

Interactive comment on “Green Edge ice camp campaigns: understanding the processes controlling the under-ice Arctic phytoplankton spring bloom” by Philippe Massicotte et al.

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Dear reviewer. As recommended, we have added the following paragraph to briefly give information on the methods used to measure primary production.

"Briefly, rates of carbon fixation (primary production), were measured using a dual ^{13}C - ^{15}N isotopic technique (Raimbault1999). Water samples and ice melted was collected into three 600 ml polycarbonate bottles, previously rinsed with 10 % HCl, then with ultrapure Milli-Q water. Labelled ^{13}C sodium bicarbonate ($\text{NaH}^{13}\text{CO}_3$ – 6 g, 250 mL-1 deionized water – 99 at % ^{13}C , EURISOTOP) was added to each bottle in order to obtain $\approx 9.7\%$ final enrichment (0.5 mL/580 mL-1 seawater). After addition of ^{13}C -tracer

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(H^{13}CO_3), samples were spiked with inorganic nitrogen labelled with ^{15}N . Immediately after tracers addition, samples were fixed on an array placed under ice. Incubation was stopped after 24 hours and samples were immediately filtered on Whatman GF/F filters (25 mm diameter) pre combusted at 500°C . These filters were used to determine the final $^{15}\text{N}/^{13}\text{C}$ enrichment ratio in the particulate organic matter and the concentrations of particulate carbon and particulate nitrogen."

Please let us know if more information is required.

Regards, Philippe

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