

Interactive comment on “Sensing earth and environment dynamics by telecommunication fiber-optic sensors: An urban experiment in Pennsylvania USA” by Tieyuan Zhu et al.

Tieyuan Zhu et al.

tyzhu@psu.edu

Received and published: 19 October 2020

1) The argumentations raised by the comment 1 and 2 of the second reviewer need to be included in the manuscript.

Reply: We highlighted line 130-140 for comment 1. We've added a new paragraph in the manuscript to response comment 2 (Line 140-146). Thank you.

2) Lindsey 2020 shows that the conversion from strain to velocity using the fk rescaling method is strongly dependent on the threshold parameter. Which value have you used? Did you find a similar sensitivity?

Printer-friendly version

Discussion paper



Reply: We used 40 traces with the sigma ($1e-5$) and 400 traces with $1e-3$. It is not surprising to consider highly variable waveform within 400 traces. Another factor to consider is the unknown DAS instrument response. We refer readers to Lindsey et al. 2020 and further discussion of this conversion is beyond of the scope of this article.

Lindsey, N. J., Rademacher, H., and Ajo-Franklin, J. B.: On the broadband instrument response of fiber-optic DAS arrays, *Journal of Geophysical Research: Solid Earth*, 125, e2019JB018 145, 2020.

3) You have reported well how to calibrate the DAS records using the scaling factor to obtain signal in strain rate unit. It is important to estimate the amplitude of the strain rate signals, especially for the new class of records that you show for the first time in the manuscript. So, please convert the figures in the manuscript from DAS unit to strain rate.

Reply: Thanks for this suggestion. All figures of DAS data are plotted in strain rate in the revised manuscript.

Interactive comment on *Solid Earth Discuss.*, <https://doi.org/10.5194/se-2020-103>, 2020.

Printer-friendly version

Discussion paper

