

**Application Form
for
U.S. Research Projects and Expeditions in Greenland**

Reserved U.S. Department of State

Reserved Danish Polar Center

Please read carefully DPC's on-line Planning Guide before you start to fill in the form

GENERAL INFORMATION

Title of project or expedition

Variability and Forcing of Fluxes through Nares Strait and
Jones Sound: A Freshwater Emphasis

Total number of participants

35

Sponsors / Name of US agency (contact person)

National Science Foundation—Office of Polar Programs—Arctic
Arctic Climate System Studies
Dr. Luie Tupas, Program Manager
Dr. Simon Stephenson, Logistics Program Manager

Phone

703-292-7425

Fax

703-292-1039

E-mail

ltupas@nsf.gov

Name of responsible project or expedition leader

Dr. Kelly Kenison Falkner

Address of responsible project or expedition leader

College of Oceanic & Atmospheric Science
104 Ocean Admin Bldg.
Oregon State University
Corvallis, OR 97331-5503

Citizenship Date of birth

Phone Fax

E-mail

Have you applied for a permit before ? Yes No

Will you need access to the National Park ? Yes No

If yes, please cf. **Cover Letter** and **Firearm Licence Form**

Activity area in Greenland

(Indicate local place names and state geographical longitude and latitude of boundaries and base camp locations. Enclose a map, preferably in scale 1: 250000, with the information)

Work is to take place in the ocean in Northern Baffin Bay, throughout Nares Strait to the Lincoln Sea. The work area is bounded by 74 to 84 degrees N and 60 to 76 degrees W. See attached map.

Points of arrival and departure in the activity area

Thule Air Base; point of departure for scientific personnel.

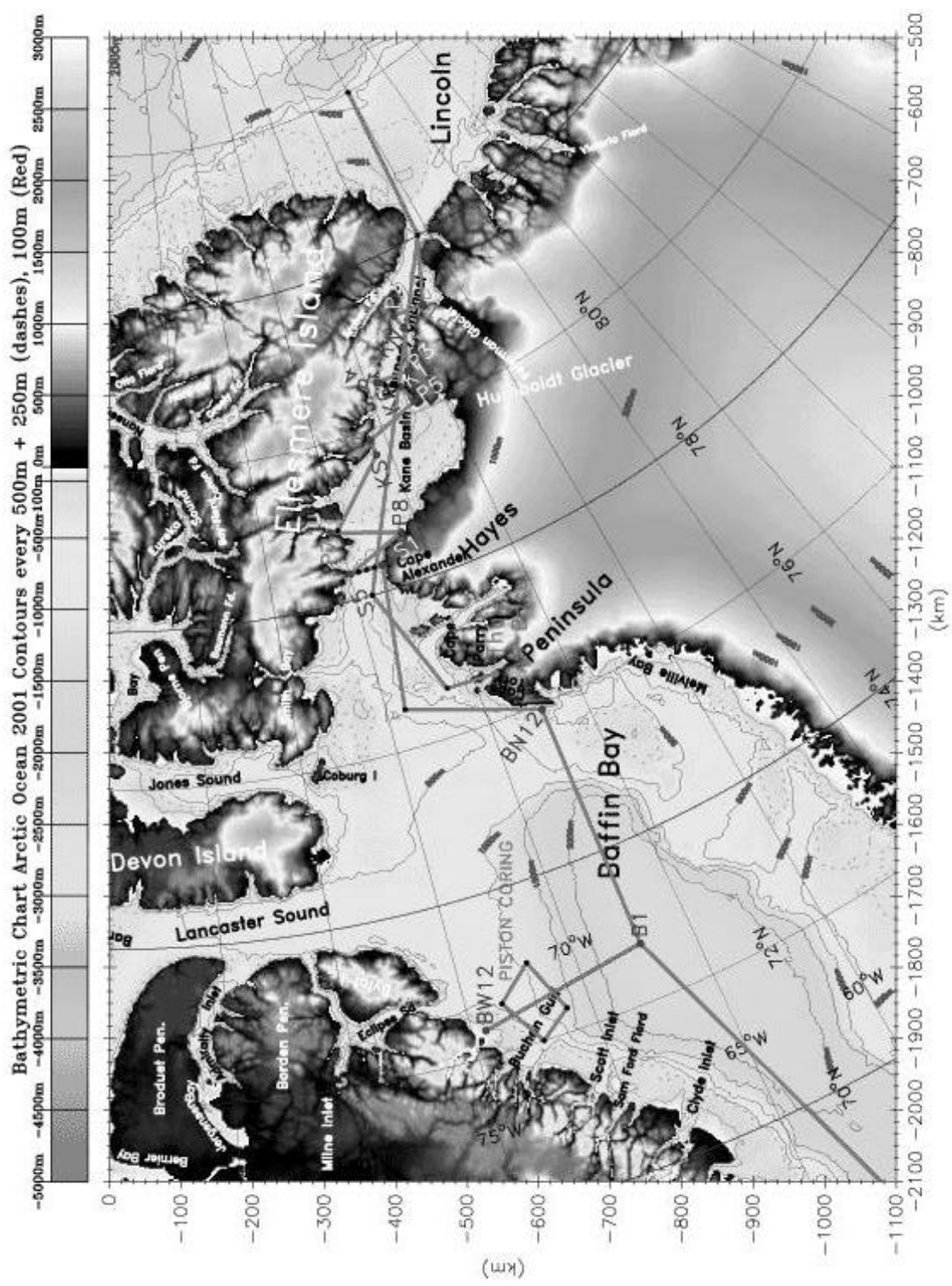
Planned dates of arrival to and departure from Greenland

