

Review of “Reprocessed 2-D airgun seismic reflection data SALTFLU (salt deformation and sub-salt fluid circulation in the Algero-Balearic abyssal plain) in the Balearic promontory and the Algerian basin” by Blondel *et alii*

General comments

The main focus of the paper is the method applied to reprocess legacy seismic data. Most of the text is dedicated to this issue. The title is therefore somehow misleading. I think that changing “Reprocessed” into “Reprocessing” (as it is stated at the beginning of the paragraph “Conclusions”) would be appropriate.

The method adopted combines several processes to different phases of seismic data elaboration in order to improve the quality of the final output. However, it is not always clear how each step has been selected by the authors and whether it corresponds to any automated protocol of the REVEAL software used.

Geological insight obtained by reprocessing the original dataset provides evidence of the enhancement of data imaging achieved through the method described which could be very useful in reprocessing other sets of legacy seismic data.

Specific comments

The paper would benefit by a more thorough comparison between legacy data and the present elaboration. Each paragraph of the “Methods” section would be more easily understood if complemented by a figure showing legacy data facing current results in order to point out differences and improvements (as it was done for figure 6).

I suggest to clearly separate the discussion concerning the reprocessing (which is a real discussion of results) from the geological interpretation which includes evidences derived from the literature and is used to support the improvements achieved through the application of the present method. Paragraph 5.3 might better constitute a separate paragraph 6 renamed “Geological implications” to be put before 7 “Data availability” and then 8 “Conclusions”. This last paragraph is appropriate and corresponds to what the paper describes.

The main geological considerations concerning salt units are actually the subject of a paper already published (Blondel *et alii*, 2022) in which the present paper was cited as in prep. The only additional geological information seems to concern potential mud volcanoes.

Altogether, the authors should pay more attention to details and cross references (e.g. fig.4 is missing part of the caption), as also reported below in the Technical corrections.

Technical corrections

Line 48: table 1 is not present in the paper

Line 118: it is better to rephrase: "These reprocessed images allow to highlight ...", since this is not thoroughly described in this paper.

Line 136: it would be better to represent the location of borehole Alger 1 in the figure

Line 223: delete depth

Line 237: reference should probably be to section 3.4.1

Line 244: reference should probably be to section 3.4.2

Line 244: Please, explain the abbreviation CDP as it has been done in other cases

Line 265: reference should probably be to section 3.3

Line 277: reference should probably be to section 3.4.1

Line 277: reference should probably be to section 3.4.1

Line 311: reference should probably be to section 3.3

Line 317: reference should probably be to section 3.2

Line 363: reference should probably be to section 5.3.2

Line 468: change du into due

Line 503: delete are

Line 508: change supports into support

Line 593: add as before that, i.e. as that

Line 625: citation should be put in brackets, i.e. (Infante-Paez and Marfurt, 2017)

Line 629: add basin after Formentera