

**CANADIAN OCEAN SCIENCE NEWSLETTER
LE BULLETIN CANADIEN DES SCIENCES DE L'OCÉAN**

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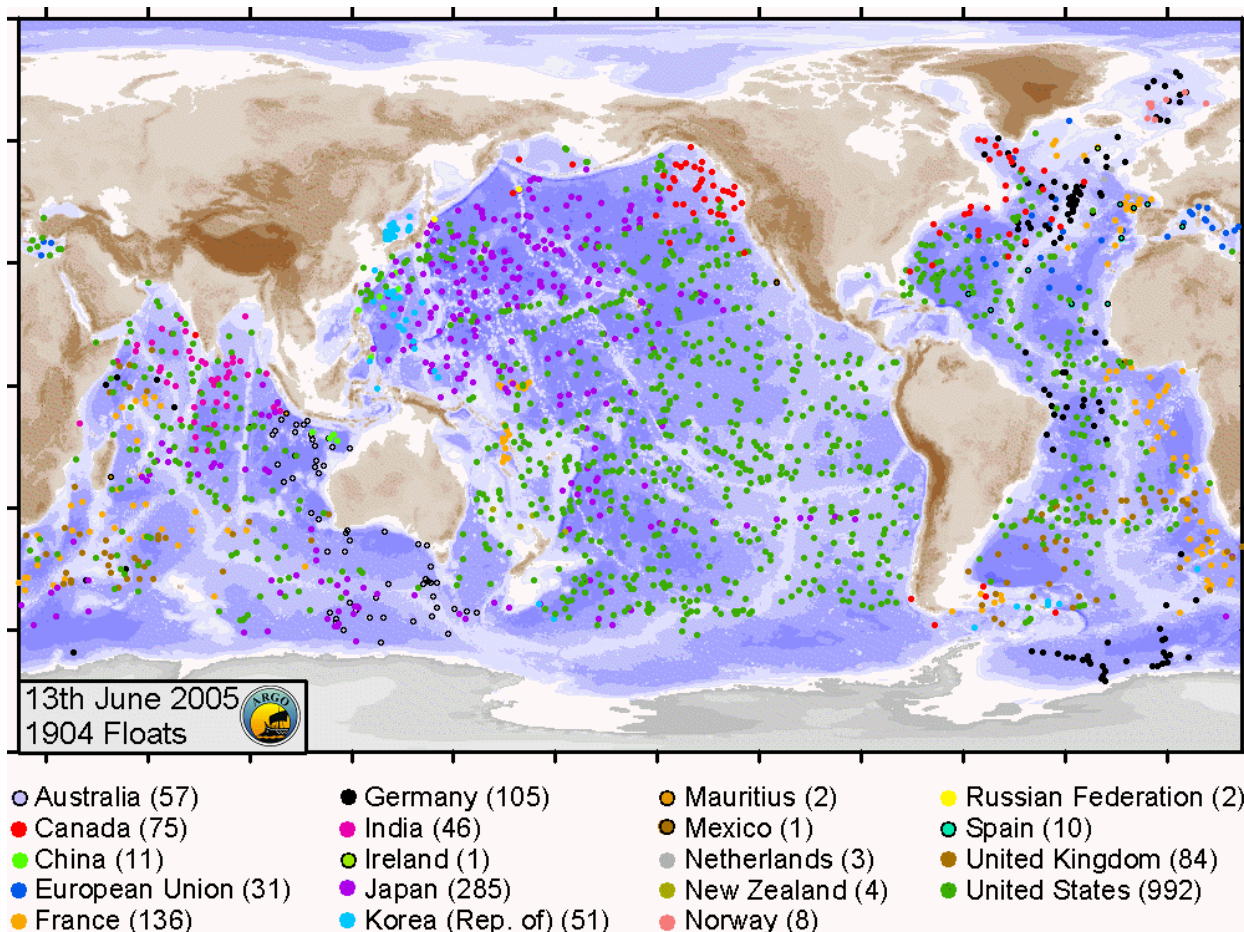
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[The Global Argo Program, status in June 2005](#)

Howard Freeland, Inst of Ocean Sciences, Sidney, BC, FreelandHj@pac.dfo-mpo.gc.ca

Argo is a global project to monitor the climatic state of the ocean using robotic devices launched in all oceans of the world. This note is an update on the status of the project, if you want to know more about Argo internationally then a good place for Canadians to start would be with my web pages starting from:- http://www.pac.dfo-mpo.gc.ca/sci/osap/projects/argo/default_e.htm



