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Hydrology and Earth System Sciences Discussions

Interactive comment on "Transboundary geophysical mapping of geological elements and salinity distribution critical for the assessment of future sea water intrusion in response to sea level rise" *by* F. Jørgensen et al.

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General comments:

In my opinion this is an excellent paper, showing how by applying the right methods it is possible not only to get a clear image of the state of a saltwater intrusion but also about its possible dynammics. As this is not only of importance in coastal areas but also in regions such as Hamburg, where saltwater intrusion caused by solution from salt domes affects the groundwater quality, the paper represents a substantial

contribution to scientific progress.

Technical comments:

There are a number of largely typographic errors (see below). I suggest that the paper should also be checked by a native speaker.

page 3, line 18: does not intrude

line 20: remains unchanged

line 21: is predicted

page 4, line 1: is never ideal

page 5, line 11: extraction well

page 6, line 13: In this paper we present

page 7, line 19: does not exceed

page 8, lines 12/13: saltwater

page 11, line 13: measure changes

line 14: reflect changes

page 13, line 17: are fixed. They increase logarithmically with depth

line 21: On the German side of the border

line 24: spacing result in a

page 14, line 1/2: For data acquisition

line 12: were recorded

line 15: meters

line 17: meters

line 18: meters

page 15, line 14: was used

line 24: 3 m/min in either

page 16, line 1: was logged

line 2: not reflect the porewater

line 12: log is not

line 15: for the correct

page 16, line 4: when they are used

line 7: contribute detailed

line 21: along any desirable profile

line 22: through the area (Fig. 10).

page 18, line 7: features which might be important in relation to

line 8: will be outlined in the following

line 13: Consistency: either Tonder Graben or Tonder graben (e.g. page 19, line 6). Please, check!

line 20: low-resistivity layer

line 22: low-resistivity elongated

page 20, line 19: shows thick high-resistivity sediments

line 20: low-resistivity sediments

line 21: resistivity sediments are found again and the entire sequence is capped

line 22: high-resistivity

line 23: low-resistivity layer

line 24: low-resistivity top layer

page 21, line 3: shows a much thicker

page 22, line 20: which might represent glaciotectonic deformation within the valley fill are seen

page 23, line 8: saltwater-saturated

line 9: shows low resistivities

line 20: saltwater-saturated area

line 22: relatively high resistivity, although it is still rather low - please, rephrase!

page 24, line 1: resistivity spots

page 25, line 6/7: The saltwater observed

line 11: had been flushed

line 20: seen in Fig. 10

line 22/23: spotwise

page 26, line 1: flow from below

page 27, line 5: buoyancy-driven

line 16: coordinates

line 22: contradicts the

page 28, line 14: As described above, the hydrogeology

page 29, line 4: relatively thick

line 13: Niebüll, may enhance

line 14: aquifers are in hyraulic contact

line 17: seen in Fig. 10

line 24: highly permeable

page 30, line 20/21: for the flow calculations, these elements have to be properly

line 22: fulfilled in the present investigation because a series of basic questions

page 31, line 3: not be possible to perform

line 11: age at selected locations would be helpful

Jürgen Ehlers.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 2629, 2012.