



THE **WILD** FOUNDATION



Photo Eero Murtomäki

Stories of the Raven – Snowchange 2005 Conference Report Anchorage, Alaska, USA

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Conference Organizers: Snowchange Cooperative, Alaska Native Science Commission, Inuit Circumpolar Conference-Alaska

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Executive Summary

Snowchange Cooperative based in Finland partnered with Alaska Native Science Commission and Inuit Circumpolar Conference-Alaska among other organizations to host a Circumpolar Conference Snowchange 2005 devoted to finding answers and solutions to the challenge of rapidly advancing Arctic climate change. For three days members of all Circumpolar nations and Indigenous peoples discussed, debated and exchanged opinions, observations and stories on how to move ahead in the grim outlook and context that climate change provides for the North. A number of recommendations and resolutions were passed and key debates had. This report, “Stories of the Raven”, summarizes those three days of positive action and outlines thoughts, ideas and frameworks of action to mitigate and adapt to climate change in the Arctic.



John Abraham and George Shimugak. Toksook Bay seal hunters, study ice conditions.

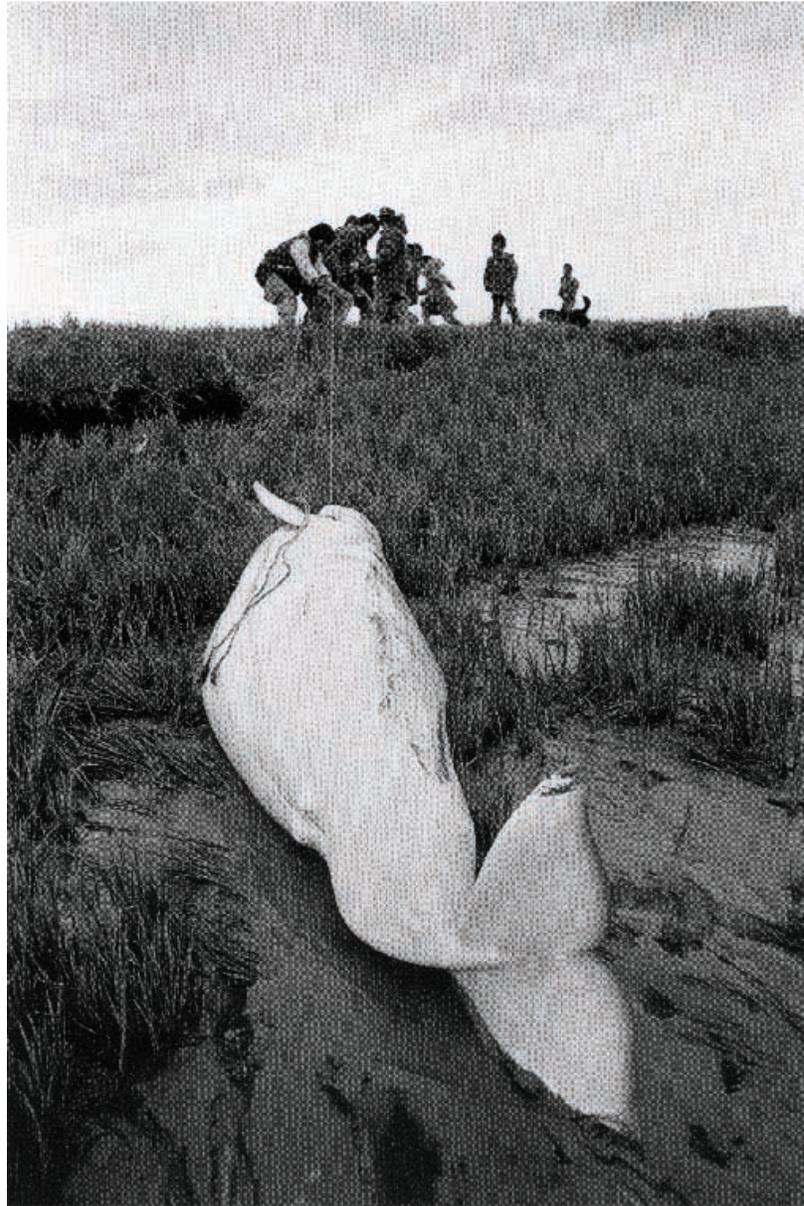


Simeon and Paul John pull a bearded seal onto an ice pan, Nelson Island.



Nelson Island hunters push through the ice toward open water.

James H. Barker



Pulling a beluga whale onto shore, Black River fishcamp.

Introduction - Context of Rapidly Advancing Climate Change in the Arctic

Human-induced climate change has become a reality in the Arctic. Findings of such international research projects as the Arctic Climate Impact Assessment, ACIA [Arctic Council, November 2004] and the International Governmental Panel on Climate Change, IPCC confirm that the Arctic ecosystems and human societies face immense challenges in the near future.

At the same time around the Circumpolar North, people living in small communities have argued for a number of years that there is an urgent need to study traditional economies and knowledge systems, to appreciate their character and complexity and to preserve them. Local communities should be heard. Scientifically, any effort aimed at understanding ecosystems and the place of local human communities within such systems would necessarily depend upon the application of social science (and even humanistic) methods.

The traditional knowledge developed within local communities, is grounded in the close interaction between people and their local ecosystems over periods of hundreds, or even thousands of years. It normally reflects subtle strategies for maintaining social cohesion and for making wise use of renewable natural resources in ways that are inherently sustainable.

The diversity of knowledge embedded in local traditional knowledge is reflected in local languages and language usage, and this requires ecologists and social scientists to reach out to linguistics in order to better appreciate the cognitive map of traditional knowledge which exists within a largely oral context. In the United States, the National Science Foundation explicitly endorsed and recognized the value of the traditional knowledge in 1999.

The international Indigenous Conference Snowchange 2005 was organized to find immediate and long-term solutions to the challenge of climate change, which is already a living reality in the Arctic. The recommendations developed at Snowchange 2005 provide a number of items of action on mitigation and adaptation as well as strengthening the local knowledge systems, local languages and cultures of the Arctic. Views expressed and opinions stated are part of the open debate format of Snowchange 2005 to allow readers to appreciate the enormous task of achieving consensus and clarity on the issue affecting all of the Circumpolar North. Authors and organizers of Snowchange 2005 wish to thank all sponsors, donors and other people and organizations that made the event possible. Views and opinions expressed are those of the individual speakers and authors and do not reflect necessarily the views of the Snowchange Cooperative or Alaska Native Science Commission or its sponsors.

Snowchange Cooperative

Winner of the prestigious Worldwide Fund for Nature 2002 ‘Panda Prize’ for best national ecological project, Snowchange was started in late 2000 to document and work with local and Indigenous communities of the Northern regions.

In 2001, a partnership was established with the Arctic Climate Impact Assessment to provide case studies from Finland and Russia to the Chapter 3 publication of ACIA: “Indigenous Perspectives”.

Aim of this project was to document and work with local communities and Indigenous peoples to present their findings of climate and ecological change in a way that would offer a viewpoint that empowers the local people of the changing Arctic.

As well, a strong educational element was included to introduce students of the mainstream societies of Russia, Finland, Iceland, Canada and Alaska to the values, ethics, lifestyles and knowledge of the Indigenous societies of the North.

Students worked with reindeer herders, fishermen and hunters in the circumpolar regions to collect the Indigenous observations of change. The results were released in a groundbreaking publication *Snowscapes, Dreamscapes* in Helsinki, Finland in June 2004.

August 28th 2005 saw the rebirth of the Snowchange into its current form. At the traditional farm and fish camp of Olli Klemola the Snowchange Cooperative was founded.

The Snowchange Cooperative is a non-profit educational, scientific and environmental independent organization; a cooperative where all members are stakeholders. The decision-making procedure of the Snowchange Cooperative follows the ancient method of consensus-based “*käräjäpiiri*” governance of traditional Finns. This allows all members of the cooperative to have a voice.

The Council of the Snowchange Cooperative governs the administrative, international and financial relations of the Snowchange Cooperative. Consisting of five people: Elders, artists, fishermen, scientists and so forth, the Council prepares suggestions to the grand council once a year. You may contact Snowchange for more information on the actual operations of the Council. Currently, Mikko Lamminpää is the Chairperson of the Council and Tero Mustonen, Executive Secretary, is responsible for the Archives and International Projects.



Operations of Snowchange

The Snowchange Cooperative provides a new, post-colonial scientific framework that will lead to a “new approach”, attitude and interpretation of cultures of the Arctic. This new approach will be built on the traditional governance and learning structures of the local cultures. Such a unique process has few peer projects in the world.

Much of our work involves scientific documentation of traditional and Indigenous knowledge related to observations of cultural, climatic and ecological changes. Our principles are the same at home and abroad: we operate on the wishes and commands of the local community. No information is shared or exposed unless ethically and morally cleared.

We use consent forms and stay in regular contact with all informants. They are co-owners of documented voices. In case of deceased informants, we work with their families to make sure that proper steps are always taken. The Snowchange Cooperative researchers all have University-level training to conduct our work.

It is worth noting that the Conferences of Snowchange have proven to be successful dissemination and cooperation tools. We have organized two large events prior to Snowchange 2005 in Alaska. One in 2002 in Tampere, Finland and another in 2003 in Murmansk, Russia.

These conferences have brought together hundreds of scientists with local and Indigenous delegations and the general public from all Arctic nations and Africa as well.