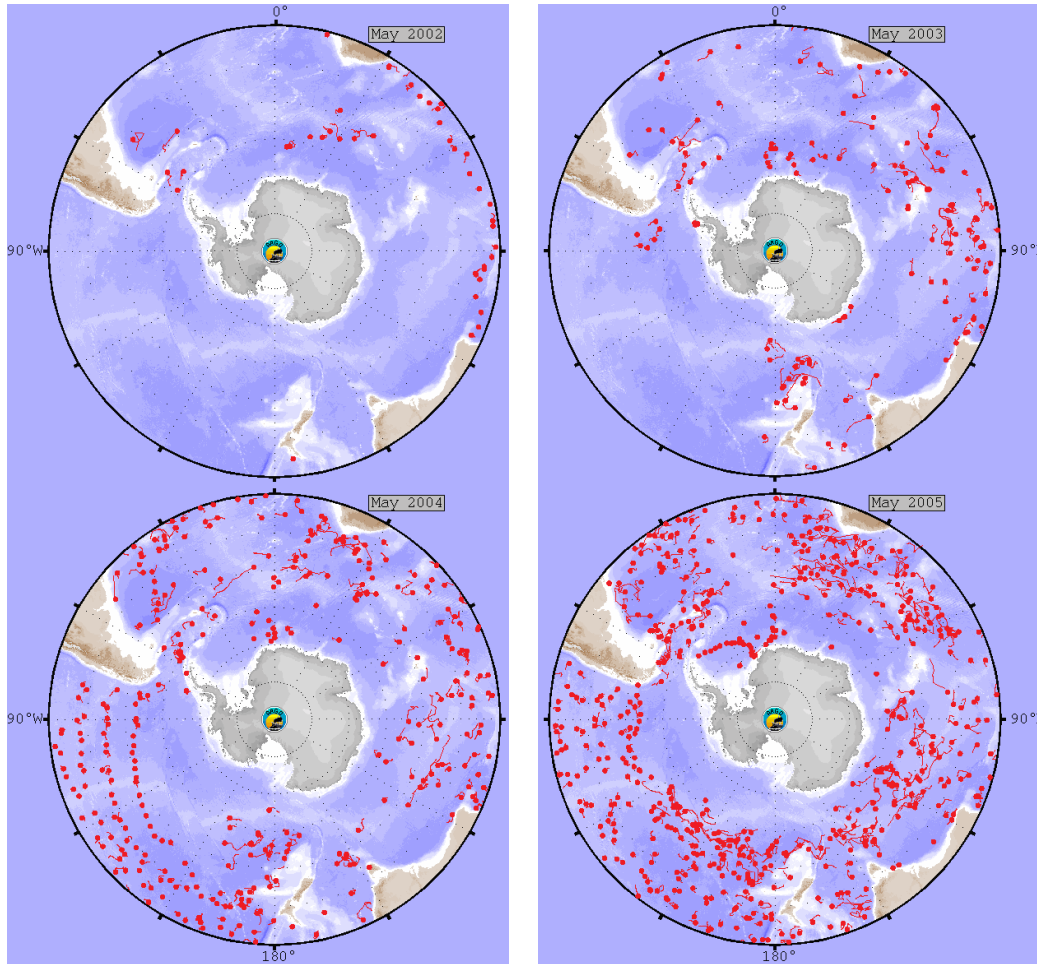
The diagram above shows the current distribution of floats on June 13th. On that date I estimate that 1892 floats were reporting data. Nineteen countries are listed as deploying floats. In fact there are other countries involved, such as Denmark and Italy, deploying floats on behalf of the European Union. Further, we expect several other countries to begin launching floats in the very near future, the closest being Chile, Costa Rica and South Africa. It is also possible that Argentina will be deploying floats before the end of calendar 2005.

Overall Argo is doing well and is meeting its original objectives, highlights are:-

- Almost 1900 floats operating in all oceans except the Arctic Ocean.
- 98% of floats deliver free data for use by anyone in any country in near real-time.
- 84% of these deliver their data within 24h.
- In 2004 838 floats were deployed. With a reasonably conservative expected “death rate” for the floats this deployment rate guarantees that we will eventually reach 3000 float target originally advertised, and that number will be maintained.
- Premature failure rate has been decreased from 8.6% in 2002 to 1.9% in 2004.
- 90% of the fleet is profiling from 1000 decibars or deeper.
- The array is truly global and international.

The southern ocean array is most impressive. It has been calculated by John Gould that when Argo is fully implemented the array will gather more ocean climate data in each and every year

than has been gathered by all previous research missions to the southern ocean. The international Argo consortium notes the stunning deployment missions executed by New Zealand (mainly deploying floats on behalf of the USA) in populating the South Pacific Ocean from a very small vessel.



