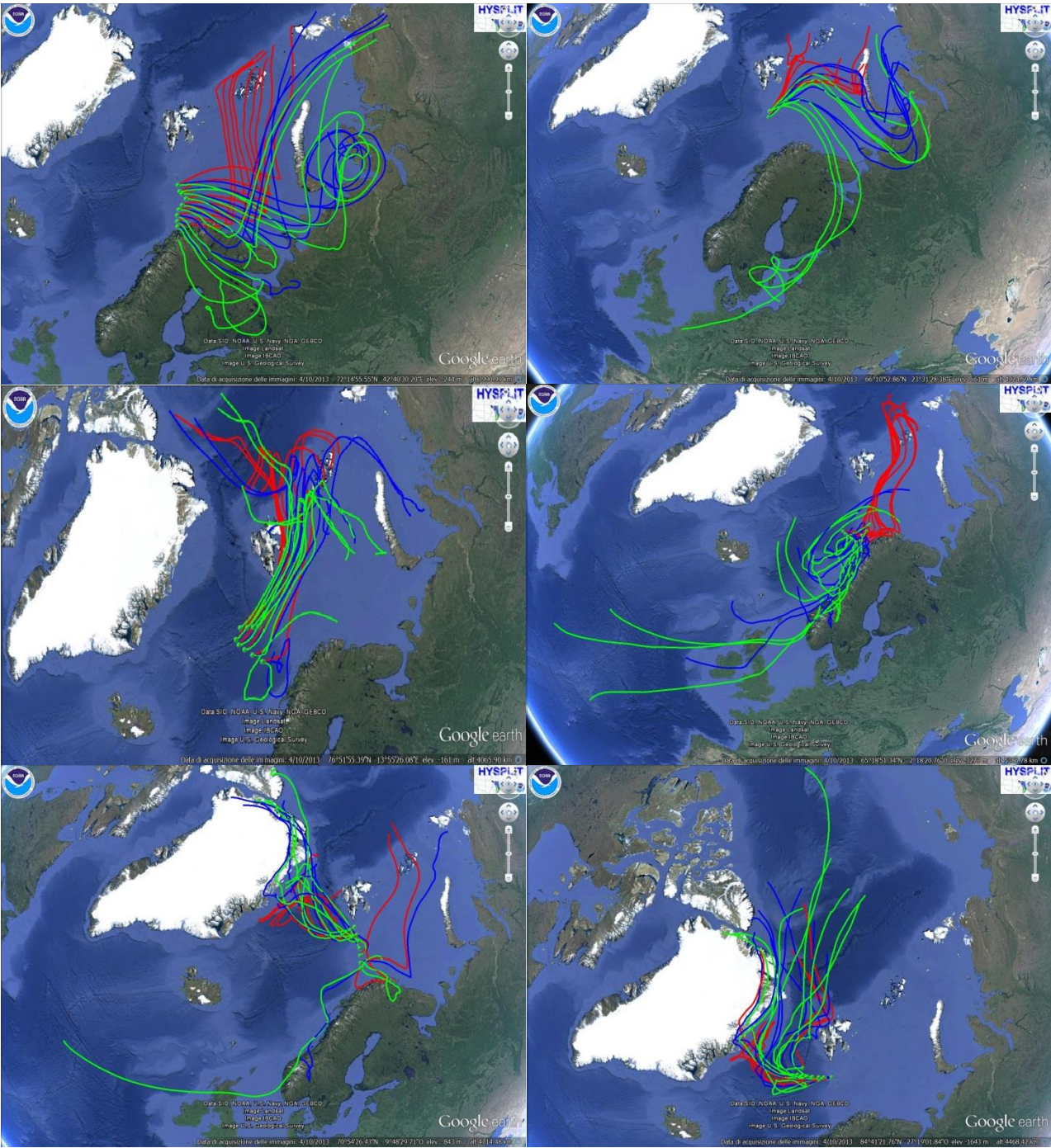
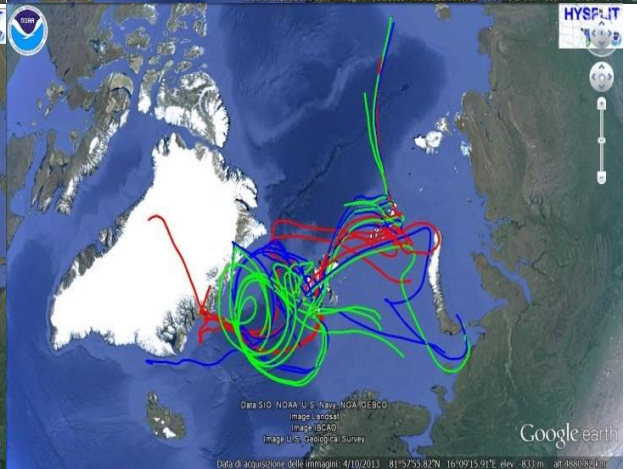
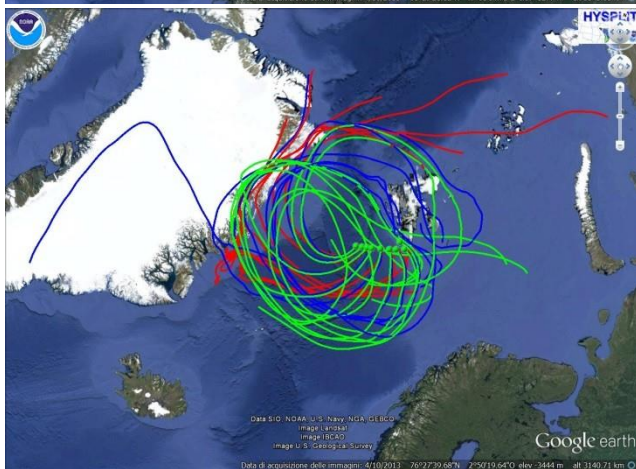
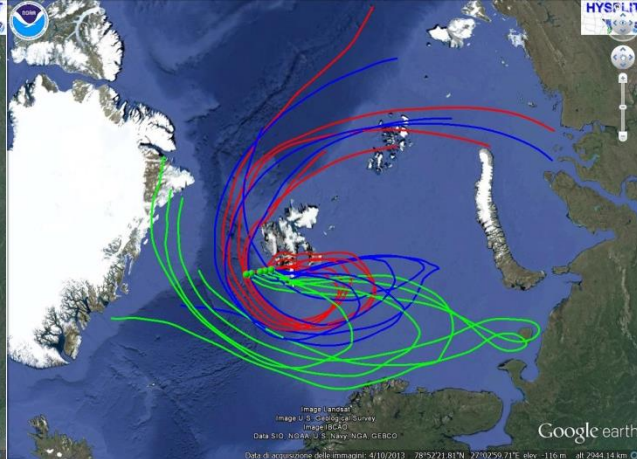
