

weathering change

newsletter of the northern climate exchange fall 2004

Impacts of a Warming Arctic

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In November, the Impacts of a Warming Arctic, Arctic Climate Impact Assessment (ACIA) document was released in Reykjavik, Iceland. The eight circumpolar countries and six permanent participants representing indigenous peoples of the North took part in the development and presentation of the findings. The final report brought together four years of science and traditional knowledge to create a clear, unified, and solid look at climate change across the North.

These are the ten key findings of the ACIA:

1. *Arctic climate is now warming rapidly and much larger changes are projected.* Temperature is increasing twice as fast in the Arctic, compared with the rest of the world. As snow and ice decrease, more of the sun's energy is trapped in



ACIA symposium panel discussion: *Achieving Environmental Protection in the Arctic: Is there Common Ground?*

A global increase in greenhouse gases is the predominant driver of climate change, which is especially strong in the North.

the darker, more vegetated ground cover. This is a positive feedback loop, which will accelerate warming. Even if we stopped burning fossil fuels right now, it would take many decades for climate change to slow and eventually reverse.

2. *Arctic warming and its consequences have worldwide implications.* A global increase in greenhouse gases is

the predominant driver of climate change, which is especially strong in the North. At the same time, climate change in the North has an impact on other areas of the globe. The Arctic Ocean is being influenced by variations in heat, salinity, and exposure to

winds. If a threshold is crossed, there could be major shifts in circulation patterns and this will result in new regimes of continental climate.

3. *Arctic vegetation zones are very likely to shift, causing wide-ranging impacts.* This is one of the facets of climate change that is a potential opportunity. Increases in temperature and precipitation mean better growing seasons in many regions in the North. However, this has been accompanied by insect outbreaks and a higher incidence of forest fires.

4. *Animal species' diversity, ranges, and distribution will change.*

Migratory birds and caribou herds are very sensitive to their environments and increased stress is expected. Hardest hit though, will be animals that rely on sea ice.

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A note from the editor

This issue of *Weathering Change* deals with the Arctic Climate Impact Assessment (ACIA). We are privileged to have a great lineup of authors. John Streicker, acting NCE Coordinator, attended the ACIA symposium and provides his analysis of the impacts of a warming Arctic. To set the stage, Gunter Weller and Patricia Anderson of the ACIA Secretariat provide an overview of the entire ACIA process. Gordon McBean, lead author of Chapter 2 of the ACIA report, summarizes Arctic Climate: Past and Present, while Henry Huntington

and Shari Fox Gearheard, lead authors of Chapter 3 discuss The Changing Arctic: Indigenous Perspectives. Jamal Shirley, Coordinator of C-CIARN North, Nunavut, gives us an overview of the ACIA document while Aynsle Ogden provides an analysis of the Arctic Council policy response to the ACIA. Finally, Peter Johnston of the University of Ottawa and Aynsle Ogden provide their perspectives on the importance of the ACIA in the Exchanging Views column. Thanks to all the authors for their insightful comments and analyses.

A single issue of *Weathering Change* can only pick a few highlights from this important document. The ACIA report Impacts of a Warming Arctic as well as the Arctic Council policy response to ACIA are available online at <http://amap.no/acia/>. The 18 chapters of detailed reports will be available in the spring of 2005 through Cambridge University Press.

Bob Van Dyke

continued from page 2 . . .

5. Many coastal communities and facilities face increasing exposure to storms.

Sea ice is diminishing, in thickness and extent. When sea ice is not attached to the shoreline (fast ice) then the coast is exposed to erosion from Arctic storm surge.

6. Reduced sea ice is very likely to increase marine transport and access to resources.

This is another one of the opportunity areas. It is ironic, however, that the very resource which most directly creates climate change (fossil fuel) is one which will be more accessible as sea ice recedes.

7. Thawing ground will disrupt transportation, buildings, and other infrastructure.

This will happen in two ways – first, the season for ice roads and frozen river crossings will contract, and second, permafrost will melt and this will destabilize any structure that was designed to sit on a stable foundation.

