Supplementary material for Alaska Upper Crustal Velocities Revealed by Air-to-Ground Coupled Waves From the 2022 Hunga Tonga–Hunga Ha'apai Eruption

Kenneth A. Macpherson * [1], **David Fee** [1], **Stefan Awender** [1], **Bryant Chow** [1], **Juliann Colwell** [1], **Sam Delamere** [1], **Mathew Haney** [2]

[1]Wilson Alaska Technical Center, Geophysical Institute, University of Alaska Fairbanks, 2156 Koyukuk Drive, Fairbanks, Alaska, U.S.A.,

[2]Alaska Volcano Observatory, United States Geological Survey, Anchorage, Alaska, U.S.A

Author contributions: *Conceptualization*: Kenneth A. Macpherson, David Fee. *Formal Analysis*: Kenneth A. Macpherson, David Fee, Stefan Awender, Bryant Chow, Juliann Colwell, Sam Delamere, Mathew Haney. *Writing - Original draft*: Kenneth Macpherson. *Writing - Review & Editing*: Kenneth A. Macpherson, David Fee, Stefan Awender, Bryant Chow, Juliann Colwell, Sam Delamere, Mathew Haney. *Project administration*: David Fee.

1 Supplementary material

Below is a supplementary figure that was not included in the main text. This figure summarizes the relationship between our V_s estimates to a depth of 35 meters and a geological map for Alaska. The 46 stations with high coherence in the [1.2, 1.6] Hz band spanned 24 unique rock types. We generalized these to 3 broad categories of sedimentary, crystalline, or glacial till to make the figure. As expected, crystalline rocks exhibit the highest means, followed by sedimentary and till. The data is from

Wilson, F.H., Hults, C.P., Mull, C.G, and Karl, S.M, comps., 2015, Geologic map of Alaska: U.S. Geological Survey Scientific Investigations Map 3340, pamphlet 196 p., 2 sheets, scale 1:1,584,000

*Corresponding author: kamacpherson@alaska.edu

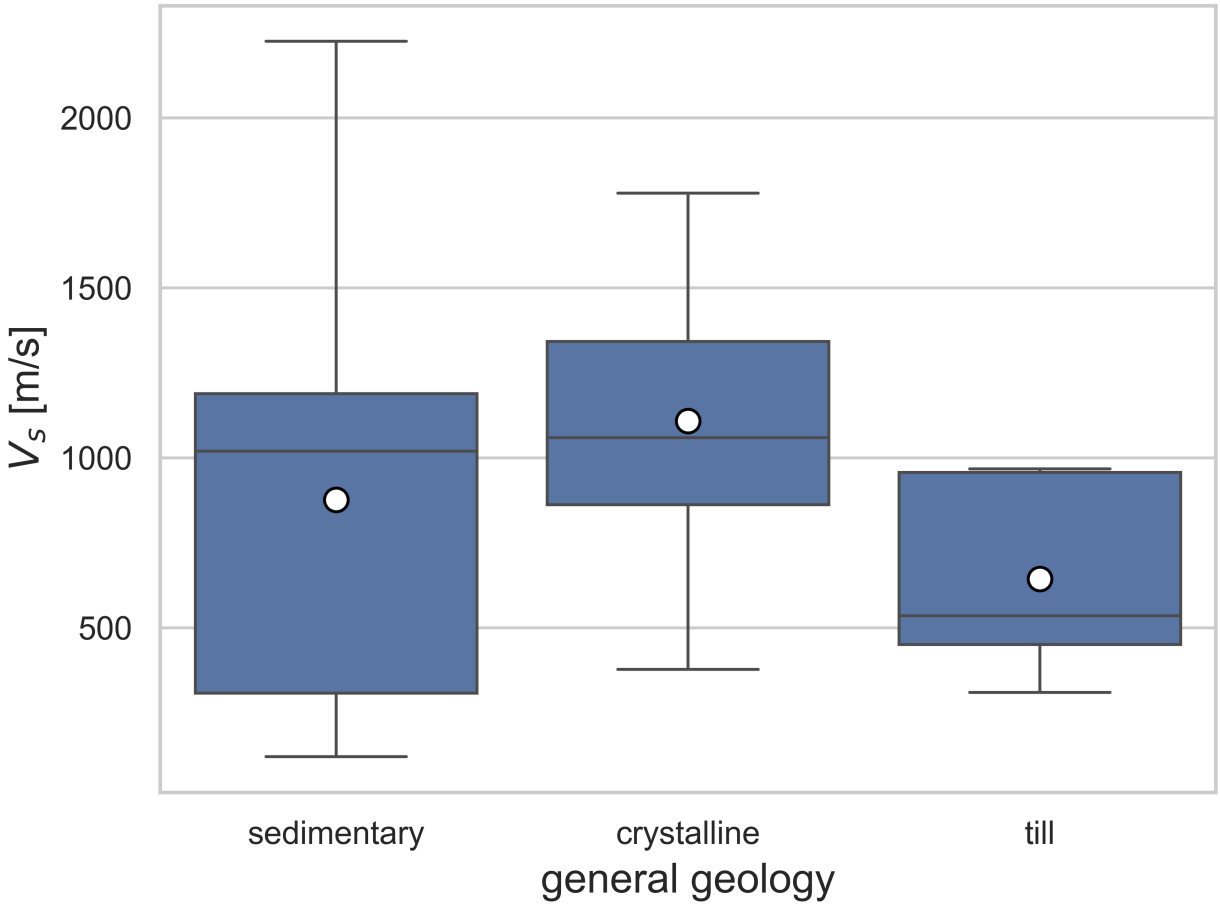

Figure 1 S1: Box plot showing V_s estimated from coupling from the Hunga, Tonga pressure waves in Alaska organized by general rock type from the Alaska geological map. The median values is plotted by a horizontal line in each box, while the mean is denoted by white circles. The bars extend to 1.5 times the inter-quartile range.