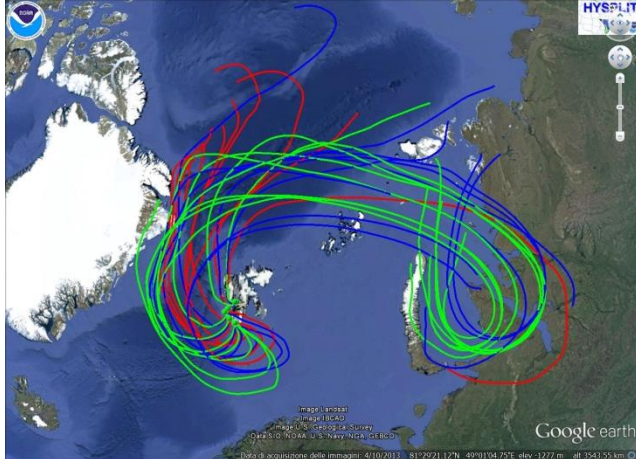
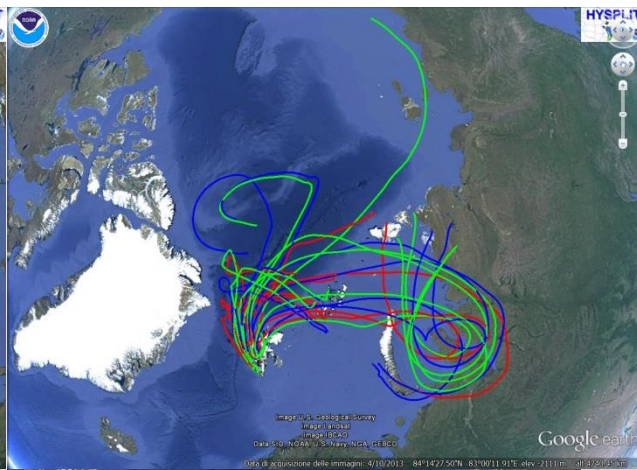
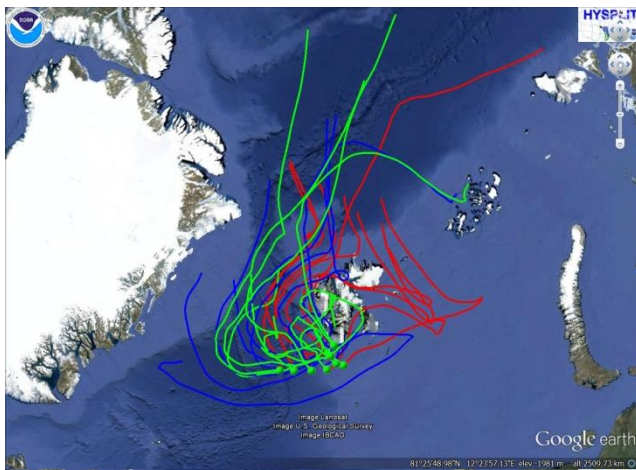


Supplementary Material





