

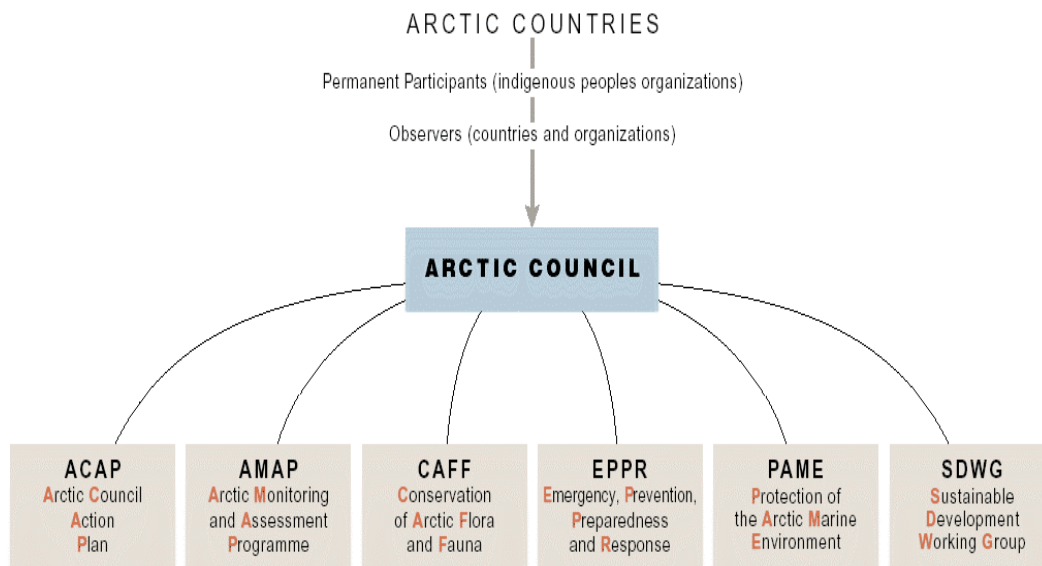
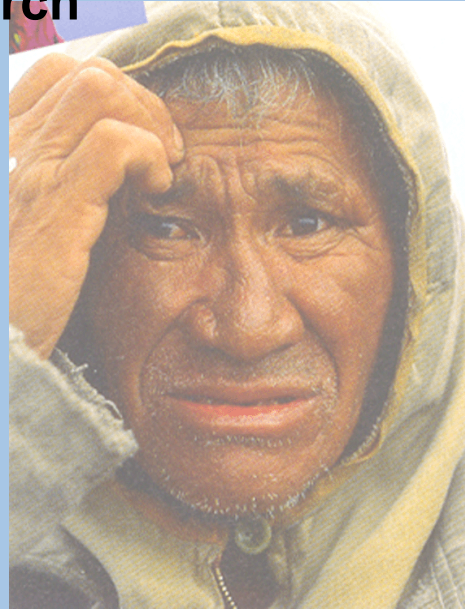
Monitoring and Research

of Arctic areas;

AMAPs need for data to perform assessments of pollution, climate change & UV/Ozone & human health

SAON Workshop
Edmonton, April 9 -11, 2008

Lars-Otto Reiersen,
Executive Secretary



AMAP

Arctic Monitoring and Assessment Programme

AMAP's geographical coverage



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AMAP

Arctic Monitoring and Assessment Programme

Monitoring and Assessment of levels, trends and effects of:

- Persistent Organic Pollutants (POPs)
- Heavy metals
- Radionuclides
- Petroleum hydrocarbons
- Climate Change and UV.

Samples are collected from:

- Air, Water, Snow, Ice & Sediments
- Plankton, Invertebrates & Fish
- Mammals & Birds
- Humans



AMAP Thematic Data Centres

- | | |
|---------------------------|-------------------------|
| •Atmospheric | NILU, Norway |
| •Marine | ICES, Denmark |
| •Terrestrial & Freshwater | UAF, USA |
| •Radioactivity | NRC, Norway |
| •Human | National & AMAP, Norway |
- Provide access to data from recent monitoring and research
 - Ensure that data are treated in a consistent manner, QA/QC
 - Provide long-term secured archive of Arctic-relevant environmental data for use in future research and assessments.

