

Interactive comment on “The preserved plume of the Caribbean Large Igneous Plateau revealed by 3D data-integrative models” by Ángela María Gómez-García et al.

Anonymous Referee #2

Received and published: 10 November 2020

General comments

Gómez-García et al. used 3D data-integrative models to identify lithospheric-scale gravity anomalies (and thus density heterogeneities) across the Caribbean and north-western South American plates. The inversed lithospheric structure is then adopted to reveal the development of the Caribbean Large Igneous Plateau (CLIP) as the fossil plume conduits due to interactions of the Farallon plate and a mantle plume. They presented a comprehensive workflow that utilizes various geophysical datasets to reveal a high-resolution lithospheric structure. That workflow shows great values as it can be easily and widely applied to other areas worldwide. This manuscript is well written

C1

with a clear structure and logic flow, great details of the method and promising results and robust discussions. I highly recommend this work to be published after only minor corrections as showed below.

Lines 269: Can you specify the “medium size wavelength”? Largely in what ranges? Same for the “short wavelength” and “long wavelength” if possible.

Line 272: Further to the previous comment, here can you also give a bit more explanation on how that “medium size wavelength” gravity residual would correspond to density anomalies at depth < 50 km?

Technical corrections

Line 259: Change “. . . a sharp increase on . . .” to “. . . a sharp increase in . . .”

Line 556: Change “. . .Large Igneous plateaus. . .” to “. . .Large Igneous Plateaus. . .”?

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2020-153>, 2020.

C2