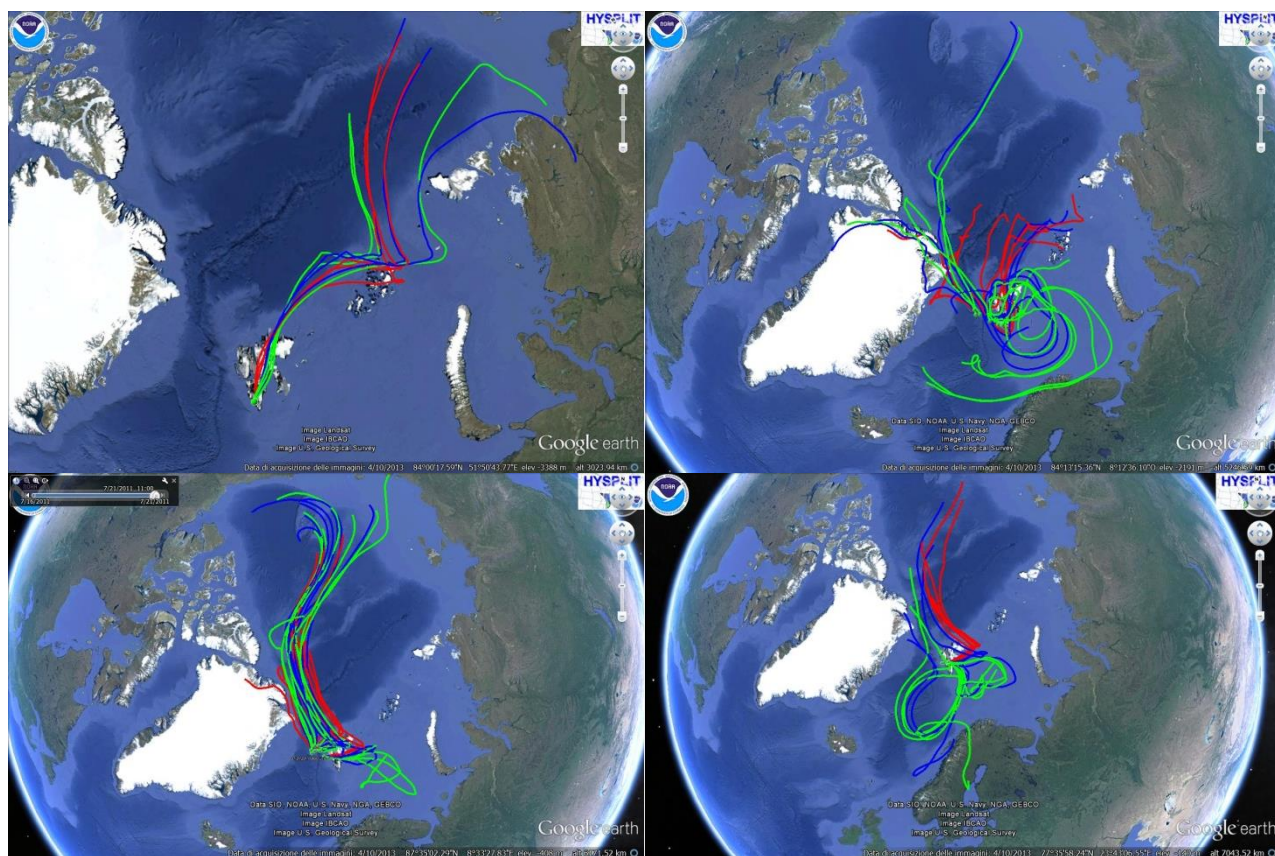
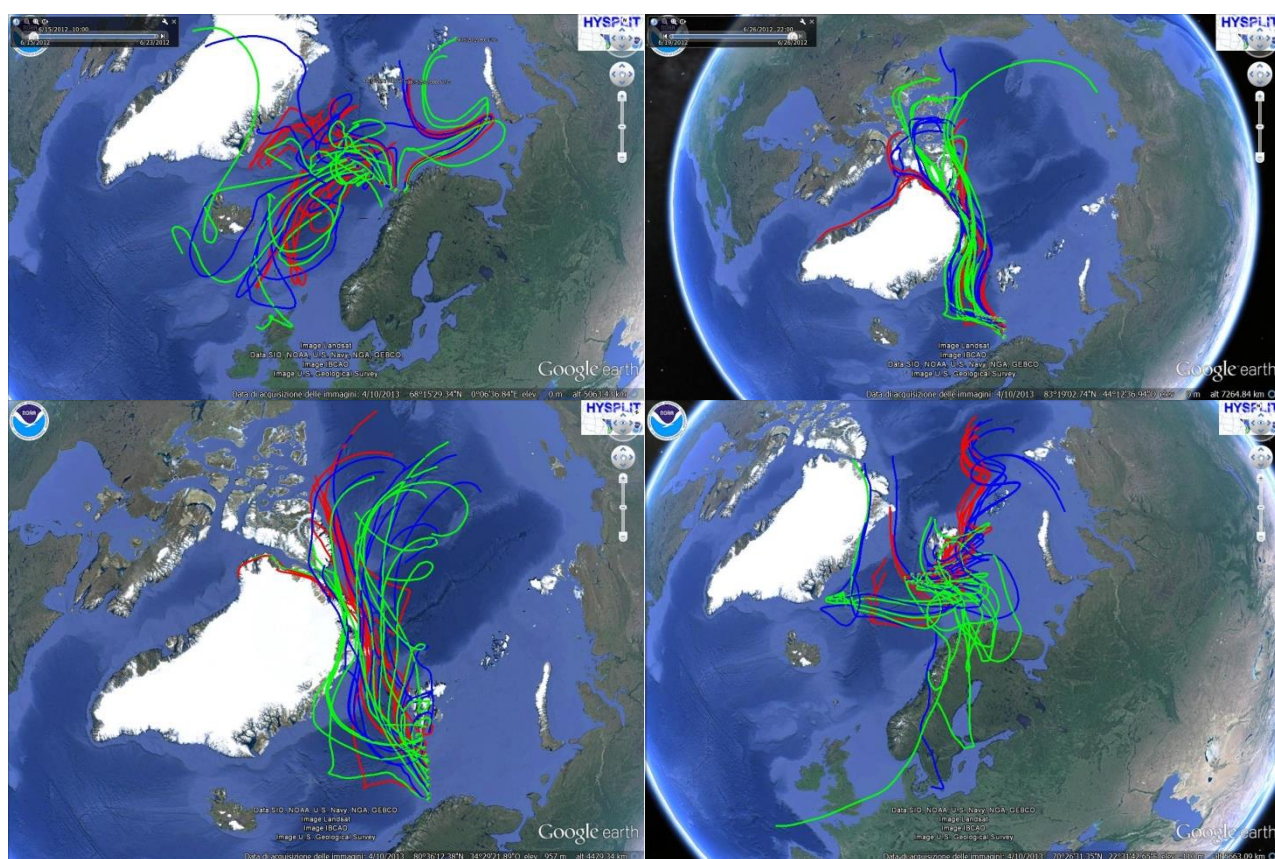
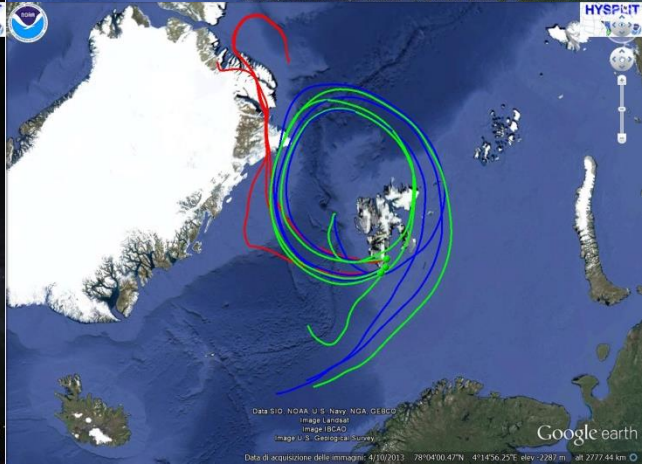
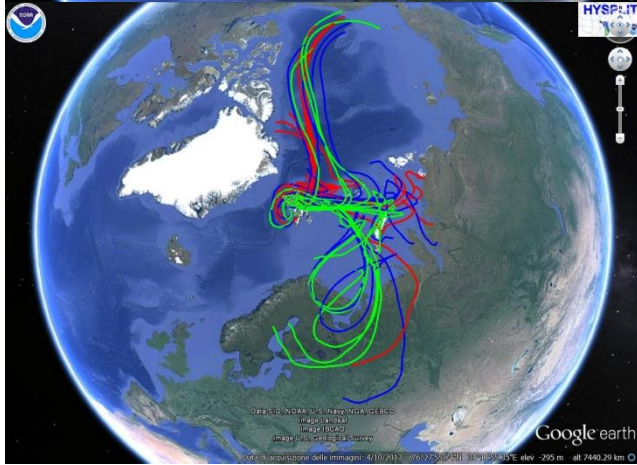