In 2002 and 2003, declarations and action plans regarding climate change were designed and presented to the Government of Finland. As well, all conferences have successfully captured the media attention, including high profile media outlets nationally and internationally such as Helsingin Sanomat, YLE National Media in Finland, Russian National TV Channels, CNN and BBC News.

Some of the past and present community and scientific partners of Snowchange include: Unalakleet Tribal Council, Unalakleet, Alaska, USA; National Science Foundation, Washington, DC, USA; Tahltan Tribal Council, Dease Lake, British Columbia, Canada; Kwagiutl Fisheries Commission, Alert Bay, British Columbia, Canada; Umista Cultural Center, Alert Bay, British Columbia, Canada; University of Victoria, Victoria, British Columbia, Canada; University College of Fraser Valley, Abbotsford, British Columbia, Canada; Northern Climate Exchange, Whitehorse, Yukon Territory, Canada; Aurora Research Institute, Inuvik, Northwest Territories, Canada; Inuvialuit Joint Secretariat, Inuvik, Northwest Territories, Canada; Inuit Tapiriit Kanatami, Iqaluit, Nunavut Territory, Canada; Nunavut Research Institute, Igloolik, Nunavut Territory, Canada; United Nations Environmental Program, Grid-Arendal, Arendal, Norway; Finnish Ministry of Environment, Helsinki, Finland; Arctic Council; Tampere Polytechnic, Department of Environmental Management and Engineering in Tampere, Finland; University of Tampere, Tampere, Finland; World Wildlife Fund for Nature-Arctic, Oslo, Norway; World Wildlife Fund for Nature-Finland, Helsinki, Finland; Government of Canada, Ottawa, Canada; Murmansk Humanities Institute, Murmansk, Russia; and Murmansk State Technical University, Murmansk, Russia.

Part 1.

Snowchange 2005 - Northern Indigenous and Local Observations of Climate and Ecological Change

The foundations of Snowchange 2005 were laid at the Inuit Studies Conference 2002 held in Anchorage, Alaska in August 2002. At that time, **Victoria Hykes-Steere**, an Inupiaq woman originally from Unalakleet, Alaska contacted Snowchange staff members who had just returned from a community documentation trip to Unalakleet. Her idea was developed over the next three years into a large gathering of Circumpolar Indigenous and local peoples that led eventually to the realization of Snowchange 2005 held September 28-30, 2005 in Anchorage, Alaska.

In early 2005, Snowchange Cooperative teamed up with the Alaska Native Science Commission led by **Patricia Cochran** in Anchorage. After negotiations, it was decided that the best outcomes would be achieved by organizing a joint event on climate change.

Simultaneously, much work was under way in Yakutsk, Yakutia, Russia where efforts were made to allow a traditional Siberian community delegation to take part in the Alaska event. Mr. **Vladimir Vasiliev**, President of the Northern Forum Academy, effectively coordinated this giant project. During the summer of 2005, similar coordination efforts were under way in Iceland, Greenland, Murmansk Region of Russia led by **Alexey Cherenkov** (organizer of Snowchange 2003 Conference in Murmansk and in Finland). The Snowchange Cooperative sent a staff member, Environmental Engineer **Hanna Eklund** to coordinate and assist in preparations of the upcoming event. The International Arctic Programme of the WWF played a crucial role in assisting and supporting the preparation work. Without their support the Conference would not have been possible either. As a warm-up event, a cultural night was held September 27, 2005 at the "Den", at the University of Alaska Anchorage Campus, which was the location of the Conference.

Finally, on September 28, 2005 the Opening Prayer by Chief **Marie Smith Jones**, Eyak Elder, launched Snowchange 2005 into action. We were honored to have this remarkable woman to open our event. Permission to use the land of the Eklutna Nation was granted by **Dorothy Cook** of the Eklutna Nation.

For the next three days, the dozens of delegates from Alaska and other circumpolar regions debated and shared stories and observations of climate change. These voices are presented here. Following the debates, recommendations and conclusions have been developed based on the discussions and ideas from the Snowchange 2005 Conference.



Patricia Cochran and Elaine Abraham

Photo Alaska Native Science Commission.

“On the first day of the Snowchange 2005 somebody said: “It looks like this will be a gathering of the raven.” He was not wrong. Raven was strongly among us, in clothing and symbols, in the voices of the performers, incantations and as a releaser of knowledge. Sometimes one could almost hear the beating of mighty wings of raven above the Conference audience.

Raven has taught us to share. When a raven comes across a slaughtered or killed animal or other food source, it is not for him to keep it. He will inform his partners that food is now available. Because everybody does this, people of the raven, raven folk never go hungry. Those humans and peoples who have forgotten the teachings of the raven are thieves who steal and rob onto themselves what belongs to all.”

- Eero Murtomäki, Hunter, Finland



Photo Eero Murtomäki

Snowchange 2005: First Day – Debates and Observations Begin

Elaine Abraham, Chairperson of the Alaska Native Science Commission gave opening greetings to the participants:

“Welcome mayors, Elders, visitors. For three to five years, we have traveled throughout Alaska communities and listened to Elders talk about climate change. First, I want to welcome you to the biggest city of the biggest state. Alaska has half of the world’s biggest volcanoes and 17 of the 20 highest peaks in North America; we’re probably the biggest braggers too.

One that I am really proud of is Mount St. Elias which is in my backyard in Yakutat. It is the highest coastal peak in the world. We could fit 27 states in our backyard and still have room. This upsets Texans.

While in Madrid, Spain, I heard from a woman from British Columbia that one of the rivers they depend on for salmo, that is only 10 miles long, is beginning to dry up. I come from the salmon people. We need to honor our ancestors as we walk the land. I hope our ancestors will bless us, give us wisdom and guide us and that no harm will come to our visitors.”

Patricia Cochran, from the Alaska Native Science Commission outlined their perspective for the tasks at hand:

“We have held regional meetings for 10 years. People always identify global warming as an issue of concern. Alaska Natives have been reporting evidence of climate change for 30 years and Western scientists have had to catch up.

Eighty-five percent of the communities on the coast may be suffering the same as Shishmaref. These changes are affecting the historical fabric of who those communities are.

Climate change is also affecting our food resources, changing people’s diets. It is affecting Alaska’s lands and streams. There are also broad impacts and we don’t know how our kids are responding to them. Kids haven’t had the experience of our Elders.”

Nelson Angapak from Alaska Federation of Natives shared his perspectives in the opening:

“Thank you for coming to the Snowchange conference here in Anchorage, Alaska. A number of years ago a Native Elder was telling me something was happening. The ice was changing. The changes would have a tremendous impact on subsistence and on the way people lived.

NOAA has spent millions of dollars to come to the same conclusion. It took time for science to catch up with what the Elders were telling us. We need to look more at the traditional knowledge embodied in our Elders. My hope is that part of this conference will incorporate traditional knowledge of our esteemed Elders. Alaska Federation of Natives is looking forward to seeing the results. I also hope your conference will lead to bigger changes for environmental management.”

Dr. Elaine Maimon, University of Alaska Anchorage Chancellor welcomed the delegates to the campus:

“I am proud to be here today since ANSC started at UAA. I want to express UAA’s gratitude that we can educate and do research on Eklutna land. When we talk about climate change it is very important that we join together in that study. We can learn means of adaptation to that change to continue to find a home here. We must be sure that we understand and recognize different ways of seeking knowledge. These types of knowledges need to be in harmony.”

Mark Begich, Mayor of Anchorage, honored us with his presence and outlined the following words of greetings:

“As mayor, I greet this group with humility and respect for those who live in the Arctic. I want to welcome the delegates to Anchorage, which is a young city, having just celebrated the 30th anniversary of its incorporation. We are still building Anchorage and how it fits in to our environment. I am the first mayor born here and am raising a son here.



Photo Eero Murtomäki

We must make this a town for the many generations that will come after us. We must leave a better place behind us than when we entered it. The weather has certainly warmed during my lifetime. Fall is longer. It is time for business and political leaders to listen to the changes.

I attended the Sundance Summit for mayors this summer. The common denominator in every presentation was Alaska. It was used in every example for climate change. Why are mayors involved in this global issue? Because there is not enough success on the national level so we need to bring it to the local level. It is upon us to make it happen. It is clear that when all is left, carbon dioxide emissions are having an impact. It is the time to act.

We must learn to live lighter on the earth. It is necessary to find new ways to use our resources. Finding solutions is not hard. One is right here under our noses – wind. Generating wind energy on Fire Island is a way to tap our resources with little environmental cost. Also, we would see CIRI see the benefits from using their resource.

Also, natural gas can replace dirtier emissions. The first step is to believe. You used to be able to touch Portage Glacier. Now, you can barely see it. We must believe we are part of the solution. I am an optimist because people gathered here do care. This gathering is a powerful symbol of change and change for the better.”

Tero Mustonen, founder and Executive Secretary of Snowchange discussed challenges and solutions of climate change:

“The challenges and solutions can be learned from our Elders. There is an inter-linkage between colonization process in the Arctic and unlimited misuse of fossil fuels and carbon dioxide burning. The words of our Elders make a sober statement.

We must raise these hard issues and challenges. My ancestors have brought me here today. We have a responsibility to our Elders. I want to thank Patricia Cochran and Vicki Hykes-Steere for their help on the conference. I also want to talk about the concept of transformation. I hope that during this conference we are able to transform and find solutions to the tasks at hand. Transformation is present in our oral histories and songs from Finland and Karelia. It is an essential component of the way the world works. Climate change requires all of us to make that transformation – spiritual, economic, cultural.