26 July-16 August, 2003

Which radio equipment will be used in Greenland ?

VHF HF ELT/PLB None Other please specify

Please see the **Radio Licence application form**



USCGC HEALY July 21- August 15, 2003

Figure Caption: *Map of proposed science cruise track for July-August 2003 USCGC Healy Nares St. Expedition.* The expedition will begin at St. John's, Newfoundland on 21 July and we expect to arrive at B1 on about 24 July. Lines B1-BW12 and B1-BN12 indicate sections consisting of approximately 12 hydrographic stations each in northern Baffin Bay. The red box encloses the region from which we expect to retrieve 4 long piston cores in Canadian waters. From BN12 to S1 is a transit. Stations S1 to S5 are hydrographic stations. Stations P1-P8 are target sites for shallow water (< 20 m) subsurface pressure moorings. These moorings will be put in place with the aid of a small boat and divers and/or helicopter depending upon the ice conditions. The K's indicate the array of instrumentation that is to be deployed on sub-surface moorings in Kennedy Channel. Exact placement will depend upon ice conditions. Time and conditions permitting, we will conduct hydrographic stations along a section in the Lincoln Sea. The plan is to then return directly to Thule arriving 15 August. We anticipate retrieving and redeploying the moorings from the ice via aircraft in early spring 2005 and conducting a final retrieval in early spring 2007. Important note: Ice and weather conditions in this region are difficult and variable. We expect to adjust the order of the proposed 2003 activities north of Baffin Bay as ice and weather permit. We will carry out ice reconnaissance missions by helicopter to assist us in the planning process.

LOGISTICS

Co-operation established with scientific institution(s) in Denmark / Greenland
(reference, name, address, telephone, fax, e-mail)

None at present

Contact established to institution or authority in Denmark / Greenland
(reference, name, address, telephone, fax, e-mail)

Contacting Knud Falk
Dansk Polar Center
Research Facilitator
dpc@dpc.dk
45 32 8801 30 work, 45 32 8801 01 fax

Means of transportation to and from the activity area

Polar icebreaker: USCGC Healy

Means of transportation within the activity area

Polar icebreaker: USCGC Healy

Will you be bringing firearms ?

Yes

No

If yes, you will need firearms licence

Do you plan airdrops ?

