

Interactive comment on “Using ²²⁶Ra and ²²⁸Ra isotopes to distinguish water mass distribution in the Canadian Arctic Archipelago” by Chantal Mears et al.

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This is a potentially interesting study on use of Radium isotopes to distinguish water mass distribution in the Canadian Arctic Archipelago.

Further to the comments made by three reviewers, authors' may like to provide some quantitative information (in the abstract) on the concentrations of radium isotopes and 228-Ra/226-Ra ratios measured in different water masses. There is no single result/number provided in the abstract.

Lines 48-51, in abstract, can be moved to conclusion/implication section.

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Authors' may like to reassess the regression parameters (slope, intercept and R²) stated in figure captions for 5 and 6. Are these numbers significant and meaningful to 3rd and 4th decimal units? For example, in Figure 6, regression analysis is given as: $y = -2.4666x + 86.377$ ($R^2 = 0.2835$) for the surface trend and $y = -0.4854x + 21.127$ ($R^2 = 0.0722$) for the deep trend. The slope, intercept and R² values for linear regression analysis are rather absurd (3rd/4th decimal) considering the analytical uncertainties in the measurements of radium isotopes in individual water samples.

Line 109: For the benefit of a general reader, it may be relevant to name the parent isotopes of Radium, 230-Th (226-Ra) and 232-Th (228-Ra).

Line 161: Was there any attempt to simultaneously use 295 keV peak to quantify 226-Ra?

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