Climate change is bigger than all of us and that means that we are all on the same side of the table. We need to live the knowledge and be responsible to our Elders and the land. We have two and a half days to talk about transformation and healing. We have to build the communities to have the capacity to meet this challenge.”

Snowchange 2005: Day 2 and Day 3 - Framework of Climate Change and Indigenous Societies

Thanks to many associates, partners and staff members, Snowchange 2005 was successfully completed September 30, 2005 in Anchorage, Alaska, USA. We were able to produce recommendations and listen to the observations of many different Nations on climate and ecological changes. Unity was reached - we must act now. Here we have included some of the regional observations and comments made by delegates during different stages of the Conference to allow readers to grasp the multi-faceted and deep debates that emerged during these three days of transformation, days of the raven.

In short, the Conference produced four sets of recommendations which are in Part II of this report. These sets are:

1. *Passing on the Knowledge: Spirituality, Subsistence, Knowledge and Survival in a Changing Arctic*
2. *Community Change in the Arctic*
3. *Subsistence and Community Well-Being in the Arctic in the Face of Climate Change*
4. *Science and Climate Change - Mitigations & Adaptations*

Each set was compiled in a traditional talking circle organized in the spirit of Indigenous governance; open debates and discussions determined the outcomes and recommendations.



Vitaly Churkin



Tero Mustonen

Photos Alaska Native Science Commission

High Profile Speakers – Chairperson of the Arctic Council Vitaly Churkin (Russia)

On Friday September 30, 2005 keynote speakers were given the floor. Chairman of the Russian Presidency of the Arctic Council 2004-2006, the honorable Ambassador **Vitaly Churkin** addressed the Snowchange 2005:

“Arctic Council was set up in 1996. It sits at the same table with eight governments and representatives of six indigenous peoples of the North. Its also has a large array of NGO observers.

It goes well beyond the countries of the Arctic geographically. The chairmanship changes every two years. As chair, Russia wants to enhance the profile of the Council. We dedicated last June to have Arctic issues on the agenda for the International Economic Forum.

The second objective is to try to broaden the scope of its activities with more emphasis on social and economic aspects of the Arctic.

The key projects include: oil and gas assessment which will be finished next fall; the Arctic Marine Shipping Assessment in 2008 and the first chapter in 2006; the circumpolar biodiversity program; and the Arctic climate change problems.

The ACIA report (Arctic Climate Impact Assessment) is more recognizable than the Arctic Council itself. During the November 2004 meeting of the Arctic Council, it was decided to continue to work through the focal group of senior officials to prepare recommendations for the ministerial meeting."

Delegates offered questions from the floor to Mr. Churkin. **Jack Zayon** from ICC-Alaska asked:

"As chair of the Arctic Council what are your plans for follow-up to the ACIA report?"

Ambassador Churkin replied:

"The focal group will make recommendations to the ministers of what activities the Council should take on - whether it is research in some areas not covered fully enough in the ACIA report as we head towards the International Polar Year.

Also, we will look at whether the international research effort is as effective as it can be. [For example] Are the problems of climate change followed closely by the Arctic science community with or without the Arctic Council?"

Kairaiuak Apanguluk from Alaska made the following point:

"Where climate change is thawing out, at the U.S. and Russian military installations with hazardous waste, is the Council looking at the possibility of waste polluting water and lands?"

Ambassador Churkin commented:

"This is a very important question. I had not thought of this aspect of climate change but there is a major international program looking at this problem. The Global Cooperative Against Proliferation of Weapons of Mass Destruction is cleaning up residues of military sites. Their pace is quite brisk and they hope to finish the activities by 2012."

Stefan Mikaelsson, Vice President of the Saami Council took the floor and asked:

"Will there be any evaluation of how the Arctic Council can make the participation of the permanent participants smoother?"

Churkin replied:

"You should make this suggestion at the next ministerial meeting and it will likely happen. The big restriction is funding since the Council has very few resources."

Indigenous and Local Observations of Climate Change

Most of the two first days of Snowchange 2005 were devoted to scoping and analyzing different regional and local observations of climate change around the Arctic. Each different culture makes their own interpretations and observations. However, incredible clarity emerged from the regional observations – climate change is a living reality in the Arctic and affecting the daily lives of the communities already. Summarized here are regional and local observations, reflections from Snowchange delegates and other thinkers. These voices led to the development of the recommendations and pathways for future action that are presented in Part III of this report.

Leanne Simpson is a researcher, writer and activist of Mississauga ancestry. She has worked with Snowchange on educational and scientific projects since 2002. She is currently on leave from her position as Director of Indigenous Environmental Studies at Trent University in Peterborough, Ontario, Canada. Dr. Simpson has made the following powerful statements regarding Indigenous observations of climate change. They are offered here as a framework in which we can try to approach the larger historical, cultural and economic context against which climate change and its impacts are occurring:

"Discussions around global climate change and Indigenous Peoples often focus on the impact potential changes in climatic conditions will have on Indigenous lifestyles over the next two centuries.

Scientists and activists alike are eager to document these potentially devastating impacts by recording the Traditional Knowledge of Indigenous Peoples, and while this may prove to be an effective strategy to awakening the policy makers in the south to the catastrophe of climate change, it is also important to examine this issue within the framework of the larger colonial project. The worldview that rendered Indigenous Peoples and their lands as disposable is also the worldview responsible for the holocaust of the Americas and for the present day climate change Indigenous Peoples are already witnessing.

Human-induced climate change (HICC) is the direct result of the globalization of the European industrial revolution, a revolution that was quickened by the flow of stolen raw materials from the Americas, achieved through the invasion and occupation of independent and sovereign Indigenous nations. The export of potatoes, cotton and cochineal dyes, rubber, gold, silver, fur and Indigenous slave labor to Europe and the inexhaustible agricultural potential for crops of tobacco, sugar cane, rice, coffee and indigo in the Americas facilitated industrial advances and the development of the modern manufacturing process.

Imprisoning Indigenous nations in the grips of colonialism in essence accelerated the production of greenhouse gases generated by industrialization and the violent globalization of the western worldview. Human-induced climate change is a symptom of the colonial mentality that has supported the destruction of the environment and the destruction of Indigenous national territories in order to promote unfettered industrialization and globalization.

Switching to greener technologies will not in and of itself solve the problem; contemporary societies of the world must learn how to build cultures and civilizations based on sustainability, justice and peaceful coexistence with Indigenous Peoples and the land, rather than relationships continued to be based on exploitation and conquest.

Indigenous national territories in Canada, as in other colonial countries have experienced and are continuing to experience the destruction of their lands, waters, air and climate.

Lacking the ability to make land use decisions within their traditional territories, Indigenous Peoples have little influence over the extent to which outside industrial development occurs on their lands.

Facilitated by state governments, large multi-nationals are engaging in logging, mining, and oil exploration, industrial development that generate huge profits for corporations and very little for local communities who are left to deal with the often devastating environmental consequences of this kind of development.” (2004).

Regional Observations of Change Presented in Snowchange 2005

Alaskan communities and organizations took active part in Snowchange 2005. Members and Elders of the communities shared their knowledge of changing land, weather and climate.

Elaine Abraham from Yakutat shared the following words:

“15 years ago I heard some Elders say that mother earth would be turning herself inside-out to cleanse herself. That is what we are seeing now.”

Orville Huntington from Huslia made the following points:

“When you don’t hear the animals in the woods something is wrong. These are slides from some of the changes that we have seen in Huslia, Alaska. In my community, fire has become less predictable. It gets too hot and too dry in our area now. There is little we can do under these conditions to protect the community. Fires blew through the buffers we have built around the community.

Native Elders said it burned less severely before. The plants are confused now. Flowers bloom when they shouldn’t. There is no permafrost.

In September, when we used to have snow; it now rains. There are higher river levels as well that have lead to more erosion. We have to move our possessions far from the riverbank. To practice the

subsistence way of life we rely on healthy salmon runs. For many years now these runs aren't healthy. The water is too warm. We may have to make new fishing rules that work for all of us.

Maybe will have to look at agriculture. I can't raise animals because these are my ancestors. Elders don't want to move from the river. The natural cycles are out of place. We need to teach our children what is important. What are the climate change indicators to look at?"

Peter Elachik commented:

"Climate change is happening and very fast. I became aware of snow and summer 66 years ago. In the early 40s, snow was very dry and you could hear footsteps 30 meters away; now because of the moisture you don't hear footsteps. Before 1965 when the snow fell it never got warm again in the winter. Since then, the rain now comes after the snow falls.

November 10th is the opening of fur trapping season and this was good in the 1940s and 50s – it was safe to go anywhere and set traps in the 60s and 70s. In the 1980s and 90s you used caution but it is a lot worse today. You can't travel on November 10th now because it is not safe. It is too warm. We see flowers blooming in May, before it was always June."

Apanguluk Kairaiuak offered his views:

"Yu'pik people learned about the impact in Prudhoe Bay on caribou. We have seen the ground split for many miles across the tundra. The rivers are no longer running like they used to. Hunting areas are being closed. We lost a whole month of seal hunting because the ice moved up.

We see walrus eating seals because of the effect on clams and krill. High seas fishermen are also affected. We used to use the sun to see direction of the ice flows. The Elders are worried that these changes will have drastic effect because of the prophecies. Indigenous peoples of the north need to take the lead and we need to consider how to take traditional governance into our communities."

