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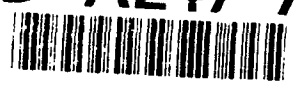

Visitor Support

Fred H. Fisher
Principal Investigator

Final Report to the Office of Naval Research
Contract N00014-89-D-0142-0024
Period 1 August 1991 - 31 January 1992

MPL-U-11/92
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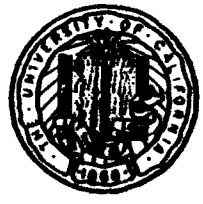

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This report covers activities undertaken by Assistant Prof. J. D. Penrose, visiting scientist from the Centre for Marine Science and Technology, Curtin Unversity, Perth, Western Australia, during the period August 1991 - January 1992. Three major activities were undertaken during the visit; completion of two projects on acoustic backscatter, development of background information on noise and propagation and he preparation of a number of initiatives relating to US/Australian scientific interchange.

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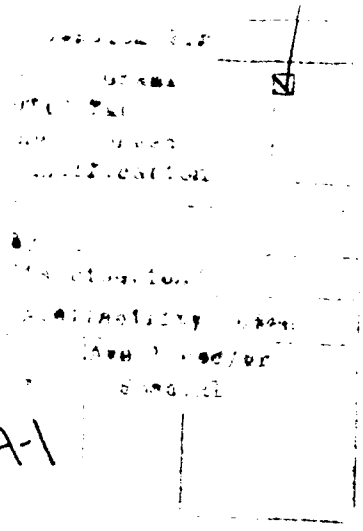

Visitor Support

Fred H. Fisher, Principal Investigator

Final Report Prepared for the
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Abstract

This report covers activities undertaken by Assistant Prof. J. D. Penrose, visiting scientist from the Centre for Marine Science and Technology, Curtin University, Perth, Western Australia, during the period August 1991 - January 1992.

Introduction

This report covers activities undertaken by Assistant Prof. J. D. Penrose as visiting scientist from the Centre for Marine Science and Technology, Curtin University, Perth, Western Australia. This visit was supported in part by the United States Office of Naval Research, through AEAS program. Three major activities were undertaken during the visit; completion of two projects on acoustic backscatter, development of background information on noise and propagation and the preparation of a number of initiatives relating to US/Australian scientific interchange.

Acoustic Backscatter

This work resulted in the preparation and submission of two papers;

Palumbo, D.,Penrose, J. D. and White, B. A. "Target strength estimation from echo ensembles"; submitted to the Journal of the Acoustical Society of America.

Penrose, J. D., Conde, M. and Pauly, T J. "Acoustic detection of ice crystals in Antarctic waters"; submitted to the Journal of Geophysical Research.

Both papers acknowledge the contract support noted above.

Noise and Propagation

Several recent developments have provided motivation to examine acoustic noise and propagation in the Indian Ocean region off the Western Australian coast. The Royal Australian Navy some years ago began a long term program to locate a significant naval presence on the western perimeter of the country. This has led to a major base build up near Perth and increased interest in ocean environmental parameters, including the ambient noise field. During the author's stay at MPL, discussions were held with MPL personnel, a software propagation package was obtained and extensive documentation on noise and propagation topics was collated. In addition, a sonobuoy based noise measurement project was developed and costed. These initiatives will be used in the Applied Physics program at Curtin University and have led, in part, to some of the joint activities referred to below.

US/Australian Scientific Interchange

This activity has taken two forms; the development of joint projects and plans for personnel interchange.

- **Joint Projects.** Concept notes have been prepared for an Indian Ocean Noise Measurement Experiment. These are presently under review by MPL staff and, it is anticipated, will shortly be submitted to Washington and Canberra. In part, the proposal seeks to utilize the provisions of the Bilateral Science and Technology Program involving our two countries. It proposes a joint experiment involving MPL/ Curtin University and the Australian Defense Science and Technology Organisation during 1993. The recent trial of acoustic techniques in the Global Warming Project has led to the adoption of a Western Australian location for the major Australian node of the extended project now under review. A consequence of this is the inclusion of the Curtin University Centre for Marine Science and Technology as participants in the project.
- **Personnel Interchange.** Proposals have been developed to facilitate visits to Scripps by two Curtin University graduate students. One visit has now been arranged and funded; the other awaits grant approval. Discussions have been held with several MPL personel with a view to arranging visits to Curtin over the next several years. One NOSC staff member has also been involved in these discussions and an approach has been made to involve the Australian DSTO in these activities. These discussions are proceeding with a view to facilitating such visits in the 1992-93 period.

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