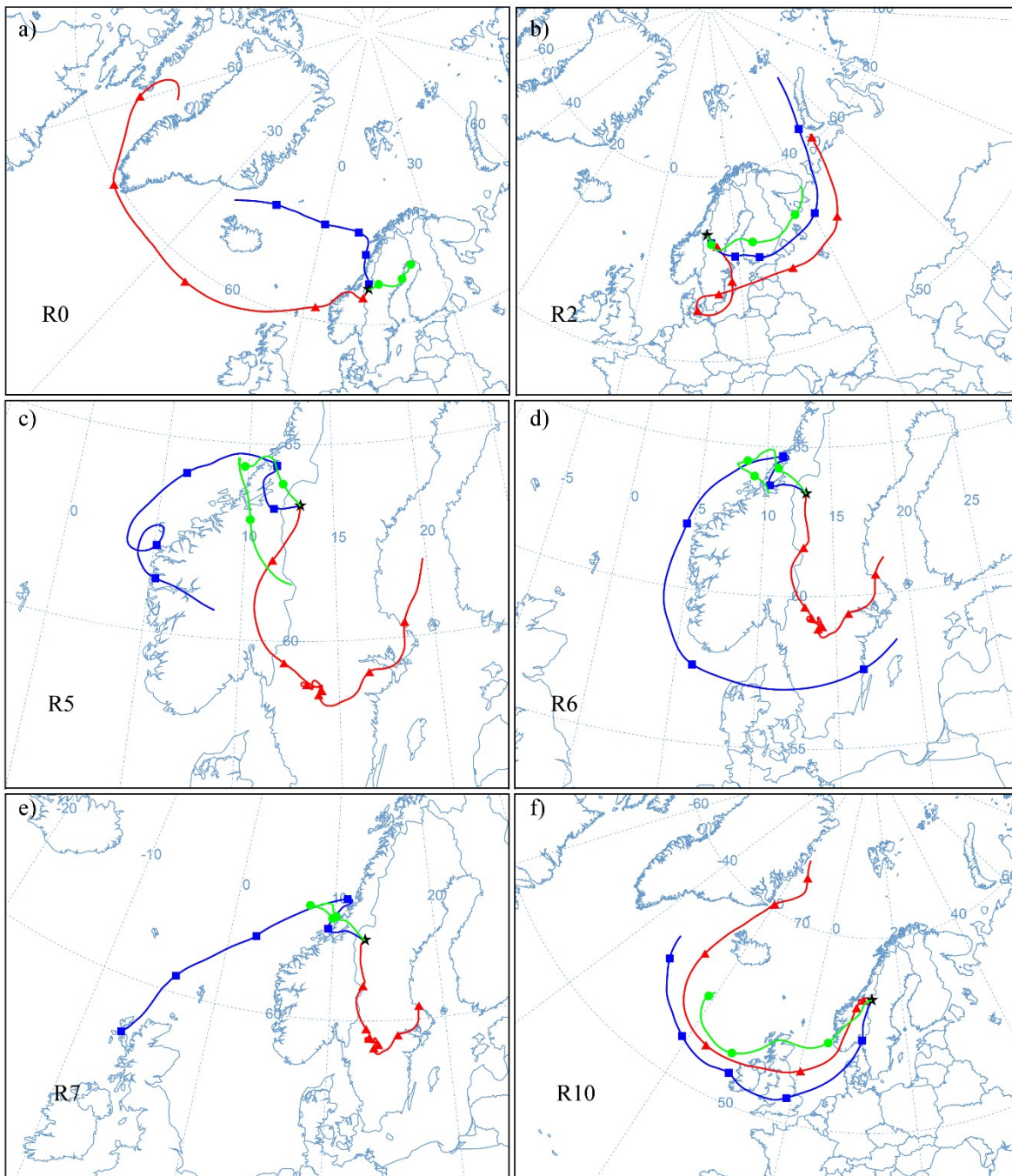


Figure S2. 7-day back-trajectories for samples a) R0, b) R2, c) R5, d) R6, e) R7, and f) R10. Start altitude is at an elevation of 500 m above ground level (a. g. l.). Each colour represents a back-trajectory restarted each 48 h: initial back-trajectory (red line and triangles), restarted after 48 h (blue line and squares), and restarted after 96 h (green line and circles).