Solid Earth
Discussions

Open Access

EGU

[SED]

Interactive
comment

Interactive comment on "Evaluating Seismic Beamforming Capabilities of Distributed Acoustic Sensing Arrays" *by* Martijn P. A. van den Ende and Jean-Paul Ampuero

Eileen Martin

eileenrmartin@vt.edu

Received and published: 25 September 2020

This point of spatial directional derivatives leading to higher influence of lateral heterogeneities makes sense. You went in one direction to show this (node -> DAS equivalent). If you convert to single component velocity equivalent (described in Wang et al 2018) before applying MUSIC beamforming, is this enough to noticeably reduce the influence of those heterogeneities?

Looking forward (beyond scope of this paper), you may want to get in touch with Siyuan Yuan, a student at Stanford. He did a technical report a few years ago on a method to improve simple beamforming with adjoint wave operators on DAS data, and he ran into

some similar-looking artifacts in the process of that work. Ultimately, he ended up with separate corrections for P/SV and SH waves depending on the direction of fiber, and a few other optimization techniques to improve the results. I'm not sure if that work got turned into a paper, but it could be a good starting point for finding some ways to adjust MUSIC to work better.

Thanks for an interesting paper! Eileen Martin (Virginia Tech)

Interactive comment on Solid Earth Discuss., https://doi.org/10.5194/se-2020-157, 2020.