Charlie Johnson from White Mountain has worked with polar bears for many years. He shared his views:

"I have been working with walrus and polar bears for years. There is a predator/prey relationship that is changing. You see them eating more bearded seals and harp seals instead of ring seals. It is changing to the less ice dependent seals. The ice is leaving earlier and you see more bears get stranded.

I found six bears that had drowned last year because the ice was further north. You are seeing more strandings in the Bering Sea – 80 bears were stranded on St. Lawrence Island last year and half had to be killed because they were a safety problem.

Walrus need ice to stage, to live and rest on which doesn't happen now. Climate change is affecting the relationship between animals. When I was a kid the seals would tell us where the walrus were – that is being changed because of the lack of ice. In 1945, Nome had a 100-year storm. Had another one in 1970, in 1995, in 2000, in 2004 and again last week. The 100-year storms are now an annual event. It used to be that the trees stopped at White Mountain. Now there is a tree 12 miles north of Nome. Trees have advanced 80 miles north in my lifetime. Last year, a California turkey vulture was found. Polar bears can't compete with brown bears on land and do not have time to adapt."

Margaret Opie had prepared a statement and presentation about climate change impacts in Barrow: *"In my short lifetime, things have really changed for my community and for our subsistence lifestyle. The whaling season is stalled. There are a lot of winds; the ice is many, many miles away. We depend on the marine mammals for our skin boats.*

Early breakup is hazardous to us. This summer the ice was gone too early and was too far out to get the number of seals needed to replace the skin boat. I come from a whaling family. We hope that the weather will cooperate for the fall whaling season. Now we see all the big swells and they won't quit until the ice is back. I wonder when it will get cold enough. We share meat in Barrow, but also in Anchorage and the lower 48 states. I hope to get ideas from other Elders."

Tatiana Samuelsen concluded voices from Alaska Elders with a powerful reminder of responsibilities of action:

“I want to teach the next seven generations about how to care for our land. My job is to pass on to my children this knowledge.”

Climate change has become a living reality as well for the Canadian Inuit. As residents of the High Arctic, changes witnessed and reported from Inuvialuit homelands to Nunavut and Nunavik tell a grim tale. The other keynote speaker of Snowchange was Honorable **Sheila Watt-Cloutier**, Chair, Inuit Circumpolar Conference. She made the following reflections:

“Recently, ICC concluded Inuit meetings to gather testimonies for our human rights petition. This summer we had record-breaking heat waves. The seals are skinnier; there is less forage for musk ox; more extreme weather; and other changes. Our culture is based on it being cold and frozen.

During our meetings, I heard from a Barrow hunter that reported of the shorter hunting seasons and was concerned that the hunting skills will not be transferable to the modern world because the opportunities to hunt are being taken away. This causes lots of anxiety that the whole way of life is changing. We must act now and tell the world what is happening now in places like Cumberland Island.

Hunters are losing money because of the unpredictable weather and equipment. We have to broaden our minds to connect the minds to what is happening in the Arctic. People thought this was impossible with Persistent Organic Pollutants but now the Stockholm Convention is being enforced. We can't simply become victims. We must stand up for our planet and ourselves.

We will seek a declaration from the Commission on Human Rights that destruction of our culture is a human rights violation. We will bring the Commissioners to Alaska and Canada. We want to engage the media and the public of the United States. We need to fight for the fact that our culture is based on it being cold.

We will not be powerless over this matter. U.S. citizens are picking up this message. I was invited to speak at the Clinton Global Initiative. At that meeting, Senator Clinton spoke about Alaska and its people during her presentation. The Inuit people have lived sustainably for millennia. We know what we are doing. If we protect the Arctic, we will save the earth.”

The Inuvialuit people from Northwest Territories have been very active on climate change issues. They have sent a delegation to each of the Snowchange Conferences. The delegation from the Inuvialuit Settlement Region made the following overall comments:

“Bad year due to a lot of rain in the spring, which is unusual, so we couldn't harvest geese.

We do a lot of seal hunting to use the oil for winter but last year was a bad year because the walruses and killer whales were eating the seals.

The crust of ice on top of the snow has lead to musk ox deaths.

We see a lot of new species of birds and wildlife.

We used to take people polar bear hunting for extra money but that is more difficult now.

There are more storm surges. We not only have erosion but also have permafrost thawing that is under 2/3 of the village.

Coastal area is more vulnerable to changes.

Changes in the Mackenzie River, which is affecting the freight barges upriver. They can't go as far because of the low water levels (3 feet instead of 5 feet underwater).

Waters near Tuktoyaktuk are getting very clear because of the decreased flow and the water is almost at a standstill.

The Northwest Passage is now being discussed as the sea ice moves out. The consequences of an accident could be huge.

The pipeline proposal is a question – how can the pipeline survive for 30 years if built when the permafrost melts.”

Joseph E Arey from Inuvik made precise remarks:

“My grandparents could predict the weather but not today. I was born in the delta region where the lakes and channels are now drying up. We are starting to see salmon where we didn’t before. We are also starting to see new insects.”

Larry Carpenter from Inuvik reflected:

“Scientists now agree there is a lot of value in what people are seeing. We have to keep letting the world know there is a problem and maybe come up with a solution. Development is the largest cause of climate change.

The Mackenzie pipeline raises a lot of questions around impact on permafrost conditions. No one can give an answer as to what kind of damage this could cause. Opening the Northwest Passage is a scary thought because of the impact on the Dolphin-Union Caribou herd near Victoria Island. What can we do to mitigate or slow down these changes? I urge all participants to think of action.”

Lene H.K. Nielsen had traveled from Greenland to Snowchange 2005. She represented Inuit Circumpolar Conference - Greenland:

“There has been a lot of research done on the ice cap but it needs to take into account traditional knowledge of the country. ICC is working with hunters and fisheries groups to start a new project that combines knowledge with science. The climate is changing so fast that we also have to change our minds to adapt to the new situations.”

Iceland, a maritime nation in the North Atlantic has unpredictable weather and strong local subsistence culture. **Helgi Thorsson**, a subsistence farmer share his views:

“I am a subsistence farmer. The maritime weather is unstable day to day, year to year but the numbers show that the last years have been very warm. If it gets warmer we will miss the snow and ice and it will affect the culture of the country. These changes also have a recreational impact. We lose the opportunity to play.”

Sámi Council is a pan-Sámi organization connecting Sámi civil society in Norway, Sweden, Finland and the Russian Federation. Sámi Council has been an active partner of Snowchange process since the beginning. **Stefan Mikaelsson** made the following statement:

“The several richest states of the world have failed to take their responsibility. We need to increase regulation and increase our own knowledge. The Snowchange results are impressive and we need to use this opportunity to show others that we are a reliable partner.”

Traditional Finnish Knowledge has been documented for centuries. On the surface we are a modern European nation-state. Often it is said that our traditional knowledge is dead. However, it is the first priority of the Snowchange Cooperative to make sure that the forest knowledge of Finns is preserved and actively in use. Our language is very old, our epic songs, incantations and sacred beings consist echoes and stories since Time Immemorial. This forest knowledge is best expressed in our local dialects and languages. Therefore, Snowchange is in active process of re-traditionalization of our society in different levels. Some of them include handicrafts, *nuotta* style traditional fishing, *runonlaulanta* singing and many more. Climate change represents a tremendous challenge as well for our subsistence communities.

Olli Klemola from Pälkäne made the following comments:

“We have traditional knowledge about forests and sheep taming. Autumn comes earlier than ever before and we must take the animals inside earlier than usual. Summer has extreme rain or is very dry.

We need proper timber for our traditional buildings. The trees are starting to twist and turn because of the strong winds. For our subsistence fishing, we put nets under the ice but you need one foot of lake ice to be safe. After the ice freezes now it is followed by two months of a warm spell that takes the ice cover away. Stable conditions and then get storms suddenly. I am wondering if human beings are causing this change. What or who gives us the right to conduct these activities?”

Eero Murtomäki is a spiritual Elder and hunter from Vaasa, Finland. He commented:

“It may be that climate change is linked to long term change but the Western way of life – consumption without concern for the land- is damaging all of us. We know this and it should be a concern. Why hasn’t the U.S. ratified Kyoto?”

We are here for one period of time. No man can master 10,000 years of knowledge. We need to talk about responsibility and maintain a spiritual relationship with animals and the land. The impacts of human induced climate change are only now starting. No hope for a long time. Our Elders say we are a flame or spark to keep the spiritual connection to the land. Western way of life will collapse and only pollution will remain. I have been given the power to understand the healing power of nature and this gives me the greatest hope.

In the southern part of the country certain benefits are coming from climate change but there are also drastic changes in animal populations. New species have come to replace species moving north. In northern Finland Saami people see the disappearance of snow.

No proper snow cover is formed and the snow is more wet. There are no more solid cold periods. Winds have increased which means the nets get tangled and it is no longer safe to travel. Our traditional weather knowledge is no longer reliable because the winds travel in a new way. Climate change happened before and the land was warm but it didn’t happen so fast and allowed people to adapt and to mitigate. This will be the challenge. I have a lot of hope that we can also adapt to this change.”

A delegation from the Murmansk region of Russia had traveled across the world to share their views on this topic. **Alexey Cherenkov**, organizer of Snowchange 2003 in Murmansk, led the delegation. **Kyrill Zavalko** is a young student and researcher of climate change. **Andrei Julin** is a Sámi reindeer herder.

