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Supplement of

The importance of blowing snow to halogen-containing aerosol in coastal Antarctica: influence of source region versus wind speed

Michael R. Giordano et al.

Correspondence to: Peter F. DeCarlo (pfd33@drexel.edu)

SI Figures:

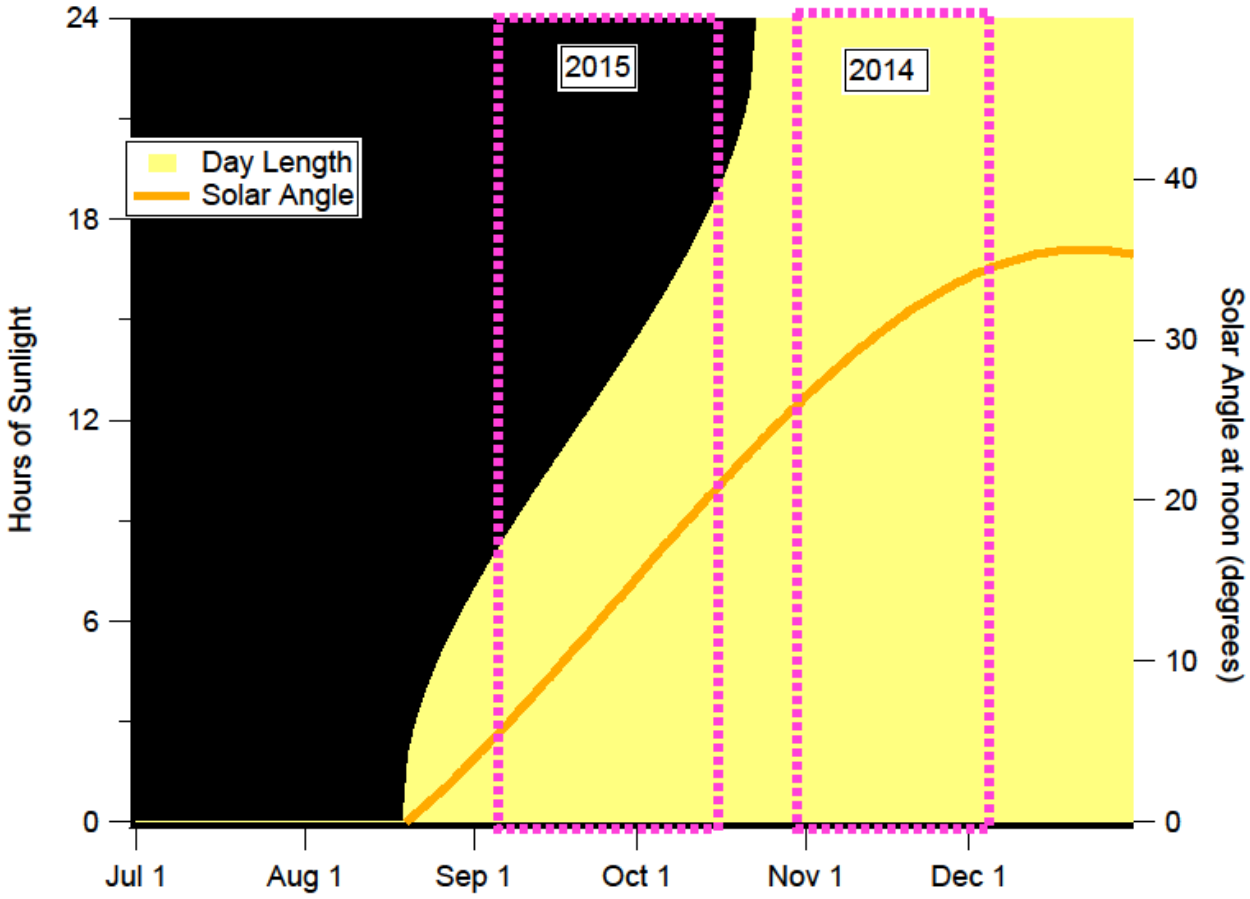

Fig. S1 – Hours of sunlight per day and solar angle at noon for the field site near McMurdo Station, shown for the entire year. The durations of the two field campaigns are highlighted.