The diagrams above show the evolution of the Argo array in the southern ocean from May 2002 to May 2003, 2004 and 2005.

Canada's contribution has a bias towards areas of peculiar Canadian interest, but does have a global impact. Canada has launched floats in the Atlantic and Pacific, as expected, but has also launched 6 floats in the southern ocean and 1 in the Indian Ocean.

The first Arctic Ocean floats will be launched during summer 2005. Since the floats cannot break through the ice cover to communicate data to the Argos satellites a re-design has been required. The new system derives from the J-CAD system developed for JAMSTEC by the Metocean Corporation of Dartmouth, NS. The first floats will be deployed by JAMSTEC from a German vessel near the N. Pole this summer. In this new system buoys will be frozen into the ice with a long bare cable hanging below. Provor floats will ride up and down the cable between

two stoppers, one at the top and the other at the bottom. When a float reaches the top it will communicate its observations to the buoy which will pass them on through Service Argos.

Now that it is possible to make horizontal maps of basic ocean properties almost anywhere, though the resolution remains coarse, Argo is now becoming a major tool for exploring the oceans. Canadian oceanographers should remember that they have unfettered access to the complete global data archive. Users are encouraged to read the user's handbook. However, if access is not very clear then please call me and I will happily assist anyone in learning how to gain access and use the global data. Since Argo data are made freely available the Argo Steering Team and Executive request that where Argo data are used in a publication or product, the following acknowledgement is given:

These data were collected and made freely available by the International Argo Project and the national programmes that contribute to it. (<http://www.argo.ucsd.edu>, <http://argo.jcommops.org>). Argo is a pilot programme of the Global Ocean Observing System.

If you plan to use Argo data, the Argo Steering Team requests that, as a courtesy, you inform the groups responsible for the floats that you are using of the type of study you are undertaking. You can find who to contact by going to argo.jcommops.org then to the quick link to "Find floats" and enter the WMO or Telecom ID.

Lunenburg Bay Field Program – 2005

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Recent technological advancements have made real-time observation and forecasting of physical and biological processes in coastal marine environments possible. Researchers in the Ocean Sciences Division at the Bedford Institute of Oceanography (BIO) are collaborating with Dalhousie University, the Meteorological Service of Canada and two private companies, Satlantic and Martec, to develop a real-time prediction capability for the coastal regions of Atlantic Canada. This goal is being accomplished through the use of real-time information streams from an ocean observatory in Lunenburg Bay, Nova Scotia. Combining this information with the existing land-based and satellite-based observation networks is enabling our research group to develop and test atmosphere-ocean numerical prediction systems.

As part of this research effort, BIO has and will deploy three moorings in Lunenburg Bay for the summer-fall periods of 2003-2005. These moorings include a SeaHorse wave-powered profiler, a Datawell WaveRider buoy and an RD Instruments Waves-ADCP (Acoustic Doppler Current Profiler). The SeaHorse and WaveRider moorings are deployed south of Cross Island outside Lunenburg Bay. The WaveRider buoy provides hourly measures of the surface wave field in this area. The SeaHorse provides hourly profiles of the water column from 2 to 30 m depth. Parameters measured by SeaHorse include temperature, conductivity and fluorescence using a Sea-Bird 19 CTD and WetLabs WetStar fluorometer. Collaboration between our research group at BIO and Dr. John Cullen at Dalhousie University has also enabled us to include a Satlantic four-wavelength irradiance sensor as a payload on SeaHorse. Combining the irradiance and

fluorometer profiles of the water column will provide a unique data set for this research project which will enable us to better utilize optical measurements in this coastal environment. The bottom-mounted Waves-ADCP, deployed in the central part of Lunenburg Bay, measures currents as well as the surface wave field. The WaveRider and Waves-ADCP provide in-situ data which allow our wave modeling group to study the attenuation of the wave field within the Bay.

During the 2005 field season, the SeaHorse and WaveRider moorings will provide real-time data, which will be available through the project web site (<http://cmep.ca>). The SeaHorse mooring will utilize a cellular phone network to email results to shore at the completion of each profile. The WaveRider is presently transmitting data to shore via a radio frequency (RF) modem. A receiver modem for the WaveRider has been established in at Dalhousie's Battery Point Base Station. Real-time transmission of the Waves-ADCP system will be tested in the fall 2005 using acoustic modems to transfer the Waves-ADCP data from the bottom-mounted tripod to a surface float equipped with an RF modem which will transfer the data to Battery Point.

