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LONG-TERM GOAL

A research Chair in Arctic Marine Science has been established by the Chief of Naval Research to increase the awareness of naval operational concerns among national and international polar scientists across a broad spectrum of disciplines.

OBJECTIVES

To foster oceanographic research in the Arctic, acquaint naval officer students and other students with Arctic problems, reduce results of pure research to operational usage and publicize Navy interest in the Arctic region.

APPROACH

Annually the PI conducts a national/international search for candidates for the Chair. Solicitations are made by letter to potential candidates, to institutions have in a polar interest and by advertisement in EOS. Candidates are selected based on their reputation, scholarly contributions to polar science and their science specialty to ensure broad representation from the observational and modeling communities. Typical candidates are those with specialties in remote sensing, ice physics, underwater acoustics, chemical oceanography, climate dynamics as well as the more traditional physical oceanographer or atmospheric scientist.

WORK COMPLETED

Chair recruitment proceeded as described above. Dr William D. Hibler, III from Dartmouth College was selected as the incumbent for FY98.

RESULTS

Results specific to ONR-supported work carried out by Dr. Hibler are reported in his summary. While at NPS, Dr. Hibler wrote a code to modify PIPS 2.0 to produce output fields of energy dissipation rate, a necessary component for an Arctic ambient noise model being developed. He also assisted Yuxia Zhang (NPS) in developing an energy-conserving ice rheology for her new high resolution coupled Arctic ice model.

IMPACT/APPLICATIONS

By spending a year at NPS, Dr. Hibler is more aware of Navy needs and operational requirements, factors that will carry over in future years. Specifically, his improvements in ice rheology are likely to become incorporated in operational models.

TRANSITIONS

The work that Dr. Hibler carried out while at NPS is expected to transition quickly to PIPS 2.0 and later into PIPS 3.0.

RELATED PROJECTS

While at NPS Dr. Hibler lead the session on ice mechanics at the PIPS 3.0 workshop. He is actively working with Prof. Semtner's group in developing an anisotropic ice rheology. He also assisted Profs. Bourke and Wilson with their Arctic ambient noise model development efforts.

PUBLICATIONS

Those produced by Dr. Hibler are reported separately on his summary.

Bourke, R. H. and T. B. Curtin, editors, Arctic Studies, Naval Research Reviews, 1 (L), 1998.