

Dear Lotte

We went through the three points that should be corrected. Two of them we fully agree and corrected them in adding some more explanation. With the second point we would like to add this work, but it is an EGU2021 abstract. However, to draw attention to ongoing work we placed the work from Dessa et al. (2020) in this discussion, which describes the SEFASILS experiment, where the work of Canva et al. (2021) is based on. Please find our answers on the three points in green below.

Thank you and best regards,

Anke Dannowski

Dear authors,

many thanks for the revision of the manuscript. To advance the progress of the submission, it proceeds with some technical corrections now only. These corrections refer to the final review report. Please tackle them in your final submission, and then I am happy to see this contribution printed.

With best regards, Lotte Krawczyk.

from the review report:

- To try to understand the dynamics of the deformation of the Ligurian basin without taking into account what is happening on its margins and even beyond in the Alpine domain is, in my opinion, a mistake because the driving processes of this deformation is certainly outside the basin.

We agree and possibly this was not clearly enough expressed in the recent manuscript. We added this introduction sentence in the section where we discuss the sources for the basin inversion. ***The driving mechanism for the deformation of the Ligurian basin has to be searched outside the basin. To summarise previous studies, sources for the regional compressional stresses in the basin centre could be: (1) Africa..."***

- Regarding the discussion of the structure of the Ligurian basin (central part) it would seem correct to cite the communication by Canva et al (2021) in parallel with the paper Dannowski et al (2020) as this work extends from the northern margin to the central ligurian basin and is a contribution in progress to the kwnoledge of the structure in the central part of the basin (section 2, line 75-76).

Unfortunately the reference that shall be implemented is only an EGU abstract. The poster has been taken off from the platform and it is impossible to extract needed information from the abstract alone. The work from Dessa et al., 2020 would fit here better, although this is a kind of cruise report presenting first results without in-depth analysis and interpretation. This will draw attention to future work in this area. We added: ***... crust remained (Dannowski et al., 2020). The analysis of a seismic refraction study along a profile from the northern margin to the basin centre (Dessa et al., 2020) might shed further light on the crustal structure. The Corsica-Sardinia block ..."***

- As the complex question regarding the temperature distribution and evolution inside a basin is discussed from Spooner et al. (2020) : may be precise what is the « ... 20° C warmer than at the edges (Spooner et al., 2020). » mentionned by the authors : is it a result from modelling ? measure ? at what depth ?

Changed to: ***"These effects are also seen in thermal models from the Alps and their forelands, where temperatures at shallow depths (approx. 5 km below sea level) in the centre of the Molasse Basin are 20° C warmer than at the edges (Spooner et al., 2020)."***