Biogeosciences Discuss., 10, C1473–C1475, 2013
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Biogeosciences Discussions

Interactive comment on "Does the Fukushima NPP disaster affect the caesium activity of North Atlantic Ocean fish?" *by* G. Kanisch and M.-O. Aust

G. Proehl (Referee)

g.proehl@iaea.org

Received and published: 3 May 2013

General remarks: The paper is well and carefully written. However, it should be made clear already in the abstract and in the introduction that the detailed investigation of the Cs-134 and Cs-137 in the North Atlantic following the Fukushima accident is more of scientific interest and that this study has not been done because there is or was a radiological concern regarding Caesium activity levels in the North Atlantic arising from Fukushima fallout. To underline the scientific value of this investigation, the possibility to study the behavior of Cs-134 should be mentioned. Due to the extremely low pre-Fukushima Cs-134 activity concentrations in the environment, and because the major

release from the Fukushima occurred during a very short time; Cs-134 is an ideal tracer to study the dispersion of Cs-134 in ocean waters. This point should also be explicitly mentioned in the conclusions. Provided these issues and the clarifications as suggested below are included, the paper should be published.

Specific remarks: Throughout the paper, the term “massic activity” is used. This sounds unusual. It is proposed to use “activity concentration” or “activity per unit mass” instead. Page 1, L 5/6/7 This sentence is not clear. Why was only in late 2011 the Fukushima fallout from March/ April relevant for the Cs-134 traces in fish? Page 5, L5: The term “ICES” should be defined. Page 5, L 14/20: Is it possible to provide a reference for the assumed half-life of 100 days? How sensitive are the results to the half-life? Page 5 L 20 ff How many layers are assumed? What is the thickness of these layers? Does it depend on the individual boxes? Page 6, L 15: The term “SF” should be defined when it appears first. It is mentioned in the legend of Table 2, however in could also be defined in a footnote on page 6. Page 6, L3-5: The first part of the last sentence of section 2.3 should be rewritten. It is unclear. Page 7, L 15-20: What is behind the “water box from IAEA (2005)”? This should be explained in more detail. Page 8, L 17: “... was safely detected ... should be replaced by “ .... was definitely detected” Page 8, L 20/22: This sentence should be rewritten. How is the “box volume weighted average massic activity calculated? Does it include the activity in different layers? (see above) Page 8, L 25: “... caused by .... “ should be replaced by “... caused by the still large contribution of Cs-137 deposited during the Chernobyl accident”. Page 9, L23/25 Clarification is needed. Why is this upper limit? Cs-134 will not only decay from 2012. This should be more clearly written. Page 9/10: Conclusions The possible exposures estimated due to intake of fish are extremely low. These exposures should be put in context by providing a comparison with the average exposures from natural sources in general and with the possible exposure due to the intake of the natural radionuclide Po-210 with the ingestion of fish in partic- ular. It could be discussed whether the Cs-134 can be used as a tracer for estimating the vertical exchange of water. The dependence of the Cs-134 activity concentration in fish on the depth of the catch as indicated in

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Figure 3 should be highlighted in the conclusions. Table 3: The values are given with 3, in some cases even with 4 significant digits. This looks overly accurate.

Interactive comment on Biogeosciences Discuss., 10, 4127, 2013.