

# The Snowchange Climate Change Work with the Local Sámi Communities 2000-2008

Poster by Kaisu Mustonen, Snowchange Cooperative

## Introduction - About Methods and Encouragement of Local Observations

The Snowchange Cooperative work has taken place in close cooperation with **Elina Helander- Renvall**, a Sámi from Utsjoki. She works as well as a Special Researcher at the Arctic Centre, Rovaniemi, Finland. She took part in the field work during 2001-2003 and has been coordinating the documentation of Indigenous knowledge during the whole Snowchange work. She has stated that *"The Sámi have an ecological knowledge of their own, rooted in the traditional way of life. They have their own knowledge derived from experience, long-term observation, and the utilization of natural resources. This knowledge is best expressed and transmitted through the Sámi language. Sámi traditional ecological knowledge (TEK) goes beyond observation and documentation because it is a precondition for their survival. Particularly interesting is the fact that indigenous people like the Sámi have a long-term experience in adaptation."*

When the Snowchange methodology for the oral history collection was designed in 2001, Elina Helander- Renvall brought forwards a system that was built on encouraging local people to make observations: *"I would like to claim that the Sámi people, especially those who live within traditions, have a method to make observations. They have learnt these methods during many centuries. Observations are made about the entire environment, namely the natural, cultural, social and linguistic environment and the linkages between these. Observations are also made about single factors and what happens to nature or to the human society if changes occur somewhere within the system of these factors."*



Local Sámi are tarring their river boats at the spring break up along Teno River, April 2006. Photo by Tero Mustonen, Snowchange Cooperative. Used with permission.

The work that we do with the local and Indigenous communities is based on the premise that each person owns their knowledges and stories. Snowchange tries to make every effort to return the raw materials and other documentation to the person interviewed prior to any publication to make sure that the Indigenous rights and respect is at the center of the activities we have.

## About Snowchange Cooperative and the Work in Kola Peninsula

The Snowchange Project was initiated at the Department of Environmental Engineering and Management of the Tampere Polytechnic, Finland in early 2001 to work with Northern Indigenous and local subsistence communities to assess and study the changes taking place in nature and in weather. This partnership happened in cooperation with the Aurora Research Institute, Inuvik, Northwest Territories, Canada as well as the Arctic Climate Impact Assessment process of the Arctic Council. The Snowchange network of partners included other Indigenous-led institutions such as the Indigenous Governance Program at the University of Victoria, British Columbia, Canada as well.

In 2004 the Snowchange Project separated from Tampere Polytechnic and became an independent non-profit Cooperative which continues the work and aims of the Snowchange Project.

Snowchange work in Kola began with initial project meetings in January to September 2000. First visits to Kola Sámi communities were made in September 2001 and the partnership goals, aims and scope was introduced to Sámi Council as well as the Association of the Kola Sámi in Murmansk. These organizations approved the direction and activities of the new partnership.

During 2001-2003 several field visits were organized by Snowchange and its academic partners, Murmansk State Technical University and Murmansk Humanities Institute to the Kola Sámi village of Lovozero as well as to the reindeer herding communities and newly established obschina Indigenous organizations. A large international Indigenous conference was held in Murmansk and Lovozero in February 2003 in which key results of the research and partnerships were released to the Kola Sámi community, researchers and to the media.



Base Camp of the Piras obschina. Photo by Tero Mustonen, Snowchange Cooperative. Used with permission.

Since 2003 the Kola Sámi interviews and documented oral histories were included in the Arctic Climate Impact Assessment – ACIA by the Arctic Council. Meanwhile Snowchange continued the community based monitoring and new field trips were held in May 2005. In 2006 a significant new round of community monitoring and interview process was conducted. Visits to the Seidozero and Lovozero subsistence areas were held, several interviews were conducted in Piras base camp, and an excursion was taken to the Eastern part of Kola Peninsula (Krasnochelje, Ponoj River camps and Chalme-Varre community) to document changes which had taken place there. These areas had not been included in the original ACIA fieldwork. International efforts were taken to propose the Kola Sámi areas to be included in the Circumpolar Biodiversity Monitoring Programme of the Arctic Council.