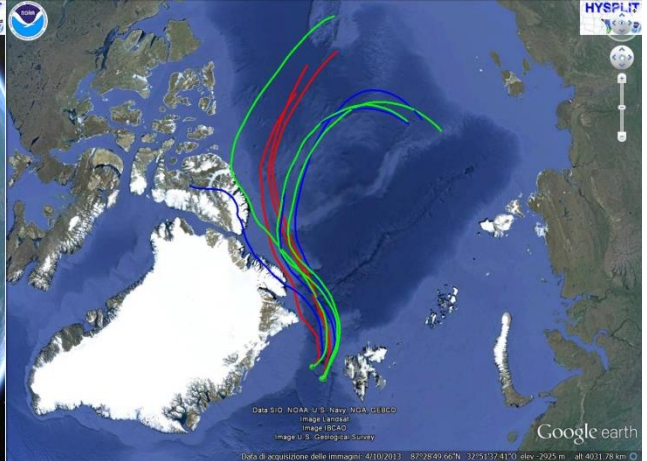
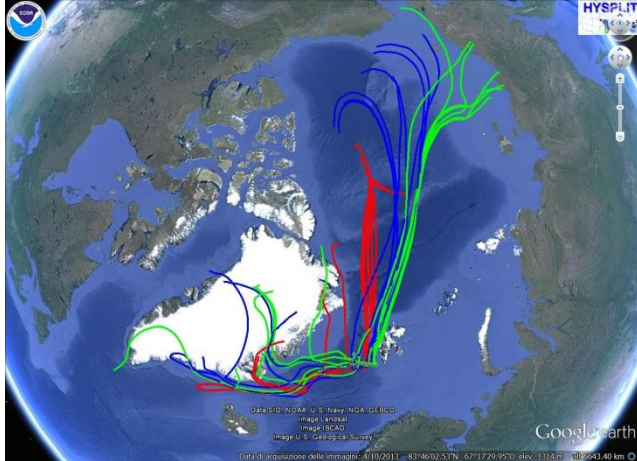
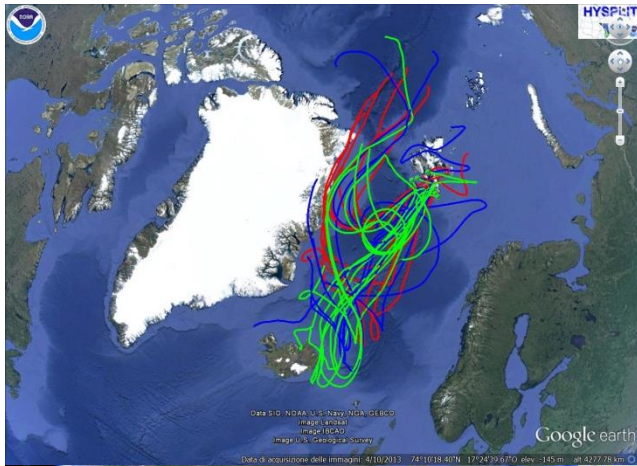


Figure S1. Five-day air mass back trajectories derived