ESSAS (Ecosystem Studies in Sub-Arctic Seas) – an new GLOBEC programme

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The Sub-Arctic Seas include areas such as the Sea of Okhotsk, the Bering Sea, the Newfoundland/Labrador Shelf, the Gulf of St. Lawrence, the Greenland Shelves and adjacent Icelandic waters, and the Nordic and Barents Seas. They all support extraordinarily rich marine resources (fish, invertebrates, mammals and birds) and support important fisheries. All share several other features: seasonal ice cover, freshwater from ice-melt and runoff, dramatic seasonality, reduced sunlight and low biodiversity. Recently, changes in abundance and distribution have been observed in several Sub-Arctic marine ecosystems that appear to be linked to fluctuations in the physical environment, and the Sub-Arctic seas are also regions that are expected to see large changes as the result of anthropogenically-induced climate change. The ESSAS (Ecosystem Studies in Sub-Arctic Seas) is a new GLOBEC programme whose goal is “to compare, quantify and predict the impact of climate variability and global change on the productivity and sustainability of the Sub-Arctic marine ecosystems”. One of the tenets of the programme is that lessons learnt in one of the Sub-Arctic seas may be applicable in others, and that international co-operations will lead to enhanced scientific knowledge of all study regions.

As a “kick-off” activity for ESSAS a Symposium entitled “Climate Variability and Sub-Arctic Marine Ecosystems” was held in Victoria BC, May 16-20. Invited speakers gave summary presentations of the state of knowledge of the ecosystems of several of the Sub-Arctic seas and there were contributed talks and posters covering climate and physics, and studies at all trophic levels from plankton to fish and macro-invertebrates to higher trophic levels, including birds, marine mammals and man. The Symposium offered participants the opportunity to influence the implementation plan of ESSAS at a one day workshop that was held following the meeting on May 21. It also offered Canadian participants from across the country the chance to meet and discuss possible options for a Canadian ESSAS (CESSAS) programme. Dr. Erica Head from the Ecosystem Research Division attended the Symposium and gave a talk entitled “Interdecadal variability in zooplankton and phytoplankton abundance on the Newfoundland and Scotian

shelves". She was on the organising committee for the symposium and had helped to write the Science Plan for the ESSAS programme, which can be found on the GLOBEC website (<http://www.pml.ac.uk/globec/>). Dr. Head is also a member of the Scientific Steering Committee for ESSAS and is involved in the co-ordination of discussions for a possible future CESSAS programme.

Moored Current Measurement Programs in Flemish Pass and Orphan Basin

John Loder (loderj@mar.dfo-mpo.gc.ca) and Igor Yashayaev (yashayaevi@mar.dfo-mpo.gc.ca)
Department of Fisheries and Oceans, Bedford Institute of Oceanography

The CCGS Hudson recently completed its first expedition of 2005 with successful mooring recoveries and deployments in Flemish Pass and Orphan Basin on the Eastern Newfoundland Slope, and a CTD section across Orphan Basin. These were carried out as part of the Offshore Environmental Factors Program of PERD (Program on Energy Research and Development), and DFO climate and environmental variability programs at the Bedford Institute. Flemish Pass and Orphan Basin are deep-water areas of oil and gas exploration that lie in the path of subpolar outflows from the Labrador Sea region (Figure 1).

The Flemish Pass program has involved two current-meter moorings deployed since July 2002 in the upper-slope Labrador Current on the Flemish Cap (47°N) line of the Atlantic Zone Monitoring Program (AZMP). With the recovery of its final moorings in May 2005, the program has provided nearly 3 years of continuous observations in the core of the shelf-edge Labrador Current, and the first year-round time series from water depths greater than 500m in the Pass where previous moorings have been lost due to foreign trawlers or icebergs. The initial estimate of the mean Labrador Current transport from the moorings is about $7 \times 10^6 \text{ m}^3/\text{s}$ which is larger than previous moored measurement estimates of $5.8 \times 10^6 \text{ m}^3/\text{s}$ but comparable to circulation model diagnoses. The observations are providing the first measurement estimate of the Current's seasonal cycle at this latitude - a range of about $3 \times 10^6 \text{ m}^3/\text{s}$ peaking in winter - with contributions from both the baroclinic and barotropic components of flow. Analyses of the mooring data for current and hydrographic variability are being carried out in conjunction with analyses of hydrographic and ADCP (Acoustic Doppler Current Profiler) sections from the AZMP, and surface current estimates from altimetry, by colleagues at the Northwest Atlantic Fisheries Centre. The mooring program has been carried out in partnership with PetroCanada, EnCana and Chevron Canada Resources.