AMAP Assessment - leads

- | | |
|---------------|--|
| POP | Canada & Sweden |
| Radionuclides | Russia & Norway |
| Mercury | Denmark, Canada |
| Oil | Norway & USA |
| Human health | Denmark & Canada |
| Acidification | Finland |
| Climate | USA & Norway |
| SWIPA | Denmark, Norway, Sweden,
Russia, Canada, USA. |

AMAP

Arctic Monitoring and Assessment Programme

Air monitoring at Alert

Continuous measurement of POPs and mercury
Meteorological Service of Canada



Alert, Nunavut. Defence R&D Canada/Janice Lang

<http://www.amap.no>

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AMAP

Arctic Monitoring and Assessment Programme

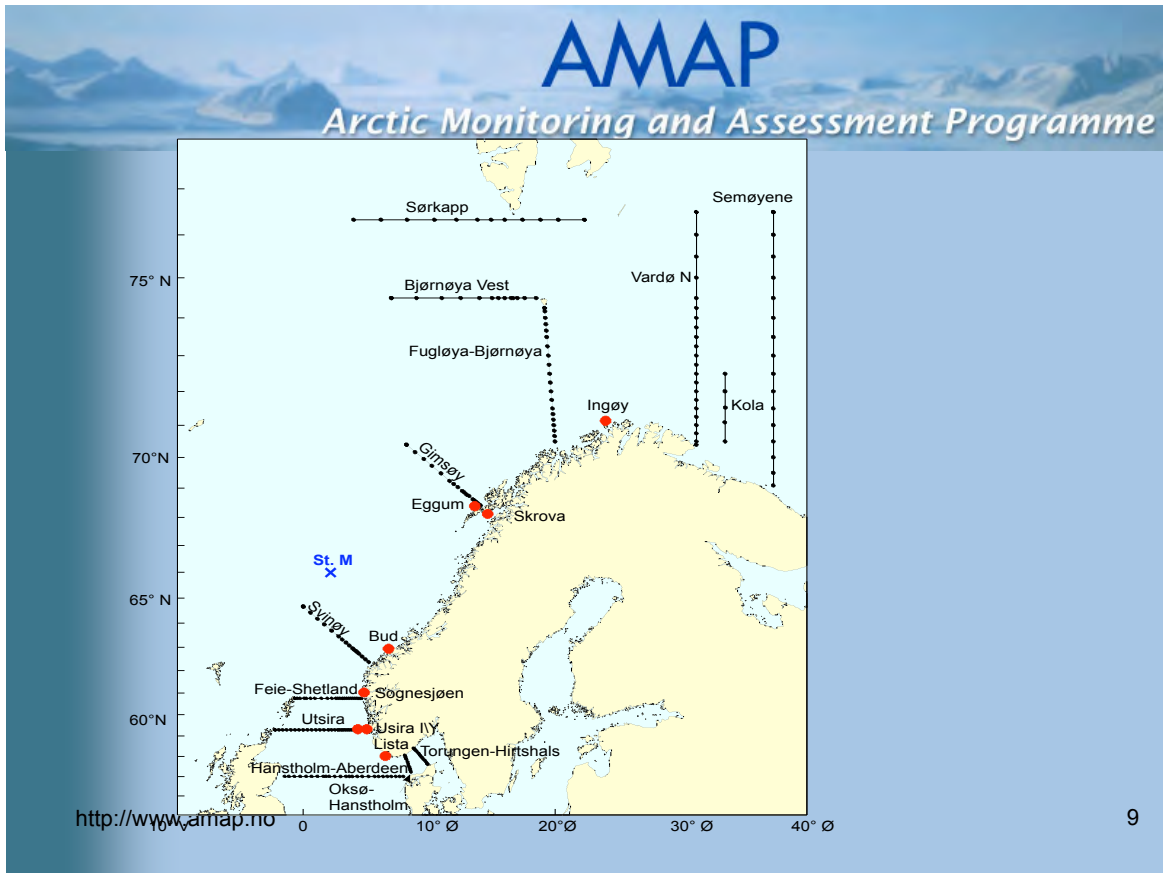
Zackenberg: Implementing the AMAP Programme

