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Interactive comment on "Investigation of the Effects of Surrounding Media on the Distributed Acoustic Sensing of Helically-Wound Fiber-Optic Cable with Application to the New Afton Deposit, British Columbia" *by* Sepidehalsadat Hendi et al.

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The authors consider an important problem, but they address it not in the best way.

The authors claim that they have developed a new method to model strain generated in fiber optic cables by seismic waves. However, the procedure described in Appendix A is about 70 years old. It was introduced in papers by Thomson (J. Appl. Phys., 21, 89–93, 1950) and Haskell (Bull. Seism. Soc. Am., 43, 17–34, 1953), and then modified by Fuchs (J. Phys. Earth, 16, 27–41, 1968) and Kennett(Bull. Seism. Soc. Am., 64, 1685–1696, 1974) to improve the numerical stability. This is a common procedure, which is frequently used in geophysical studies. It can be applied to both plane layers

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and cylindrical layers.

In their study, the authors model a cylindrical cable as a plane layer. This is a rough approximation, which would be justified if there are no better approaches. However, this is not the case. In particular, the paper by Kuvshinov (Geophysical Prospecting, 64, 671-688, 2016) explains how to evaluate cable strain in a layered cylindrical geometry. I do not understand why the authors introduce an inferior method, which is not simper but less accurate.

As the authors said, it is important to analyze the effect of the surrounding medium on fiber optic cables. Such an analysis will be of interest if it is done in cylindrical geometry. The current model presented by the authors is not novel and it is a step back compared to the state-of-the-art.

Interactive comment on Solid Earth Discuss., https://doi.org/10.5194/se-2020-197, 2020.