

Response to the reviewer1 comments

Thank you for reviewer comments. They helped strengthen our paper. We revised the manuscript as much as possible in line with the suggestions made by the reviewer 1.

Reviewer 1.

General comments

Our original manuscript focused on monitoring soil moisture content (θ) and bulk soil EC (EC_b) using the Field Monitoring System (FMS) to work on desalinization process of tsunami affected agricultural fields. However, Reviewer 1 noted it lacked a scientific focus. In the revised manuscript, we described what the advantage of FMS is and how meaningful the FMS data is for new approaches: EC_b - θ -soil water EC(EC_w) relationship and two dimensional water and chloride transport for better future scenario of the surface water canal system. Based on field data (EC_b , θ , and estimated EC_w) and the simulation results, we discussed the saltwater intrusion management of the future surface canal system.

Specific comments

- 1) Line 60-65. The technical details of FMS were shorten in the Materials and Methods section.
- 2) Line 85. In the introduction section, the problems of land subsidence and the consequences for saline water intrusion were mentioned.
- 3) Line 112. Also, the current situation of desalinization regarding underdrains was described to explain why we cannot use underdrains at our research sites.
- 4) Line 179. In the materials and methods section, “soil core sampling method” was added to measure the saturated hydraulic conductivity.
- 5) Line 187. The sentence was deleted, but the similar content was rewritten as “a rise in saline groundwater...” in results and discussion section.
- 6) Line 189 – 213. The sentences were rewritten based on the presented data.
- 7) Line 248 – 276. Previous studies of the future canal system were presented in the introduction. To predict chloride transport using the water surface canal system, we obtained EC_b - θ - EC_w relationship and simulation of two dimensional water and chloride transport was carried out. It would be helpful because it was based on in-situ data using the FMS with TDT measurements.