Yes

No

If you plan airdrop(s), state locality / localities

Will access to the below locations be required (check appropriate)

Thule Air Base

Station Nord

Daneborg

Mestersvig

Description of emergency, safety and general equipment to be used

- * HH-65 helicopters will be deployed for ice reconnaissance.
- * A small rigid-hull Arctic Survey Boat and divers will be deployed in aid of shallow pressure sensor mooring deployments and clam shell retrieval.
- * Oceanographic sampling equipment will include conductivity temperature depth rosette water samplers, moored current profilers and conductivity-temperature sensors, single-beam and multi-beam echo sounders.

Details of construction and dismantling of research structure(s)

None planned

List of all participants name, address, date of birth, and citizenship

See attached

Provide separate list if needed. Changes must be reported to DPC before departure for Greenland

Science Participant List					
last	first	middle	institution	date of birth	citizenship
Falkner	Kelly	Kenison	OSU	3/1/60	USA
Melling	Humfrey		IOS	7/17/49	CA
Muenchow	Andreas		UDel	11/9/61	Germany
Forcucci	David		USCG	10/5/61	USA
Gamble	Peter		IOS	7/26/39	CA
Lindsay	Ron		IOS	5/4/51	CA
Harris	John		IOS	10/10/69	CA
Macdonald	Robie		IOS	5/5/47	CA
Narraway	Lee		Freelance		CA
Huntley	David		UDel	2/10/69	USA
Zweng	Melissa		UDel	6/24/79	USA
Ashmankas	Cristin		UDel	2/27/81	USA
TBD					USA
Meredith	Charlotte	Chase	OSU	4/6/45	USA
Hubbard	Dale		OSU	2/16/70	USA
Jennings	Joe	Cannon	OSU	12/12/49	USA
Behrens	Gerhard		Adams School	6/19/59	USA
Kalk	Peter		OSU	3/8/40	USA
Moser	Chris		OSU	9/17/49	USA
Simpkins	John		OSU	1/1/51	USA
TBD			OSU		USA
Moran	Kate		URI	6/26/55	USA/CA
Henderson	Jennifer	Frances	URI	1/13/79	USA
Schaffrin	Helga		NYU	9/16/77	Germany
Johnson	Helen		UVic		UK
TBD					CA
TBD					Greenland/CA?
TBD					CA
TBD					CA
TBD					Greenland
TBD					CA
TBD					CA
TBD					Greenland/CA?
TBD					CA
TBD					USA
TBD					USA

SCIENTIFIC INFORMATION

Scientific category

Atmospheric physics Biology Engineering Geography Geology
Glaciology Oceanography Radio propagation Remote sensing
Social sciences Other please specify below

Objectives of the expedition or objectives and scientific content of the project

(a detailed description may be enclosed on separate sheets). The text must be in a form that lends itself to publication. Max. 100 words)

The scientific goal of the project is to determine variability of seawater and ice flow through Nares Strait. The objectives of the expedition are to:

1. emplace mooring equipment to monitor the flow of water and its temperature and salinity and the flow of ice through Kennedy Channel.
2. emplace mooring equipment at 8 shallow (less than 20m) protected embayments at locations along Nares St.
3. measure water properties throughout Northern Baffin Bay, Nares Strait and the Lincoln Sea.
4. collect bi-valve shells to test the idea that their shell layers record properties of the water in which they live.

Collection of scientific material (Specify any planned samples; type, numbers etc.)

Approximately 1000 20-liter seawater samples will be collected. Approximately 100 bi-valve shells will be collected. Twenty-six moorings will be deployed in Kane Basin and Kennedy Channel.

Explosives. If explosives are to be carried or used, details must be stated

None

Rocket launching, balloons etc. In case of launching, impact area must be indicated and rocket / balloon types must be specified

None

ENVIRONMENTAL OR SOCIAL IMPACT

Details of environmental disruptions which may result from the project or expedition

No social impacts are anticipated. Ice will be broken by the icebreaker. The ship uses as sonar system to map the bottom: its frequency is 12 kHz.

