

1) How were scavenged/extracellular Fe:P ratios (plotted in Fig. 3) normalized to P?

$$(Fe : P)_{extra} = \frac{(Fe_{total} - Fe_{intra})}{P_{total}}$$

or

$$(Fe : P)_{extra} = \frac{(Fe_{total} - Fe_{intra})}{(P_{total} - P_{intra})}$$

Where Fe_{total} , Fe_{intra} , and $(Fe:P)_{extra}$ refer to the total Fe (or P) content per colony, the intracellular Fe (or P) content per colony, and the Fe:P ratio of the extracellular fraction, respectively.

2) On p. 6529, L 26, do the ‘abundances’ refer to % extracellular, total quantity (mol/c colony) extracellular, Me/P ratios?

3) Intracellular Fe:P ratios in Table S1 are almost always higher than the total cellular Fe:P ratios. What is the explanation for this? Also, this seems to contradict the data in Fig. 3. Is one of these labeled incorrectly? Some discussion of these relative trends would be helpful.

4) The PCA analyses in Fig. 5 show that N-fixation is highest when colonies have low Ni:P, Mo:P and V:P. It would be helpful to clarify how this negative relationship suggests a biological use for these elements during N fixation.