8. Indigenous communities are facing major economic and cultural impacts.

Changes to sea ice, coastal erosion, permafrost, vegetation, and animal distribution will all have an impact on northern communities. Indigenous people have always had to adapt to their climate. The question remains whether there is enough capacity to adapt as quickly as the climate change impacts on the environment.

9. Elevated ultraviolet radiation levels will affect people, plants, and animals.

This will be an ongoing health concern.

10. Multiple influences interact to cause impacts to people and ecosystems.

Climate change is a complex issue. Science modeling and experience on the ground give a clear indication that it is here, but there is still a lot to learn about how it will evolve. Other influences which can exacerbate the situation include chemical pollution, overfishing, habitat fragmentation, (human) population growth etc.

These key findings present us with a few opportunities and many hard realities putting the people and places of the North at risk. This makes the message both difficult to convey and difficult to receive.

The ACIA has delivered the message to us. The next steps will be to reach out to the public with this information, to mitigate the impacts by reducing activities which contribute to greenhouse gases, and to find ways to adapt to climate change that is here now or soon will be. At the same time, we will need to continue to observe and understand this complex issue. In this instance, the North is the frontline for the rest of the world and ultimately we will all need to work together.

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The Arctic Climate Impact Assessment (ACIA)

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The Arctic plays a crucial role in global climate change and climate models project an amplification of the global greenhouse effect in the Arctic. The societal and economic consequences of this are likely to be substantial. A warmer climate affects the Arctic environment by melting ice and thawing permafrost, and the extent and thickness of the seasonal snow cover, sea ice, permafrost, glaciers, and river and lake ice are all expected to decrease. These changes in turn will affect polar ecosystems on land and in the ocean, with their distinct fauna and flora. Socio-economic consequences to populations, industry, and lifestyles will be inevitable. Impacts due to climate change have already been observed in many parts of the Arctic.

To assess past, present, and future climate and UV radiation trends and their impacts on the environment, economy, and people's lives, the Arctic Climate Impact Assessment (ACIA) was launched by the Arctic Council in 2000. Its final results were released at a scientific symposium in Reykjavik, Iceland in November 2004. About 200 experts from all the Arctic countries wrote a 1,200-page detailed report summarizing their findings and conclusions. A shorter overview document was released in Iceland and the Arctic Council has released a report with policy recommendations based on the scientific findings. The ACIA science reports will be available from Cambridge University Press (<http://us.cambridge.org>).

The major findings of the scientific report are:

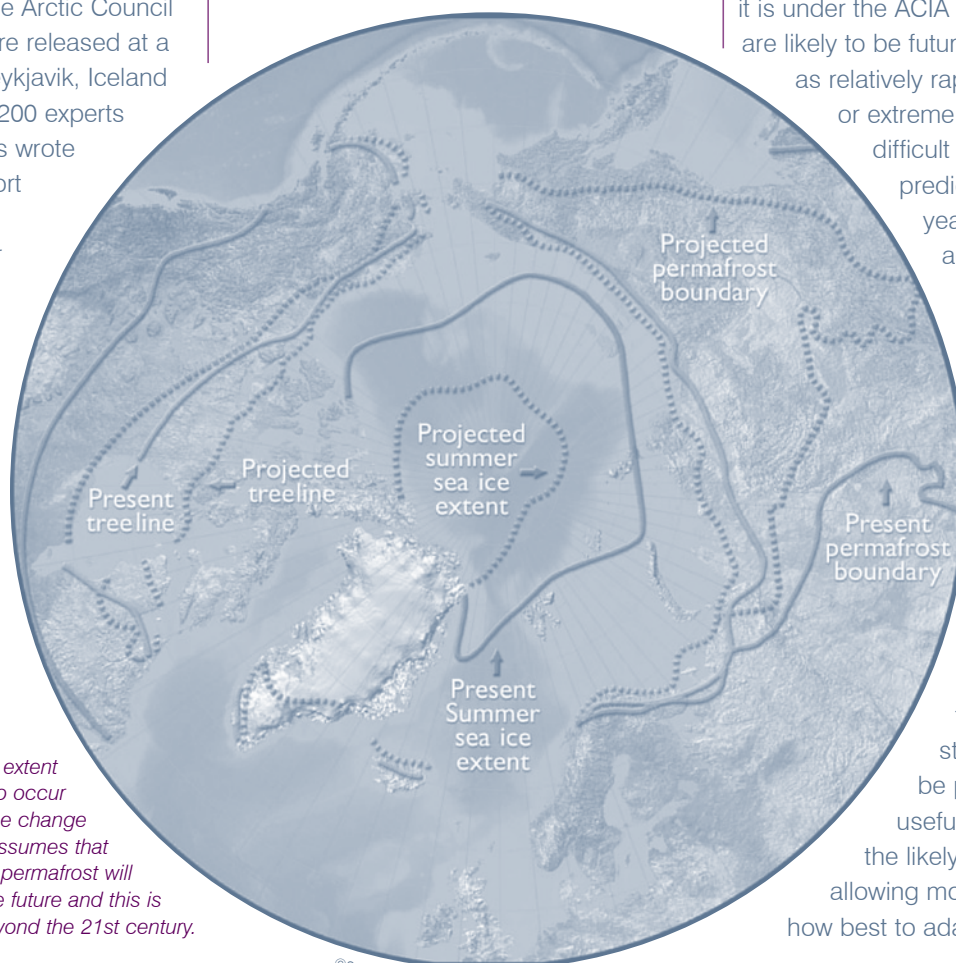
- Arctic climate is warming rapidly and much larger changes, up to 4–7°C over the next 100 years, are projected.
- Arctic warming and its consequences are likely to have worldwide implications through sea level rise from melting glaciers, feedbacks to the global climate, and changes in the ocean thermohaline circulation.
- Arctic vegetation zones, including tundra, polar deserts, and boreal forests, are very likely to shift northward, causing impacts on people and animals in terms of their habitat, food, fuel, and culture.
- Animal species' diversity, ranges, and distribution are likely to change. For example, polar bears may be pushed towards extinction as sea ice decreases,

while Arctic marine fisheries are likely to become more productive.

- Many coastal communities and facilities face increasing risks due to storms, flooding, and erosion.
- Reduced sea ice is very likely to increase marine transport, including trans-Arctic shipping through the northern sea route, and access to resources.
- Thawing permafrost will disrupt transportation systems, buildings, and other infrastructure.
- Indigenous peoples and other residents of the Arctic are likely to face major impacts on their lifestyles, culture, health, and food security.
- Elevated UV radiation levels are likely to affect people, plants, and ecosystems.

Arctic climate impact assessments will continue in one form or another, whether it is under the ACIA label or not. There are likely to be future surprises, such

as relatively rapid shifts in climate or extreme events, that will be difficult if not impossible to predict. Over the coming years, however, as additional data are gathered, as a better understanding of the complex processes, interactions and feedbacks is developed, and as model simulations are refined, projections will be made with increasing confidence. As understanding of the climate system steadily improves, it will be possible to increase the usefulness of projections of the likely impacts in the Arctic, allowing more specific planning on how best to adapt and respond.



Changes in summer sea ice extent and treeline are projected to occur by the end of this century. The change in the permafrost boundary assumes that present areas of discontinuous permafrost will be free of any permafrost in the future and this is likely to occur beyond the 21st century.