Details of social disruptions which may result from the project or expedition

None anticipated.

Additional information on disruptions in general

Helicopter and small boat use to and from the ship. Possible short term (hours) landings on the beach in support of shallow water operations.

By my signature below I confirm that I will seek information about the content of the Note Verbale from the Danish Ministry of Foreign Affairs concerning U.S. project and expedition proposals in Greenland. I agree that the information submitted in this application form can be made public

Corvallis OR
14 Feb 03
Place and date

Willy H Falkner
Signature of responsible leader

Print out the completed form, sign it, and **submit the original** to

Polar Affairs Officer
Room 5805
Office of Oceans Affairs
Bureau of Ocean, International Environment, and Scientific Affairs
U.S. Department of State
Washington D.C., 20520

DEADLINE

The signed application must be received by the U.S. Department of State at least 4 months prior to the initiation of the field period for the proposed project

KELLY KENISON FALKNER

ASSOCIATE PROFESSOR

OREGON STATE UNIVERSITY
College of Oceanic & Atmospheric Sciences

Citizenship: U.S.
Date & Place of Birth: March 1, 1960; Lancaster, NH
Family Status: Married, 2 children born 13 Sep 95 & 9 Nov 99
Address: Ocean. Admin. Bldg. 104
COAS, Oregon State University
Corvallis, OR 97331-5503
(541) 737-3625 office (541) 737-2064 (FAX)
kfalkner@coas.oregonstate.edu
<http://chemoc.coas.oregonstate.edu/users/kfalkner>



EDUCATION

B.A., Chemistry with, Russian minor, Reed College, 1983
Ph.D., Chemical Oceanography, M.I.T./W.H.O.I. Joint Program in Oceanography, 1989
Languages: French & Russian

ACADEMIC POSITIONS

Postdoctoral Researcher, M.I.T., 1989-1990
NATO Postdoctoral Research Fellow, Groupe de Recherche Géodésie Spatiale, Centre National D'Etudes Spatiales, Toulouse, France, 1990-1992
Assistant Professor, College of Oceanic & Atmospheric Sciences, 1992-1997
Associate Professor, College of Oceanic & Atmospheric Sciences, 1997-present

NON-ACADEMIC POSITIONS, EDITORSHIPS, etc...

Associate Editor, *Geochimica et Cosmochimica Acta*, 2002-

RESEARCH INTERESTS

Application of inorganic elemental and isotopic measurements to aqueous geochemical issues.

This entails sampling and analyses of waters and associated solids of diverse media including snow, ice, rivers, lakes, seas and the ocean and analytical technique development using state-of-the-art laboratory instrumentation, including ICPMS, TIMS & IRMS.

Topics studied include:

Recent history of lead pollution in the northern hemisphere as recorded in Greenland snow
Factors controlling the chemical composition of the large lakes (Baikal, Issyk-Kul)
Large-scale biochemical perturbations in the Black Sea
Measurement and cycling of osmium in the oceans

Current projects include:

Tracing origins and pathways of river waters and other contributions to the upper Arctic Ocean
Characterizing nature and causes of variability in Arctic circulation
Characterizing tributary and main stem river chemistry of the Salmon River, OR as part of a collaborative study of salmon life history as recorded in their otoliths
Deciphering sources of recent pronounced freshwater variability in the Gulf of Alaska

HONORS

National Science Foundation Arctic Service Award, 2000
COAS Student Mentoring Award, 2000
Office of Naval Research Young Investigator Award, 1993
NATO Postdoctoral Fellowship, 1990
Association for Women in Science Predoctoral Award, 1987
National Science Foundation Graduate Research Fellowship, 1984-87
Phi Beta Kappa, 1983

KELLY KENISON FALKNER

ASSOCIATE PROFESSOR

PROFESSIONAL ACTIVITIES

National Committees

- University National Oceanographic Laboratory System Arctic Icebreaker Coordinating Committee member 1996-2002
- NSF Office of Polar Programs, Ocean-Atmosphere-Ice Interactions Steering Committee, 1997-2001
- NSF Office of Polar Programs, Strategic Plan for Marine Science in the Arctic Committee, 1998-99

