Canada's Northern Strategy: Arctic Research Infrastructure

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ASSW 2009– Forum of Arctic Research Operators

Canada's Integrated Northern Strategy

- *"Our Government will bring forward an integrated northern strategy focused on strengthening Canada's sovereignty, protecting our environmental heritage, promoting economic and social development, and improving and devolving governance, so that northerners have greater control over their destinies."*

SFT, October 16, 2007

Sovereignty	Economic and Social Development	Environmental Protection	Governance
Protecting our Arctic sovereignty as international interest in the region increases.	**Encouraging social and economic development and regulatory improvements that benefit Northerners.**	**Adapting to climate change challenges and ensuring sensitive Arctic ecosystems are protected for future generations.**	**Providing Northerners with more control over their economic and political destiny.**

SCIENCE AND TECHNOLOGY UNDERPIN ALL FOUR PILLARS

Canada is responding to Arctic change – with strengthened science and technology

Science and technology underpin all four pillars of the Northern Strategy

Sovereignty:

- Seabed mapping will build Canada's case under UNCLOS

Economic and social development:

- Geo-mapping for energy and minerals identifies resource potential and spurs exploration and development

Protecting the environment:

- Environmental baseline data provides basis for effective regulation

Governance:

- Comprehensive surv eys to determine state of Inuit health to identifybasis for future action

A New Research Station in Canada's High Arctic

The Government has committed to build a ***world-class High Arctic research station*** *that will be on the cutting edge of Arctic issues, including environmental science and resource development.*

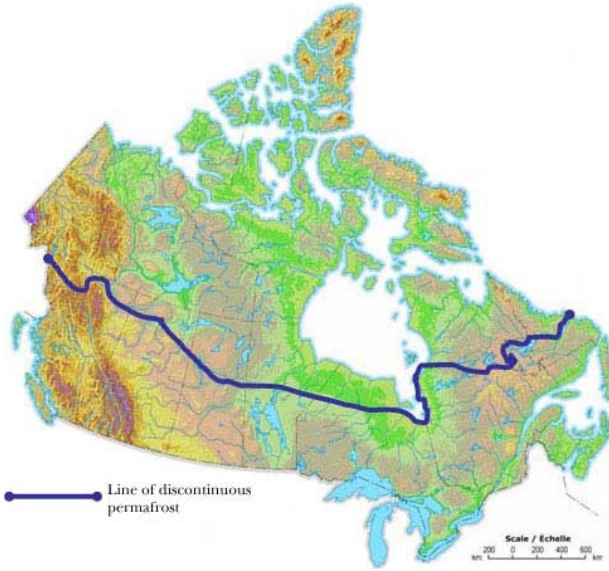
"[Our Government] ***will invest in new world-class research facilities***"
2008 Speech from the Throne

"Canada's federal government will direct resources to ***priority areas where Canada can build global research and commercial leadership****."*
Federal S&T Strategy:
Mobilizing Science and Technology for Canada's Advantage

