OBJECTIVES

This is a study of sea ice behavior, including generation of under-ice noise. The objectives were to:
(1) measure ambient noise levels during the CEAREX Drift Experiment, analyze and archive the data;
(2) gain understanding of processes that cause ice to emit noise, and model under-ice noise generated by different physical processes, especially by shearing of the oceanic mixed layer, micro-cracking, pressure and shear ridging;
(3) integrate ice mechanics research with fundamental investigations in solid mechanics, materials, ocean engineering, and acoustics to improve understanding of ice stress and its relationship fracture dynamics to ambient noise and low frequency acoustic interaction;
(4) understand the mechanical energy balance of the ice cover and the energy exchange through the atmosphere-ice-ocean system;
(5) understand mathematical characteristics of ice dynamics models and their relationships to observed lead patterns; and
(6) examine the large scale failure processes that control lead formation and the capability of plasticity models to simulate these processes.

Results of the study were presented in the articles described in the following list of publications.

Ambient noise data measured during the CEAREX Drift Experiment are reported on the CD-ROM titled, "Eastern Arctic Ice, Ocean and Atmosphere Volume 1" and available from the National Snow and Ice Data Center, CIRES, University of Colorado, Boulder.

PUBLICATIONS

a) papers published in refereed journals

b) papers submitted to refereed journals

c) books or chapters published

d) books or chapters submitted

e) papers (not refereed)

**INVITED PRESENTATIONS**

Pritchard, R. S., "Modeling Under-ice Ambient Noise," Invited presentation to NOARL as part of Distinguished Lecture Series, Stennis Space Center, MS, 29 November 1990.