Appendix 3. MarineBasis in relation to AMAP's Effects Monitoring Programme (Climate Change effects)

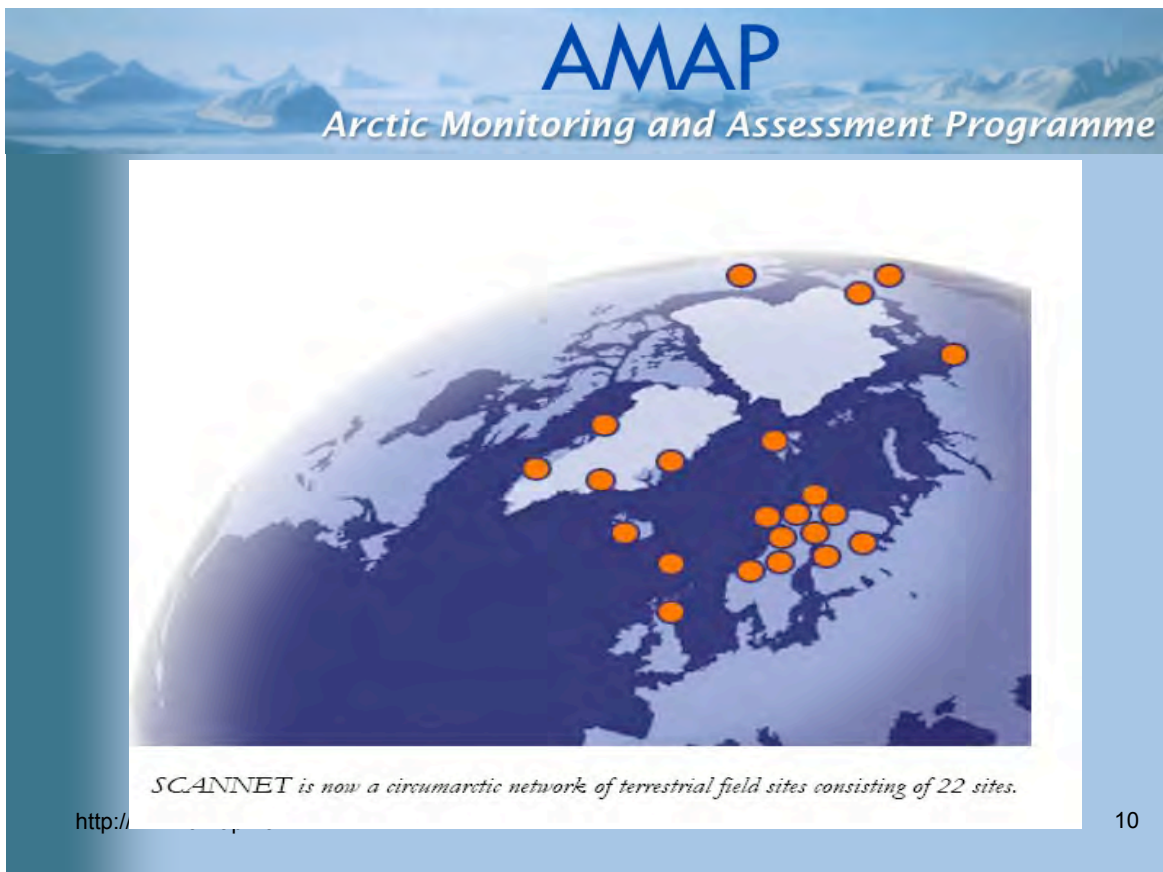
Variable	Parameter subdivision	MarineBasis Sites	Level	Recommended by AMAP
Radiation	UV-B	2	Micro/Fjord	Yes
	Short wave	2	Micro/Fjord	Yes
	PAR	2	Micro/Fjord	Yes
Air pressure		1	Micro/Fjord	Yes
Wind	Speed	1	Micro/Fjord	Yes
	Direction	1	Micro/Fjord	Yes
Snow cover	Depth	3	Micro/Fjord	Yes
	Extent	3	Outer fjord	Yes
	Duration	3	Micro/Fjord	Yes
Ice cover	Depth	1	Micro/Fjord	Yes
	Extent	10	Outer fjord	Yes
	Freeze time	1	—	—
	Thaw time	1	—	—
Current patterns	Vertical profiles	2	Micro/Fjord	Yes
	Speed & direction	2	Micro/Fjord	Yes
Nutrients	Vertical profiles & fluxes	2	Micro/Fjord	Yes
Carbon and CO ₂	Vertical profiles & fluxes	2	Micro/Fjord	Yes
Salinity and temperature profiles	Vertical profiles	2	Micro/Fjord	Yes
Water table, tides	Depth	Irrelevant	—	—
Plankton	Species composition, abundance, distribution	2	Micro/Fjord	Yes
Primary production	Ice algae/phytoplankton/underwater plants	2	Micro/Fjord	Yes
Underwater plants/diatoms	Species composition, abundance, distribution	10	Outer fjord	Yes
Benthos	Species composition, abundance, distribution	10	Outer fjord	Yes
Walrus	Abundance	1	Outer and mid fjord	Yes
Ringed seal	Change in food choice and condition	—	Outer and mid fjord	Yes