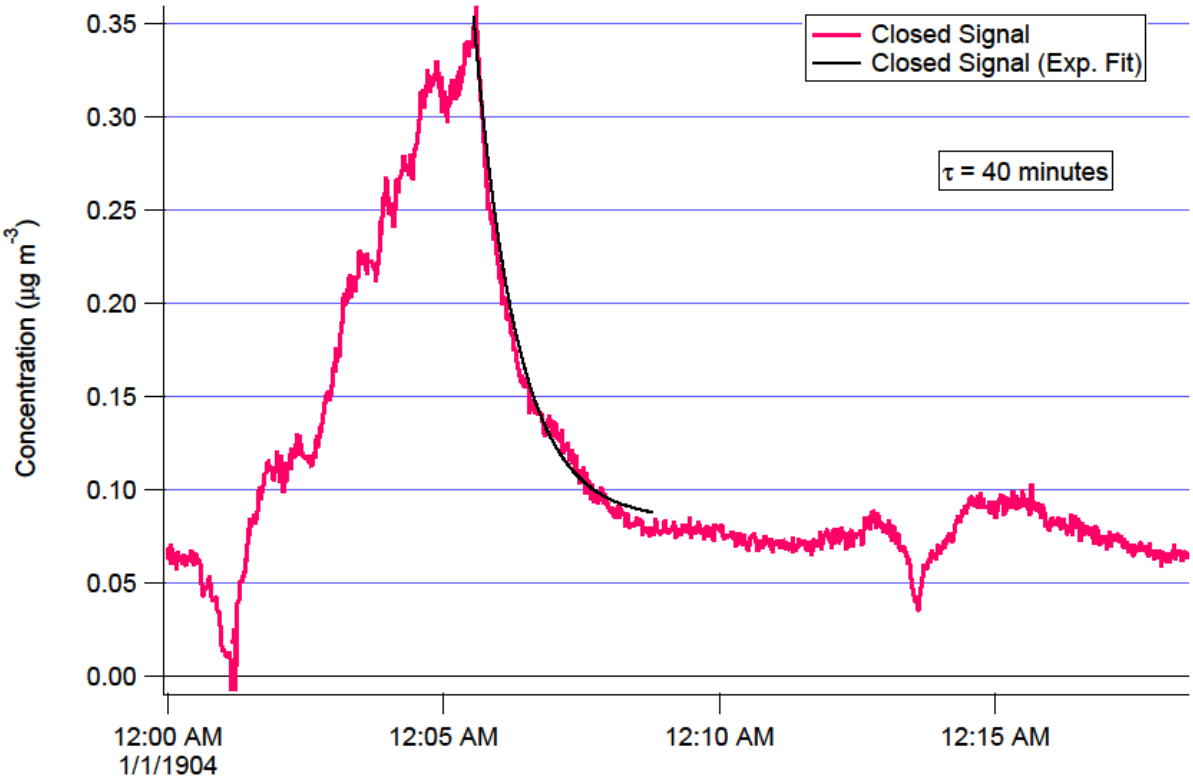

Fig. S2 – Ambient data used in the vaporization model to calculate real ambient concentration from closed signal (pink) and exponential decay fit (black).

