

Interactive comment on “The impact of oceanic circulation and phase transfer on the dispersion of radionuclides released from the Fukushima Dai-ichi Nuclear Power Plant” by Y. Choi et al.

Anonymous Referee #1

Received and published: 4 March 2013

The paper has improved very much since the first version. Nevertheless, the English should still be improved.

I add a few specific comments:

equations 1-3: it should be commented that advection/mixing operators should be added, since in their present form they are only describing the transfers between phases.

Also, the physical meaning of ϕ should be explained.

Section 2.2 and Section 5: The reference to the stochastic method (Perianez, 2000) is not correct. It should be Perianez and Elliott (2002), which is also in the reference list.

C201

page 3682, line 19. As I understand, it should be said that 15 μm is the mean radius of LPM particles (i.e., add "mean").

page 3683. Atmospheric fallout of radionuclides on the sea surface has not been considered, but only direct release from Fukushima. Please comment why this source has been neglected, in comparison with other previous work which have not.

page 3684. It seems that LPM concentration is constant in time and uniform in space. The second assumption seems very strong, since along the coast particle concentrations will be higher than in the open sea because of runoff from land and river inputs. Some comments on this should be added. Also, the used value (0.1 mg/L) seems very low to me. Actually I have checked the Van Raaphorst reference I could not see where this value has been taken from. Suspended matter concentrations in the North Sea coast may reach values more than 100 times larger than 0.1 mg/L. Then they decrease offshore.

page 3684. The symbol ϕ is not the same as in equations 1-3. Also add a reference for its value.

Interactive comment on Biogeosciences Discuss., 10, 3677, 2013.

C202