Kyrill Zavalko gave a long and thorough presentation of links between climate science and observations of the Indigenous peoples. He said:

“Climate warming is caused by the greenhouse gas industries. The earth’s surface temperature is rising and it is destroying the natural ecosystems. Arctic can serve as a natural standard. Our research in November 2004 leaves complicated impressions for researchers.

Stored information of Indigenous peoples is valuable for Arctic climate considerations. The value of Traditional knowledge can help with sea ice coverag and, animal migrations. There is no considerable difference between the observations of traditional knowledge and Western science.

The value of Western science is harder to apply to the ecosystem level. TEK contains information about ecosystems as a whole system and is more accurate. We need to integrate the two. In Northwest Russia, air temperatures between 1960 and 2003 show warming, as does Sámi TEK.

The winters are shorter and less stable, there is less rain, thinner ice, and changing reindeer migration routes. The birds of prey have decreased. The changes in tundra temperature affect insect populations. Disappearances show that the landscape is drying up. The number of fox and wolverines has increased.”

Andrei Julin from the tribal community of Piras made the following observations of changes in Kola Peninsula:

“My name is Andrey Alexeevich Yulin. I am a representative of a small indigenous peoples nation Sami and I am a leader of a tribal community “Piras”. “Piras” means ‘a family’ in Sámi language. Our community was officially registered on August 30, 2002.

Being members of a collective farm “Tundra” led us to the situation that we could not control our reindeer and financial position. That’s why we decided to create the community. The total number of reindeer decreased very much for the last 3 years. Reindeer is one of the most ancient animals, which has always been a part of the indigenous peoples’ life.



Sami Reindeer Camp of the Tribal Community “Piras” from Murmansk region, Russia.
Photo Andrey Julin.

Reindeer has been everything for them: food, raw material for sewing the clothes and transport. The livestock and a stamp were handed over from generation to generation. Nowadays, 48,240 hectares of forest fund for pasture of reindeer were given to the community. Some of the livestock was taken from the territory of the collective farm “Tundra”. The total number of reindeer is going to increase during next five years. Reindeer won't be slaughtered in this period. After this period, only defective reindeer will be slaughtered. It will allow development of long term and steady reindeer herding.

The center of Sámi habitation is a village in the Murmansk region called Lovozero. Lovozero region occupies about one third of the Kola Peninsula. It is named after a big and beautiful lake Zovozero. In the North of the region, tundra with low bushes, swamps and knolls extend. In the middle part, there is forest tundra and in the south there is so-called northern taiga.

Forest tracts and hills with good reindeer moss alternate with boggy hollows, conglomeration of stones and mountain relief. It attracts a great number of tourists. Our community is closely related to nature and fauna. Reindeer herding, fishing and hunting are the main activities of the community and surely we are the first who notice changes in the nature.

At the present time, the environment has changed in many places. The examples are: Water clogging and as a consequence fouling of the lake, fish surge and spawning disturbance. Changes of vegetation, yellowness on the needles of pine and fir trees, a dull coating on the leaves, dark blots on cloudberry.

*The damage of the ground surface from the cross-country vehicle.
Disorganized tourism (number of forest fires increased).*

The pollution of the environment has led to the climate change. Temperature changes are observed in winter. It leads to a thick ice-cover, which makes the extraction of feed for reindeer difficult.

There are new insect which have never been noticed before. The community "Piras", leading a traditional way of life on the rented territory, takes care of the environment to the extent possible. Garbage and fallen trees are being gathered. We are planning to organize tourism on the basis of reindeer herding. Reindeer herding and ecology are interrelated with each other. The Sámi traditional way of life depends on healthy nature. That's why we have a particular interest to preserve the purity of the environment. Thank you for your attention."

Another large delegation came from Republic of Sakha-Yakutia, Russian Federation. They traveled for days and braved several changes in travel routes, hurricanes and many other obstacles to be in Alaska and share their observations. The delegates spoke of their knowledge regarding Yakutsk, Cherskiy and Iengra Regions of Yakutia-Sakha Republic.

Viatcheslav Kemlil is a traditional Chukchi reindeer herder from Nutendli. He lives a nomadic way of life. He spoke:

"I couldn't sleep last night because of the horrible hurricane impacts from global warming I saw on TV. I also saw a show about how the glaciers are retreating and becoming smaller. I have been watching changes in my territory too. We watch the weather and notice the changes. Lakes are flooding the banks. Small rivers become larger.

On grazing grounds, I come across unknown plants. There are many dwarf willows growing on the tundra. We use them for bonfires. When I was a kid, we had to search hard for the willows. Today, I don't need to look hard at all. New fish species can be observed in the Kolyma River. Marine species are showing up.

We used to migrate north slowly to reach the sea. Now we reach it very fast because of the mosquitoes that bother the reindeer. We observe new streams and very little ice on the sea. Observing lots of single polar bears wandering along the shore that used to hibernate. Four cyclones in the fall and lots of snow. Very difficult to ensure enough food for the reindeer."

Viatcheslav Shadrin, a Yukagir and a member of the Council of Yukagir Elders gave the following comments:

"Changes are due to human activity. We have seen fish that glowed because of too much phosphorus in the water. Lakes are sinking as the permafrost melts which means many fishing lakes have been lost. People have to go further, which is hard as the price of fuel goes up. Reindeer herders select routes based on weather forecasts so mistakes have detrimental effects."

Tamara Andreeva comes from the Evenki people in Southern Yakutia. She spoke:

"Reindeer herders are still nomadic and move around all year long. The signs that our grandfathers used are no longer useful. It is difficult to know when frost or rain will come.

Snow is wet and we have much more of it. The snow covered with ice is hard on reindeer hooves and leads to diseases. New diseases in reindeer herds have lead to diminished quality of hides. Sable skins are less valuable because they are becoming lighter in color.

Water is becoming white and fish are disappearing because of coal and gold mining. When reindeer herders lose their jobs, the social situations worsen. The rules of behavior deteriorate. Questions and issues of natural protection are very important to my people. Native knowledge will be invaluable in understanding the causes of global warming."

The Aleut Nation is dependent on the North Pacific for their livelihoods. **Gennady Yakolev** shared the following words:

"I am from the Aleut people of Commander Islands. It gives me joy to participate in resolving such matters. Living on the islands we must hunt marine mammals. They are changing. Some species living close to shore have disappeared completely. Some fish are reappearing again because of protective

measures. Sea urchins have disappeared completely. The climate became warmer around the islands. We used to pick berries in September. This year berries were overripe and not good for picking.”

Kamchatka is a long peninsula on the Eastern seaboard of the Russian Federation.

Vera Koveinik of the Itelmen Nation traveled far to take part in the Snowchange 2005. She said:

“I am honored to participate in protecting one’s land. I am from Kamchatka peninsula. We have many volcanoes and fish (so far). It pains my heart to see that other people who use our land do not take such care. I hope to learn how to help my people. I come from the first people that settled in Kamchatka.

The earth is our cosmic home and took millions of years for all living beings to learn how to live on this planet and nature prepared everything for us. We don’t know how to use all of this bounty. If we don’t save our land it’s hard to imagine how we will make it our home. Our land is so pure. It’s important to whole world.

One time the rivers were so full of fish it was possible to put your stick in and it would not fall down. Native people have been forced from their lands. We live off the land and will not torture it. This land that we live on is alive.

This is the same as pulling the kidneys out of a human body. Don’t look for solutions on the ground but also look up. Huge hurricanes also reach Kamchatka that bring strong winds and heavy rains.

The dates of hunting have changed. It used to be early October and now it is early November. There is insufficient snow depth and rivers don’t freeze until the beginning of November. Since hunters can’t get to the grounds early enough, they can’t meet the fall migrations.

Winter is becoming warmer and fur-bearing animals don’t migrate enough. Hunters are less successful and our machinery gets destroyed much faster: Hunting becomes economically inefficient. Native peoples have to give up hunting and social position which deteriorates the social issues.”



Viatcheslav Kemlil and Lena Antipina, delegates from Niznikolumskaya Region, Yakutia, Russia.
Photo Hanna Eklund.



Photo Eero Murtomäki

Part II.

Resolutions and Recommendations of Snowchange 2005

The participation of various delegations from circumpolar regions, including Akureyri, Yakutia, Chukotka, Alaska and Lapland uplifted the conference into a new level and allowed for a free and open exchange of views on adaptation and mitigation of climate change that will steer the work of the Snowchange and partners accordingly in the future. Recommendations and resolutions were developed, and they are presented below:

1. Spirituality, Language and Climate Change

The first traditional circle of Snowchange 2005 was organized around the theme of Spirituality, Language and Climate Change and moderated by **Tero Mustonen**. Finnish Elder, **Eero Murtomäki**, shared some of his wisdom in the circle:

“I have read about people who seem to be able to communicate with plants and animals verbally – to the extent that these beings can exchange complicated sentences and thought patterns telepathically. My own communication is based first and foremost on knowledge regarding nature. I understand behavior of several familiar animals and birds.

I try to answer them by acting in a proper way upon encounter. But I have experienced communication that extends beyond words or visible world. At its best, this communication is extraordinary. However, I can only speak with wild animals in my dreams, asleep. Only in a dream I have once encountered my bird of power, my helper that has been with me the longest. He was the size of a human being. This bird is the Raven. I owe him all of my success as artist, author and as well I have to thank him for all the teaching, understanding and skills that I have acquired so far. At times of need, he comes and helps – always.

In the world there are several things, beings that maybe we should not always try to understand, but leave at peace. Human beings have always thought too much of themselves. We are not here to understand everything. We are here for our close ones and children – as long as they need us.”

