

Argo Canada Report

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AST-19

Institute of Ocean Sciences

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Outline

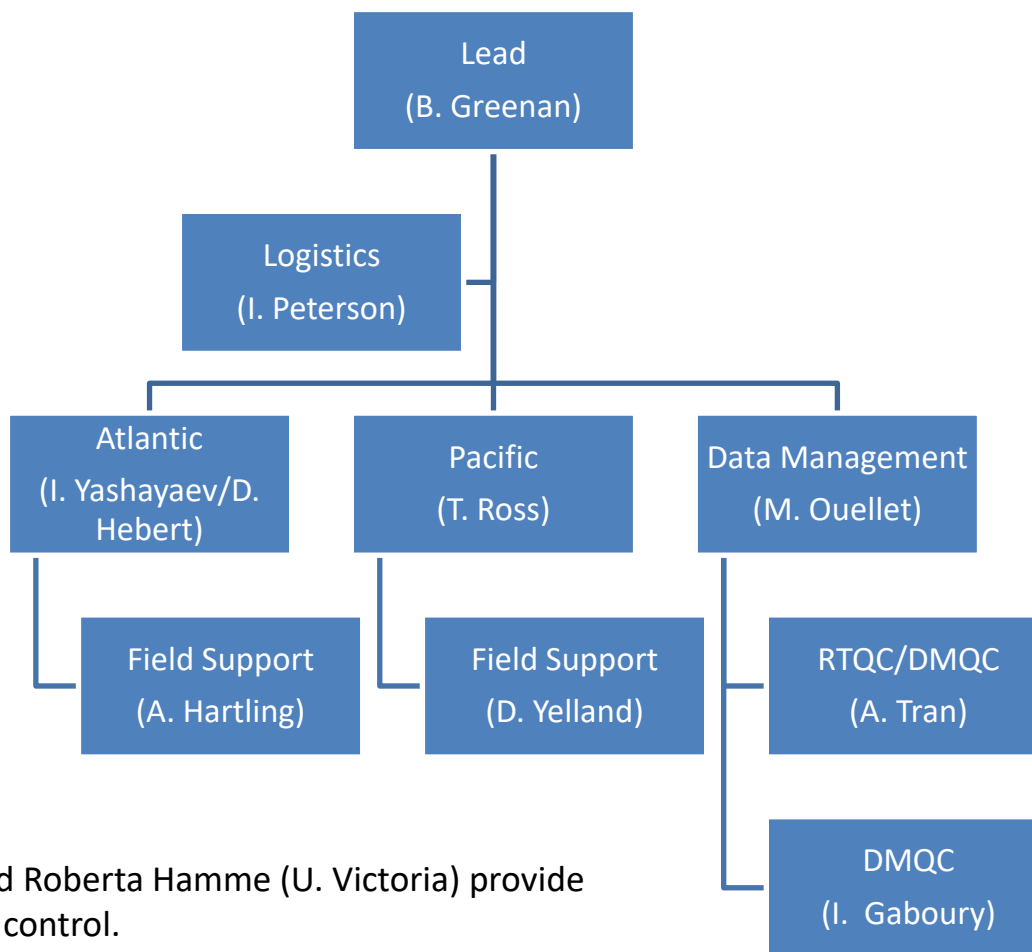
- Organizational Structure
- Funding
- Status/Deployments
- Research and Operational Users
- Challenges
- BGC-Argo



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Organizational Structure (DFO)



Denis Gilbert (DFO) and Roberta Hamme (U. Victoria) provide support for DO quality control.