Review Panels

- NSERC Site Review Panel for acquisition of ICPMS at UVic, Victoria, BC, January 1994
- NSF Chemical Oceanography Panel, July 1993, May 1997 & November 1997
- NSERC Earth and Environmental Sciences Grant Selection Committee, 1996-1997
- Committee of Visitors to evaluate NSF Office of Polar Programs, July, 2000

Professional Organizations

- American Geophysical Union
- Association for Women in Science
- Oceanography Society
- Sigma Xi
- American Chemical Society
- American Society of Limnology & Oceanography

Field Work

- Participant in 28 oceanographic, limnologic and riverine sampling expeditions: 1981-2003; Chief Scientist for 7 missions

RECENT PUBLICATIONS

- Guay, C. K., G. P. Klinkhammer, K. K. Falkner, R. Benner, P. G. Coble, T. E. Whitley, B. Black, F. J. Bussell and T. A. Wagner (1999) High-resolution measurements of dissolved organic carbon in the Arctic Ocean by in situ fiber-optic spectrometry, *Geophysical Research Letters* 26:8: 1007-1110.
- Moore, W. S. and K. Kenison Falkner (1999) Cycling of radium and barium in the Black Sea, *J. Environmental Radioactivity* 43:247-254.
- Macdonald, R. W., E. C. Carmack, F. A. McLaughlin, K. Kenison Falkner and J. H. Swift (1999) Connections among ice, runoff and atmospheric forcing in the Beaufort Gyre, *Geophysical Research Letters*, 26:14:2223-2226.
- Woodhouse, O. B., G. Ravizza, K. Kenison Falkner, P.J. Statham and B. Peucker-Ehrenbrink (1999) Osmium in seawater: concentration and isotopic composition vertical profiles in the eastern Pacific Ocean, *Earth and Planetary Science Letters*, 173:223-233.
- Sherrell, R. M., Boyle E. A., Falkner K. K., and N.R. Harris (2000) Temporal variability of Cd, Pb, and Pb isotope deposition in central Greenland snow. *Geochem. Geophys. Geosyst.*, vol. 1, Paper number 1999GC000007 [13,582 words, 6 figures, 2 tables]. May 30, 2000.
- Guay, Christopher K. H., Kelly Kenison Falkner, Robin .D. Muench, Manfred Mensch, Markus Frank, and Reinhold Bayer (2001) Wind-driven transport pathways for Eurasian Arctic river discharge, *Journal of Geophysical Research*, 106:C6:11,469-11,480.
- Alleau, Y., D. Colbert, P. Covert, B. Haley, X. Qiu, R. Collier, K. Falkner, B. Hales, L. Gordon and F. Prahl (2001) Th-234 applied to particle removal rates from the surface ocean: a mathematical treatment revisited, *Geophysical Research Letters*, 28:14:2855-2857.
- Jones, E. P., J. H. Swift, L. G. Anderson, G. Civitarese, K. K. Falkner, G. Kattner, M. Lipizer, F. McLaughlin and J. Olafsson (2002) Tracing Pacific water in the North Atlantic Ocean, *Journal of Geophysical Research*, in press.
- Vollmer, M. K., R. F. Weiss, R. T. Williams, K. K. Falkner, X. Qiu, E. A. Ralph and V. V. Romanovsky (2002) Physical and chemical properties of the waters of saline lakes and their importance for deep-water renewal: Lake Issyk-Kul, *Geochimica Cosmochimica Acta*, 66:24:4235-4246.
- Morison, J. H., K. Aagaard, K. K. Falkner, K. Hatakeyama, R. Moritz, J. E. Overland, D. Perovich, K. Shimada, M. Steele, T. Takizawa and R. Woodgate (2002) The North Pole Environmental Observatory, *EOS, Trans. Am. Geophys. Soc.*, 83:33:357-361.