

Interactive comment on “Some improvements in subbasalt imaging using pre-stack depth migration” by I. Flecha et al.

Anonymous Referee #3

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Comments on “some improvements in subbasalt imaging using pre-stack depth migration” by I. Flecha et al

The paper is an enjoyable read and presents interesting results that will have real benefit to explorers working in basalt provinces. The paper presents a relatively brief description of the use of PSDM for imaging within and below basalt flows within the Faroe Trough, UK

Some comments for improvement 1) The authors mix terms in many cases, sometimes it is a molten rock, sometimes it is flows sometimes it is lava. All very confusing they need to stick one term. 2) There is a similar comment regarding the use of reflections and reflectors. There were one or two cases where they confused one with the other. 3) I know it is a short paper however in the real case discussion, they mention several

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processing tests without presenting results so the author can see the improvement they describe. This would add to scientific discussion on the advantages of the process.

I also add a few suggested grammatical changes that I believe would improve readability

p2 l18 spelling - change *inferred* to *infer* p2 l19 add the word *principles* after the word *restrictive* p2 l22 delete the words *have allowed* to obtain and replace with the word *generate*

p3 l4 move the sentence “The basalt acts as a barrier for seismic signal.” to after sentence ending ... Bean, 2002). on p3 l2 p3 l6 suggest change *rugged* to *irregular* p3 l12 change “with perspectives” to “ready” p3 l12 change *previous* to *underlying* p3 l13 change “in the Faroe” to “over the Faroe” p3 l19 change *molten* to *basaltic* p3 l20 change “that basalt” to “this basalt” p3 l23 change “of the extension” to “of extension” p3 l24 change “Lava flows” to “Basaltic flows”

p4 l2 change *flows* to *flow* p4 l11 change “lava pile can make” to *basalt pile make* p4 l14 change “rugged feature” to “irregular topography” p4 l17 change *Heterogeneities* to “In addition, *heterogeneities*” and join this sentence to previous paragraph

p5 l6 add comma after *model* p5 l7 add comma after *methods* p5 l8 change “to handle” to “the handling of” p5 l9 change “consist in” to “consist of” p5 l11 spelling - change *half-derivative* to *half-derivative* p5 l12 change “model, previously” to “model that has been previously” p5 l14 change “migration are numerical” to “migration is the generation of numerical” p5 l18 use of the word *experiment*. do you mean *data* p5 l24 change “calculated on this” to “calculated for this” p5 l29 change “pair their” to “pair, their”

p6 l1 change “represents for” to “represents, for” and “point the” to “point, the” p6 l2 change “point and is the” to “point. This new travelttime table becomes the” p6 l9 delete word *acquired* p6 l9 delete word “processed” p6 l10-l12pt move sentence “This datasetetc.” to p6 l15 after sentence ending *feathering*. p6 l12 change “In addition,

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these were acquired" to "acquired"

p7 l1 change "over the" to "overlying the" p7 l6 change filtering. to "filtering had been applied." p7 l6 change "This may provide a more" to "This provides more" p7 l7 change "Note that while" to "While" p7 l7 change "methodologies give as a result a section" to "methodologies produce a section" p7 l9 delete word valuable p7 l14 change "offset reflections" to "offset these reflections" p7 l14-l15 delete words "that are masked in the water wave cone" p7 l16 delete words "In this sence," p7 l16 change "the use of long offset considerably" to "The use of long offset data therefore considerably" p7 l25 add comma after cone

p8 l2 change word The to This p8 l2 delete words developed by Trinks et al. (2005) p8 l4 change "were only use" to "were used" p8 l5 change requires to required p8 l6 change "image the" to "image. The" p8 l7 change structure to produced p8 l8 change correlate to correlates p8 l13 change therefore to suggesting p8 l15 delete words "in a reasonable way" p8 l24 change "for the exploration" to "for exploration" p8 l25 change "layers with prospects can have been trapped between" to "layers can be located between" p8 l26 change "Thus the" to "The" p8 l26 change trapped to hidden p8 l27 change "structures." to "structures to gauge potential petroleum resources becomes clear."

p9 l1 change "2003) considering only" to "2003). Their scheme uses only" p9 l2 change "image is obtained because" to "image was produced because" p9 l3 change first "are" to "were" p9 l5 change "The fact of migrating" to "Migrating" p9 l6-l6 change "causes that final image is highly" to "causes the final image to be highly" p9 l6 change "stage previous" to "undertaken prior" p9 l7 change "is also" to "was" p9 l7-l9 delete words "but, in this . . .to. velocity model." p9 l10 delete subjective p9 l11 delete words "out of the water-wave cone," p9 l14 delete word some p9 l14 change improvements to improvement p9 l19 change word also to then p9 l20 change word under to beneath p9 l21 delete words " by using conventional seismic reflection techniques" p9 l23 change "In contract to previous suggestions, the" to "The"

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end

Interactive comment on Solid Earth Discuss., 2, 1, 2010.