using the HYSPPLIT for every AREX2011 TSP sample collected along the cruise.





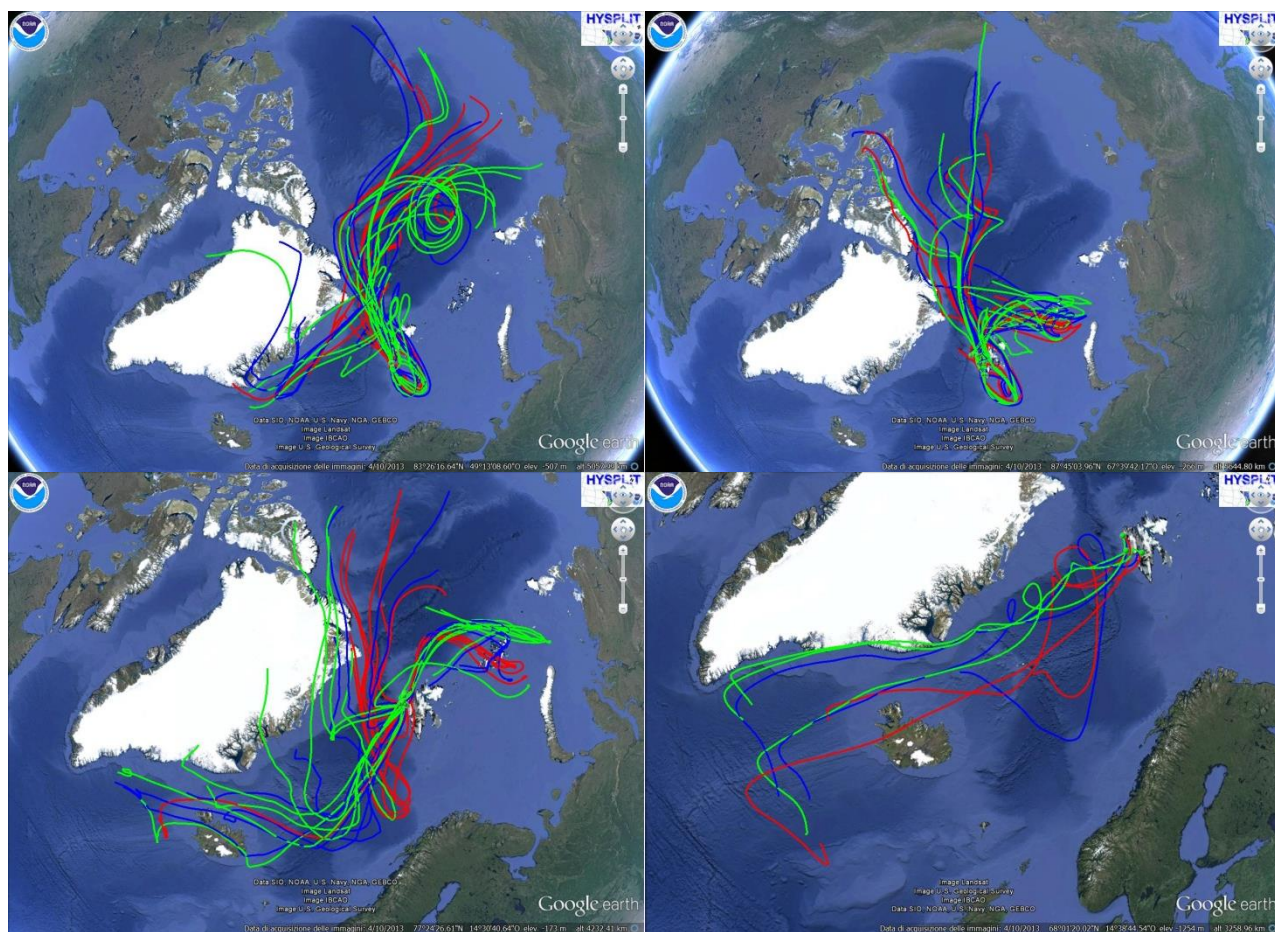


Figure S2. Five-day air mass back trajectories derived using the HYSPLIT for every AREX2012 TSP sample collected along the cruise.

Table S1. CAMS output obtained with a 0.125° cell resolution every 3h following the vessel position (latitude, longitude) and averaging the data accordingly to sampling time and location of each TSP aerosol samples collected along the cruise.

