

## Denoising S-Net Data to Image the Japan Trench: Comparisons to Alaska and Cascadia

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The release of the S-Net data by NIED has created access to a wealth of information for seismologists. However, the S-Net data is inherently noisy due to its placement on the ocean floor. To suppress noise within the data, we have modified the deep-learning approach taken by Zhu et al., 2018 to denoise the S-Net data; we assembled data from on-land Hi-Net stations as the “clean” training dataset, and added the S-Net data as its noisy counterpart. This denoised data set is used to extract compressional wave arrival times to create a high-resolution image of the Japan Trench in hopes of better understanding the structure of the uppermost 200km of the mantle. The structure of the Pacific Slab is compared to Alaska and Cascadia to compare subduction zone features using identical methods. By directly comparing Japan, Alaska, and Cascadia, we seek to make a preliminary attempt at exploring comparable features in these subduction zones to work towards a more unified view of subduction zone processes.

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