

Dear Wenbo Wu:

Thank you for allowing us the opportunity to improve our manuscript and thank you to the two reviewers for their insightful comments.

Below you will find our responses to the reviewers' comments. We have also updated the manuscript to address their concerns and improve our analysis.

Thank you again for your time and consideration. We look forward to your decision.

Sincerely,

Thomas Luckie, Rob Porritt, and Christian Stanciu

Reviewer #1

1. Thank you for the suggestion. We have provided examples of passive, active, and opportunistic sources in the Introduction.
2. We have added interpreted reflectors observed in the footstep reflection profiles in Figure 8 to allow for improved clarity when comparing the three profiles.
3. While we would expect DAS data to show such directional sensitivity, we do not see this in our footstep data (Figure 2). This is also consistent with near-field impacts recorded by Kang et al. (2025). Thus, we do not apply amplitude scaling to our synthetic data.
4. The 100 Hz center frequency was chosen for two reasons: (1) when combined with a 5-100 Hz bandpass filter, the frequency content of the resulting synthetic reflections matched that of the observed footstep reflections and (2) a longer wavelength source would not produce useable reflections given the model size and grid spacing of our synthetic forward model.
5. Thank you for sharing these references. They have been added to the Introduction and body of the paper.
6. Minor comments
 - a. Figure 1 has been updated with a lighter shaded region for the Abbott et al. survey area and a thicker, darker line for our DAS deployment to make each study more distinct.
 - b. A color bar has been added to Figure 2.

Reviewer #2

Thank you for your comments. We agree on your two main points: (1) that the difference in velocities between Abbott et al. (2006) and our study may be due to changes in properties in the shallow subsurface over the last ~20 years and (2) that performing ambient noise interferometry would provide a nice validation of the current footstep model. We have included language throughout the body of the manuscript to emphasize point (1).

Regarding point (2), performing ambient noise interferometry is outside the scope of our study. Our goal in this study was to demonstrate that footstep sources can be used to image the subsurface, providing an alternative to traditional seismic approaches. While noise interferometry would be a valuable approach for validating our velocity model, we do not have enough data to perform this analysis. Thus, noise interferometry would be a potential avenue for future work. We have included these thoughts in Lines 344-359 of the updated manuscript.