The Arctic Climate: Past and Present

G.A. MCBEAN, PH.D, FRSC. INSTITUTE FOR CATASTROPHIC LOSS REDUCTION, THE UNIVERSITY OF WESTERN ONTARIO, LEAD AUTHOR, CHAPTER 2, ARCTIC CLIMATE IMPACT ASSESSMENT

The release of the Impacts of a Warming Arctic: Arctic Climate Impact Assessment in Reykjavik, Iceland in November 2004 generated enormous interest and response from the public, governments, and media. The Assessment is comprised of 18 chapters presenting an evaluation and synthesis of climate change and variability across the Arctic. An overview of Chapter 2, which provides an examination of the past and present Arctic climate, is presented here. Communities throughout the Arctic are experiencing changes in climate that have, in some areas, been observed to be occurring at accelerated rates compared to previous decades. Trends and changes noted in Chapter 2 are consistent with observations by northern residents, such as those summarized in Chapter 3 of the ACIA.

Arctic systematic, in-situ meteorological observations started in the late 18th century in the Atlantic sector and in other sectors later. In terms of the circum-Arctic region, only for the last 50 years or so has there been adequate coverage. For this study, the focus has been on land surface stations for the Arctic, defined arbitrarily as north of 60°N. Temperature trends using the Global Historical Climatology Network database (GHCN), which is a well-established and documented data set, are shown in Figure 1. During the period 1900-2002, there is a statistically significant warming trend of 0.09°C per decade, more than the 0.06°C per decade increase averaged over the Northern Hemisphere. For the period 1966-2002, the average over the region was 0.38°C per decade, almost twice the rate for the lower latitudes over the same period. Due to natural variability and sparse data in the Arctic, the Arctic shows more variability and there is less confidence in the results.

While the changes are most pronounced in winter and spring, all seasons experienced an increase in temperature during the last several decades. This instrumental

record of land-surface air temperature is consistent with other climate records in the Arctic, particularly over the last 40 years. Satellite thermal infra-red data on surface temperature, from 1981-2001, exhibited statistically significant warming trends between 60°N-90°N of 0.33°C per decade over sea ice, 0.50°C per decade over Eurasia, and 1.06°C per decade over North America.

There has been some controversy over whether the last few decades are warmer than a warm period from 1930-40. Due to very limited data during that period, mostly from northwest Europe, it is not possible to be certain, but the analysis presented here indicates that the recent decades are the warmest in at least a century. Analyses of natural variability and anthropogenic, greenhouse gas-induced changes indicate that, while the warming of the 1930-40s was likely due to natural variability, the warming of recent decades appears to be consistent with the global climate change induced by an increased greenhouse effect.

Other analyses presented in ACIA Chapter 2, lead to the following additional conclusions. Trends in precipitation are hard to assess because it is difficult to measure with precision in the cold Arctic environment, but it is probable that there has been an increase in total precipitation at the rate of about 1% per decade over the past century. Reconstruction of the Arctic climate over thousands to millions of years demonstrates that the Arctic climate can vary by large amounts. There appears to be no natural impediment to human-induced climate change being very large and much larger in the Arctic than the change on the global scale. The variability and transitions have been rapid, from a few to several degrees over a century.

For further information, please consult: G.A. McBean, (lead author) and G. Alekseev; D. Chen, E. Førland, J. Fyfe, P.Y. Groisman, R. King; H. Melling, R. Vose, P.H. Whitfield, 2004: Arctic Climate Impact Assessment, Chapter 2, The Arctic Climate: Past and Present. Cambridge University Press