Hudson 2005-012 also recovered five current-meter moorings that had been deployed in June 2004 in water depths of 1500 to 2500m across Orphan Basin. These moorings will provide the first moored measurements over the water column in this large continental-margin basin where portions of subpolar outflows such as the Labrador Current, the Deep Western Boundary Current (DWBC) and Labrador Sea Water approach the major topographic promontory of Flemish Cap. The expedition deployed seven new moorings across Orphan Basin to provide extended spatial and temporal coverage on a line extending from the 1900m to 3300m isobaths, with recovery planned for spring 2006. The Orphan Basin mooring program is being carried out in partnership with ExxonMobil, Chevron and Imperial Oil.

CTD sections across Orphan Basin on Hudson 2004-019 (June 2004) and 2005-012 have confirmed the presence of the above-noted outflows, and also revealed a significant basin-wide freshening of the bottom water by almost 0.02 salinity units over the past year. This bottom water represents the densest limb of the DWBC which enters the North Atlantic across the sills of the Denmark Straits. The first indication of this freshening was observed entering the eastern Labrador Sea in May 2004 so that it has moved around the Labrador Sea to Orphan Basin in less than a year. It is expected that the penetration of this signal through the western North Atlantic will be observed by a coordinated international set of mooring and survey programs extending from the Nordic Seas to the Bahamas as part of the Atlantic CLIVAR (Climate Variability) program. This should provide new insights into variability in the North Atlantic's Thermohaline (or Meridional) Overturning Circulation which will help us to better understand the global ocean's response and contributions to climate change. The Bedford Institute is contributing to this international effort through its annual occupation of the AR7W hydrographic line across the Labrador Sea, the Flemish Pass and Orphan Basin programs, moorings on the Scotian Slope and Rise off Halifax, collaborative analyses and interpretations of North Atlantic variability, and its collaborative North Atlantic circulation modelling program with the Dalhousie Center for Marine Environmental Prediction.

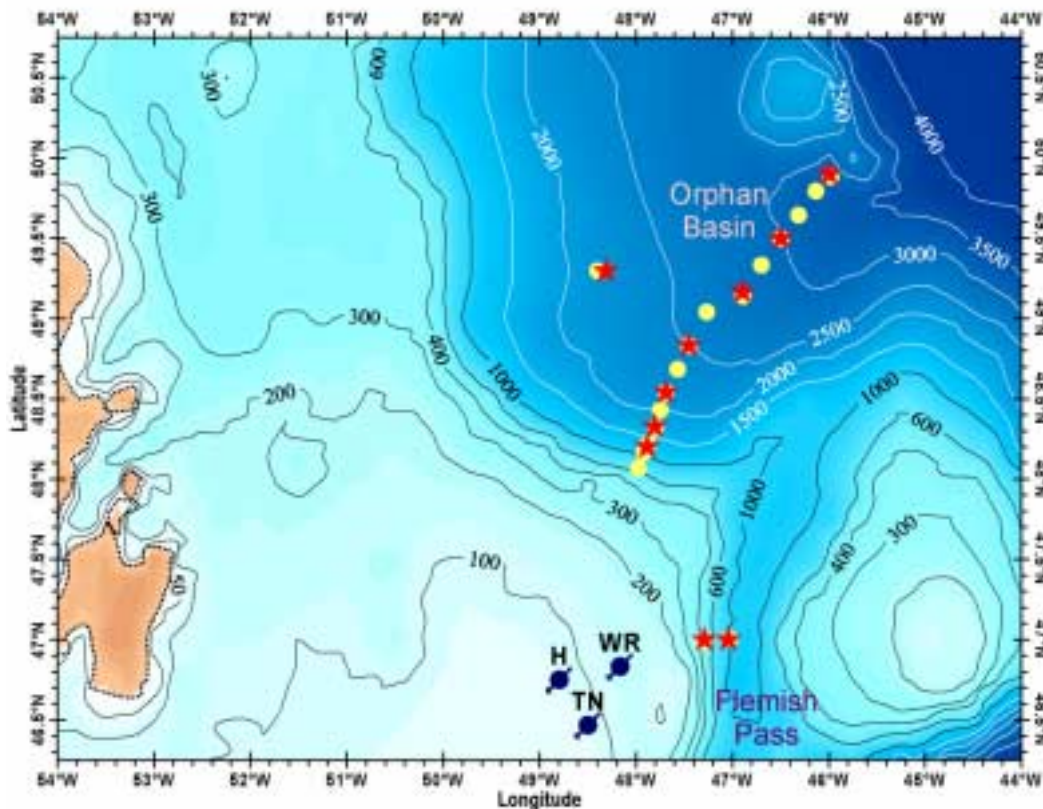


Figure 1. Map showing locations of current-meter moorings (red stars) and CTD stations (yellow circles) occupied on Hudson 2005-012 in the Flemish Pass and Orphan Basin regions in May 2005. Oil production sites on the NE Grand Bank are represented by solid blue circles.

