Interactive comment on “$^{90}$Sr and $^{89}$Sr in seawater off Japan as a consequence of the Fukushima Dai-ichi nuclear accident” by N. Casacuberta et al.

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All comments/questions in the initial review were satisfactorily addressed. As stated before, this is an interesting paper containing important new data.

Reviewer comment 1: The only criticism I have is the long waiting period (5-6 months) before the relatively short-lived Sr-89 was analyzed, while I have a question about the origin of the Sr-90 results presented in Table 1.

Author response: It was not our first purpose to analyze 89Sr in these samples. However, when the supernatants of the first 90Sr analysis in Barcelona were sent to Sevilla for a second 90Sr analysis, 89Sr was also detected and thus we thought it was interesting reporting it in this paper. This justifies the long time delay between sampling and 89Sr measuring.

Reviewer comment 2: If I understand the paper correctly, the samples were analyzed for Sr-90 by two laboratories (see Sections 2.2 and 2.3). The first laboratory (Barcelona) separated Y-90 and this manner quantified Sr-90. The second laboratory (Seville) received the supernatants from this analysis (still containing the original Sr-89 and Sr-90) and subsequently quantified both radioisotopes in a slightly different way. However, in Table 1 only one set of Sr-90 results is presented (while the Sr-89 results must originate from the laboratory in Seville). Are the reported Sr-90 results in Table 1 from the first laboratory (Barcelona), and if yes, how do they compare with the set of secondary Sr-90 results from Seville (if this is the case it raises another question why the Sr-89/Sr-90 ratio determinations were not derived from the Seville results only, as this would eliminate any potential issues with the Sr-recovery)? Or alternatively, does Table 1 contain a mixture of Sr-90 results provided by both laboratories (in which case the origin of the results should be indicated)?

Author response: Correct, 90Sr samples were first analyzed in Barcelona and supernatants were sent to Sevilla, where they performed a second analysis of 90Sr following the method described in Harvey et al. (1989). All the values of 90Sr reported in Table 1 correspond to the measurements performed in Barcelona based on the method described in Waples and Orlandini (2010). None of the 90Sr analyzed in Sevilla are reported here and only the 89Sr activities correspond to the measurements realized in this lab. Therefore, the 89Sr/90Sr ratio reported in Table 2 is the result of 90Sr obtained in Barcelona, and 89Sr measured in Sevilla. This has been clarified in Table 1 caption. However, as the reviewer suggests, we have compared the time delay reported in Section 4.3 by using the 90Sr results from Sevilla. The average number results in 99+/−12, which compares very well with the reported in this paper, of 98+/−18. Moreover, the 90Sr method based on Waples and Orlandini (performed in Barcelona) was validated with reference materials from IAEA (i.e. IAEA-443), thus we favored reporting all 90Sr values obtained by this method.
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