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FINAL REPORT FOR
CONTRACT N00014-84-C-0180.

SUBTASK 27.1

SAIC-85/1047

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1March 1985

Report SAIC-85/1047

FINAL REPORT FOR CONTRACT N00014-84-C-0180, SUBTASK 27.1

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Final Report

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NAVAL OCEAN RESEARCH AND DEVELOPMENT ACTIVITY
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FINAL REPORT FOR CONTRACT N00014-84-C-0180, SUBTASK 27.1

1. INTRODUCTION

1.1 Contract Information. This document is the final report for Office of Naval Research Contract Number N00014-84-C-0180, Subtask 27.1. The work under this contract was conducted during the period from 3 January 1984 to 2 January 1985. This was the only funded task in the contract specifically related to acoustic modeling in the Arctic. The work in this task was carried out in conjunction with the environmental modeling described in Subtask 28.1 - Environmental Characterization.

2. SUBTASK 27.1 - HIGH ANGLE PE APPLICATIONS

2.1 Statement of Work. High Angle PE shall be used to make predictions of transmission loss in the shallow-water ice-covered shelf environment. Optimum depths, frequency, and depression angle shall be evaluated. Effects of ice and basement roughness shall be evaluated.

2.2 Work Performed. The High Angle PE model was used to directly simulate the effects of ridge keel structures on acoustic transmission in the Arctic environment. Because the environmental modeling in Task 28.1 was restricted to the development of the environmental inputs for ice properties, the HAPE modeling effort in this task addressed only acoustic modeling problems related to ice properties, and de-emphasized the ocean bottom/shallow water problems. The HAPE model was used to test the adequacy of various environmental models for the prediction of transmission loss. The final results of this work are documented in SAIC Report No. SAI-84/1132, "Ice Statistics and Acoustic Scattering in the Arctic Basin."