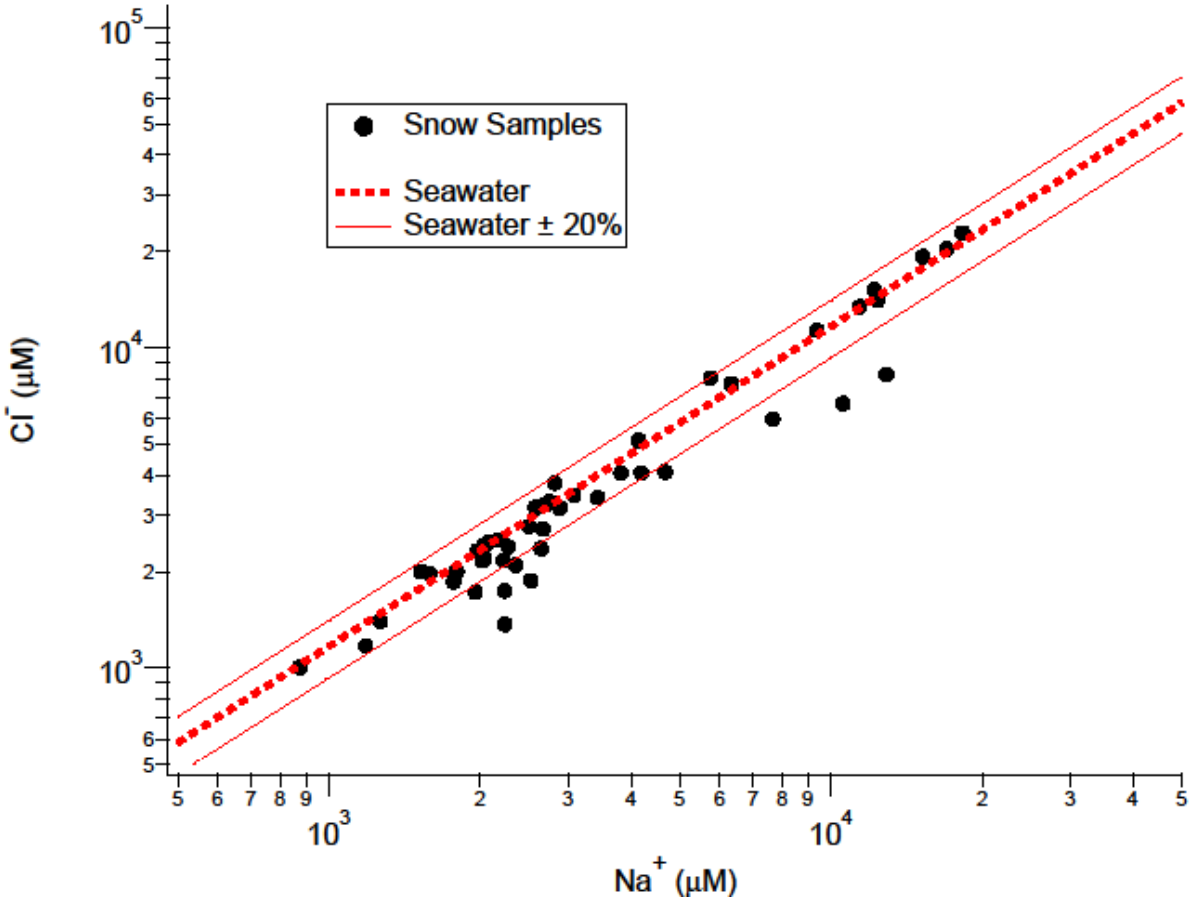

Fig. S3 – Cl^- to Na^+ ratio of snow samples from 2015 as well as the nominal seawater Cl^-:Na^+ ratio (red dotted lines).

