

Interactive comment on “Dissolved Pb and Pb isotopes in the North Atlantic from the GEOVIDE transect (GEOTRACES GA-01) and their decadal evolution” by Cheryl M. Zurbrick et al.

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Reply to reviewers' specific comments (within quotes) (their line numbers refer to original manuscript) (our response in plain text, line numbers refer to revised version)

Reviewer 1:

"In other words the roughly 1:1 ratios of natural to anthropogenic Pb determined in aerosols is expected to be substantially modified in surface waters due to solubility differences, resulting in predominantly anthropogenic Pb occurring in the surface waters. This discrepancy needs to be addressed to support the conclusion that naturally

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sourced Pb is now prominent in surface waters of this region."

We have addressed this issue specifically in several places using the interpretation of the reviewer, most in detail in the section beginning with p. 11, line 33 to p. 12, line 7. Specific comments

"Page 4, line 33; What statistic is the '200ppm' reproducibility of the Pb isotope ratios based on, 2sd? Likewise for the quoted '1000ppm' and '500ppm' reproducibilities quoted in lines 34 and 36."

Because the isotope ratio precision is not constant for all of these samples (mainly because of fixed sample size with Pb concentrations varying over an order of magnitude), this statement is a qualitative assessment based on our examination of replicates over the entire data set. To offset this subjectivity, we have included some specific statistics for the pooled standard deviation of duplicates for specific concentration ranges from the data shown in supplement figure S2 (new table 1)."

"Page 6, line 11; what is this 'moderate range in [Pb]? It would be helpful to include specific values here."

Done as requested.

"Page 8, lines 12-15; both of these cruises have detailed Optimum Multi-Parameter water mass analyses so presumably this interpretation can be verified."

eOMP discussion added : , p. 8 lines 36-37, p.9 lines 26-30

"Technical corrections

Page 3, line 19; specify 'samples were analysed for Pb concentrations' Page 6, line 21; 'Schepanski et al., 2009' is underlined Page 8, line 31; change 'heavier' to 'higher' Sections 3.5 and 3.6; references to the appropriate figures become rather sparse in these sections"

All of these are addressed in the revised version.

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