

The manuscript is entitled **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.**

Main objective of the present manuscript is to better imaging of the salt structures (particularly base salt) which was interpreted as flat lying layer cake in the previous processing and interpretations. Several challenges face the authors including; velocity variation, eliminate multiples and improve signal to noise ratio at depth. The authors tried to overcome these challenges through introducing a new technique for processing of the 2D multi channel seismic reflection data set through the following stages; broadband processing; multi-domain denoising and demultiple and construction of the geologically guided velocity model utilizing iterative pre-stack migration and travel time tomography. The manuscript is well written but need some modification in order to be suitable for publication. The present manuscript requires corrections.

- 1) The Geologic setting section in this manuscript requires more elaboration about the stratigraphic framework and tectonic setting of the study area.
- 2) The manuscript provides new technique for the processing legacy 2D seismic data and new way to build detailed velocity model (show enhanced salt top, salt base and pre-salt reflectors). New features as DHI and mud volcanoes have been observed as result of such processing, the reviewer recommend (**if available**) to reapply the same processing technique in area with same complex conditions (water depth, salt deformation,..... etc) in area with at least 3 wells containing velocity data (preferred VSF data) in order to correlate the well velocities to seismic velocities (specially with presence of high velocity salt thick layer) and better understanding the acquired data as non-zero phased data (which will affect the processing results significantly).
- 3) Severe smoothing of the velocity model and approximation of the navigation data puts the output seismic sections are much uncertain and need to be taken as regional context.
- 4) Compare the mud volcanoes with some regional surface exposures of the mud volcanoes as Nirano mud volcano in Italy, it would be great if you construct map showing hypothetical distribution of DHI in the study area.

- 5) Construct a table that summarizes the seismic facies showing the new subdivisions of the Messinian Upper and Lower Units (obtained from the newly created seismic profiles) because it is unclearly presented and makes controversy to the reader.
- 6) Construct a table that summarizes the correlation of the seismic facies obtained from Mallorca Basin and the seismic facies of the Belaric Promontory because it is unclearly presented and makes controversy to the reader.
- 7) Add (Feng and Reshef, 2016) and (Jackson and Hudec, 2017) to the references list.

**Figures:**

1) **Figure No. 1**

- Enlarge Figure.1b, highlight the location of ODP site 975 and add scale bar to the map.
- Add coordinates to the figure.1a
- Add location of Alger-1 well.
- Add location of the Mallorca Basin.
- Add detailed stratigraphic column for the study area showing stratigraphic aspects and main tectonic events.
- Add schematic geoseismic line showing structural configuration of the study area, so the reader would be able to comprehend the complexity the velocity model.

2) **Figure No.9**

Add directions NW-SE along the line SF06.

3) **Figure No.10**

Add directions NW-SE along the lines SF03, SF08 and SF09.