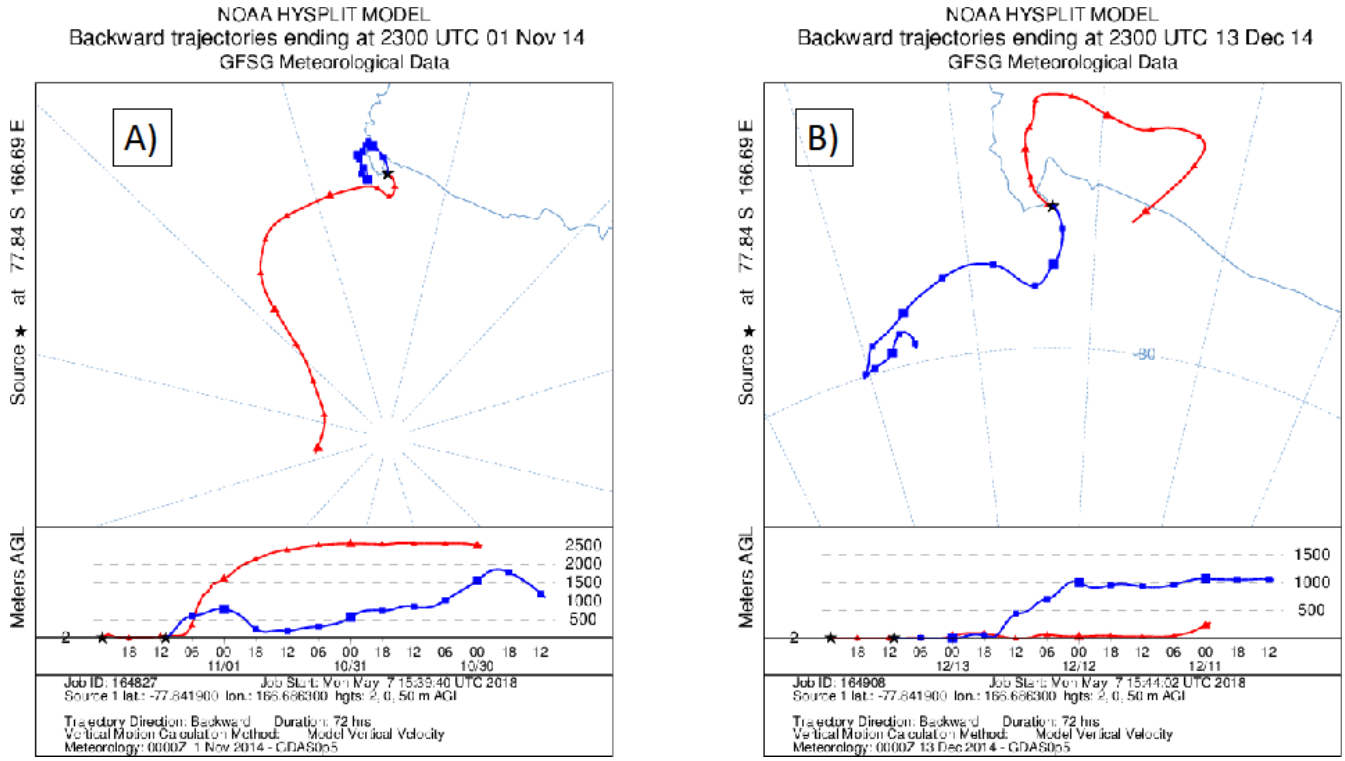

Fig S4 – Examples of HYSPLIT back trajectories classified as Primarily Continental (red in A and blue in B), Primarily Marine (red in B) and Mixed (blue in A).