Spirituality, land, language and weather changes are related. New documentation of climate change and further adaptation and mitigation has to recognize spirituality. Indigenous and cultural spiritual relationship is best expressed in local languages.

We need spiritual leaders to determine the direction of our work. We need mechanisms in place for financial, material and educational support of these local languages.

There is a need for sensitivity in relationship with spiritual knowledge. We participants of Snowchange 2005 have to make sure our ways of life and local knowledge are kept despite colonization and the predicted changes that are affecting our realities. We must find different ways to document snow, ice and other related terminology and the ecosystem changes.

We need to create a forum for indigenous peoples to express these relationships. We need to have to dialog with people who are threatened by indigenous peoples. We need to include people with different values into the discussion.

Local Languages and Climate Change

It emerged from the traditional circle of Spirituality, Language and Climate Change that one form of adaptation and mitigation is to support local languages and dialects as they still can be saved. Language is the key to understanding local ecosystems. One mechanism of organizing this knowledge database is community-based archive and oral history projects.

Despite growing recognition of the importance of traditional knowledge, and awareness of the danger of such knowledge vanishing in a rapidly changing world, very little has actually been done in the way of scientific work and systematic preservation.

The collection and recording of the traditional, local knowledge, and making this accessible to researchers, students and the public through the construction of an “oral history archive”, using electronic referencing and web access, will have the following advantages:

Educational: The participation of community members, students and researchers in the construction of the archive and in the collection of materials to be archived will in itself constitute a valuable educational experience.

For others, the archive will serve as a valuable educational resource for teaching in anthropology, human geography, ethnography, ethnology, environmental science, history, social and economic development, urban and rural studies, and many other subjects, with special attention to the local situation.

The archive will allow future generations to trace ongoing community development and to experience real accounts by real people who are vehicles of the traditional knowledge. In addition to supporting the academic component of learning, the stories and real skills of the people can stimulate a re-traditionalization of life and a relearning of skills, which have in the past supported Arctic cultures (and which may continue to do so, even in the future).

Scientific: Oral History Projects and associated archives will provide a resource through which to study social and environmental changes in specific local contexts through long-term observation and documentation. Traditional knowledge is of scientific interest as an (largely unexplored) example of knowledge acquisition and transmission, a medium of social cohesion, and a set of human strategies for coping with social and natural environments. The archive will thus make available a set of valuable materials for scientific study.

Cultural: Traditional, local knowledge is a hidden, but important, constituent of a culture, which is important to the maintenance of social and personal identity. It contributes to the preservation of the basic social fabric in a period of rapid and de-stabilizing change.

It adds to the richness and diversity of experience no less than other cultural components such as art, literature or music. Like these other components, it deserves to be available to the public, but unlike the others, it is very difficult to display.

Practical: The traditional knowledge, developed within local communities or elsewhere, is grounded in the close interaction between people and their local ecosystems over periods of hundreds, or even thousands, of years.

It normally reflects subtle strategies for maintaining social cohesion and for making wise use of renewable natural resources in ways that are inherently sustainable. It also provides insights into ways of coping with social and natural environments. Although the strategies and insights of traditional knowledge may become in various ways obsolete when the matrix surrounding human life undergoes rapid and drastic change, they may in many other cases be of help in understanding and adjusting to change and novelty.

Traditional knowledge provides culturally specific tools, which enable people to adapt strange and unexpected influences to local. The availability of such knowledge through a searchable and accessible archive will thus provide advantages for the conduct of social life.

Primary attention should be given to rapidly disappearing materials, spiritual heritage patterns and bearers of traditional culture of Northern and Arctic peoples. Simultaneously, attention is paid to existing display of Indigenous peoples cultures, which have not been obtained properly in the past.

Previous colonial researchers have misrepresented the local cultural issues in a distorted way. The Snowchange project is designed so that Indigenous participants work with other Indigenous informants and retain full control of the project during its execution – thus ensuring a proper way of representation and participation.

Equally, along with traditional scientific methods of fieldwork in data collection, this project will feature contacts of studying of the carriers of local cultures in their own environments and contexts.

Project will, as well, provide a new, post-colonial scientific framework that will lead to a “new approach”, attitude and interpretation of cultures of the Arctic. This new approach will be built on the traditional governance and learning structures of the local cultures. Such a unique process has few peer projects in the world.

2. Community Change in the Arctic

The second traditional circle of Snowchange was devoted to Community Change in the Arctic, chaired by **Lilian Alessa**. The circle produced the following recommendations:

V A L I C K – Values, Attribution, Leadership, Innovation, Cooperation, Knowledge

We must value our Elders; they represent our “Body of Knowledge”. We must listen to the lessons they have learned so that mistakes are not repeated and successes are. We must cultivate and protect those who are committed to achieving a goal. We must give them all the support we can. We must raise youth in a culture of “warriors” (pride, determination, honor, justice). We must remind them they will lead at some point, whether it is their families, a Center, a School, a business, etc. Be aware of, learn about and apply the latest technology to be as efficient as possible (this fits into Knowledge).

Find novel ways to use tools and strategies that fit your community’s culture and values to achieve a goal. Use the wisdom of many Ways of Knowing to become more powerful and adaptable. Realize that sometimes the individual must make sacrifices for the community. The community must recognize these individuals.

Greed, mistrust, apathy, laziness and other human emotions are natural but must be controlled if goals are to be achieved. Build, develop, maintain and use extensive networks of knowledge, people and resources: locally, regionally and globally. Be wise in “both worlds”: our traditional one and the “western” one. This is powerful.

Value education as a tool! Educate our communities, especially our youth. Realize that knowing something in many ways can give you perspectives that make you better able to cope with change. We cannot assume “western science” will come to our service: we must seize it ourselves through education of all kinds! The Future Depends on Those Who Think (and Plan) for It.



James H. Barker

Marie Hoover with her niece and nephew, Samantha and Nicholas, at fishcamp.

3. Subsistence and Community Well-Being in the Arctic in the Face of Climate Change

Third traditional circle addressed a crucial task of Subsistence and Community Well-Being in the Arctic in the Face of Climate Change. The circle was well coordinated by **Carl Hild** from Alaska and many-sided debates were had during the session. The following recommendations were made:

The Arctic needs to tell the rest of the world how climate change is affecting its cultural and economic well-being. We need to speak with one voice. The International Polar Year should have a human focus to document cultural, health and environmental conditions and concerns.

Local empowerment for natural resource management and community program is required to all for rapid action and flexibility. As well, there is a need for Community based program to actively engage youth and Elders together in cultural expansion.

Arctic community should become model of sustainability. We must use our best knowledge and behaviors to support each other in the face of the quickly changing climate. We recommend Snowchange as an IPY project.

4. Science and Climate Change - Mitigations & Adaptations

The final traditional circle was devoted to Science and Climate Change - Mitigations & Adaptations. This large discussion was moderated well by chair **Larry Merculieff** from the Alaska Native Science Commission. The resolution said that the delegates of Snowchange affirm and agree to:

Maintain and advocate for the position that Arctic Indigenous peoples and local communities be equal partners in scientific research when such research involves the use and application of traditional knowledge and wisdom; involves local monitoring and/or may have significant impact on projects, programs, initiatives, policies, laws, and/or regulations affecting indigenous peoples and their traditional ways of life.

Recommend to all appropriate scientific bodies and funding agencies that research on climate change and global warming: a) utilize ecosystem approaches whenever possible, b) focus research at the local and regional level, c) expand efforts to include, as a priority, research on ecosystem scales.

When appropriate and with our allies respond proactively to scientists and policymakers who publicly deny that global warming and climate change are occurring by publicly challenging the ignorance, misuse of science, and denial of the reality of what is occurring.

Strategically examine, with Snowchange partners, use of existing local, national, and international laws to deal with issues involving global warming, climate change, and protection of traditional ways of life and food security.

Recommend that in funding scientific research that funding agency request researchers to use and apply research protocols adopted by Arctic indigenous peoples and support local languages as systems of knowledge.

Recommend that scientific funding agencies set aside funds for, and require the translation of research so that is understandable and usable by the general public.

Form strategies partnerships, not only in the Arctic, but also throughout the world and draft a unifying statement of purpose and values that encourages broad alliances and focuses the efforts of Snowchange and its partners. Such a statement should also incorporate wording which acknowledges and affirms that traditional ways of knowing are at least comparable with modern science and should be treated as such.

Affirm the position that Arctic indigenous peoples have fundamental human rights to maintain their traditional ways and practices, including the rights to subsist off of traditionally used, clean and healthy, land and waters.

Affirm its position that what is occurring in the Arctic in terms of climate change and global warming will and does affect the rest of the world. Snowchange will develop comprehensive strategic plans to carry its message to the world, including a public education and media campaign and use of examples of how the occurrences in the Arctic affect and has a direct bearing on other parts of the world.

Develop a comprehensive strategic plan that details how Snowchange will achieve all of the goals and objectives approved by Snowchange delegates. Some components of the plan will include, but not be limited to, for example: a) how to put a human face to the effects of climate change and global warming, b) how to utilize visual opportunities of the impacts of climate change and global warming in the world to bring forward the messages of the indigenous communities, c) identifying and acting on opportunities to affect policies, laws, and regulations at the local, national, and international levels, and d) advocacy for impacts of climate change to economics and costs.

Develop a strong statement that directs science and research to focus on alternate, renewable forms of energy, and work with appropriate agencies to assist Arctic communities in exploring and using such alternatives.