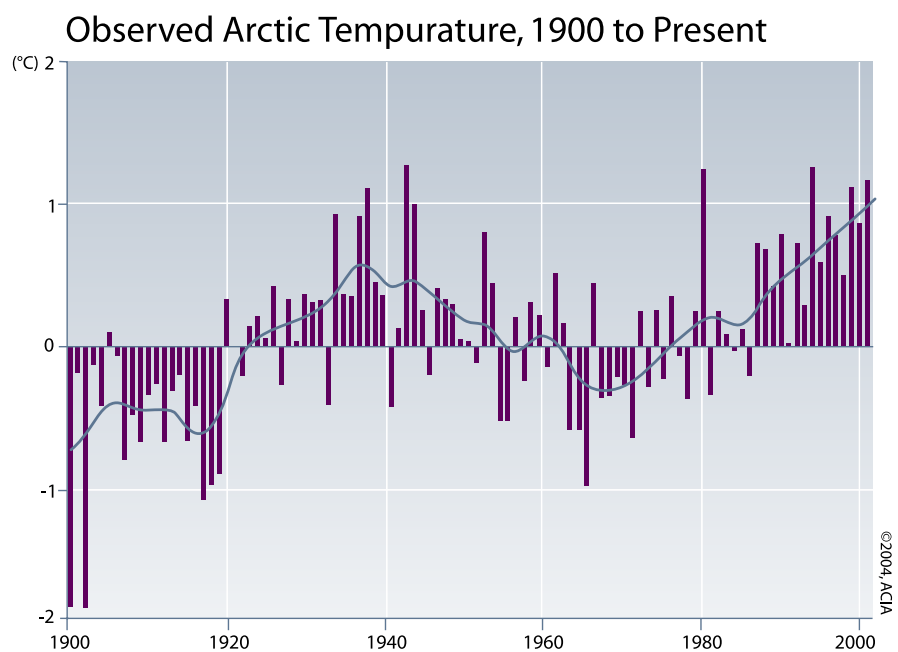


Figure 1: Annual average change in near surface air temperature from stations on land relative to the average for 1961-1990, for the region from 60 to 90°N.

The Changing Arctic: Indigenous Perspectives

SHARI FOX GEARHEARD, UCAR/NOAA POST DOCTORAL FELLOW, HARVARD UNIVERSITY AND HENRY HUNTINGTON, HUNTINGTON CONSULTING, (CO-LEAD AUTHORS OF CHAPTER 3 OF THE ARCTIC CLIMATE IMPACT ASSESSMENT)

Clearly, all of the chapters in the ACIA point in the same direction – the Arctic environment is changing as a result of climate forcing. A great deal of effort has gone into, and continues to go into, studying the nature and extent of that environmental change and exploring the impacts that changes will have, not only in terms of feedbacks to the physical systems of the Arctic, but to ecosystems and humans as well. In doing so, however, we often tend to look at the situation in aggregate terms: average temperatures, effects across a landscape, impacts to entire species or families of species. This is important and worthwhile, but it needs to be balanced by a corresponding sense of what climate impacts mean on a local, personal scale.

Chapter 3, The Changing Arctic: Indigenous Perspectives, of the ACIA provides some insight into what climate change means to specific people living in specific places around the Arctic as they engage in the specific activities of their daily lives. Case studies in the chapter show that these experiences are key to understanding that climate change has tangible, life-altering impacts on real people, and that these people are seeking ways to cope and adapt.

A number of common themes emerge, with some local and regional variations, when looking at indigenous observations across the case studies (ACIA:92):

- The weather seems unstable and less predictable by traditional methods.
- Snow quality and characteristics are changing.
- Water levels in many lakes are dropping.

- Species not seen before are now appearing in the Arctic.
- Sea ice is declining, and its quality and timing are changing.
- Storm surges are causing increased erosion in coastal areas.
- The sun feels “stronger, stinging, sharp”. Sunburn and strange skin rashes, never experienced before, are becoming common.
- Climate change is occurring faster than people can adapt.
- Climate change is strongly affecting people in many communities, in some cases threatening their cultural survival.

Observations from communities not only help us detect Arctic changes, but also understand the interactions of specific changes. For example, whether a late freeze-up is a good thing or a bad thing depends a great deal on one’s specific

activities, where one has a camp, which animals one prefers to hunt or trap, and so on. Further, local perspectives help remind us that the Arctic is changing in a number of ways, not just through the

climate. The interactions between climate changes are important to consider in the context of many social and political factors such as new land use regulations, technological changes, and community concerns such as health, poverty, and domestic violence.