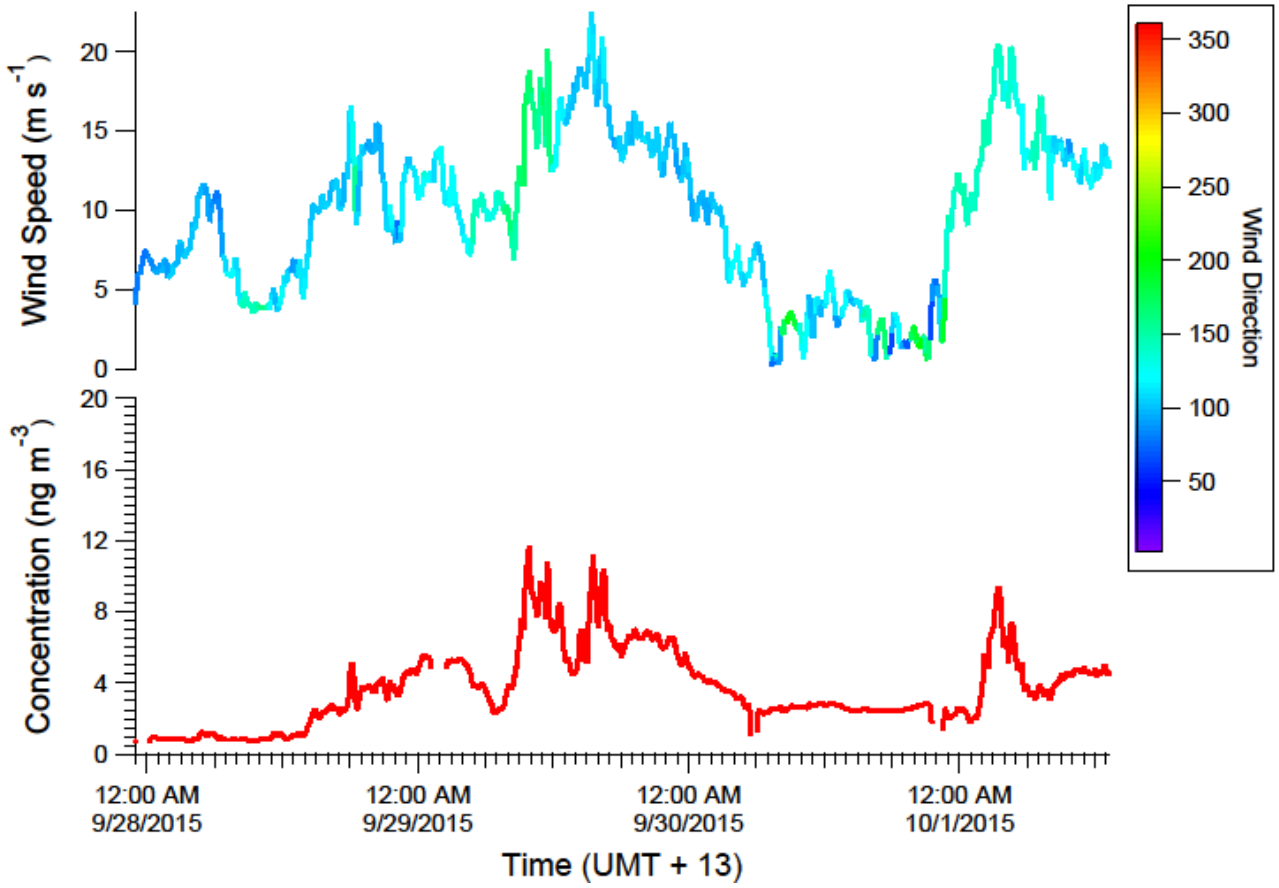

Fig. S5 – Aerosol number (bottom) and wind speed (top) records as a function of time during a typical wind speed change.