Workshop on Harmful Marine Algae

The 9th Canadian Workshop on Harmful Marine Algae (CWHMA) will be held in St. John's, NL, from July 6-8, 2005 the CWHMA series are sponsored by the Department of Fisheries and Oceans' (DFO) Phycotoxins Working Group (PWG), created following the 1987 domoic acid mussel toxicity event in eastern Canada. This Workshop should be of interest to researchers, academics, managers, regulatory personnel and those working in the aquaculture industry. The format will consist of oral presentations, posters and special topics or round table discussions. Subject categories include the taxonomy, chemistry, ecology, toxicology, physiology, monitoring and mitigation of harmful algal blooms (HABs). Additional information may be found at:

http://www.nfl.dfo-mpo.gc.ca/cwhma_atcamn/second_deuxieme.asp

GSC 09 Environmental Earth Sciences / CSS 09 Sc. de la Terre

Chers collègues,

Ce message s'adresse aux chercheurs qui reçoivent en ce moment une subvention à la découverte du CRSNG et à tous ceux qui ont soumis une demande au dernier concours de février 2005 et qui ont été évalués par le comité des subventions 09 (Sciences de la terre : environnement). Nous désirons vous informer des différentes actions entreprises depuis quelques mois.

Suite aux résultats du dernier concours, le président et tous les membres du comité 09 ont envoyé une lettre au Président du CRSNG pour lui faire part de leurs sérieuses inquiétudes et de leur frustration quant au sous financement des sciences de la terre : environnement et par conséquent, des chercheurs qui y soumettent leur demande. Une copie de cette lettre est annexée à ce message.

Depuis, le CRSNG et des membres actuels et passés du comité 09 ont visité différents congrès annuels de plusieurs associations en sciences de la terre (e.g. UGC, SCMO et AGC-AMC). Lors de ces réunions, nous avons communiqué des informations et données concernant le dernier concours de subvention à la découverte. Il a aussi été possible de répondre aux questions des chercheurs. Ces séances d'information ont soulevé beaucoup d'intérêt et elles ont été utiles.

Dans le but de dégager des pistes de solution aux problèmes auxquels notre communauté scientifique est confrontée, nous souhaitons maintenir le dialogue entre les chercheurs. Cette opération vise à construire un momentum dans notre communauté et à utiliser ce mouvement pour aller de l'avant. Il nous apparaît qu'il est temps que notre communauté se mobilise.

Nous vous invitons à transmettre vos remarques et questions à Paul Potvin (paul.potvin@crsng.ca) , personne-ressource du comité de selection des subventions 09 qui colligera ces informations et nous les transmettra.

André Roy, Président de groupe
Tom Pedersen, Président du comité 09 en 2004-05

Nigel Roulet, Président du comité 09 en 2005-06

Dear colleagues,

This message is being sent to all researchers who currently receive a Discovery grant from NSERC or who applied for a Discovery grant in the 2005 competition and who have been assessed by the grant selection committee 09 (Earth Sciences: Environment). This is to inform you of actions that have taken place in recent months.

Following the last Discovery grant competition, the Chair and all members of the GSC 09 have sent a letter to NSERC President. In this letter, the Committee members have expressed their serious concerns and intense frustration with the underfunding of the environmental earth sciences and of the researchers that are evaluated by GSC 09. That letter is attached to this message.

In May and June, several information sessions organised by NSERC with the participation of current and past members of GSC 09 have taken (will take) place in various meetings of our scientific associations (e.g. CGU, CMOS, GAC-MAC). In these sessions, data and information concerning the last Discovery grant competition were (will be) discussed. This was (is) also an opportunity to answer the questions of the researchers. Thus far, these sessions have been well attended and were very useful.

In the hope of giving ourselves the means to solve some of the outstanding issues facing our scientific community, we wish to pursue the dialogue among the researchers. This is to build momentum within the community so we can use this momentum to push forward some solutions. It is clear to us that our community needs to be mobilised.

If you any question or comment, please forward them to Paul Potvin (paul.potvin@nserc.ca), NSERC Program Officer for GSC 09, who will relay them to us.