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Argo Canada Funding

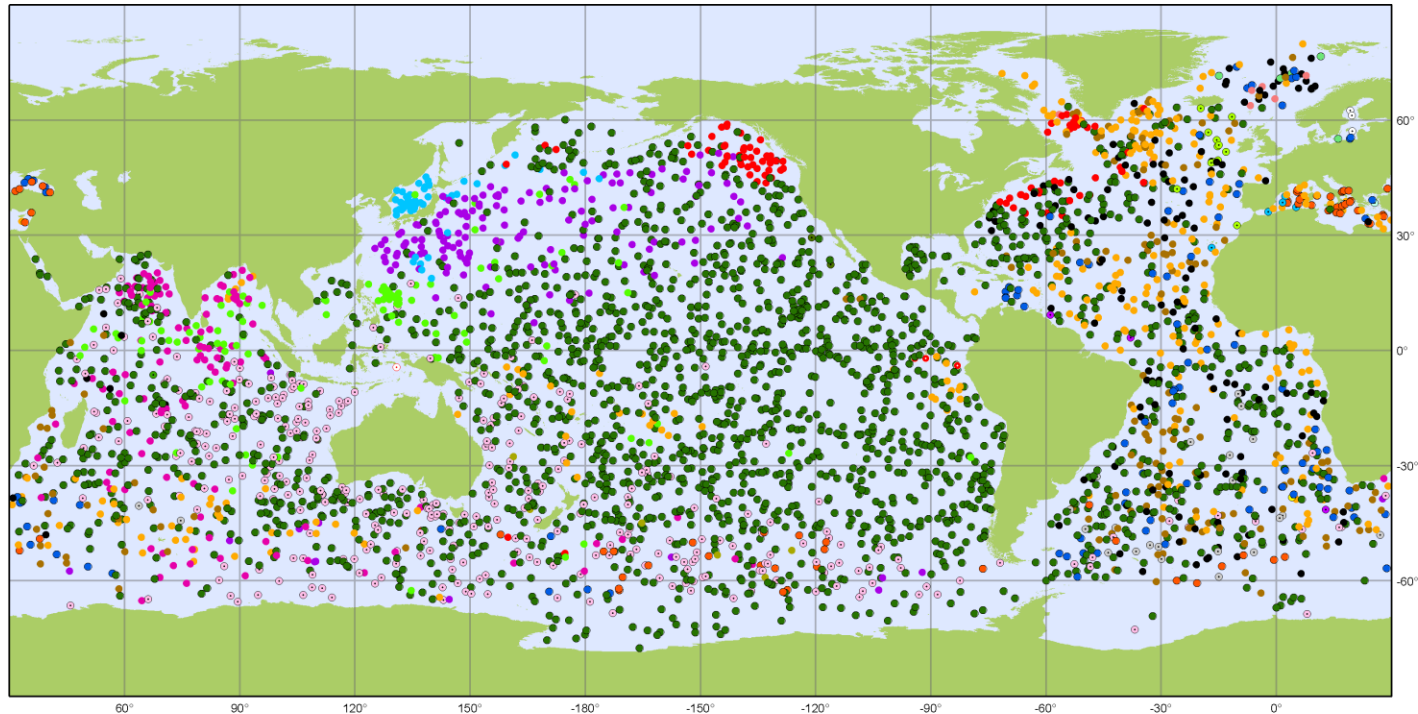
- DFO has allocated ongoing funding for the O&M expenditures related to the International Argo program.
- Shared Services Canada (SSC) is responsible for the costs related to Iridium telecommunications (covers the costs for up to 85 core Argo floats – telemetry costs for additional floats is responsibility of DFO).
- Ongoing capital for float purchases has not been identified and, therefore, it remains necessary to request capital resources on an annual basis to obtain the funding required to purchase new floats.
- Fisheries and Oceans Canada (DFO) committed \$449k for purchases of core Argo floats in 2017.
- Department of National Defence (Canada) purchased of 5 MetOcean NOVA floats to support core Argo.
- Funding is expected to remain stable at approximately this level for the next few years.



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Current Status



Argo

National contributions - 3881 Operational Floats

February 2018

Latest location of operational floats (data distributed within the last 30 days)

| | | | | | |
|-------------------|-----------------|-----------------|--------------------|---------------------------|--------------|
| ● ARGENTINA (1) | ● EUROPE (94) | ● INDIA (124) | ● KENYA (1) | ● PERU (3) | ● USA (2179) |
| ● AUSTRALIA (361) | ● FINLAND (3) | ● INDONESIA (1) | ● MEXICO (2) | ● POLAND (5) | |
| ● BRAZIL (3) | ● FRANCE (277) | ● IRELAND (12) | ● NETHERLANDS (24) | ● KOREA, REPUBLIC OF (53) | |
| ● CANADA (87) | ● GERMANY (142) | ● ITALY (65) | ● NEW ZEALAND (6) | ● SPAIN (5) | |
| ● CHINA (105) | ● GREECE (2) | ● JAPAN (156) | ● NORWAY (7) | ● UK (163) | |