Zackenberg: site of coordinated long-term Bio-, Geo-, Climate- and Marine monitoring

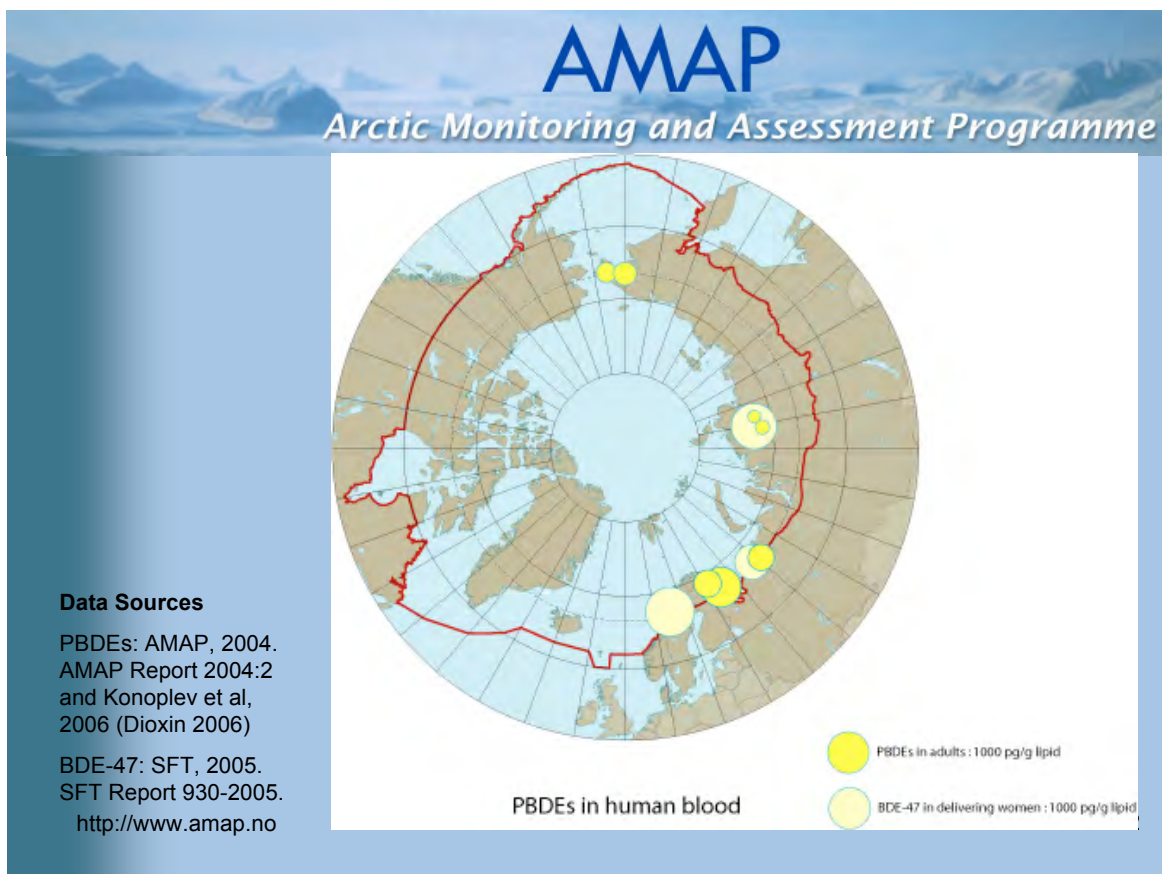
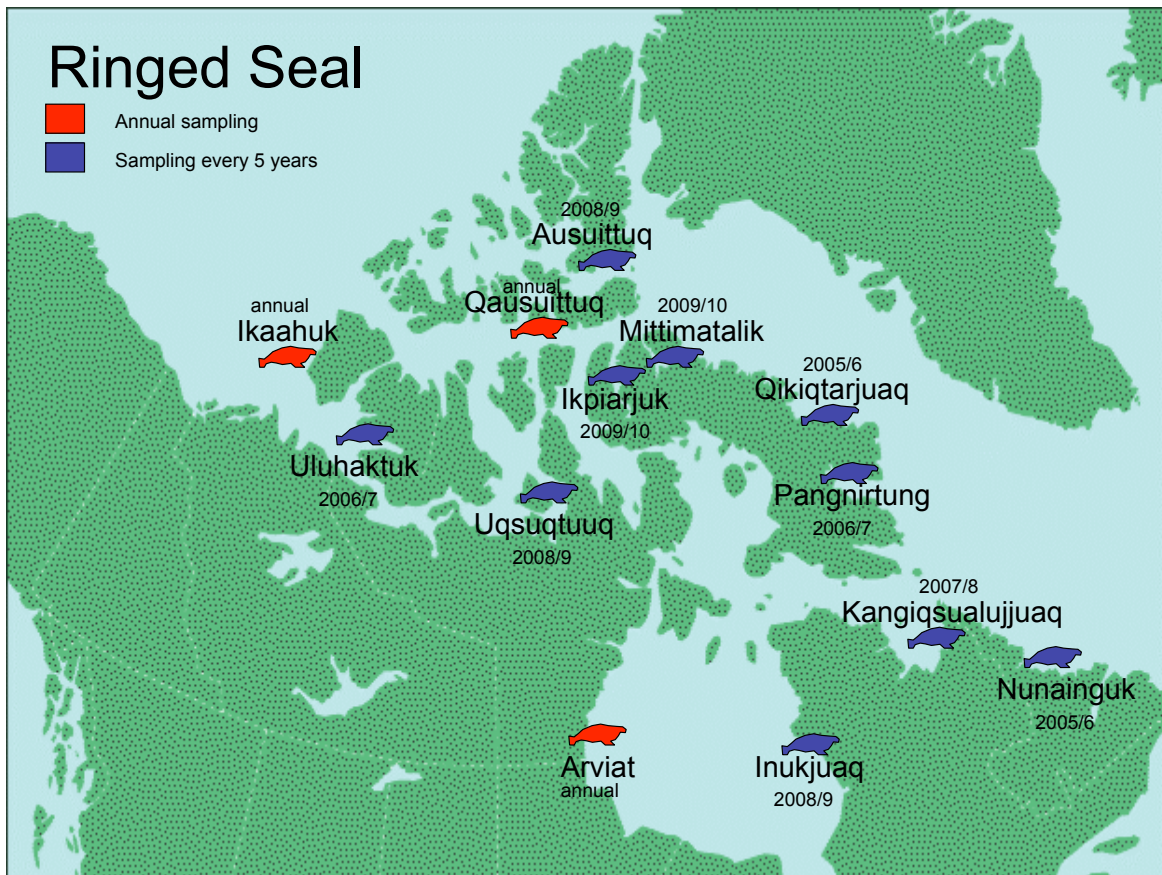




