

Review of gmd-2022-168: *Bayesian transdimensional inverse reconstruction of the ¹³⁷Cs Fukushima-Daiichi release*, authored by Joffrey Dumont Le Brazidec, Marc Bocquet, Olivier Saunier, and Yelva Roustan

Summary: This paper proposes the use of a reversible-jump Markov chain Monte Carlo sampling algorithm for use in Bayesian inverse problems for source reconstruction. Among the benefits of the method is the ability to capture temporal behavior of the source release in fine detail. The proposed method is applied to source reconstruction for the Fukushima-Daiichi release and results are compared to those from previous studies.

Comments for authors: Thank you very much for addressing the items from the first round of reviews. I am satisfied with the changes made and the responses from the authors. I have no further requests for the authors to address, except for a typo that needs to be corrected:

line 276 of the revised manuscript: “are observed neighbouring time intervals” should read “are observed *at* neighbouring time intervals”