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Deployment Summary - 2017

- In 2017, Argo Canada deployed 30 MetOcean (NOVA and DOVA) floats (12 in the northeast Pacific, and 18 in the northwest Atlantic). Of these 30 floats, 2 died prematurely.
- MetOcean float reliability seems to have improved.
- 2 BGC floats were deployed by NAOS-Canada (Laval University) in Baffin Bay, and 1 Argo-equivalent float was deployed by Argo Canada eq. on the Labrador Shelf.



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Planned Deployments – 2018/19

- As of January 2018, the Government of Canada signed a new standing offer with NKE Instrumentation for a 3-year period (10 January 2021) for supplying core Argo floats. This contract has the option of two additional years. Cost is more than MetOcean floats, so this will result in deployment of fewer floats.
- In 2018 and early 2019, Argo Canada plans to deploy 37 floats, all of which have already been purchased or are replacements: 14 will be deployed in the North Pacific (NOVA/ARVOR-I), 8 in the Labrador Sea (NOVA/DOVA/ARVOR-I), 8 in the Gulf Stream's northern recirculation gyre (NOVA), and 7 in the Newfoundland Basin (NOVA).
- In addition, NAOS-Canada (Laval University) may deploy 2 BGC floats, and Argo Canada eq. plans to deploy 7 Argo-equivalent floats in the Beaufort Sea and Hudson Bay (related to Year of Polar Prediction).



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Data Management

- On average, 97% and 95% of data from January 2017 to December 2017 data were issued to the GTS within 24 hours of the float reporting in TESAC and BUFR format, respectively.
- As of February 2018, 44% of all eligible floats, active and inactive, had their profiles QCed visually and adjusted for pressure according to the latest delayed-mode procedures at least once.
- The salinity component of DMQC had been performed at least once on 67% of eligible cycles.
- Routines were developed to visually QC dissolved oxygen profiles and, in the case of Aanderaa dissolved oxygen sensors, apply calibration factors. As of November 2017, 14% of B-files had been visually QC'd, and 4% were fully DMQC'd.



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Research & Operational Users

- Development of close links between the Argo Canada program and both the operational meteorology and operational oceanography R&D activities at the Canadian Meteorological Centre (Dorval, Québec) has been beneficial.
- An inter-departmental (Environment and Climate Change Canada, Department of National Defence, Fisheries and Oceans) Memorandum of Understanding entitled CONCEPTS (Canadian Operation Network of Coupled Environmental Prediction Systems) has provided strong advocacy for the Argo program. Fraser Davidson will present on this on Wednesday morning.
- The CONCEPTS Global Ice Ocean Prediction System (GIOPS) assimilates Argo data on a weekly basis producing operational forecasts.



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Research & Operational Users

- The Department of National Defence Navy scientists routinely use real time Argo vertical profiles of temperature into their Ocean Work Station to aid in the computation of sound velocity profiles for support of at-sea operations.
- Argo floats deployed in the Labrador Sea support the DFO Atlantic Zone Off-shelf Monitoring Program (AZOMP). These floats are also an important element of an NSERC Climate Change and Atmospheric Research (CCAR) project entitled VITALS (Ventilation, Interactions and Transports Across the Labrador Sea) led by the University of Alberta.
- 13 journal publications, 1 M.Sc. thesis in 2017.



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Challenges

- Aging research vessel fleet in Canada is creating risks related to Argo float deployments. Exploring more use of Navy vessels for deployments.
- No dedicated capital funding for purchase of floats, so this presents a risk each year.



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BGC-Argo Canada

- Workshop in Halifax in January 2017 included government & university scientists as well as BGC-Argo co-chair (K. Johnson)
- Summary report published on BGC-Argo web site
- Establishing a national steering committee
- Exploring options for funding



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Thank You Howard



Howard with the CMOS Tully
Medal in Oceanography (2012)

