Comparison of VLA Ambient Noise Observations with ANDES Predictions

Final Report to
Office of Naval Research
Contract N00014-89-D-0142 (DO#6)
Sponsor: Naval Ocean and Atmospheric Research Laboratory,
SC, MS 39529
Principal Investigator: William S. Hodgkiss

MPL-U-29/91
May 1991

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University of California, San Diego
Scripps Institution of Oceanography

91-07226
11. TITLE (Include Security Classification)

COMPARISON OF VLA AMBIENT NOISE OBSERVATIONS WITH ANDES PREDICTIONS

12. PERSONAL AUTHOR(S)

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13a. TYPE OF REPORT

final report

13b. TIME COVERED

FROM TO

14. DATE OF REPORT (Year, Month, Day)

May 1991

15. PAGE COUNT

1

16. SUPPLEMENTARY NOTATION

The objective of this work was to perform a comparison of ambient noise observations from the July 1989 large aperture vertical line array (VLA) experiment and predictions from the ANDES (Ambient Noise Directionality Estimation System) model.

18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)

ambient noise, vertical line array, horizontal directionality, vertical directionality
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Final Report
Office of Naval Research
Contract N00014-89-D-0142 (DO#6)
Sponsor: Naval Ocean & Atmospheric Research Laboratory, Code 1252
Total Award: $75,000

Introduction

The objective of this work was to perform a comparison of ambient noise observations from the July 1989 large aperture vertical line array (VLA) experiment and predictions from the ANDES (Ambient Noise Directionality Estimation System) model.

Accomplishments

There were two main thrusts to this work: (1) porting ANDES to a Sun workstation and (2) ambient noise predictions.

ANDES was ported successfully to a Sun workstation where it then was used to make ambient noise predictions. A few issues needed to be resolved in moving the code from a DEC VMS operating system. These issues were discussed with SAIC as well as ARL/UT and SI.

ANDES then was used to make ambient noise predictions at the NE Pacific site of the July 1989 large aperture vertical line array experiment. Omni-directional levels, horizontal directionality, vertical directionality, and simultaneous horizontal-vertical directionality predictions were made. These predictions were compared to observed ambient noise omni-directional levels and vertical directionality as computed by a FFT beamformer. A noticeable difference between the ANDES predictions and the ambient noise observations is in the low angle-of-arrival region of the vertical directionality characteristics. ANDES predicts a dip or hole in the energy arriving near the horizontal which is not observed in the actual data.