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Interactive comment on "Cesium-134 and 137 activities in the central North Pacific Ocean after the Fukushima Dai-ichi nuclear power plant accident" *by* J. Kameník et al.

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Referee #3, comment 1

Table 1 and Table 2 Minimum detectable activities (MDA) are different from respective samples. For example, ^{134}Cs at M6 is less than 0.7 $Bq\,m^{-3}$ and, however its activity of 0.3 $Bq\,m^{-3}$ is detectable or significant (P5229 L18). How about marking ^{134}Cs activities (e.g. marking "*") in Table 1 and Table 2 if its ^{134}Cs is detectable or significant even if its activities are very small (less than 1 $Bq\,m^{-3}$)?

Authors

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We respectfully disagree with the reviewer. Reported minimum detectable activities (MDA) were calculated for each sample using a procedure for limit of detection by Currie (1968) – see P5227 L17-L20. The main variability was due to sample volume and counting time on gamma spectrometer. The value of 0.3 $\mathrm{Bq\,m^{-3}}$ (P5229 L18) was difference in ^{137}Cs levels in sample from latitude 22.75° N and 32° N. Because the difference was significant it hypothetically indicated small signal of F1-NPP deposition in sample M6 (latitude 32° N). Unfortunately, the difference was too small to be confirmed by presence of ^{134}Cs due to low sensitivity (MDA was 0.7 $\mathrm{Bq\,m^{-3}}$).

Referee #3, comment 2

P5230 L7 How much activities are estimated-preexisting ^{137}Cs for Guam and for Hawaii? And discuss, briefly, the cause of the gap (i.e. cause of discrepancy between observed value and estimated value).

Authors

We agree with the reviewer and corrected the sentence accordingly. Preexisting ^{137}Cs activities were estimated using effective half-lives provided by Povinec et al. (2005) for various areas in the Pacific Ocean. The estimates had large uncertainties in some areas due to lack of available data. Based on these, ^{137}Cs in surface seawater was expected 2.0±0.4 and 1.8±0.6 $\mathrm{Bq\,m^{-3}}$ for Guam and the main Hawaiian Islands, respectively. The numbers are equal within uncertainties which will be reflected by following change on P5230 L8.

ORIGINAL . . . are slightly higher for Guam than for the main Hawaiian Islands in 2011.

NEW . . . are the same for Guam and the main Hawaiian Islands in 2011.

Referee #3, comment 3

P5231 L14 Please refer Honda et al. (2012) too. Fig. 3 in their paper (modeled cumula-

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tive ^{137}Cs eolian input through 1 April) also pointed out that radiologically contaminated eolian dust possibly dispersed south of the Kuroshio extension.

Authors

We agree. The Honda et al. paper has been included. See also response to Refree #1 (C. Jeandel).

Honda, M. C., Kawakami, H., Watanabe, S., and Saino, T.: Concentration and vertical flux of Fukushima-derived radiocesium in sinking particles from two sites in the Northwestern Pacific Ocean, Biogeosciences, 10, 3525–3534, doi:10.5194/bg-10-3525-2013, 2013.

Referee #3, comment 4

P5232 L4 then -> than (?!)

Authors

Thank you for the correction, we made the changes as suggested.

Referee #3, comment 5

Acknowledgements Please add two names, Y. Kumamoto and M. Honda of Japan Agency for Marine-Earth Science and Technology (JAMSTEC). They prepared "Cubitainer" (water tank) and loaded these on SV Sea Dragon in Yokohama. Without their efforts, 2012 transect sampling between Japan and Hawaii was not possible.

Authors

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Interactive comment on Biogeosciences Discuss., 10, 5223, 2013.

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