Any responses to climate change will not be effective unless they reflect the particular circumstances of each place. Indigenous perspectives offer an important starting point. Indigenous knowledge and perspectives are a foundation upon which individuals, communities, and regions can design responses and take actions. Other

information and expertise, like science, are also essential to this process. Collaborative approaches are thus the most likely to be effective in identifying and addressing the challenges and opportunities posed by climate change.

References

Impacts of a Warming Arctic: Arctic Climate Impact Assessment. Cambridge University Press, 2004. p. 139. <http://www.acia.uaf.edu>. Portions of this article were given in the Chapter 3 presentation at the ACIA Scientific Symposium in Reykjavik November 9, 2004

Local perspectives help remind us that the Arctic is changing in a number of ways, not just through the climate.



HENRY HUNTINGTON

Climate change is impacting northern communities' ability to harvest country foods.

ACIA Overview Article

JAMAL SHIRLEY, COORDINATOR C-CIARN NORTH NUNAVUT

In November 2004, a Ministers meeting of the Arctic Council (a high-level intergovernmental forum representing senior officials from eight Arctic countries and the leadership from the six indigenous permanent participant organizations) was convened in Reykjavik, Iceland to release the long-awaited Impacts of a Warming Climate: Arctic Climate Impact Assessment (ACIA). Four years in the making, and drawing upon the contributions of nearly 300 experts, the ACIA provides the most detailed and definitive statement to date on the environmental, human health, social, cultural, and economic consequences likely to result from current and future changes in climate and UV radiation across the Arctic. The ACIA's 10 key findings are summarized in a

concisely written and beautifully illustrated 100-page Overview Report which was released at Reykjavik (and is available online from the Arctic Council website).

Each of the ACIA's key findings is discussed in detail in a 18-chapter, 1200-page Scientific Report due for release early in 2005. In addition to providing the most definitive scientific impact assessment to date of Arctic climate change impacts, ACIA has also been hailed for allowing researchers from multiple disciplines, and indigenous experts from across the Arctic, to share insights and work together as partners in a common framework to address core questions regarding the sustainability of Arctic societies, cultures, economies, and ecosystems in the face of a changing climate. While collaboration across disciplines has flourished in the ACIA process, the actual impact assessment process, namely the attribution of socio-economic consequences to specific climate change impacts, has proven to be extremely challenging. ACIA

lead authors have acknowledged that the lack of detailed baseline knowledge of socio-economic conditions (and their relation to climate) in Arctic communities made it extremely difficult to project with any precision the manner in which specific climate change impacts will affect the future livelihood and well-being of individual communities, or how climate impacts will relate to the many non-climate stressors Arctic communities face. To its credit, ACIA breaks the Arctic into four subregions in an effort to control for some regional variation

To its credit, ACIA breaks the Arctic into four subregions in an effort to control for some regional variation in impacts.

in impacts. However, it is clear that even communities adjacent to one another within the same subregion may experience different effects from the identical climate impacts because of variations in local environmental

conditions, population size, culture, political systems, and economy. This may be one reason the ACIA explicitly avoids any detailed consideration of measures that are currently, and may be, employed by Arctic communities to cope with and adapt to the impacts of climate change. Indeed, the ACIA results are not intended to, for example, help municipal planners in a community X decide which roads and buildings are most vulnerable to structural instability caused by permafrost loss and/or which engineering measures would be most appropriate to reduce infrastructure vulnerability. Rather, the ACIA will inform planners in community X that thaw-induced subsidence is already causing major infrastructure problems for municipalities in other parts of the Arctic, and that it may become a problem too for community X within the next 100 years given the changes expected in community X's subregion.

One of the most useful outcomes of the ACIA is that it has highlighted a range of gaps in our understanding of Arctic climate

change impacts, and has both defined some specific research needs, and built a strong case for further integrated studies that will build the practical understanding necessary to understand and respond to climate change impacts at the local level where they will be experienced. Moreover, the ACIA captured the attention of, and intrigued, the international media, helping to raise global consciousness of the nature and importance of Arctic climate change.

