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Interactive comment on “3-D reflection seismic imaging of the Hontomín structure in the Basque-Cantabrian Basin (Spain)” by J. Alcalde et al.

Anonymous Referee #2

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I read this paper with great interest as it reports on the results of seismic data acquisition under difficult field conditions and challenging processing. Furthermore, the preliminary interpretation of the data, including the potential implications for future CO₂ storage, is interesting, although I think the authors should elaborate on this point.

Peter Bergmann uploaded a review of this manuscript on 29 September. I agree with his comments. In addition, I have a list of comments (see below) that I urge the authors to address during revision:

1) Numerous structures in the study area and their link to tectonics are mentioned. To what extent are these structures (still) assumed to be active, and what are their

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implications in relation to future CO₂ storage?

2) CO₂ storage is mentioned both in the abstract and the conclusion part of the paper, but the CO₂ storage potential of the rocks are in fact only briefly discussed in the body of the paper. The authors calculate a maximum storage capacity of the structure, but how do the authors expect the CO₂ to react with the surrounding rock? Will the CO₂ have the potential to e.g. dissolve the rock, and what are the potential implications?

3) It is mentioned on page 1582 that based on an internal report and the paper of Ogaya et al. (2013) "...dipping events steeper than 16 degrees are rather unexpected, and therefore, quasi-horizontal dips were assumed in the processing." To me that is a bit surprising given the structural complexity in the area in general. Moreover, what are the risk and potential implications of having overlooked steeply-dipping events?

4) On page 1591, I would have given rounded numbers for the estimated lateral resolution. The values given here indicate (unrealistic) high precision of these estimates.

Interactive comment on Solid Earth Discuss., 5, 1575, 2013.

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5, C588–C589, 2013

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