

## ***Interactive comment on “Iodine-129 concentration in seawater near Fukushima before and after the accident at the Fukushima Daiichi Nuclear Power Plant” by T. Suzuki et al.***

**Anonymous Referee #2**

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This paper provides  $^{129}\text{I}$  distribution in seawater near Fukushima before and after Fukushima accident, the results show a significant contribution of the releases from Fukushima accident. These data are important and useful for oceanographic research as well as other relevant research concerning the dispersion and transport of Fukushima-derived radionuclides in the sea.

1. This paper only presents the  $^{129}\text{I}$  concentrations in the seawater, it will be nice if the author have measured  $^{127}\text{I}$  concentration and could also present the  $^{129}\text{I}/^{127}\text{I}$  ratio in the samples, which are easy to compare with other published data.
2. The authors concluded in the Section 3.3 that "the risk to human health from  $^{129}\text{I}$

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derived by the 1FNPP accident is negligible". However, the author only estimated the radiation dose of  $^{129}\text{I}$  from the seafood, and did not consider the exposure to the terrestrial food, such as milk. Therefore the conclusion should be limited to the exposure to the seafood, not all pathways of Fukushima derived  $^{129}\text{I}$ . In addition, a concentration of  $89\text{E}7$  atoms/L for  $^{129}\text{I}$  concentration in seawater was used for dose estimation, this is the highest value measured in this work, while all water measured in this work were collected offshore Fukushima, the  $^{129}\text{I}$  concentration in the coast near Fukushima might be a few orders of magnitude higher than this number, and the major contribution of  $^{129}\text{I}$  dose is from the seaweed, which is produced in the coast area. Therefore the estimated dose of  $^{129}\text{I}$  from seafood might be not reflect the worst situation.

3. Fig.4 shows the sea surface temperature, but the scale of the temperature is missing. In addition, it is not clear how the surface temperature reflect the sea current as showed in the text.
4. A paper on the similar topic of  $^{129}\text{I}$  in sea water near Fukushima has just been published in Environ. Sci. Technol. 2013, doi: 10.1021/es304460k, it will be nice if the authors can make a comparison of their results with the published ones.
5. A large sets of  $^{129}\text{I}$  data were presented in this paper, but not sufficient discussion on these data, except the distribution and dose estimation, was given. The author has touched a little about the sources of  $^{129}\text{I}$  and the dispersion of Fukushima-derived  $^{129}\text{I}$  in the sea area investigated in this work. It will be nice if the author can discuss more about the contribution of atmospheric  $^{129}\text{I}$  and sea discharged  $^{129}\text{I}$  in the sea, and their dispersion pathways.

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