In 2007 Snowchange Cooperative worked with Sámi Council to conduct a round of community-consultation meetings regarding rapidly proceeding resource exploitation plans by Barrick mining company and other actors. This fieldtrip consisted of stakeholder meetings with the SKHPK 'Tundra Cooperative' and SKHPK 'Olenivod Cooperative', several obchinas in Murmansk and Lovozero, AKS and OS-MOO as well as individual members of the Kola Sámi families. It was the first visit of a Sámi Council President to Lovozero. Additionally the Snowchange – Sámi partnership branched out in 2007 so that educational cooperation was initiated between the Inari school in Finland and the Nutendli nomadic school of the Chuchki peoples in Republic of Sakha-Yakutia, Siberia, Russian Federation. This project included the young Sámi students interviewing and documenting their parents and grandparents on snow knowledge. The cooperation ended with a visit from Inari School to Nutendli in Siberia in March 2007.

In 2008 the cooperation has continued in the form of new community monitoring efforts in Seidozero and Lovozero areas in September 2008, bringing Kola Sámi voices to the Arctic Marine Ship-

ping Assessment of the Arctic Council and continued cooperation and communications between Snowchange, Sámi Council and the Kola Sámi communities. On the top of the agenda is the threat posed by the large mining companies which plan to launch their drilling operations in the nearby future in Kola. Therefore these partners have worked together to start 'Study of Traditional Land Use and Occupancy' in the Kola Sámi and Komi communities over the next 4 years to map the situation on the ground. This project, funded by several state and non-state organizations, will last until 2011.

## Snowchange Work in Kaldoaivi



Snowy Owl Photo by Eero Murtomäki, Snowchange Cooperative. Used with permission.

Snowchange staff and members had been visiting in the Kaldoaivi region since 1996. The community interviews began in September 2001. Full visits to reindeer separation areas in Skallovarri as well as surrounding villages of Nuorgam, Polmak, Sirma and Utsjoki were conducted in March 2002. The community documentation continued at length in Summer 2003 when the Elder Aslak Uula Aikio was interviewed. The community interviews continued in September 2003 as well as April 2004. Kaldoaivi materials were included in the Arctic Climate Impact Assessment. Since that the community monitoring has been conducted in 2005, 2006, 2007 and in 2008 with field trips to Paistunturi reindeer areas and surrounding villages. The Snowchange work in Kaldoaivi region continues as a long-term monitoring effort.

## Snowchange Work In Jokkmokk



Traditional style 'Gammi' Shelter That is a Church Today in Staaloluokta, summer 2003. Photo by Niina Huovari, Snowchange Cooperative. Used with permission.

Snowchange worked in Jokkmokk region since 2003. In 2001-2002 the fieldwork topics and themes had been discussed with Stefan Mikaelsson who was the chairman of the Swedish section of the Sámi Council at the time. Mr. Mikaelsson participated as well actively in the Snowchange Conferences 2002 and 2003. First round of community interviews was conducted March-April 2003 by Eija Syrjämäki, a student of Environmental Engineering from Tampere Polytechnic, Finland. A full field season was spent with the reindeer herders and residents of the region from June to August 2003 by students Niina Huovari and Ari Hiltunen. Documented materials and photographs were returned to the Sámi representatives prior publication. The full article of the Jokkmokk weather and climate change knowledge was published in June 2004 in the Snowscapes, Dreamscapes book.

## Snowchange Work in Vuotso

The community interviews began in Vuotso in September 2001. In the Spring 2002 a student working with Snowchange Project Mika Nieminen spent several weeks in the Purnumukka reindeer village, conducting interviews and working



Reindeer are the basis of Sámi culture and a way of life. March 2003. Photo by Marko Kulmala, Snowchange Cooperative. Used with permission.

as a helping hand in the reindeer community. Representatives from the community, especially Pentti Nikodemus and Riitta Lehvonen took active part in the Snowchange Conferences in 2002, 2003 and 2005. Vuotso materials were included in the Arctic Climate Impact Assessment. Since that the community monitoring has been conducted in 2005 and since that regular communications are held with the community.

## Sámi Participation in the International Climate Policies

The local communities as well as Sámi individuals, families and organizations such as Sámi Council have worked successfully for the past 9 years with the Snowchange Cooperative to advance Sámi participation, knowledge and activities in the climate change field. The most significant result of this partnership has been the Arctic Climate Impact Assessment by the Arctic Council released in 2004. The ACIA report a breaking news during the Autumn 2004 in global news. The voices from Purnumukka, Murmansk and Kaldoaivi regions were heard in policy, civil society as well as media worlds. They helped the Arctic Council Foreign Ministers to decide on the Arctic Climate Policy Document in Reykjavik in November 2004. Snowchange has organized four major international Indigenous conferences around the world where the Sámi and other Arctic Indigenous and local communities have had a forum to address the changes taking place. As well these events have offered platforms of exchanges between NGOs, scientists and policy makers. The Snowchange Conferences have been organized in 2002 (Tampere, Finland), 2003 (Murmansk, Russia), 2005 (Anchorage, Alaska, USA), 2007 (Nerjungri and Iengra, Siberia, Russia). The next event, Snowchange 2008, will be in December 2008 with the Maori peoples of New Zealand.