André Roy, Group Chair
Tom Pedersen, Chair of GSC 09 in 2004-05
Nigel Roulet, Chair of GSC 09 in 2005-06

Dr. Tom Brzustowski
President
NSERC
350 Albert Street
Ottawa
K1A 1H5

FINAL DRAFT

February 21, 2005

Dear Dr. Brzustowski:

I am writing on behalf of NSERC GSC 09, the members of whom are co-signators of this letter, to follow up my comments to you delivered on February 8, at the 08/09 group meeting in the Marriott Hotel. As I observed at that time, the underfunding of the earth sciences in this country has pushed the community beyond a crisis point. My committee members unanimously recognize the situation we are now in as desperate.

Each of the three previous Reallocations exercises reduced the per capita budget to GSC09. The underfunding is now so severe that even exceptional young scientists are being denied a level of support that will allow them to launch their promising careers. Senior environmental scientists in this country who are counted as being among the very top in their field in the world received significant declines in their awards in the 2005 competition.

Moreover, many of the most compelling issues that face Canadian society today centre on the natural environment and anthropogenic influences on it. Consider these keywords: Kyoto, water and air quality, acid rain, earthquakes and tsunamis, biodiversity, carbon, drought, radioactive waste disposal, land use change...the list goes on. The research dimension of each of these words--any one of which can be found on the front page of our newspapers on any given day--falls squarely within the ambit of the Environmental Earth Sciences. There is great irony in the fact that even while there is mounting concern about the serious environmental challenges and concerns that each of the keywords represents, internal reallocations at NSERC have reduced our collective capacity to understand them and to offer the highest-quality scientific advice to policy makers.

This is simply wrong. The GSC was so frustrated this year at the short-sightedness of the Reallocations policy and the underfunding it has imposed that it actively considered resigning en masse. That a group of leading, highly dedicated, community minded and passionately concerned scientists would even consider such an action is shocking. It also speaks volumes as to the severity of the concern.

I ask that you consider the following points, all raised by my committee:

* an entire generation of bright early-career environmental earth scientists is now being sent a signal that they will not be able to build a top-level program of research with support through the Discovery Grants program. Indeed, two of the last four Herzberg Medal winners (Drs. Smol and Schindler)--Canada's highest award for science--are environmental earth scientists. Were they just starting their careers now instead of two or three decades ago, they would immediately be disadvantaged by the low level of support that their GSC could offer.

* senior, internationally-known environmental earth scientists on a five-year funding cycle will become increasingly frustrated as they realize that the GSC was not able to bring their Discovery Grant award, a decade or two into their sterling careers, up to even the starting level of a junior chemist who falls under the ambit of the Chemistry GSC.

* the inequity represented by the \$11,000 per capita allocation for new applicants in GSC 09 relative, for example, relative to the slightly more than \$26,000 for new applicants in Chemistry (GSC 26) indicates a shockingly skewed internal distribution of the NSERC budget.

In light of these concerns we ask the following:

- * That NSERC recognize the impact of the fiscal duress imposed on the Environmental Earth Sciences and take immediate and constructive steps to rectify the desperate budget situation that GSC 09 now faces. An instant positive impact could be had simply by rewriting the formula that is used to apportion the budgets for new applicants. The historical formula locks GSCs like 09 into a downward spiral by relating future allocations for new applicants to historical success rates. Because low budgets result in low success rates, the present formula condemns 09 to a perpetual slide. This harmful situation is surely not one that NSERC can continue to endorse.
- * That NSERC recognize the similar levels of duress have been imposed on other GSCs that have a major environmental component, and work immediately to rectify these. Two such committees are 08 (Solid Earth Sciences) and 18 (Ecology and Evolution).
- * That NSERC reconsider and restructure the Reallocations approach so that interdisciplinary research is viewed in a more fitting context. The current structure is broken. It has successively penalized an interdisciplinary research area that is of absolutely compelling interest to Canadian society and further, it has penalized a research community that is in the eyes of many the best for its size in the world. As a direct result, those GSCs with an environmental lean (08, 09 and 18) are in desperate need for immediate increases to their budgets. We ask that NSERC direct bridging funds to these committees, to be drawn from any increase to the Council in this year's Federal Budget. In the meantime, NSERC should work to establish a more constructive reallocations philosophy, one that gives proper weight to interdisciplinary, broad-based, environmental research.