Photo: Ed Struzik

Photo: D. Labonté

Canada's Arctic S&T Advantages



Geography

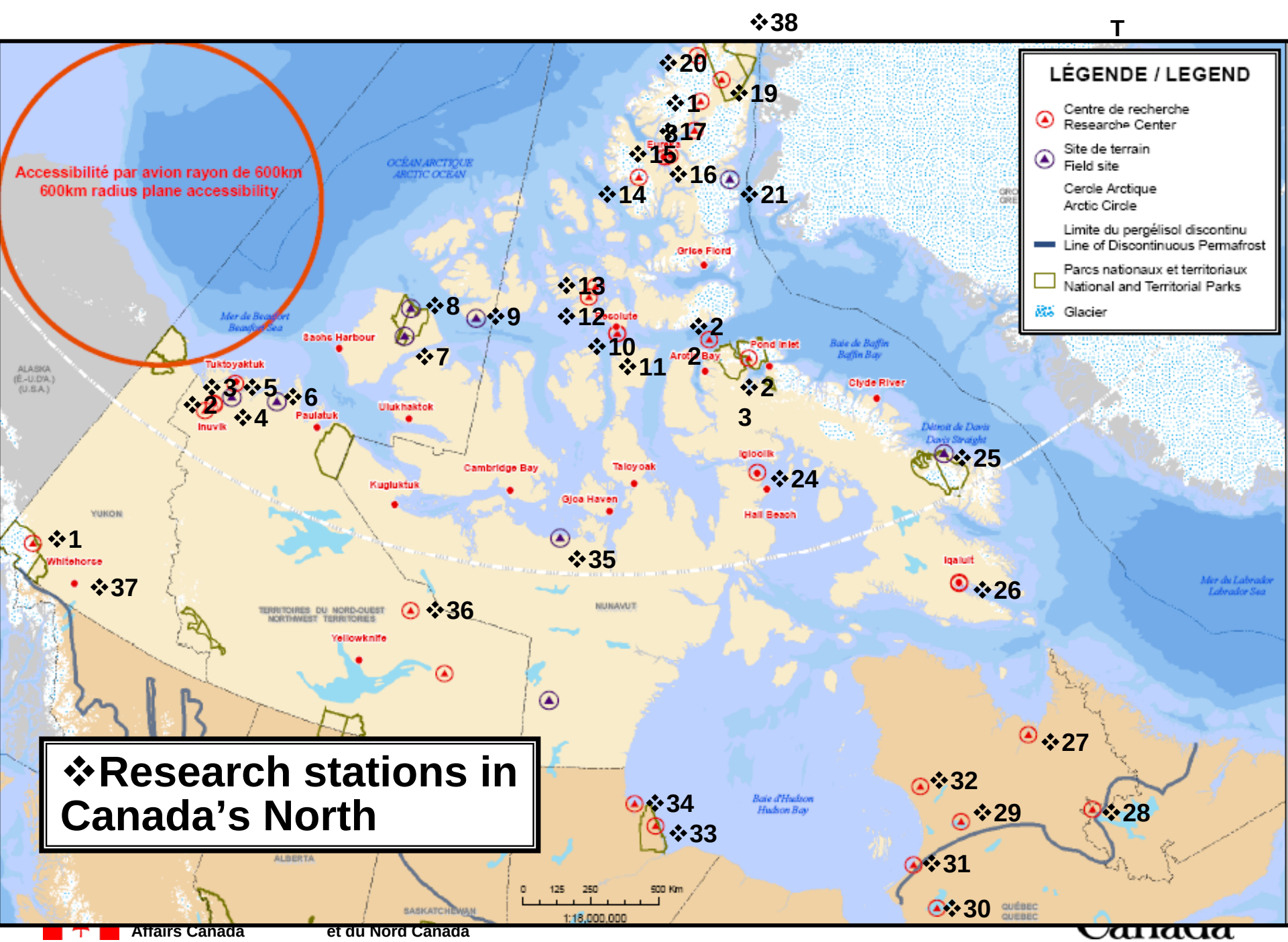
- 25% of global Arctic
- 40% of Canada
- Widest range of Arcti
  huge north-south gradient
- Largest archipelago in world
- Optimal for high latitude atmospheric science

People

- Over 100,000 live in the territories now
- Traditional knowledge accumulated over thousands of years of habitation
- Canadian Arctic scientists - world class

Resources

- Oil and gas
- Metals and minerals
- Fisheries and wildlife
- Arts and tourism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Accessibilité par avion rayon de 600km
600km radius plane accessibility
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ARCTIC OCEAN
Grise Fiord
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Pond Inlet
Clyde River
Baie de Baffin
Baffin Bay
Détroit de Davis
Davis Straight
Sachs Harbour
Tuktoyaktuk
Inuvik
Paulatuk
Ulukhaktok
Cambridge Bay
Kugluktuk
Taloyoak
Gjoa Haven
Igloolik
Hall Beach
Iqaluit
Whitehorse
Yellowknife
YUKON
TERRITOIRES DU NORD-OUEST
NORTHWEST TERRITORIES
NUNAVUT
ALBERTA
SASKATCHEWAN
QUÉBEC
QUEBEC
Mer de Beaufort
Beaufort Sea
Mer du Labrador
Labrador Sea
Baie d'Hudson
Hudson Bay
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LÉGENDE / LEGEND
Centre de recherche
Research Center
Site de terrain
Field site
Cercle Arctique
Arctic Circle
Limite du pergélisol discontinu
Line of Discontinuous Permafrost
Parcs nationaux et territoriaux
National and Territorial Parks
Glacier
❖Research stations in Canada's North
Affairs Canada
et du Nord Canada
Canada

