

Interactive comment on “Insights into dissolved organic matter complexity in rainwater from continental and coastal storms by ultrahigh resolution Fourier transform ion cyclotron resonance mass spectrometry” by R. N. Mead et al.

Anonymous Referee #2

Received and published: 3 January 2013

This paper provides important new insights to the composition of dissolved organic matter in marine and near-coastal rainwater, using high-resolution mass spectrometry and van Krevelen / Kendrick analysis, providing interesting basis for comparison with other field studies. Evidence for oligomeric fatty acids, and moderately oxidized aromatics is found. This will be an interesting contribution to the literature, but I suggest the authors address a few comments about the manuscript:

C11215

Comments:

p. 31416 line 18: Last sentence of section 2.1, the sampling timing / strategy is unclear – the END of rain events initiated the sampling process? Does this mean the samples are not during rain events, but after?

p. 31420 lines 15-17: “Diagenetic processes . . . reactions.” Suggest either omitting this sentence, which alone doesn’t explain much if the reader doesn’t already know vK plots, or, explain more fully how these different processes are identified on the plot.

In Implications section, you list classification of e.g. “lipids, amino sugars, proteins and cellulose.” – but nowhere else discuss amino sugars or proteins. And your analysis does include BC/aromatics, so shouldn’t that be included here?

Fig. 1: remove last sentence of caption – amino sugars not discussed

In caption to Fig. 2, make clear that this shows data pre-sorted to be $z^*=-10$

technical suggestions:

p. 31414, line 8: suggest “formulas are unique to a single storm classification” to clarify

p. 31419, line 8: suggest “and coastal storms where the air mass had a mixture of . . .”

p. 31419, line 17: 1.52-18.8 mm: not a volume unit?

p. 31419, line 26: add molecular weight units

p. 31421&2: Equations 1-3: why square brackets? Confusing.

p. 31423, line 27: suggest spelling out yr bp

p. 31426, line 14: suggest “models, especially”

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 31413, 2012.

C11216