2011	Sample	Start position		End position		CAMS AOD			
	Sampling Dates	Lat	Long	Lat	Long	Sea Salt	OM	BC	Sulphate
S1	Jun 20–22	70.573	19.980	73.891	19.628	0.0676	0.0204	0.0025	0.0910
S2	Jun 23–24	74.384	18.886	73.784	18.478	0.0467	0.0177	0.0027	0.0966
S3	Jun 25–27	73.499	10.287	71.071	10.298	0.0386	0.0108	0.0015	0.0787
S4	Jun 27–29	71.071	10.298	71.999	19.681	0.0254	0.0115	0.0026	0.0745
S5	Jun 29–Jul 01	71.999	19.681	74.999	17.002	0.0004	0.0002	0.0000	0.0059
S6	Jul 01–03	74.999	17.002	75.738	6.370	0.0320	0.0515	0.0028	0.1531
S7	Jul 03–05	75.738	6.370	76.998	15.580	0.0180	0.0306	0.0017	0.0808
S8	Jul 05–07	76.998	15.580	78.235	15.649	0.0145	0.0140	0.0010	0.0561
S9	Jul 07–09	78.235	15.649	77.550	12.492	0.0147	0.0085	0.0007	0.0370
S10	Jul 09–10	77.550	12.492	77.356	6.886	0.0434	0.0270	0.0027	0.1332
S11	Jul 11–13	76.503	4.563	76.873	14.350	0.0304	0.0060	0.0011	0.0372
S12	Jul 13–15	76.873	14.350	76.996	15.577	0.0135	0.0087	0.0009	0.0400
S13	Jul 15	76.996	15.577	76.997	15.580	0.0130	0.0142	0.0008	0.0406
S14	Jul 17–19	77.009	14.597	78.507	3.405	0.0202	0.0197	0.0018	0.0644
S15	Jul 19–21	78.507	3.405	78.121	11.832	0.0188	0.0223	0.0029	0.0741
S16	Jul 21–23	78.121	11.832	78.132	15.008	0.0226	0.0110	0.0012	0.0535
S17	Jul 23–25	78.132	15.008	78.990	15.893	0.0139	0.0103	0.0014	0.0446
S18	Jul 25–27	78.990	15.893	78.985	15.173	0.0072	0.0079	0.0009	0.0361

S19	Jul 27–29	78.985	15.173	78.320	15.287	0.0117	0.0134	0.0020	0.0515
S20	Jul 29–31	78.320	15.287	78.985	15.782	0.0145	0.0166	0.0024	0.0607
S21	Jul 31–Aug 02	78.985	15.782	78.118	15.352	0.0000	0.0001	0.0000	0.0006
S22	Aug 02–04	78.118	15.352	78.845	15.088	0.0144	0.0167	0.0014	0.0561
S23	Aug 04–06	78.845	15.088	78.113	15.718	0.0172	0.0174	0.0016	0.0688
S24	Aug 06–08	78.113	15.718	78.955	15.118	0.0063	0.0074	0.0006	0.0259
2012									
S38	Jun 20–23	69.665	18.971	72.380	4.300	0.0239	0.0116	0.0034	0.0668
S39	Jun 24–26	73.486	6.510	71.142	19.877	0.0279	0.0079	0.0013	0.0411
S40	Jun 26–29	71.142	19.877	76.327	15.809	0.0143	0.0044	0.0005	0.0247
S41	Jun 30–Jul 03	75.009	13.722	76.327	15.812	0.0004	0.0001	0.0000	0.0015
S42	Jul 03–06	76.328	15.819	78.233	15.613	0.0205	0.0064	0.0009	0.0345
S43	Jul 06–09	78.233	15.613	76.988	16.142	0.0299	0.0104	0.0007	0.0249
S44	Jul 11–14	76.499	13.338	77.307	4.976	0.0122	0.0154	0.0018	0.0272
S45	Jul 18–19	78.081	4.413	78.747	0.318	0.0211	0.0480	0.0025	0.0898
S46	Jul 21–24	78.841	8.402	78.211	14.407	0.0129	0.0136	0.0017	0.0686
S47	Jul 27	77.049	17.817	76.414	16.592	0.0127	0.0034	0.0004	0.0157
S48	Jul 30–Aug 02	77.008	16.491	76.949	15.450	0.0002	0.0001	0.0000	0.0005
S49	Aug 03–06	76.991	16.346	78.988	9.686	0.0117	0.0100	0.0007	0.0312
S50	Aug 06–09	78.973	9.503	79.568	10.977	0.0119	0.0086	0.0013	0.0316
S51	Aug 10–11	79.240	10.377	78.361	11.064	0.0316	0.0183	0.0017	0.0488