Arctic Human Development Report

In addition to the ACIA report *Impacts of a Warming Arctic*, the Arctic Council recently released the *Arctic Human Development Report*. This 13 chapter, 242 page document is designed to "provide a comprehensive knowledge base for the Arctic Council's Sustainable Development Program." The report provides an overview of the social, political and economic circumstances of Arctic peoples and concludes with a chapter on "A Human Development Agenda for the Arctic: Major Findings and Emerging Issues."

The recommendations for follow-up to this report are remarkably similar to the recommendations made by Senior Arctic Officials for follow-up on the Arctic Climate Impact Assessment. They include developing an education and outreach program, developing a set of indicators to monitor changes in human development, identifying gaps in knowledge and planning for the International Polar Year.

The Arctic Human Development Report can be viewed online at: <http://www.svs.is/AHDR/AHDR%20chapters/Chapters%20PDF.htm>

Arctic Climate Impact Assessment Policy Document

AYNSLIE OGDEN, PHD STUDENT, RESOURCE MANAGEMENT AND ENVIRONMENTAL STUDIES, UBC

The ACIA Policy Document, prepared by Senior Arctic Officials of the Arctic Council (SAOs), was endorsed by Ministers at the Fourth Arctic Council Ministerial Meeting in Reykjavik, Iceland, November 2004.

In this document, Ministers recognized the value and significance of scientific work to evaluate and synthesize knowledge on climate variability and change in the Arctic. They also acknowledged the 10 key findings of the ACIA will help to inform governments to implement and consider future policies on climate change.

To respond to climate change, Arctic nations are taking two types of actions: mitigation and adaptation. To support these actions, Ministers endorsed policy recommendations by the SAOs to refine and extend the ACIA findings through further research, observations, modeling, monitoring, communications, education, and outreach.

Arctic climate policy actions recommended by SAOs to Ministers and Member States of the Arctic Council include:

Mitigation

- Consider the findings of the ACIA in implementing commitments under the United Nations Framework Convention on Climate Change and other agreements.
- Adopt climate change mitigation strategies across relevant sectors.
- Promote the development and adoption of appropriate energy sources, uses, technologies, and efficiencies.
- Adopt policies and programs that conserve and enhance carbon sinks

in accordance with the principles of sustainable development.

Adaptation

- Work closely with Arctic residents, including indigenous and local communities, to help them to adapt to and manage the environmental, economic, and social impacts of climate change.
- Recognize that opportunities related to climate change, such as increased navigability of sea routes and access to resources, should be developed and managed in a sustainable manner.
- Implement, as appropriate, adaptive management strategies for Arctic ecosystems, making use of local and indigenous knowledge and participation.

Research, Observations, Monitoring, and Modeling

- The authors of the ACIA have made recommendations for additional research, observations, monitoring, and modeling. It is of particular importance to focus on those research needs that play a significant role in developing and applying mitigation and adaptation measures.

Outreach

- Disseminate the ACIA documents in international fora in order to advance cooperation on addressing the implications of climate change in the Arctic.
- Promote the ACIA at national and local levels.
- Seek to provide Arctic residents and communities with information and knowledge on climate change research and monitoring that they require to adapt to climate change.
- Encourage the incorporation of materials from the ACIA into educational, research, and training programs.

Lastly, SAOs recommended Ministers further organize their work. They recommended the Ministers direct relevant technical working groups of the Arctic Council to review the results of the ACIA. In addition, Ministers should keep the need for an updated assessment incorporating

the results of the IPCC fourth assessment report and the 2007-8 International Polar Year under review. SAOs also recommended a focal point be nominated by the Ministers that would be responsible to follow up on the ACIA. Any such follow-up actions should be communicated to the Conference of the Parties to the UNFCCC.

The full document is available for downloading at <http://amap.no/acia/>

Climate Change. Are you doing your bit?



Tip: Circumpolar exercises such as the Arctic Climate Impact Assessment are vital in documenting climate change. The collection and analysis of long-term data sets as well as local ecological knowledge help us increase our understanding of this critical topic.

