Supplementary Material

High-Frequency Ammonium Monitoring in Coastal Seawater via a Flow-Batch System Featuring a Heating Reaction Coil

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12 **Table S1** Analytical procedure for the determination of NH_4^+.

Step	Syringe pump	Valve position	Flow rate (mL/min)	Operation	Description
1-5	In	1	30	Aspirate 900 μL of sample	Washing the syringe, mixing coil and the flow cell with sample for 2 cycles
	Out	10	60	Dispense 900 μL of sample	
	In	10	30	Aspirate 1000 μL of sample	
	Out	12/11	60	Dispense 200 μL/800 μL of sample	
6-11	In	1	30	Aspirate 250 μL of sample	Aspirate and mix the sample and **CIT solution** through the mixing coil and the syringe for 3 cycles
	In	2	2	Aspirate 80 μL of CIT	
	In	1	30	Aspirate 250 μL of sample	
	Out	10	60	Dispense 580 μL of mixture	
	In	10	30	Aspirate 580 μL of mixture	
	Out	10	60	Dispense 580 μL of mixture	
12-17	In	10	30	Aspirate 290 μL of mixture	Aspirate and mix the mixture and **OPP solution** through the mixing coil and the syringe for 3 cycles
	In	3	2	Aspirate20 μL of OPP	
	In	10	30	Aspirate 290 μL of mixture	
	Out	10	60	Dispense 600 μL of mixture	
	In	10	30	Aspirate 600 μL of mixture	
	Out	10	60	Dispense 600 μL of mixture	
18-23	In	10	30	Aspirate 300 μL of mixture	Aspirate and mix the mixture and **DIC solution** through the mixing coil and the syringe for 3 cycles
	In	4	2	Aspirate20 μL of DIC	
	In	10	30	Aspirate 300 μL of mixture	
	Out	10	60	Dispense 620 μL of mixture	
	In	10	30	Aspirate 620 μL of mixture	
	Out	10	60	Dispense 620 μL of mixture	
24-29	In	10	30	Aspirate 310 μL of mixture	Aspirate and mix the mixture and **NP solution** through the mixing coil and the syringe for 3 cycles
	In	4	2	Aspirate20 μL of NP	
	In	10	30	Aspirate 310 μL of mixture	
	Out	10	60	Dispense 640 μL of mixture	
	In	10	30	Aspirate 640 μL of mixture	
	Out	10	60	Dispense 640 μL of mixture	
30	Out	10	60	Dispense 640 μL of mixture	Mixture was retained in the mixing coil for 25 s
31-33	In	10	30	Aspirate 740 μL of mixture	The spectrophotometer was set to zero (100% transmittance). Discharge the bubbles and deliver the mixture to the flow cell for 30 s
	Out	12/11	60	Dispense 150 μL/590 μL of mixture	
34-39	Repeat the steps 1-5, washing the syringe, mixing coil and the flow cell with sample for 2 cycles				

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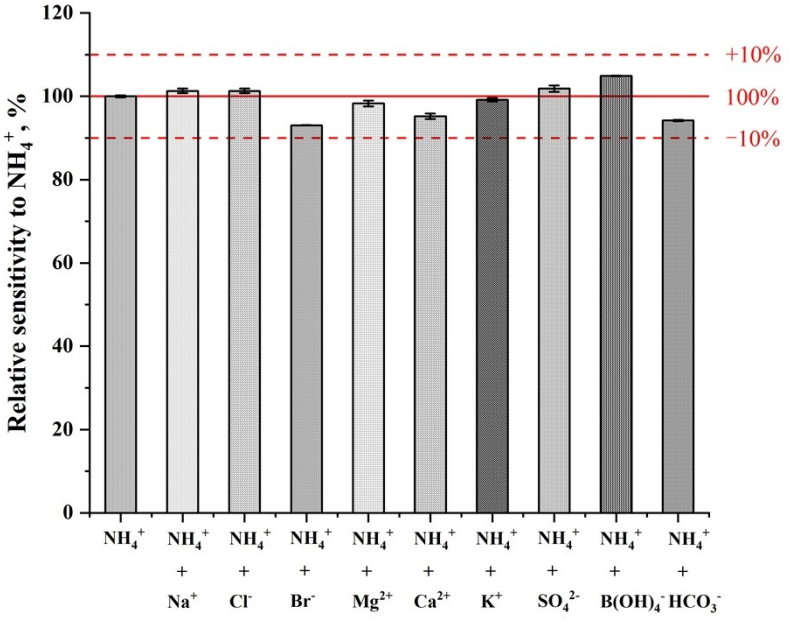

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15 **Fig. S1** Influence of potential interference on the measurement of NH_4^+ solutions.

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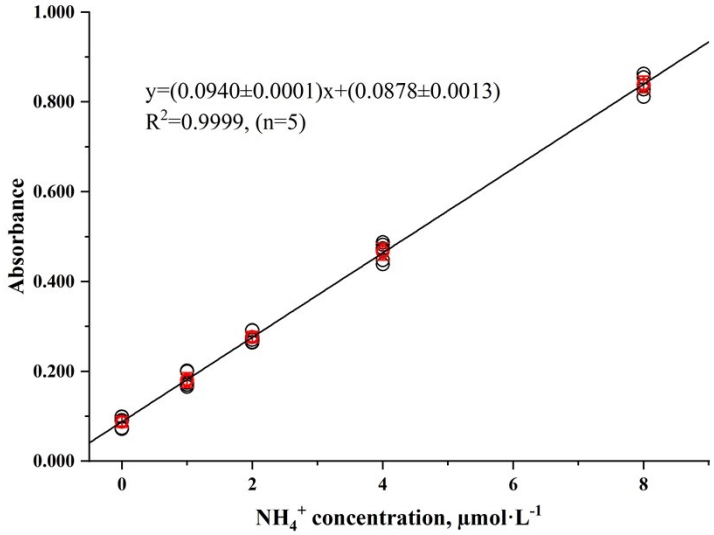

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18 **Fig. S2** Calibration curve of the proposed method

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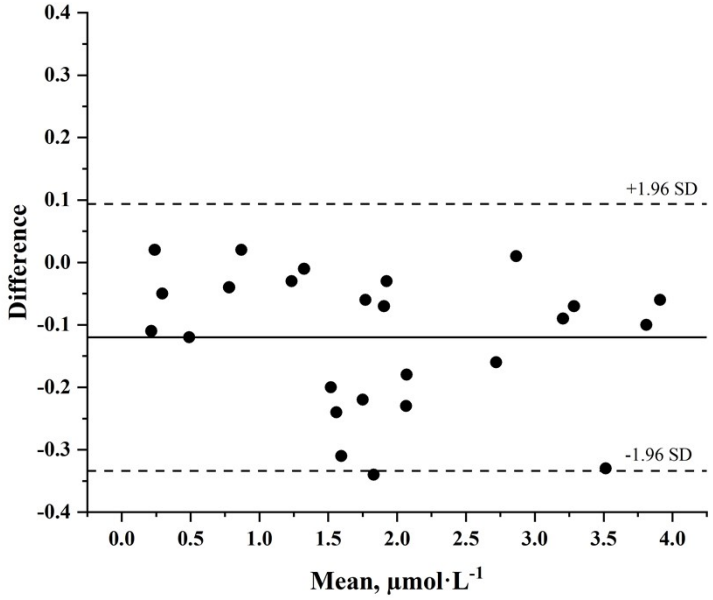

Fig. S3 Bland-Altman analysis