In terms of IPY efforts, Snowchange agrees that: a) IPY should focus on sources of cancer in the Arctic, including any linkages to radio nuclides, b) when local monitoring is involved as a project focus, it should be done with the indigenous peoples as partners, not just advisors. This includes but is not limited to involvement at the outset and every subsequent level, c) protocols for interaction and communications be used when an indigenous community is to be involved, d) proposals from indigenous communities be given a priority for consideration and funding, e) researchers shall be educated by indigenous peoples about how to engage with indigenous communities.

Explore ways and means for Snowchange to collect and disseminate information on the best practices and models that may be helpful to Arctic communities in dealing with climate change and global warming issues.

Snowchange strongly supports indigenous initiatives and efforts to develop the capacity of indigenous peoples to conduct their own research, and whenever possible, write strong letters of support for such initiatives.

Adopt the position that it is highly desirable to have use and application of indigenous knowledge and wisdom controlled by indigenous peoples.

Convene a forum between scientists, policy makers, and indigenous peoples to explore the issues, challenges and opportunities for use and application of traditional knowledge.

Encourage, as a priority, that research and funding be directed at socio-economic, cultural and community impacts of climate change and global warming on Arctic communities.

Strongly recommends that as a matter of public policy, mitigation and adaptation strategies for climate change and global warming always be linked.

Recommends to scientists and policymakers that the best they can do to help Northern communities adapt to changes created by climate change and global warming is to listen first, then partner with the local community or organization to address issues of adaptation and mitigation.

Snowchange delegates acknowledge and affirm that we, as Snowchange, must explore the creation and use of our own terminology when describing global warming, climate change, and its existing and potential impacts.

These four groups' recommendations were developed during the Snowchange 2005 and formed the synthesis of the various debates that were had for three days among the circumpolar delegates.



Wearing a mask he made, John McIntyre (left) from Eek dances with Joe Chief, Jr., from Bethel. Joe's mask was made by Alexie Issac, also from Bethel.
James H. Barker

Viatcheslav Kemlil, a traditional Chukchi reindeer herder from Niznikolumskaya Region, Yakutia, Russia opened and closed Snowchange 2005 with traditional songs of the tundra. Main song was called "tundra waking up in the spring with some elements from an old shaman song".

Photo Laurent Dick



Mary Ann Sundown (left) of Scammon Bay dances with Helen H. Smith, Katherine Bell and Magdalene Hoelscher, all of Hooper Bay, at *Cama-i* (greetings) Dance Festival, Bethel.

James H. Barker

Part III.

Conclusions – Indigenous Governance of the Land in the Face of Climate Change

“Something must be said...The story depends upon every one of us to come into being. It needs us all, needs our remembering, understanding, and creating what we have heard together to keep on coming into being.” - Trinh Minh-ha (1989, p. 119).

Post-ACIA Work Ahead

Since the publication of the ACIA report in November 2004 there has been a clear message about the Arctic climate change. However, both the Arctic Council and some of the critics have determined that there are vast gaps in knowledge and therefore the Post-ACIA work in climate change field has to address these gaps.

Northern Iceland, Siberia and Yakutia, Chukotka, Hokkaido which are the next target areas of Snowchange, hopefully in cooperation and close coordination with our partners represent an unparalleled attempt to close these gaps and produce new and concentrated efforts to mitigate, study and adapt to climate change.

No other Arctic organization and network has, on the other hand, remained so focused on this topic for the past five years and no other organization is steered both by scientists and community people. Therefore alliances that Snowchange has created and continues to create represent a unique way to address climate change research in the Arctic.

One of the keys to a successful long-term survival and adaptation strategy is to form the actions on the basis of Indigenous thinking.

Maori Professor **Graham Hingangaroa Smith** at the University of British Columbia outlined some of the principles of Indigenous thinking in a recent speech April 10, 2005:

“The issue of the rising proliferation of indigenous theory and knowledge experts needs some critical reflection and discussion amongst indigenous scholars. We need some sort of guideline as to what might count as more genuine, more quality ‘indigenous theorizing’ that is connected to ‘the people’ versus indigenous theorizing that is in the interests of individual academic interests or indeed, institutional interests.

This last issue is heavily embedded in the ‘research prospecting’ activities by Universities attempting to exploit the lucrative funding sources that are linked to indigenous research.

Many of our own indigenous scholars and academics are implicated in this type of exploitative research activity. The need to address the pressing issues related to indigenous development and advancement or social justice are often secondary considerations within the ‘research led’ institutional agenda focused on research entrepreneurialism.

Just being brown does not make ‘theorizing’ indigenous. In the same way, just building a Marae or a Longhouse in a University institution does not necessarily make that institution a culturally friendly site.

What people and institutions do and produce as performance outcomes that lead to positive change needs to be kept in mind as a truer test. Given the rising interest in this area and the range of writings, there is need to begin to discern what counts as useful ‘indigenous theorizing’.

As a starting point in this discussion I would tentatively offer as a starting point the minimal set of conditions that ought to inform a claim to ‘indigenous theorizing’.

- I It is connected to a specific cultural location and site (contextual); it is tested in practice;
- II It is organically connected (made with the people, not just in the academy - is reflected on and grown through praxis);

- III The person proposing the claim to ‘theory’ has some cultural skills and is able to connect with the epistemological foundations of the knowledge, language and culture related the people to whom the theory is applicable; (cultural skill)
- IV It is transformative (status quo is not working – must focus on change)
- V It is portable (rather than universal)
- VI It has the flexibility to critique and renew itself (praxis)
- VII It is engaging of other theory, able to justify its existence (movement toward theory not away)
- VIII It is Critical (able to critically engage new and traditional formations of colonization – colonization from external forces and internal colonization already working within and through ourselves)
- IX It is responsive to multiple sites of struggle and engagement (flexible)
- X It is easy for the people to understand (speaks to people)

“This list is a beginning of a discussion. We now need to begin a wider discussion to add delete and hopefully at the same time interrogate our own work.” (2005).

Taiiaki Alfred, a respected Mohawk scholar from Canada, a warrior, has been an associate of Snowchange for a long time. In his new book *Wasase – Indigenous Pathways of Action and Freedom* (2005) he outlines the core principles of the struggle facing all Indigenous and local cultures:

“How can anyone confront the depressing, disintegrating reality of this world without the restorative strength provided by spirituality? How can we imagine and work for a better existence in our own lives and for that of the world as a whole without the loving and natural reminders that our (Indigenous) ceremonies give us? I don’t know if that is possible.

Yet many, if not most, of the spiritual ceremonies and practices of the (Indigenous peoples) have been destroyed or lost. If spiritual practice is so crucial to the regeneration of (Indigenous) identities, and by extension to the achievement of justice and peace, some thought must be given to the forms of belief and practice that we are seeking to preserve, restore or reconnect with...

This is the spirit of regeneration... Translating (Indigenous) teachings into a concrete set of goals for a social and political movement is a vital task for the future... Transcending strictly materialist concerns and the fetishism of money means going beyond the constrained thinking that is embodied in the visions of decolonization that would have us accept a share of the status quo in place of real justice for fear of the inevitable reprisals against action...

We need, as a whole race, to recognize and transcend the primitive ethic, which has become so destructive as it merged with the technological means of dominance and advanced weaponry of modern empires.

We need to move to accept the interdependency of all people and beings. Existing outside of empire, indigenous spiritualities can be the foundations for the cultures of universal responsibility and respect that are needed to achieve peaceful coexistence and ensure our survival on this earth” (2005: 250,264,266).

Methods and Tools of Community-Based Monitoring and Adaptation of Climate Change

Methodologically there is a good basis of scientific and community-based ways of action that have been already developed. In identifying the climate change impacts, Snowchange has employed some of the following methods.

Research methods:

1. Semi-directed interviews in which the informant is allowed to determine the scope, extent and direction of the interview, but a particular set of themes is determined antecedently by the researchers.



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2. Geographic analysis of the case-study areas.
3. Survey and assessment of existing sources of information, such as existing archives, genealogical records, field notes, diaries, academic books.
4. Survey and assessment of pertinent information from the natural sciences, for instance related to changes in the physical environment, climate, sea temperature, and so on.
5. Creation of community-based oral history projects as outlined above.

Technical elements:

1. Archiving of records and media. Audio records stored in CD's and made available on line in MP3 format. Video records made available in DV format and burned to DVD's.
2. Design of database and electronic referencing system.
3. Design of access systems, in particular, web-based access to the archive.

Possible Scientific and Technical Uncertainties:

In attempting to survey and record traditional, local knowledge using semi-directed interviews as the basic survey method, one must be careful that the interview design and the mode of interviewing do not systematically fail to capture the material that is wanted through insensitivity, gender bias, cultural dissonance, or other methodological failures.

An advantage of the Indigenous community based method is that the interviewers will usually themselves be trained professionals or participants from rural communities – perhaps even from the same communities that are being surveyed.

Successful applications of merging local knowledge with multidisciplinary natural sciences studies have been made in the recent years. These include the Mackenzie Basin Impact Study and the Arctic Climate Impact Assessment Report of 2004. Linking oral histories with other scientific surveys and research endeavors is a new field of exciting and promising academic work that the Snowchange will embrace.

Concluding View by Sámi Reindeer Herder Pentti Nikodemus from Purnumukka, Finland:

“I come from a village of 12 people in northern Lapland. Reindeer are our key to life. The benefits from reindeer economy are decreasing and living a traditional way of life becomes harder.

