Earth Syst. Sci. Data Discuss., 6, C209–C212, 2013
www.earth-syst-sci-data-discuss.net/6/C209/2013/

Open Access Earth System Science Data Discussions

Interactive comment on "Gas phase acid, ammonia and aerosol ionic and trace element concentrations at Cape Verde during the Reactive Halogens in the Marine Boundary Layer (RHaMBLe) 2007 intensive sampling period" *by* R. Sander et al.

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Received and published: 27 November 2013

We thank David Carlson for his comments (shown below in italics). Our replies are embedded:

> *For the reviewers, and even for me as a well-worn editor and reviewer, the data set needs a bit more context. These authors cite Lee et al. 2010 as the definitive overview of chemical and meteorological measurements and context of RHaMBLe (open access at doi:10.5194/acp-10-1031-2010), and, in fact use short phrases verbatim from that overview paper, but I had to read that paper carefully before I could assess this paper. Because I do not feel that we can expect all other reviewers and subsequent users to likewise read Lee et al. in depth, some broader introduction here would help?*

We agree that we have relied too much on Lee et al. (2010) for an introduction to the RHaMBLe campaign. In the revised manuscript, we have extended the dataset description section as follows:

> RHaMBLe was a large-scale investigation of reactive halogen cycling and associated impacts on oxidation processes in the marine boundary layer over the eastern North Atlantic Ocean (Lee et al., 2010). As part of RHaMBLe, an intensive 25-day process study was conducted during spring 2007 at the Cape Verde Atmospheric Observatory (Fig. 1) on the windward shore of São Vicente Island (16.8° N, 24.9° W) in the tropical eastern North Atlantic (Fig. 2). Data from this field intensive coupled with measurements within the surrounding region and at the observatory during other periods have been used to address a range of topics including halogen-mediated destruction of ozone (Read et al., 2008), pollution-enhanced production of Cl radicals and associated influences on oxidation processes (Lawler et al., 2009), the cycling of reactive nitrogen oxides (Lee et al., 2009), and the composition and processing of aerosols (Allan et al., 2009), among others. Herein, we report a suite of soluble reactive trace gases, volatile inorganic bromine, and ionic and elemental aerosol constituents measured from the top of the observatory's 30-m tower during the RHaMBLe campaign.

These authors have used an unfortunate format for the data, something called NASA Ames (.na) format. I know this format from many years of exposure to aircraft chemistry data, but I suspect - and one of the reviewers confirms - that many users will find it unfamiliar, at best, or, in worst case, inaccessible. I know to re-label the files as .txt and then to import them into a spreadsheet (e.g. Excel, although my first effort at import did not succeed - I failed to get the data section parsed into clean columns), but again I do not think we can or should expect most users to follow this somewhat circuitous route to small (and well described!) ASCII data sets. Some minor steps and simple conversions by the authors would make a substantial improvement from the point of view of most potential users.*

For the benefit of users, who prefer not to use the NASA Ames format, we have now also created comma-separated-values (csv) files of the full data set. A test confirmed that they can be directly imported into LibreOffice spreadsheets.

I also wonder if some re-arrangement and re-ordering of the two data 'example' sections - one of bulleted 'conclusions', in the section now called 'Data Summary' and the second consisting of all the multi-panel data figures - might provide clarity and stronger impact for many readers? The 'conclusions' actually contain a mixture of analytical (e.g. NAA results correlate well with IC results), chemical (Al correlates with Mn) and contextual (presence or absence of enrichment factors or diel concentration patterns) information. Likewise for the figures - a mixture of concentrations, time series, enrichments or deficits, and instrument correlations (often, as for Figure 9, lacking sufficient explanation of the data as displayed). As it stands, we seem to get a series of almost random phrases and thumbnail images, only weakly connected each to the other. Pulling the conclusions and the relevant figures together into some systematic organisation - those that prove instrument performance, those that show interesting temporal patterns, those that suggest dominant chemical conditions or pathways, even, if necessary, with many fewer images, could give the present reader and future user better hints and enticements to the data?

The data summary section and Fig. 10 have been restructured following the suggestions of the referee. The caption of Fig. 9 has been extended.

Interactive comment on Earth Syst. Sci. Data Discuss., 6, 367, 2013.