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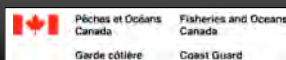
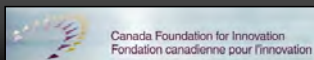


CCGS AMUNDSEN

CANADIAN RESEARCH ICEBREAKER
www.amundsen.quebec-ocean.ulaval.ca



The CCGS Amundsen: a Canadian research icebreaker for international collaboration in the study of the changing Arctic



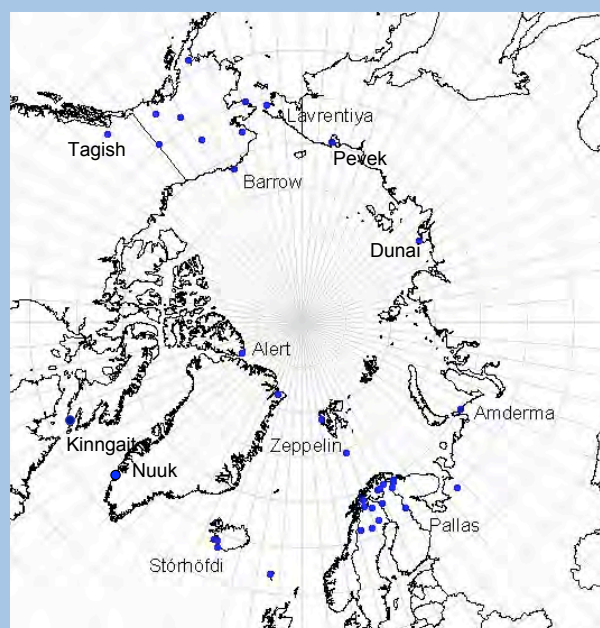
ARCTIC MONITORING AND ASSESSMENT PROGRAMME

AMAP

Background air monitoring sites in the Arctic

Arctic Monitoring and Assessment Programme

- AMAP air monitoring sites
- Key AMAP air monitoring sites where POPs monitoring is performed
- AMAP POPs monitoring sites operated under temporary funding arrangements
- POPs monitoring sites where operations have ceased
- NILU



<http://www.amap.no>

SAON Request from Arctic Council

"Urge all Member countries to maintain and extend long term monitoring of change in all parts of the Arctic, and request AMAP to cooperate with other AC Working Groups, IASC and other partners in efforts to create a coordinated Arctic Observing network that meets identified societal needs"

Arctic Council Ministerial Meeting 26 October, 2006

<http://www.amap.no>

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SAON Overarching Aims

Combining observational efforts by

- national agencies,
- research communities,
- local residents and
- others

Creating Sustained Arctic Observing Networks.

Circum arctic focus and coverage

Inclusiveness

Accessible data (open, easy, timely, free)

Global connections

<http://www.amap.no>

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SAON Initiating Group (IG)

To develop a set of recommendations to achieve long-term Arctic wide observing activities that provide free, open and timely access to high quality data.

AC/AMAP, IASC, WMO/CLIC, IPY,
AOSB, FARO, IASSA, ISAC,
GOOS, IPS & US-NSF.

New techniques, Unmanned Aircraft Systems (UAS) - Issues to be clarified:

The Users needs

Aviation regulations in each state

National security issues

Principles for cooperation, e.g.

transparency, share of data, etc.

1st workshop held March 2008.

AMAP wishes to Arctic stations

A station that provide:

- support for International Monitoring and Research;
- a basic set of variables/observations based on
AMAP Trend & Effect Programme for Climate and Pollution,
the joint AMAP/CAFF biodiversity programme, etc.;
- recorded data from a "Station data base" to
International Data Centers, e.g. AMAP TDCs;
- a platform for special campaigns to clarify emerging issues;
- a platform to develop new techniques for Arctic conditions,
e.g. UAS ;
- etc.

Classic monitoring of the Arctic



AMAP

Arctic Monitoring and Assessment Programme

I smell.....