Research stations in Canada's North

1. Kluane Lake Research Station (Arctic Institute of North America, University of Calgary)
2. Inuvik Research Centre (Aurora Research Institute)
3. Western Arctic Area Office (DFO)
4. Sunny Lake Fire Base Camp (GNWT)
5. Tuktoyaktuk Warehouse and Laboratory (DFO)
6. Anderson River Bird Sanctuary Cabin (EC)
7. Green Cabin (Parks Canada)
8. Polar Bear Cabin, Banks Island (GNWT)
9. Polar Bear Cabin, Cape Providence (GNWT)
10. Polar Continental Shelf Program (NRCan)
11. Resolute Marine Laboratory (DFO)
12. Polar Bear Pass National Wildlife Area Research Facility (EC)
13. Walker River (EC)
14. McGill Arctic Research Station (MARS) (McGill University)
15. Eureka Weather Station (EC)
16. Polar Environment Atmospheric Research Laboratory (CANDAC)
17. D'Iberville Fiord (DFO)
18. Quttinirpaaq (Parks Canada)
19. **Quttinirpaaq (Parks Canada)**
20. **Ward Hunt Island Field Station (Parks Canada, CEN)**
21. **Alexandra Fjord Seasonal Outpost (RCMP)**
22. **Devon Island Research Station (CSA, NASA)**
23. **Bylot Island Field Station (CEN)**
24. **Igloolik Research Centre (NRI)**
25. **Auyuittuq National Park Reserve (Parks)**
26. **Nunavut Research Institute**
27. **Nunavik Research Centre**
28. **McGill Sub-Arctic Research Station – Schefferville (McGill University)**
29. **Clearwater Lake Field Station**
30. **Radisson Ecological Research Station**
31. **Whapmagoostui-Kuujjuarapik Research Station (CEN)**
32. **Boniface River Field Station**
33. **La Perouse Bay Field Station**
34. **Churchill Northern Studies Centre**
35. **Perry River Cabin**
36. **Tundra Ecosystem Research Station**
37. **Yukon College**
38. **Alert Observatory (EC)**

Building a Uniquely Canadian Solution

- Significant advice from national and international stakeholders
- Visited various research facilities from pole to pole
- CCA


Ny Alesund, Norway


Abisco, Sweden


Rothera Station, Antarctica

Photos: D. Labonté

Defining world-class in Canada's Arctic

Received consistent advice

from

International benchmarking, consultations, and site visits

National Visioning Workshop

Stakeholder engagement

International Expert Panel

Review of select institutes, research centres

Infrastructure

- Locate station to anchor a distributed network to harness Canada's unique geographic advantage
- Design for modularity
- Minimize environmental footprint
- Operate year-round

Science and technology program

- Build science program at the station
- Define Canada's niche to address complex, globally significant issues
- Foster synergy across disciplines, sectors, and nations
- Link monitoring, research, modelling, and application
- Build on Canada's leadership in linking northern residents, traditional knowledge, and world-class scientists to produce both excellent and relevant S&T

Knowledge transfer

- Enable access to, and application of, Arctic data and knowledge for decision making and commercialization

Sustained funding

- Commit funding over long term so the best scientists and engineers commit to polar science and technology in Canada

Start now

Science Priorities – Key Themes

Visioning Workshop Outputs:

❖Environmental Science and Stewardship	❖Sustainable Resource Development	❖Healthy and Sustainable Communities	❖Climate Change

❖***Science activities (technology, observation, monitoring . . .)***

❖***are cross cutting the four themes***

- ❖ Two distinct Canadian advantages identified: diverse and unique geography (‘natural laboratory’) and the Human dimension (‘people advantage’)

❖**The International Expert Panel agreed in principle with these priority themes; validating them as appropriate broad direction for the Institute.**

“the Plan” …from Arctic Station to Arctic Research Institute

Start Now!