All members of GSC 09 think very highly of NSERC, and all have been passionate in their defense of the organization in past years. But that passion is now clouded by concern and capped by frustration. I urge you to take immediate action to alleviate such sentiments, and would be happy to work with you in accomplishing that objective. Canadian society must be well placed to deal with the keyword challenges, but we will only be able to do so through improving our scientific understanding. That surely is an objective that NSERC shares.

Yours sincerely,

T.F. Pedersen, FRSC
Chair, GSC 09
Dean of Science, University of Victoria

Co-signed by:

André Roy (Group Chair), Professeur titulaire, Département de Géographie, Université de Montréal, Montréal, QC

Ferdinand Bonn, Professeur titulaire, Département de géographie et de télédétection
Université de Sherbrooke, Québec, QC

Martin Carter, Research Scientist, Crops and Livestock Research Centre, Agriculture and Agri-Food Canada, Charlottetown, PEI

John Clague, Professor, Department of Earth Sciences, Simon Fraser University
Burnaby, BC

Ian Clark, Professor, Department of Earth Sciences, University of Ottawa, Ottawa, ON

Marianne Douglas, Department of Geology, University of Toronto, Toronto, ON

Peter Jackson, Associate Professor, Faculty of Natural Resources and Environmental Studies,
University of Northern British Columbia, Prince George, BC

Danielle Marceau, Professeur titulaire, Département de Géographie, Université de Montréal,
Montréal, QC

Ann McMillan, Meteorological Service of Canada, Environment Canada, Toronto, ON

Alfonso Rivera, Chief Hydrogeologist, Natural Resources Canada, Sainte-Foy, Québec

Nigel Roulet, Professor, Department of Geography, McGill University, Montreal, Qc

Keith Thompson, Professor, Department of Oceanography, Dalhousie University, Halifax, NS

Silver Jubilee of the A.G. Huntsman Award

The Huntsman Award was created in 1980 under the leadership of scientists at the Bedford Institute of Oceanography (BIO). The award is intended to recognize excellence in science in the major oceanographic disciplines and is known as a major international prize. The 25th Huntsman medal ceremony will take place September 6 and 7 2005 in Halifax, Nova Scotia, Canada. For this special occasion, medals will be awarded to:

- Dr. Robert F. Anderson of the Lamont-Doherty Earth Observatory of Columbia University, for his innovative contributions in the fields of biochemical cycles, ocean sedimentation and climate variability, through his development and use of pioneering radioisotope tracers and his scientific leadership in multidisciplinary programs.
- Dr. Sallie (Penny) W. Chisholm of the Massachusetts Institute of Technology (MIT), for her insightful and lasting contributions to the fields of biological oceanography and microbial ecology which have fundamentally changed our perspective of the nature of life in the sea.
- Dr. Edouard Bard of the Université d'Aix-Marseille and Collège de France, for his significant contributions to isotopic dating and proxy thermometry techniques and their application to studies of the Earth's paleoclimate and, in particular, its ice-age climate and sea level dynamics.

- Dr. Trevor J. McDougall, of the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia, for his leading role in developing a practical understanding of important thermodynamic and dynamic processes in the ocean, which are a key to the determination of the mixing motions that so strongly influence ocean circulation and heat transport.

The medals will be presented in a special ceremony that will be held on Tuesday, September 6 at Dalhousie University. This will be followed by a celebratory banquet, also at Dalhousie University, featuring a guest speaker. Public lectures will be held Wednesday, September 7 at the Bedford Institute of Oceanography. The event will feature award presentations by distinguished representatives of the government, academic and private sectors, testimonials by leading national and international scientists, a keynote address on science and sustainable seas, and public lectures on the role of oceans in climate change and planetary maintenance and on ocean mixing. Complete details on the program can be found at <http://www.bio.gc.ca/huntsman/huntsman25-e.html> . The Huntsman Foundation encourages all interested in marine sciences to participate in this unique event.

The Foundation expresses its profound gratitude to the 16 government and university scientists who volunteered their time to review the nominations as well as to all those who wrote and submitted nominations. The Foundation also wishes to acknowledge the sponsors of the 25th anniversary: Fisheries and Oceans Canada, Dalhousie University, Natural Resources Canada, the Nova Scotia Department of Agriculture and Fisheries, Marathon Oil Ltd., Jacques Whitford Ltd., Satlantic, Clearwater Fine Foods, the Canadian Association of Petroleum Producers, and the Seafood Producers Association of Nova Scotia.

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Newsletter #17 will be distributed on August 25, 2005. Please send contributions to dick.stoddart@sympatico.ca
Bulletin #17 sera distribué le 25 août 2005. Veuillez faire parvenir vos contributions à dick.stoddart@sympatico.ca

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