

Biogeosciences Discuss., referee comment RC2  
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## Comment on bg-2020-491

Anonymous Referee #2

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Referee comment on "Impact of typhoons on particulate and dissolved  $^{137}\text{Cs}$  activities in seawater off the Fukushima Prefecture: results from the SOSO 5 Rivers cruise (October 2014)" by Michio Aoyama et al., Biogeosciences Discuss.,  
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## Comments on "Impact of typhoons on particulate and dissolved $^{137}\text{Cs}$ activities in seawater off the Fukushima Prefecture: results from the SOSO 5 Rivers cruise (October 2014) (bg-2020-491)"

**Recommendation: Accept, with major revisions noted.**

**General comments:** I reviewed the manuscript " Impact of typhoons on particulate and dissolved  $^{137}\text{Cs}$  activities in seawater off the Fukushima Prefecture: results from the SOSO 5 Rivers cruise (October 2014) (bg-2020-491), submitted by Aoyama et al to Biogeosciences. The authors measured  $^{134}\text{Cs}$  and  $^{137}\text{Cs}$  in the dissolved and particulate samples contaminated by the Fukushima Dai-ichi Nuclear power plant (FDNPP1) accident, which presented some new data. Their spatial distribution reflected the mixing of coastal water and open-ocean water. The  $^{137}\text{Cs}/^{134}\text{Cs}$  activity ratio derived from FDNPP accident is used to trace the source of riverine particle, which is very interesting. They also discussed the impact of typhoons on particulate and dissolved  $^{137}\text{Cs}$  activities in seawater off the Fukushima prefecture, but did not give a clear picture about the impact of typhoon on  $^{137}\text{Cs}$  activities in seawater. The novelty of this study needs to be improved. Additionally, decisions made with respect to data presentation combined with grammatical and other organizational errors result in a MS that lacks clarity and is difficult to follow. It is necessary to polish this manuscript by a native English speaker. Therefore, it is recommended to be published after major revisions.

**Specific comments**

-Line 14: What is indicated by the dissolved activities.....?  $^{137}\text{Cs}$  or  $^{134}\text{Cs}$ ?

-Line 18, "ranged from....to ....." means a range of variation, so the uncertainty in this sentence that "the ranged from  $0.01\pm 0.00$  to  $0.12\pm 0.01$ " is redundant? Please note this in the MS.

-Material and methods: What are the detection limits of  $^{134}\text{Cs}$  and  $^{137}\text{Cs}$ ?

-Lines 169-171, this sentence (the ratio of particulate  $^{137}\text{Cs}$  activity concentration.....) is confusing, please rephrase it.

- Lines 179-181. This sentence is too long and needs revise to improve clarity and the flow....

-Lines 206-211, what's meaning that "data not shown or figure not shown"? Add in the Supporting information?

-Discussion section: The discussion was not enough and some conclusions are soft or from conjecturing, for example, "this pattern might reflect complex physical processes....."(lines 210-211); "Possible explanation of this finding are that the radiocaesium in the coastal seawater....."(Lines 236-239). Additionally, API would be sufficient to support the conclusion that high  $^{137}\text{Cs}$  activity concentrations caused by the typhoon events, what about is the particle flux?

-Conclusions section: The conclusion section seems long with too much information on some discussion that appears unnecessary. The conclusion should be rephrase.

-Data availability: it should be moved in the Material and methods?

-References: please unify the format of periodicals. For example, Scientific Reports (Line 349); J. Radioanal. Nucl. Chem. (Line 356).....

-Figures: these figures are not clear, please redraw.... For example, fig.2 and fig.9.

## Technical corrections

-Line 36: 'Nishihara et al. (Nishihara et al., 2012)' should be 'Nishihara et al. (2012)'.

-Line 43: 'Miura et al. (Miura et al., 2020)' should be 'Miura et al. (2020)'.

-Line 57: '(Nagao et al., 2014)' should be 'Nagao et al. (2014)'.

-Line 115: '...the Low Level Radioactivity Laboratory At some stations, ....' should be '...the Low Level Radioactivity Laboratory. At some stations, .....'.

-Lines 128, 320, 324: 'Dataset of 134Cs and 137Cs activity...' should be 'Dataset of <sup>134</sup>Cs and <sup>137</sup>Cs activity...'.

-Line 188: '.....in the rivers, indeed Naulier et al. (Naulier et al., 2017)' should be '.....in the rivers. Indeed, Naulier et al. (2017)'.

-Line 224: 'Tsurutal et al., (Tsuruta et al., 2014)' should be 'Tsurutal et al. (2014)'.

-Line 227: '1.06 (+-10%)' should be '1.06 (±10%)'.

-Lines 235, 310: '0.92 (+-10%)' should be '0.92 (±10%)'.

-Lines 314-316: '7-day, 5-7day' should be '7-days, 5-7days'.

-Line 409, delete the Japanese language

-Lines 358-359, 410, 416, 420, 423, Superscript: <sup>137</sup>Cs

-Table1, "+-" changes "±"