Three Key Elements

- Continue planning for the “Station”: feasibility study, governance structure, pick location
- Enhance the existing network of Research Stations
- Develop post-IPY Science Program

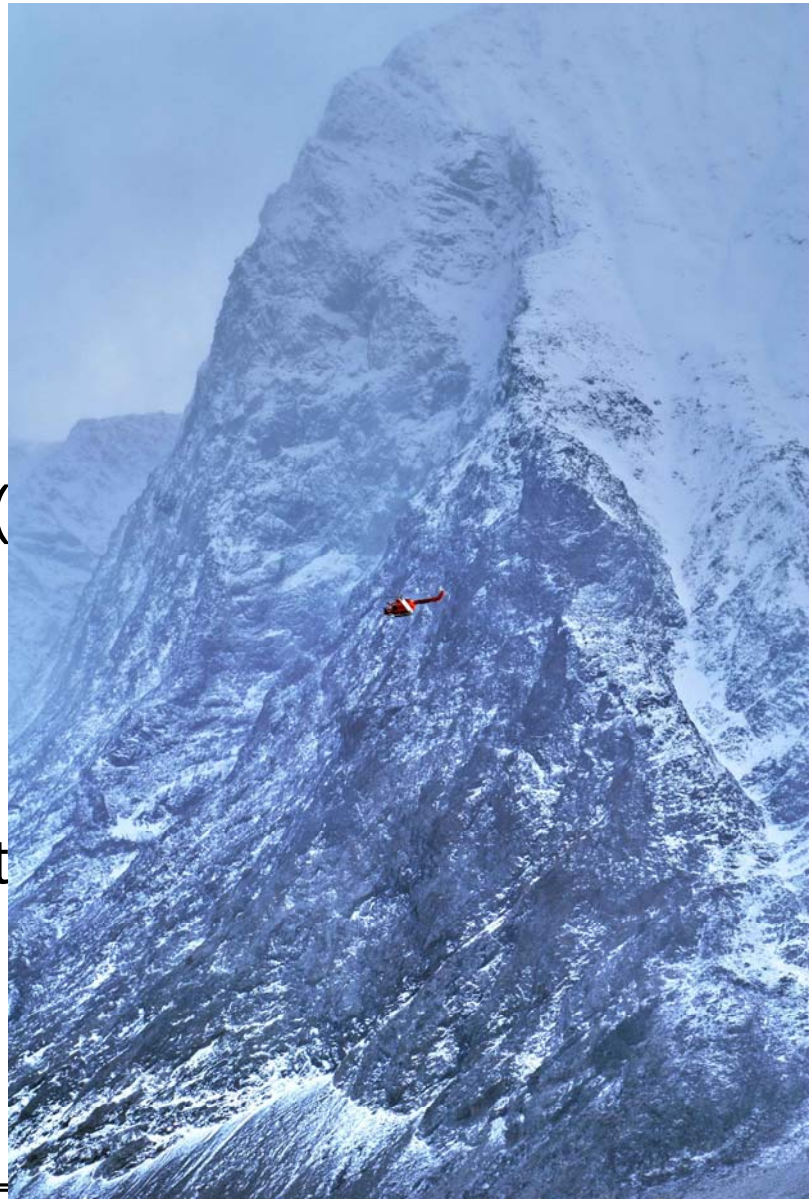
Recent Developments

PLANNING FOR THE STATION

- Location options narrowed down to three sites: Pond Inlet, Cambridge Bay, Resolute Bay
- $2M for feasibility study (18 months)

EXISTING NETWORK

- Arctic Research Infrastructure Fund:$85M to enhance existing Arct science infrastructure
  - Work to be completed by April 2011
  - 40 proposals received (about $170M)
  - Decisions expected very soon



Next Steps

STATION/INSTITUTE

- Consult the three communities/ Nunavut government
- Consult “users” to determine needs of station and feed into feasibility study
- Seek funding decisions based on result of feasibility study
- Develop proposal for future governance

EXISTING NETWORK

- Announce results of Arctic Research Infrastructure Fund competition

SCIENCE

- Refine science priorities
- Develop proposal to fund post-IPY science program

Northern Arctic Research Initiatives

..to meet 21st century demands…

- require new programs
- involving ships
- and shore based facilities

- to serve
- and protect

- our resources and sovereignty


❖ and grow
❖ to meet the needs of all Canadians

- for our future generations
- … obviously !

Thank you

Beaufort Sea – Photo: P. Borbey