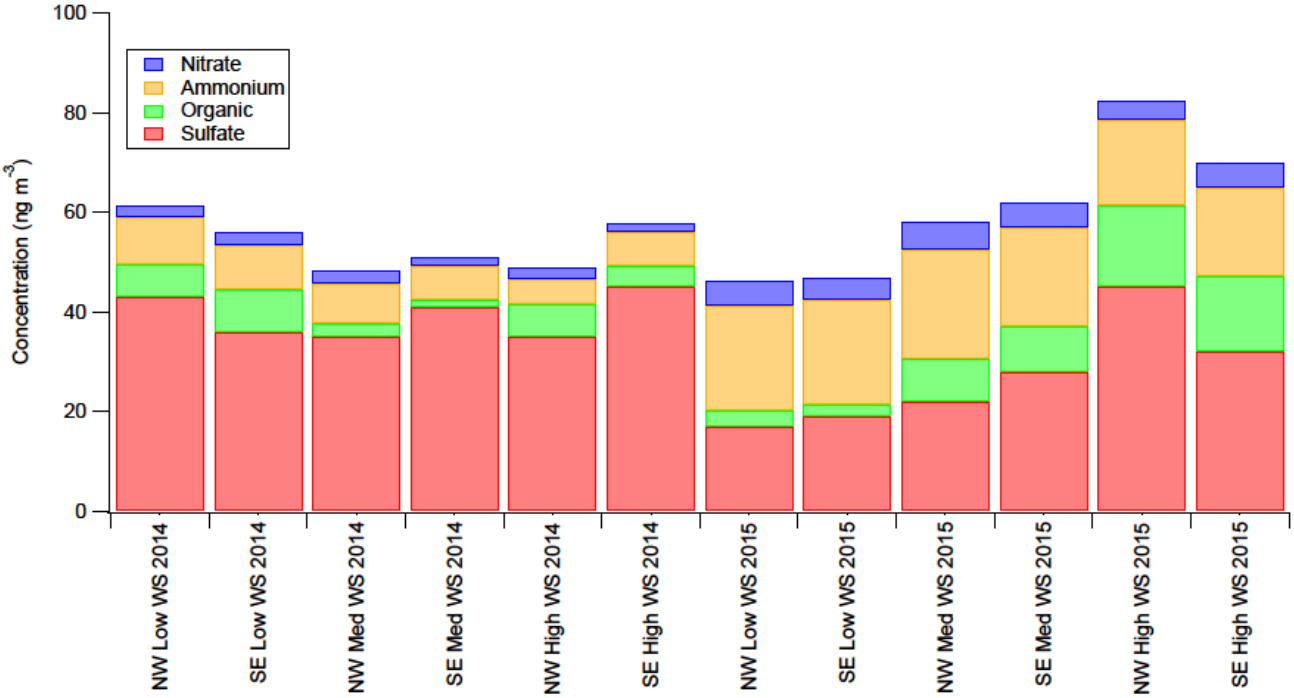

Fig. S6 – As Figure 7 (including error bars), average AMS concentrations by wind regime without Na or Cl.

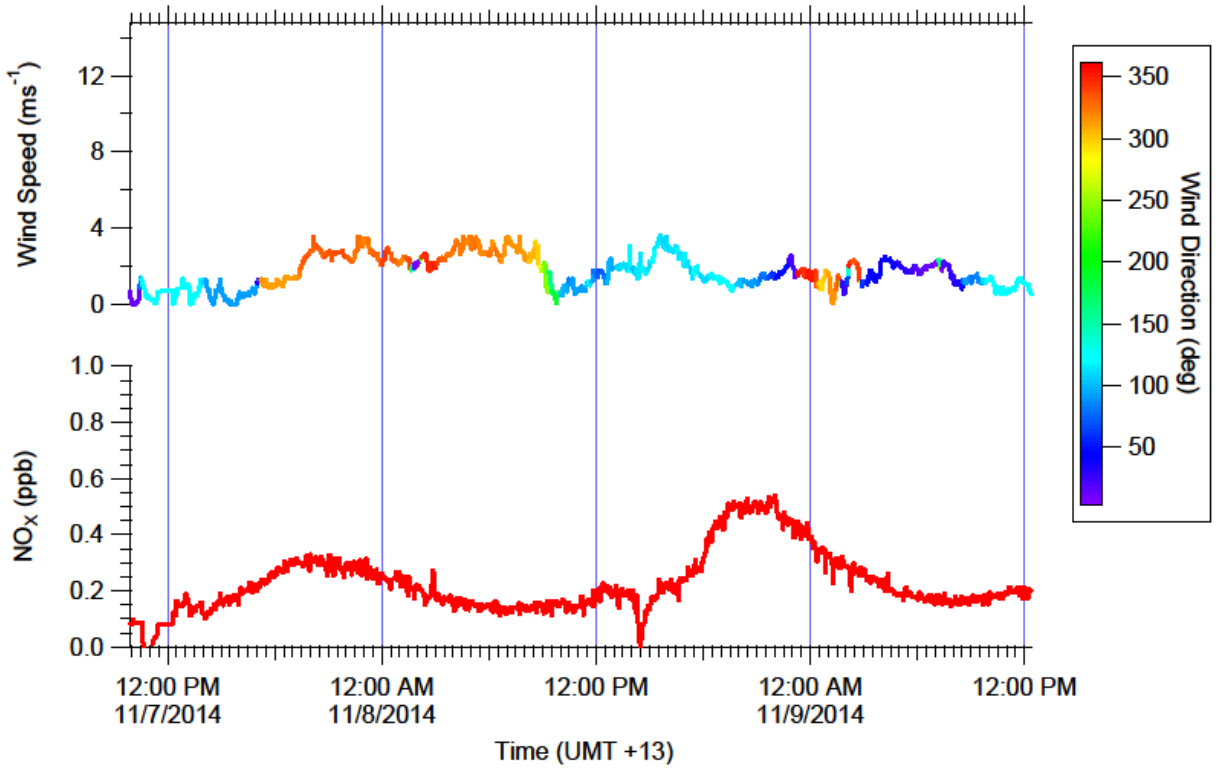

Fig. S7 – NO_x concentrations (bottom) and wind speed colored as a function of wind direction (top) measured during low wind conditions during the 2014 Spring/Summer campaign.

