

Interactive comment on “Distribution and rates of nitrogen fixation in the western tropical South Pacific Ocean constrained by nitrogen isotope budgets” by Angela N. Knapp et al.

Anonymous Referee #1

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The manuscript by Angela Knapp and colleagues describes rates of nitrogen fixation via the analysis of nitrogen isotopes. This is a topic that Angela knows very well and has published multiple times on previous occasions. It is therefore not surprising that the manuscript is well-written with a good knowledge of the relevant literature. I recommend the manuscript for publication with just a few minor comments

Specific comments 1. This work seems to suggest there is an offset of N isotope analysis from to in situ ^{15}N incubations which might be resolved or understood with time, rather than just analytical differences leading to variable results. Is this the case or am I just optimistic? 2. Some of the geochemical description on Page 5 Lines 13-28

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and Page 6 Lines 1-12 could go into the Methods section which could use the extra length 3. Some broader context for the sediment traps might be helpful - where was the 150 m depth horizon with regards to the 1% light level or the DCM or the nutricline? 4. I realize OUTPACE has multiple publications, but a map showing station locations would be useful to quickly orientate the reader without having to look it up.

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