

## ***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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Thank you very much for your comment. First, this island site can ensure the continuity of the sampling in time scale as much as possible, which the cruises over the Yellow sea cannot. Second, the reason for the chosen six aerosols was that they captured seasonal dominant aerosol source direction and had more centralized back-trajectories. As for sampling information, it has been partially given in supplementary materials

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(Table S1) and it will be completely shown in the table below. Though there were no replicates for the high time-resolution dissolution experiment, the replicate measurement of sub-samples has proved the stability of the dissolution experiment, which the RSD of replicates (n=3) of the dissolution experiment (Milli-Q water as leaching solution, 60min) were for 1.7%, 1.2%, 2.3% and 3.4% for ammonium, nitrate, phosphate and silicate, respectively and detailed information is given in figure below. In addition, the general pattern, such as first-order dissolution reaction of short-time dynamic dissolution of aerosols in seawater, will not change despite of sampling limitations. As for literature writing, such as citation format, word selection, I will be strengthened afterward.

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Table. Sampling date, source, TSP mass concentration ( $\mu\text{g}\cdot\text{m}^{-3}$ ), mean air pressure (hPa), temperature ( $^{\circ}\text{C}$ ), wind direction ( $^{\circ}$ ) wind speed (m/s) and relative humidity (%) of six aerosols.

Sample	Date	Source	TSP	Air pressure	Temperature	Wind direction	Wind speed	Relative humidity
spr-SW	2011/4/28	SW	35.7	1002.8	11.8	184	5.4	75
spr-NW	2011/3/20	NW	236.4	1011.4	7.6	325	4.5	68
sum-NW	2012/6/12	NW	84.1	994.9	21.8	281	8.0	84
atu-NW	2012/10/13	NW	80.4	1011.2	20.5	309	9.4	60
win-NW1	2011/2/12	NW	56.5	1019.8	-2.2	338	4.2	70
win-NW2	2011/1/28	NW	129.3	1025.0	-1.6	314	5.6	52

Fig. 1. Sampling information

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Figure. The high-time resolution dissolution curves for replicates (n=3) using raw nutrient concentration data. The leaching solution was Milli-Q water (pH=5.5) and leaching time was 60 min.

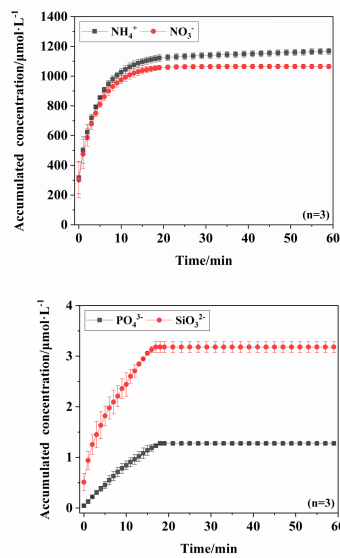


Fig. 2. The high-time resolution dissolution curves for replicates

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