

ACIA Arctic Climate Impact Assessment

PROGRESS REPORT

March 2003

Prepared on behalf of the Assessment Steering Committee by Robert W. Corell, Chair

Climate variability and change and increases in UV radiation have become important issues in the Arctic over the past few decades. It has become imperative to examine possible future impacts on the environment and its living resources, on human health, and on relevant economic sectors. The Arctic Climate Impact Assessment is expected to lead to useful information for the nations of the Arctic region, their economy, resources, and peoples. The Arctic Climate Impact Assessment (ACIA) is designed to evaluate and synthesize knowledge on climate variability, climate change, and increased ultraviolet (UV) radiation and their consequences across the entire Arctic region. The goal is to provide useful and reliable information to the governments, organizations, and resident communities of the Arctic to create the basis for more informed policy options to address such changes. Climate variability and change, and more recently, notable increases in UV radiation resulting from stratospheric ozone depletion, have become important issues in the Arctic over the past few decades. The results of scientific research and indigenous knowledge have increasingly documented climatic changes that are more pronounced in the Arctic region than in other regions of the world or are critical to our understanding of global-scale climatic processes. Observations from indigenous cultures of the Arctic indicate that the physical environment, as well as the flora and fauna, has been rapidly changing on time-scales of a few years to decades. The ACIA is examining possible future impacts and vulnerabilities on the environment and its living resources, on human well-being and health, and on buildings, roads and infrastructure. The ACIA is designed to develop fundamental and useful information, including policy recommendations, for the nations of the Arctic Region, their economies, resources, and the communities and residents of the Arctic.

The Arctic Climate Impact Assessment was initiated in 2000 by the Ministers and Permanent Representations of the Arctic Council¹ and will be completed in the fall of

¹ The Arctic Council was established on September 19th, 1996 in Ottawa, Canada. As a high level intergovernmental forum, the Council provides a mechanism to address the common concerns and challenges faced by the Arctic governments and the people of the Arctic. The members of the Council are Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden, and the United States of America. The Association of Indigenous Minorities of the North, Siberia and the Far East of the Russian Federation, the Inuit Circumpolar Conference, the Saami Council, the Aleutian International Association, Arctic Athabaskan Council, and Gwich'in Council International are Permanent Participants in the Council. There is provision for non-Arctic states, inter-governmental and inter-parliamentary organizations, and non-governmental organizations to become involved as observers. The Council meets at the ministerial level biennially. The Chair and Secretariat of the Council rotates every two years among the eight Arctic

2004. The assessment will produce three major reports: (i) a comprehensive scientific and technical analysis and assessment of the impacts and consequences of climate variability and change and increases in UV radiation, (ii) a synthesis of the implications of these impacts and consequences of change for the Arctic nations and the indigenous residents of the region, and (iii) recommendations of policies and practices to cope with the changes documented in the assessment for consideration by the Arctic Council, its member nations, and the indigenous people organizations of the Arctic. All of these reports will be submitted to the Arctic Council in the fall of 2004.

Recent ACIA Activities

The Establishment of an Assessment Integration Team (AIT)

An Assessment Integration Team, established at an ACIA meeting in Oslo in June 2002, is now supervising the integration between the various chapters of the ACIA scientific document. The AIT includes the ACIA Executive, two lead authors and the editor and graphics expert engaged to produce the scientific document.

A Synthesis Workshop on 24-28 March, 2003

A major workshop and synthesis meeting of about 100 people, including the key authors of the scientific document, has been organized to take place on 24-28 March at the University of New Hampshire in Durham, NH. Its main purpose is to integrate chapters and put the finishing touches on the scientific document prior to release to external expert reviewers.

The ACIA Scientific Report

The scientific report of 17 separate chapters is now likely to be over 1,000 printed pages long. A separate summary report will be about 100 pages.

An Expert Review of the Scientific Report

A list of approximately 200 proposed candidates as external expert reviewers has been submitted to the ACIA Secretariat from many different sources, including AMAP, CAFF, IASC, IPS, and Arctic countries. Reviewers will be selected by the AIT and invited in June to comment on the scientific document and submit their comments and suggestions by 1 October 2003.

The Development of a Communication Plan for the ACIA

A communication plan to distribute the results of the ACIA is being developed and will probably be finalized at the Durham, NH meeting on 24-28 March, or shortly afterwards.

AMAP and CAFF are hosting a Workshop for Policy Document

A scoping workshop to begin the development of the policy document, organized by AMAP and CAFF, will follow the ACIA synthesis meeting at Durham, NH, and will take place on 29-30 March. Its results will be communicated jointly by AMAP and CAFF to the Arctic Council in the months ahead.

Updated Schedule

An updated schedule for the entire ACIA effort has been developed to meet various Arctic Council requirements and deadlines. The delivery of the final ACIA reports by the end of 2004 remains on target.

Svalbard Meeting

A meeting on Svalbard on 5-7 August 2003, hosted by the Norwegian Government, will bring senior members of the policy communities in government, other government officials, permanent participants and scientists together for an informal brainstorming session to stimulate and invigorate the development of the ACIA Policy Document. ACIA chair Robert Corell will attend and present a progress report on ACIA.

Some Key Findings

While preliminary, a short listing of a selection of some of the key findings that likely will be reported in detail in the ACIA scientific report include the following:

- **Movement of Treeline**

Northern latitudes have been covered by forest or tundra in response to warm or cold periods. The proportion of forest and tundra will change in a warmer climate. The forest will increase in some areas and decline in others. This has profound implications for people, biodiversity and feedbacks to the climate systems.

- **UV-B impacts**

UV-B levels are interacting with climate change and have the potential for increased impacts (above existing impacts) on people, plants, animals, ecosystems and products (e. g. plastics).

- **Sea Level Rise**

This will affect coastal communities, islands, river deltas, cities and harbors and cities; the majority of humans live in coastal areas worldwide.

- **Sea Ice Reductions**

This will affect climate feedbacks, ocean transportation and resource development, habitat destruction, species relocations, and in turn subsistence lifestyle and human health.

- **Northwest and Northeast Passages**

Reductions in sea ice extent and thickness will affect marine transportation through these passages with increased likelihood of pollution and resulting impacts on subsistence.

- **Permafrost Disappearance**

This will affect ecosystem changes, trace gas feedbacks, infrastructure integrity (including buildings, roads, pipelines), sanitation, water supply and human health.

- **Regime Shifts**

Rapid changes in climate (regime shifts) have occurred in the past and can occur in the future. They have numerous instantaneous responses, including impacts on biota and ecosystems.

- **Caribou Population and Health**

Climate change will introduce new variables in the growth and decline of caribou herds.

- **Introduction of New Diseases and Parasites**

Introduction of exotic diseases (viral and bacterial) in humans, animals, and biota are likely.

Reports on the Synthesis and Policy Workshops

The ACIA Chair and AMAP & CAFF will provide a summary of the outcomes of the two workshops being held in New Hampshire during the week of March 24, 2003.

The ACIA Webpage

The ACIA webpage, which further contains details on ACIA, can be found at: <http://www.acia.uaf.edu/>