

Interactive comment on “Investigation of rootzone salinity with field monitoring system at tsunami affected rice fields in Miyagi, Japan” by I. Ieyasu et al.

Anonymous Referee #2

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This paper aims to analyze root zone salinity in rice fields hit by the 2011 earthquake and tsunami in Japan. Flooding with seawater introduced salinity to the soil, and the subsidence associated with the earthquake enhanced sea water intrusion. In order to assess and control salinity, a monitoring system was installed at two sites, and time series of soil water content, ground water level, bulk electrical conductivity and ground water electrical conductivity were obtained. These two datasets are interpreted, and it was found that rainfall reduced salinity but that salinity was reintroduced by high groundwater levels. This suggests that improved shallow aquifer management is required.

After reading this manuscript, I think that it is currently not of sufficient quality to allow

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publication in Soil. The manuscript lacks a meaningful scientific focus. In my opinion, a discussion of the monitoring alone is not sufficient. The data need to be interpreted within the framework of a scientific question. In my opinion, the authors have not succeeded in doing this. It remained unclear to me how the measurements help to understand the desalinization process. In addition, the quality of writing is not sufficient in many places, which makes it difficult to understand what the authors are trying to say. It may be appropriate to seek help from a native speaker or an editing service to improve the quality of the writing. Therefore, I cannot currently recommend the manuscript for publication, and I suggest to release it to the authors. Please find below some specific comments for your consideration.

SPECIFIC COMMENTS Line 60-65. The technical details should be presented in the Materials and Methods section. Here, it is sufficient to describe the general need for field monitoring (and which parameters are relevant).

Line 85. A more in-depth discussion of the problem of land subsidence and the consequences for saline water intrusion early in the manuscript would help the reader to better understand the issues at hand.

Line 112. Underdrains were not installed at both sides? Would it not be better to also investigate a site with underdrains to see whether this leads to sufficient desalinization? In any case, it should be made clear why these two sites were selected for the field investigations.

Line 179. How was the saturated hydraulic conductivity determined?

Line 187. It is not clear to me what you mean with “intrusion of salt wedge into groundwater”.

Line 189 – 213. Here a lot of statements are made that are not supported by the data directly. It is difficult to see how all the different desalinization strategies add up, and what conclusions can be drawn from the presented data.

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Line 248 – 276. This part is not well related to the rest of the paper. It would be nice if future measurements could validate the concept presented here.

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