

Interactive comment on “Spatiotemporal distributions of Fukushima-derived radionuclides in surface sediments in the waters off Miyagi, Fukushima, and Ibaraki Prefectures, Japan” by M. Kusakabe et al.

M. Kusakabe et al.

kusakabe@kaiseiken.or.jp

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Response to Dr. C.-A. Huh (Referee)

(1) Comments: The title seems a little too long. I would suggest a shorter title like: "Spatiotemporal distributions of Fukushima-derived fission nuclides in nearby marine surface sediments".

Response: The title has been simplified as follows; "Spatiotemporal distributions of Fukushima-derived radionuclides in nearby marine surface sediments" However, we

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left the term "radionuclides" instead of "fission nuclides" because the radionuclides shown in the manuscript include not only fission products but also activation products.

(2) Comment: For readers to get a better sense/feeling about the detection limits of the measurements, it may be helpful to describe the make, model, and specs (esp. counting efficiency) of the Ge detector used in this work. Also, it would be good to briefly describe how the detector was calibrated and what reference materials were used.

Response: Sentences have been added as follows; "An aliquot of each dried sediment sample (400–600 g) was placed in a plastic container and analyzed by means of nondestructive gamma-ray spectrometry with a variety of coaxial type high purity Ge detectors: they were mainly Canberra GC40195, GX4021, and GC10021 with a relative efficiency of 40%, 43%, and 105%, respectively. Calibration of the counting systems was done against the mixed standard volume source containing 10 radionuclides."

(3) Comment: Fig. 1: The time (x) axis ends at 1 January 1984, the same as the beginning point. It must be wrong, since there are more than 20 years in the time series.

Response: Correction has been made for the date.

(4) Comments: Line 11: Insert "marine" before "surface sediments off : : :.". Line 16: delete the right parenthesis.

Response: Corrections have been made

(5) Comment: Lines 27-29: The sentence does not read well. A change is suggested below: Activity ratios of these nuclides to ¹³⁷Cs suggest these nuclides were not homogenized before they were removed from seawater to the sediment.

Response: The sentence has been revised as suggested.

(6) Comments: Line 45: The word "form" is a typo of "from". Line 46: Insert "an" before

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“additional pathway”. Line 48: delete the first comma sign. Line 67: Change “were save used for : : :.” to “were saved and used for: : :.”.

Responses: Corrections have been made as suggested

(7) Comment: Line 91: Use an exact unit to replace the word “volumes”.

Response: “volume” has been changed to “several ml”

(8) Comments: Line 122: Change “were influenced the least by: : :.” to “were least influenced by : : :.”. Lines 223-224: Change the phrase “concluding that: : :.would be premature” to “it would be premature to conclude that : : :.”. Line 225: delete “in fact”. Line 226: Add “due” before “to”. Line 281: Delete the word “directly”.

Response: Corrections have been made as suggested

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