For more tips from the NCE's Bob and Dog Mackenzie go to: www.taiga.net/nce/challenge

Contributors this issue

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ExChanging VIEWS

ACIA in Ottawa

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The initial international media blitz on the release of the Impacts of a Warming Arctic: Arctic Climate Impact Assessment at the Arctic Council has washed through Ottawa apparently without stimulating any long-term discussion or action. The companion volume of the Arctic Human Development Report (AHDR) has hardly been noticed. In fact, the Arctic Council does not seem to be noticed within most political circles or in the bureaucracy. On the other hand, the Inuit Tapiriit Kanatami has already distributed an ACIA information package CD and the Canadian Polar Commission is producing copies of the ACIA summary DVD, both designed to increase awareness of climate change issues.

Even Kyoto hardly receives any prominence despite Russia's ratification of the protocol. The Standing Committee on Environment and Sustainable Development of Parliament is scheduled to hold hearings on the protocol this winter but this will take a number of months. The development of Prime Minister Martin's Northern Strategy in consultation with northern governments, the planning for an International Polar Year with a strong focus on 'human dimensions', and the initiatives of the Inuit Circumpolar Conference and other indigenous peoples, must provide the platform for greater recognition of the importance of climate change impacts on the North.

The only really prominent public initiative on climate change in the south of Canada has been the Rick Mercer television advertisements about the One-Tonne Challenge. We need to be spending at least as much effort in publicizing ACIA and AHDR as we are in pushing a small component of the climate change initiative. The messages from the ACIA and the AHDR need to be constantly reinforced to the politicians.

Action on the issues raised in the ACIA and AHDR will require a new model for science and technology within government as well as support in the private sector and academia. The Federal Science and Technology Forum, held in Gatineau in January was based on the theme "Moving from Collaboration to Integration". Strategies and frameworks for all of science were highlighted but whether action will result from framework proposals remains to be seen. More talk of leadership and vision from the same actors does not bode well for action on the 10 recommendations of ACIA.



The ACIA Policy Document: An Important First Step

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ICC President Sheila Watt-Cloutier said the ACIA Policy Document was "more than many expected, but less than we hoped".

Around the world, many expressed disappointment in the Policy document, largely because it did not contain a strong commitment by member states of the Arctic Council to reduce greenhouse gas emissions. Reducing levels of greenhouse gases in the atmosphere, or mitigation, is critical to lessen the potential impacts of climate change. Together, Arctic nations account for 40% of global emissions.

Over the past year, many were concerned that objections from the United States would prevent the release of this document altogether. The Arctic Council, under its own rules, must make decisions by consensus. To reach consensus on this document, the eight member nations and six indigenous permanent participants had to accommodate concerns from the United States – the only Arctic nation that hasn't ratified Kyoto – about wording in the document on mitigation.

However, it was critical that all the council members sign this document. Signatories accepted the 10 key findings of the ACIA Scientific Assessment Report, and endorsed general recommendations around the need for mitigation, adaptation, research, monitoring, education, and outreach.

Many hoped the ACIA Policy document would outline more specific recommendations on new programs or actions, and contain a financial commitment to implement such recommendations. Such hopes are a reflection of the widely-held belief that more needs to be done about climate change than is outlined in either the ACIA Policy document or the Kyoto Protocol.

It is important to keep in mind that the Arctic Council, as an intergovernmental forum, does not dictate policy. Therefore, an Arctic Council Policy document would never have the same weight as an international treaty, such as the Kyoto Protocol.

The strength of the Policy document is in the breadth of the policies it has outlined and its focus on international cooperation. It is also an important reminder to Arctic nations to achieve the commitments outlined in the Kyoto Protocol.

Long-term, cooperative, and comprehensive responses to climate change that effectively reduce greenhouse gas emissions and vulnerability to climate change are critical. In this sense, the ACIA Policy document – like the Kyoto Protocol – is an important first step, and ought to be recognized as such.