The river next to our house provides the water. We cut and heat our house with timber from our forest. Everything we do and think revolves around our reindeer. For the past decades, this way of life has had increasing threats from forest fires and the impacts of government decisions, such as flooding old growth forests we used for rearing young reindeer calves.

Climate change has affected our autumn season, which is crucial to reindeer. Normal start of winter has a 30 cm snowfall, however, we have witnessed warm spells that melt all the snow and create ice. This makes it hard for the reindeer to access lichen and as a result, they die.

In July, the mosquitoes help us to gather the reindeer to mark them. There are no mosquitoes in the last 3-4 years and the reindeer have dispersed. It is harder for us to collect them. Another insect is now coming earlier. We must feed our reindeer winter hay in winter because they can't reach the lichen, which is an economic burden.

The gadfly now is in southern Finland and is spreading north. I am worried about the effect on moose and possibly reindeer. I have traveled 29 hours and crossed oceans to be here with you. The commonalities between us have given me great hope. I have met many other indigenous peoples who consider the eagle to be a holy bird. We consider it the enemy because sometimes it takes the reindeer. We wish to find solutions to these problems.

My reindeer is calling to the world - making a distress call. The reindeer says: Please do not destroy my home lands with clear cutting, endless industrial developments, building reservoirs that put grazing lands under water, please do not destroy my home lands with air pollution and climate change. Please allow the reindeer and people of reindeer to continue their way of life in the nature of Lapland. Thank you.”

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Appendix 1: Youth and Elders Dialogue

Stefan Mikaelsson: *In our own society, we want to increase the flow of fossil fuels. We need to avoid the easy way. It is hazardous for our own people. The lichen has been eliminated by acid rain and without it the reindeer will not exist. We need to focus on the actions of our own society and take care of our resources. We need to see how to spread this message all over the Arctic, which is not easy when you have bad living conditions.*

Beate Stormo: *I am concerned about the distance in our modern lives from nature and a loss of the connection to living earth. Our Elders have taught the younger people this connection but it is being lost.*

Tatiana Samuelsen: *We need to bring more younger people to see it the way you do. If we do this it will get us a long way. We are here to protect the air, water, sea. I'm just the tip of the iceberg.*

Joe Arey: *I would like to know what type of changes the Elders see for the youth? How do you see the youth traveling on the land? Everyone wants to go faster. What is the difference between our generations and how can we share them?*

Walt Parker: *When I was younger we used to pray for snow so that we could go out and live the subsistence way of life. There is a big difference now. We didn't have the telephone and were much more isolated. Your generation will communicate by web and this will help you work out the shifts in climate. What will replace the great caribou ark? You will have communities to talk with about these issues and you will be able to talk with the southern capitals that rule our lives. You need to make sure they do what is right for you.*

Margaret Opie: *I was brought to school every morning by dog team. Now a school bus picks up the kids because of the ice receding too far so the polar bears are in town which makes it unsafe for the kids. We only have a couple of dog teams left. Traveling to fish camp used to take two weeks. Now it takes a couple of hours by motorboat. We are trying to maintain what we have, such as sewing the skinboats, for traditional whaling. This summer was terrible for hunting seals. Transportation is now fast, we like the fast skidoos to get to the foothills. We used to have visitors to the Arctic that would ask what we burned for fuel. We knew that God provided for us the whale and the tundra to survive. We are fighting to maintain our way of life now.*

Svein Harald Holmen: *We are discussing how to preserve the land and nature. It is almost impossible to do because we have developed the economy. Instead of people having the experience of a place, they think about what they can buy and consume. We need to have an experience with nature to have a spiritual aspect of living.*

Olli Klemola: *We have two choices to think about climate change: accept that human beings caused climate change or that it is natural cycles. If we choose to accept that humans have caused climate change with our actions we have to look at reasons if we don't know the results of our actions. I have traveled far from home and seen more cars than ever before and things of disposable nature. Our culture has become disposable. Every time we put concrete on the lands we kill biodiversity. We stand at a crossroads. We must choose between life or death.*

Carl Wassilie: *Communication is key between all peoples of the Arctic and the world. We are sharing words and action. We have a spiritual connection with all living things. As Alaska Native youth are gaining in the urban areas we need to find a way to maintain our cultures and values. Many youth are searching for that and it is important that the Elders bring those values to the youth. I am holding a working paper on climate change for youth. We are thankful for all the positive work that is before us and would like to support an international treaty to protect the Arctic.*

Joe Senungetuk: *I now live in Anchorage and have chosen to forgo subsistence lifestyle to enter the world of artists. It is interesting as an Inupiat to travel the world as an artist. Being from the tiny village of Wales it is a challenge. There are such things as racism and ageism because of pop culture we have the loss of our culture. I am heartened by you who are in the world, the Alaska youth and Elders are here to begin this dialog that may reconnect eh communication we say is needed. I learned to give my first seal to the Elders. Now that is still true and there is a continuity happening between the Elders and youth.*

Kaisu Mustonen: *My father took me to the forest when I was very young. It was the most valued thing for me to go onto the land. Sometimes this is difficult for me to find.*

Tamara Andreeva: *I want to talk about how to educate our youth in northern Russia. I was born during Soviet times. Youth only had one road to follow – go to school and a higher educational institution that government was paying for if you wanted to get a higher education. I did that and now I work in a scientific research institute, but still I am an Evank and I don't lose touch with my people. I learn the right lifestyle by watching my parents. We have a saying that man is part of nature and this way we have to be the caretaker. Nature is alive as long as man lives. Now it is more difficult to deal with youth. Education is no longer free. Children can still go to professional colleges so I am also teaching my language at the university. When students are done and come back to the villages problems start because there is not enough employment. I have a question for the youth – how do we deal with this problem in our villages?*

Svein Harald Holmen: *I come from a city in Norway with high unemployment. Fisheries have changed and after years in the military, I moved back home to my birthplace and saw the same. So I created my own company and invested my money into what I believe in. I learned from my family the best value is love and how you feel about yourself; most unique of other places around the globe. Innovations is taking the best knowledge of the past and combining it with the future.*

Tamara Andreeva: *Thank you for your good words. I wish all the youth in Russia could hear them.*

Steven Baryluk: *I have a question for the Elders. We have many stories from different places and similarities. How do you feel about how information has been shared and how can we continue to share information?*

Ellen Leavitt: *In Barrow, we formed the Pasavute (our heritage) so some of us can speak our own language. We are now working to keep our heritage alive. We could form similar groups in each region.*

Elaine Abraham: *This discussion has been really informative. We come from so many countries but the conditions are the same. It's changing our way of life because it affects our food. There will be great change for the next generation. When I talk with other grandmas we are concerned about how to communicate with youth when there is so much technology that keeps us separated – earphones, machines you are always punching. We have a hard time talking to you because of technology. If Elders are expected to talk and teach, we have to solve this communication gap. We learned we are in this together. We will be gone when real climate change hits the next generation.*

Peter Elachik: *I am trying to figure out the root causes of climate change – energy used to make our lives easier. Fossil fuels cause emissions. We need to avoid fossil fuels and look into other energy sources. Need to research and come up with ideas to create efficient energy. Us Elders have very little time left – you youth have the time to do the research. I give you the challenge of finding efficient use of energy.*

Joe Senungetuk: *Lack of communication between parents and children is important. There is only a certain time and place when children should listen to headphones. We have to regain the respect of Elders. We are losing our language and culture. Need to work together to gain that power back.*



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Kaisu Mustonen: *This is the responsibility of parents to educate children and make them listen.*

Tonje Folkstad: *Happy to hear about energy use. When it comes to alternatives they are out there and they are more climate friendly. I am happy to hear that people know that we need to start with ourselves. I admire that perspective since the big problem lies outside of the Arctic. One way to communicate is to get the stories we have heard out there to the world like Sheila has done. We need everybody to join in that effort via the internet, publications and speaking.*

Tamara Andreeva: *The well being of youth depends on the well being of people but we are now living in a time of globalization. The future of any nation depends on its youth. This will be heard in Yakutia.*

Beate Stormo: *This is a big issue for me since I have three children. I have to fight to have them spend time with their grandmother and father. School education makes it difficult. Parents need to support their education at home not just at school.*

Etok Edwardsen: *I come from a generation where I literally chewed the food for my grandfather who had no teeth and sustained his life for an extra five years. The complete commercialization of our children – they have become a consuming society. We have lost our values and traditions. Alaska was never bought. It was occupied territory that destroyed our cultures. This is the genesis of the problem we have today. We need international intervention. We have to file as Inuit people at every level of intervention. I have been fighting with oil companies all of my life. The future may look grim at the moment but I see us reversing it.*

Walt Parker: *50 years ago I used to swear at my dog team. Today, I swear at my computer. Change is change and you must adjust to it. My generation survived a lot. It's been all uphill in the North since then. I have great confidence in your generation.*



Viatcheslav Shadrin, the Head of the Yukagir People from Yakutia Russia with a delegate from the Even Nation, Mrs. Jelena Antipina, Yakutia, Russia.



Maori delegate Mahinekura Reinfields with Alaskan representatives.



Patricia Cochran from Alaska Native Science Commission with other Alaskan delegates.



Chief organiser Hanna Eklund from the Snowchange Cooperative surrounded by the Inuvialuit Delegation from Inuvik, NWT, Canada.



Participants of the Snowchange 2005 at the end of the Conference.



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