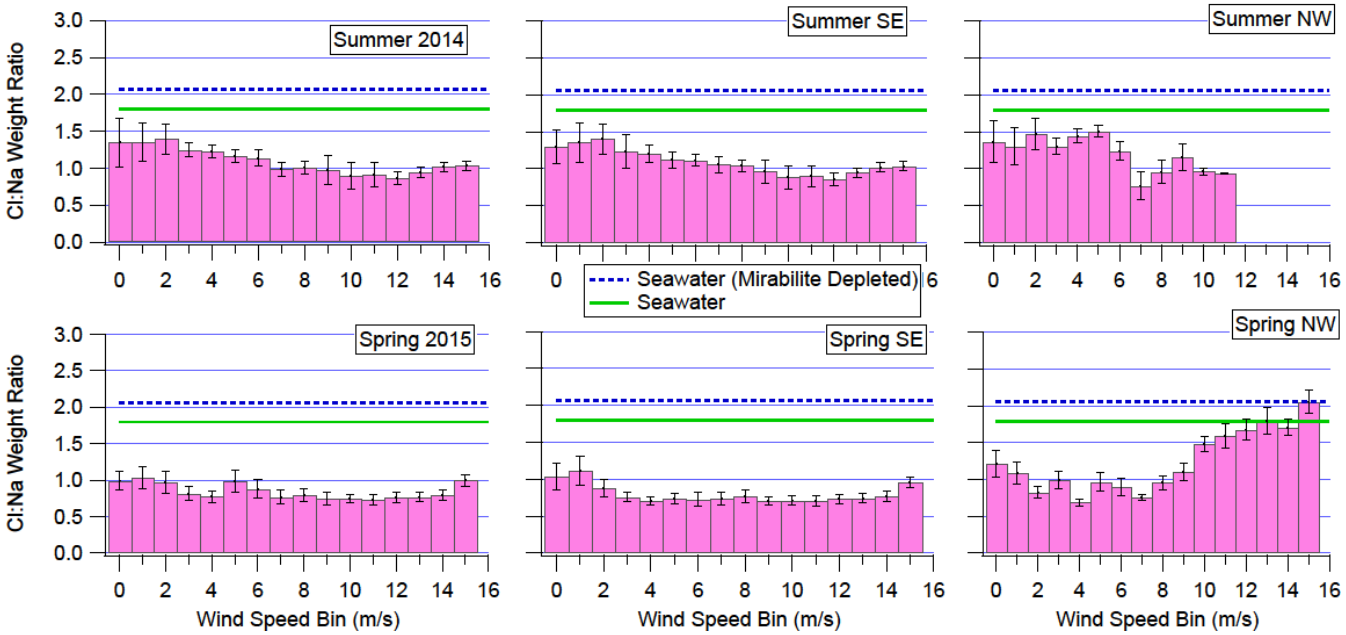

Fig. S8 – As Figure 9, Cl:Na weight ratio as measured/modelled in the AMS as a function of wind speed for both field seasons and parsed by wind direction: SE Wind (continental) in Summer (Middle Top), SE wind in spring (Middle Bottom), NW wind (marine) in summer (Right Top), and NW wind in spring (Right Bottom). Also shown are the seawater (green line) and seawater mirabilite-depleted (blue dashed line) Cl:Na weight ratios.

