We would like to comment on the manuscript published in ACPD by Dominik van Pinxteren et al. (2015) as follows.

1) Concerning page 24315, lines 5-27:

a) Möller et al. (1996) had indeed described the relationship of cloud water total ionic content (TIC) and liquid water content (LWC) by a power law function. In contrast, Elbert et al. (2000) (abbreviated E2000 in the following) confirmed the concept of an inverse relationship, as proposed by Junge (1963), and did not use a power function. To show the inverse relationship between LWC and individual compounds in fog and cloud water (and sometimes the sum of chloride, nitrate, and sulfate) these authors used their own data as well as those published by others. The detailed description of the argumentation and of the computation of the plotted solid curves in their figures (for visualization of the inverse relationship) was presented in section 3.3 of E2000.

b) Not only did Möller et al. acknowledge deviations from their power function, but E2000 also stated that "*Since the observed data scatter around an average value, this scattering must be attributed to the various influences which a cloud droplet is subject to, e.g., meteorology, microphysics, gas phase reactions, chemical reactions in the liquid phase and sedimentation (and to some extent to inaccuracies in sample collection, storage and analysis)*".

c) While van Pinxteren et al. (2015; abbreviated P2015) cite the discussion paper critiquing E2000 by Kasper-Giebl (2002), they unfortunately do not reference the reply to this article by Elbert et al. (2002), which was printed on the pages following Kasper-Giebl's article. As a central point of criticism, Kasper-Giebl (2002) expressed the opinion that E2000 had generalized the findings based on the results from their sites to other locations worldwide. To show the limits of this generalization, Kasper-Giebl presented data from the site "Sonnblick Observatory", and stated that (1) a "linear regression between solute concentration and LWC could not be found at that site, and (2) an "average CWL, being relatively constant and characteristic for the site" did not exist. In their reply, however, Elbert et al. (2002) did not only propose explanations as to why Kasper-Giebl (2002) could not confirm the conclusions reported by E2000, but could also show, using the Mt. Sonnblick data reported by Kasper et al. (1998) and Kasper-Giebl et al. (2000), that

the relationship of cloud water concentrations of, e.g., sulfate and LWC could be described simply by an inverse function. Furthermore, calculation of an average CWL for the sum of the anions chloride, nitrate and sulfate led to a placement of the Mt. Sonnblick site at position #42 (moderately clean environment) in Table 1 in E2000. Finally, Elbert et al. (2002) stated that Kasper-Giebl's discussion concerning the relationship between scavenging efficiency and aerosol loading was an interesting contribution, but had not been the subject of E2000.

2) General remarks:

Elbert et al. (2002) included data for very small (as low as 0.01 g m^{-3}) and very large (up to 3.0 g m^{-3}) LWCs (see Figs. 1-5 in Elbert et al. (2002)). The inclusion of such wide LWC ranges allowed the visualization and computation of the inverse relationship. In contrast, P2015 excluded data sets with LWC below 0.15 g m^{-3} as well as those with more than 0.37 g m^{-3} (see page 24324, line 5), and Aleksic and Dukett (2010) (cited by P2015) considered only the sample subset with $0.1 \leq LWC \leq 1.0$ g m^{-3}. Giulianelli et al. (2014) (also cited by P2015) also excluded data sets with LWC below ~0.1 g m^{-3} (see their Fig. 7). Because of the omission of the data sets with low and high LWCs it is doubtful that the data of P2015, Giulianelli et al. (2014), and Aleksic and Dukett (2010) can be used to challenge the findings reported by E2000.

In view of the methodological differences between E2000 and P2015, particularly the data selection by the latter authors, we feel that there is not sufficient basis for the strong statements in P2015, such as *"Contrary to some earlier suggestions ..."*, *"...contradicting the earlier conclusions of … Elbert et al. (2000)…"*, or "*...in contrast to earlier suggestions…*". It would be interesting to see what conclusions P2015 and the authors they cite would have reached, had they included data from the full range of LWC.

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