**Review:**
**Basement structure of the Hontomin CO 2 storage site (Spain) determined by integration of microgravity and 3D seismic data by Andres et al.**

**This paper presents a detail gravity model of the study area that incorporates seismic data to constrain the model. The paper is relevant and appropriate for inclusion in Solid Earth with modest revision.**

**General comments:**

**(1) Some of the figures need to be redone so that can be more readable in print. The text is too small in some and a larger font will be needed. For instance, Figure for location references along the edge of the Figs. 4a, b, c, and d, are unreadable and so the color bar key. Likewise, the stratigraphy key in Figure 5 is unreadable at the scale that I reviewed it at and would not likely be readable in print form at any scale.**

Figures have been revisited and modified according to the changes suggested by the reviewer (e.g. Figs…..). Now scales, color keys and stratigraphic keys are bigger and more readable. These changes have made the manuscript clearer, and the figures easier to follow.

**(2) Figure 5 should become Figures 5, 6, and 7 and all should have rock type keys.**

Figure 5 has been modified and rearranged into figure 5 and 6. Figure 5 now includes, a) the gravity profile 1, b) seismic line, c) gravity profile 2.
Figure 6 now includes the tree cross sections included in the study. All the figures now include a rock type key.

**(3) Figure 11 needs some work. It needs a key and the fault traces need to be clearer. For instance, what is meant by the "Fault" label on the right-side vertical axis versus the dashed lines that are drawn to represent faults? What do the two shades of all the colors mean? Very confusing.**

The aim of figure 11 (now figure 12 with renumbering) is to compare between the model proposed by Carola et al. 2015 and our model. They propose a thin-skinned configuration of the area with low-angle faults where we found it to be a thick-skinned structure. The burial of the pre-rift stratigraphic succession denotes the need of another fault affecting the basement, located somewhere between the NW limit of our model and the cross-section of Carola et al., towards the NW, to accommodate the increasing thickness of the layers.
The label "fault" on the right-side vertical axis is taken from Carola et al., as they interpreted a fault to be located at that depth.
Figure has been modified to clarify the meaning of the two color shades and the meaning of the continuous and dashed lines. Text has been added to the right-side axis to denote that it is taken directly from Carola et al. 2015. While modifying the figure we have detected an error concerning the thickness of the pre-rift and Keuper layers, and it has been corrected.

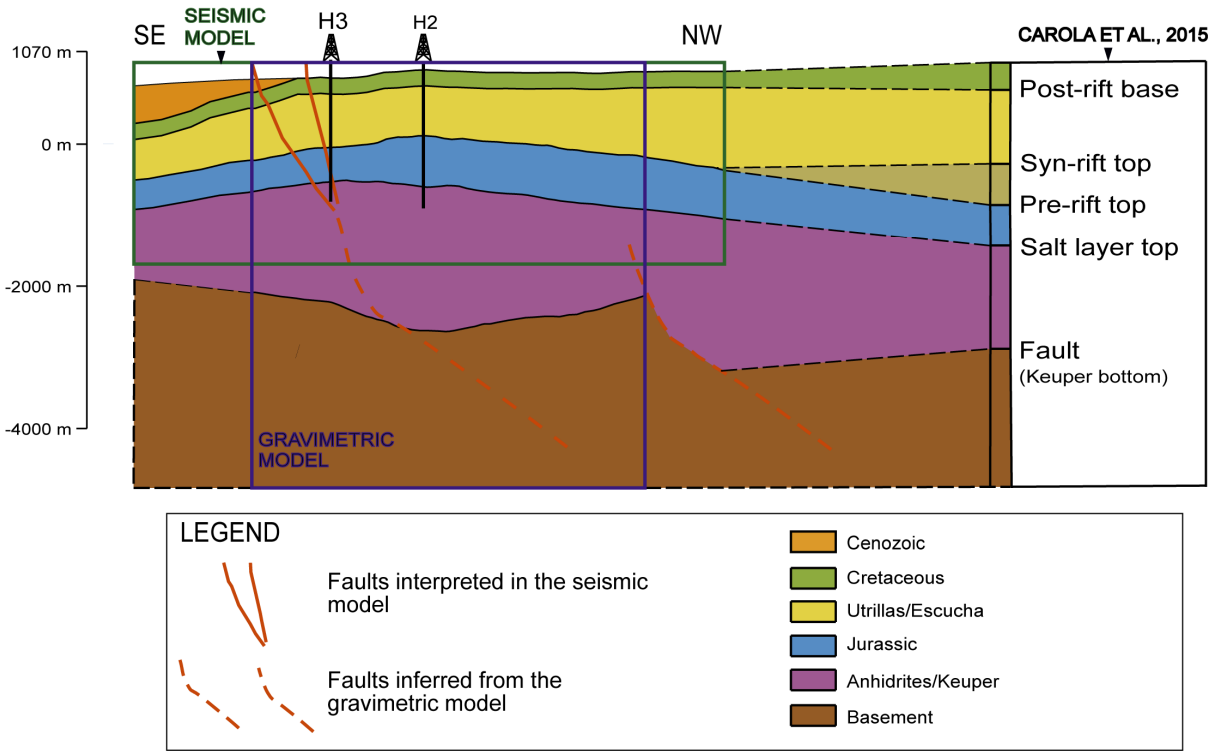


Figure 12: Correlation of the joint gravity and seismic model with that presented by Carola et al. (2015). Note the thickening of the salt layer to the NW. A new fault is proposed to accommodate the increased thickness. The location of the fault is speculative. The tilt of the hanging-wall is taken from the South Fault.

**(4)This paper is generally well written but pronouns have been abused. Many of the indefinite "it" need to be corrected and replaced with the noun that they refer to. Also, you should consider rewriting the any sentence that starts with "There is" and bring the noun to the front. These suggestions will make your meaning more clear.**

The use of the pronoun "it" has been amended and replaced with the noun they refer to.

**(5) "Data" is plural.**

All verb tenses associated with "data" have been corrected.

**(6) Lines 6-7: Explain what you mean by "expression". This sentence is unclear.**

The meaning of the sentence is that the vertical derivative is enhancing the short wavelength component of the data, therefore what it is imaging are shallow density contrast in the area.

The sentence have been reformulated to be clearer, "*The short wavelength that these features present in the vertical derivative map indicates that they respond to shallow density contrasts.*"

**(7) Lines 28-29: "calculate that of the Triassic" makes no sense. What are you calculating?**

What we are calculating is the thickness of the Triassic Keuper salts. The text have been modified to, "*The geometry of the top of the basement allows us to calculate the thickness of the Triassic Keuper salts*"

**(8) Table 1: What are all the ages of the formations? I think that you remove the work "Top" from all the Formation names. A formation has a density, not its top.**

Ages of the formations have been added and the word "Top" removed from the Formation names.