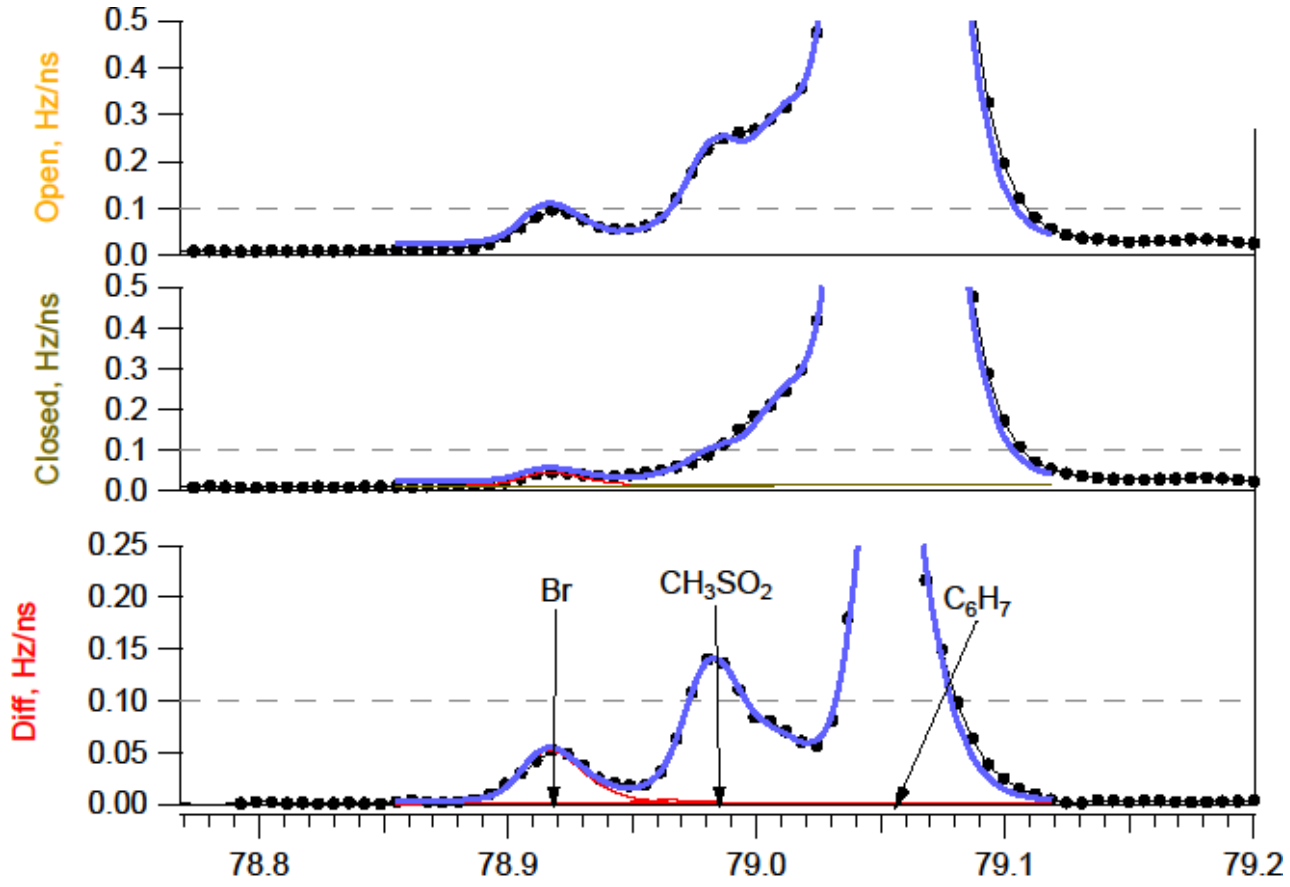

Fig. S9 – Open, Closed, and Difference Spectra from High-Resolution fitting of AMS data at *m/z* 79. Data shown is averaged over the high Br event shown in Figure 10.

	Chl		Chl St. Dev.		Na_{AMS}		Na_{AMS} St. Dev.		Chl:Na_{AMS}		Chl:Na_{AMS} Error	
	2014	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**	**2014**	**2015**
Primarily Continental	**125.12**	**293.37**	**10.94**	**28.86**	**66.99**	**321.28**	**5.99**	**15.01**	**1.87**	**0.91**	**0.23**	**0.09**
Primarily Marine	**126.81**	**199.13**	**21.30**	**13.21**	**64.78**	**192.26**	**14.00**	**4.04**	**1.96**	**1.04**	**0.54**	**0.07**
Mixed	**130.32**	**232.68**	**8.79**	**21.22**	**65.01**	**201.15**	**5.96**	**23.46**	**2.00**	**1.16**	**0.23**	**0.17**

Table S1 – Values for Chl and Na_{AMS} and their standard deviations shown in Fig. 6 as well as the Chl:Na_{AMS} ratio and its associated propagated error.