We would like to thank the reviewer for the fair assessment of the manuscript. Below, we address the specific comments in detail.

Reviewer. The topic addressed by the authors is interesting, the application concerns the monitoring seawater intrusion aquifer with electrical resistivity tomography. The special feature is long-term monitoring around two years. The main techniques used are the surface electrical resistivity tomography (ERT) method and Cross-Hole Electrical Resistivity Tomography (CHERT). Furthermore, for the interpretation they made use of geological, rains and logs data.
Answer. Yes, this is a suitable summary of our work.

Reviewer. The authors maintain that the surface ERT loses the resolution in depth, this is true, however to identify large bodies as in this case, I don't think it is a problem of resolution but could be due to the array used and the amplitude of relative values to ERT. In any case in these situations if it is possible to perform cross-holes it is preferable with respect to surface investigations even if they lose the non-destructive characteristic. However, there are disadvantages: -the data sensitivity is constrained to the region between the boreholes; - for vadose zone surveys, noise levels may be much higher than those using surface electrodes, owing to weaker electrical contacts (increased contact resistance).
Answer. The reviewer is right in that CHERT suffers some drawbacks (increased contact resistance in the unsaturated zone, loss of the fully non-invasive nature of surface ERT, and sensitivity being mainly constrained to the region between the boreholes). We would like to stress though that ERT (surface- or borehole-based) have sensitivity to the electrical conductivity outside of the array (so-called outer-space sensitivities) as studied by Maurer and Friedel (2006). We will mention these drawbacks in the revised version of the paper. Regarding the loss of resolution with depth of surface ERT, the problem goes beyond traditional ERT. The problem in SWI is that with the high conductivity region at depth, bulk resistivity in this region is underestimated. This problem is well established (Huizer et al. 2017, Beaujean et al. 2014, Nguyen et al. 2009) and our presented results confirm this. Furthermore, the spatial extent of the high salinity (conductivity) region is not large at our field site. Indeed, there is no traditional SWI wedge. In this setting, the use of CHERT has allowed us to get the resolution necessary to show that the traditional SWI paradigm does not apply in this case. We believe further that the qualitative differences between surface-ERT and CHERT shown at our site are robust features that will appear for any reasonable choices of electrode configurations.

Reviewer. The authors have done a good job, the causes that define authors on long-term changes are very interesting. But they should investigate some things. In particular, information is lacking about the cross-hole electrode, the contact resistances between the electrodes and the walls, it would be interesting to have a comparison of the results from different arrays.
Answer. We thank the referee for raising this point and apologize for the missing information in the article about the electrodes distances. All piezometers have 36 electrodes and the distance between electrodes is 70 cm, 55 cm and 40 cm in

the 25 m, 20 m and 15 m depth piezometers, respectively. A new paragraph describing the acquisition geometry will be added in the revised version of the manuscript. In our experience (Bellmunt et al., 2016), it is better to combine different configurations (dipole-dipole, pole-tripole and Wenner) with different sensitivity patterns in order to obtain the maximum information about the subsurface. Moreover, we were anticipating that, given the corrosive environment in which the steel electrodes were located, some of the data measurements could be not repeated over time, so we decided to acquire large data sets. Zhou and Greenland (2000) and Bellmunt et al. (2016) have already described and compared these configurations, while the focus of the present work is not on comparison of different electrode configurations. In the revised manuscript, we will point to the relevant literature.

Reviewer. It is not clear what happened to the data that gives 5800 data points but the data used for the inversion were 2677.

Answer (A) We have decided to only consider electrode configurations for which the resulting data at all measurement times passed our quality control. The consequence is that we only have 2677 left for each panel. This is described in the manuscript on lines 123-132.

Reviewer. I also have serious doubts about the resolution of CHERT because the distances between wells are very large between them. In this case the authors, if it were possible, should have done synthetic models with array different at different distances between wells.

Answer. We are aware that a key point to consider when defining a CHERT experiment is the aspect ratio between the horizontal distance of the boreholes and the maximum vertical distance between the electrodes located in each borehole (e.g., LaBrecque et al., 1996). We agree with the referee that smaller values of the aspect ratio will be better, but the location of the boreholes was conditioned by several factors including logistics and requirements for other monitoring methods as well as experiments planned at the experimental site. Furthermore, there is a trade-off with the overall investigation area implying that larger borehole spacings are sometimes motivated. Nevertheless, numerical simulations by al Hagrey (2011) state that large values of the aspect ratio can be used: *"The ability to detect and often map the three sequestration targets (CO2 plume, reservoir, and cap rock) by unconstrained inversions is still possible with AR values up to 2 for the most studied scenarios (even those with the worst scenario of least thickness and ρ)"*. Besides, it is also said: "*The reconstructed output tomograms for higher AR values (>2) achieve a satisfactory resolution only for constrained inversions with an a priori fixing of boundaries and/or resistivities of the targets. The resolution increases with increasing the number of constraints"*. In our case the aspect ratio for the different panels considered ranges from 0.6 to 0.8. Beyond this, both the geology (Figure 1c and Figure 4 in the manuscript) and the SWI display significant lateral continuity so that vertical resolution is more critical than the horizontal one. This is achieved by imposing stronger regularization constraints in the horizontal than vertical directions. We will also discuss the issue in the revised version.

References:

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In the original version of the paper one of the authors of the paper (Laura del Val, lauradelvalalonso@gmail.com) was not included in the list of authors by mistake. In the corrected manuscript the list and order of the authors will be the following:

Andrea Palacios, Juan José Ledo, Niklas Linde, Linda Luquot, Fabian Bellmunt, Albert Folch, Alex Marcuello, Pilar Queralt, Philippe A. Pezard, Laura Martínez, Laura del Val, David Bosch, and Jesús Carrera.