

Interactive comment on “Nutrients Dissolution Kinetics of Aerosols at Qianliyan Island, the Yellow Sea by a High Time-resolution Nutrient Dissolution Experiment, Potential Linkages with Inorganic Compositions and P solubility controlled factors” by Ke Zhang et al.

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In this study, a series of nutrient dissolution experiments were conducted to determine the soluble fraction of atmospheric nutrients and revealed the short-time dissolution processes, patterns and kinetics of nutrient elements in aerosols. However, I found that the method used to collect aerosol samples had a significant drawback. Total suspended particulate (TSP) samples were collected using poly-carbonate filters in 2011

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and Whatman cellulose fiber filters in 2012. Why were different filters used in collecting TSP samples in 2011 and 2012? Was the influence of different filters assessed before the use? This is an important issue because it will largely impact nutrients dissolution kinetics of aerosols and their controlling factors. Supposing both filters are suitable for TSP collection and chemical analysis, but the authors should have used the same kind of filter in the same sampling site for the collection of different season samples. This is essential to maintain the reliability and comparability of the data. Moreover, the sample number (6) in this study is too small to interpret temporal change of aerosol dissolution processes. More than that, I did not find the detailed processes and mechanism on nutrients elements dissolution in aerosols in the present study. The authors should carefully address this issue in more details. Overall, this study is a local investigation in a small island but not focused on studies with general implications for atmospheric science. I do not feel that this manuscript fits the scope of Atmospheric Chemistry and Physics due to its too local interest and its defect in sample collection methods.

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