The knowledges and voices of the Sámi via the Snowchange work have contributed as well to the Intergovernmental Panel on Climate Change under the United Nations. This IPCC process influences how the global community understands climate change. Most recently the Snowchange Cooperative has worked with Sámi Council to participate in the Indigenous Peoples Climate Change Assessment – this process is led by the Permanent Forum of the Indigenous Peoples at the United Nations. In eight years the Sámi voices and knowledges have alerted the world to the dramatic climate change taking place in the Arctic. Climate science has validated what the Sámi have said.



A dog and a motorcycle in the Krasnochelje wilderness village during community documentation, August 2006. Photo by Tero Mustonen, Snowchange Cooperative. Used with permission.

# 'If There Are No Reindeers We Have Nothing To Do Here either' – Community Voices from Lovozero and PIRAS Tribal community, Kola Peninsula, Russia

Poster by Kaisu Mustonen, Snowchange Cooperative

## Snowchange Work In Kola



Ancient Sámi symbols at the roof of the new Cultural Centre in Luujavre (Lovozero village). September 2003. Photo by Marko Kulmala, Snowchange Cooperative. Used with permission.

Snowchange work in Kola began with initial project meetings in January to September 2000. First visits to Kola Sámi communities were made in September 2001 and the partnership goals, aims and scope was introduced to Sámi Council as well as the Association of the Kola Sámi in Murmansk. These organizations approved the direction and activities of the new partnership. During 2001–2003 several field visits were organized by Snowchange and its academic partners, Murmansk State Technical University and Murmansk Humanities Institute to the Kola Sámi village of Lovozero as well as to the reindeer herding communities and newly established obschina Indigenous organizations. A large international Indigenous conference was held in Murmansk and Lovozero in February 2003 in which key results of the research and partnerships were released to the Kola Sámi community, researchers and to the media. Since 2003 the Kola Sámi interviews and documented oral histories were included in the Arctic Climate Impact Assessment – ACIA by the Arctic Council. Meanwhile Snowchange continued the community based monitoring and new field trips were held in May 2005. In 2006 a significant new round of community monitoring and interview process was conducted. Visits to the Seidozero and Lovozero subsistence areas were held, several interviews were conducted in Piras base camp, and an excursion was taken to the Eastern part of Kola Peninsula (Krasnochelje, Ponoj River camps and Chalme-Varre community) to document changes which had taken place there. In 2007 Snowchange Cooperative worked with Sámi Council to conduct a round of community-consultation meetings regarding rapidly proceeding resource exploitation plans by Barrick mining company and other actors. This fieldtrip consisted of stakeholder meetings with the SKHPK 'Tundra Cooperative' and SKHPK 'Olenivod Cooperative', several obchinas in Murmansk and Lovozero, AKS and OSMOO as well as individual members of the Kola Sámi families. In 2008 the cooperation has continued in the form of new community monitoring efforts in Seidozero and Lovozero areas in September 2008, bringing Kola Sámi voices to the Arctic Marine Shipping Assessment of the Arctic Council and continued cooperation and communications between Snowchange, Sámi Council and the Kola Sámi communities. These partners have worked together to start 'Study of Traditional Land Use and Occupancy' in the Kola Sámi and Komi communities over the next 4 years to map the situation on the ground. This project, funded by several state and non-state organizations, will last until 2011.

The purpose of the community interviews has been to promote local Indigenous voices and participation in the ecological work. All documentation of traditional knowledge and interviews has been carried out with the permission of the informants. The indigenous participants have the copyright and full ownership of the knowledge presented here. The documentation of change and the current interests, realities and comments

cannot be separated from the more broad development of the Russian territories and the Indigenous nations living in the Russian Federation. The people interviewed stated that there are many other concerns in addition to climate change, such as the state of the Russian society, lack of resources and other information. But a definite impact to the traditional lifestyle had been seen because of the climate change.



A view of the Lovozero downtown in October 2007 (Lovozero village). Photo by Rebecca Lawrence. Used with permission.

*"Especially reindeer herders have observed change. They talk about the changes in the behavior of reindeer. People have to travel with the reindeer and navigate differently. Bogs and marshes do not freeze immediately, rhythms change and we have to change our routes of movement and this means the whole system of living is under change. Everything has become more difficult. I have conversed with reindeer herders and they have told me of these kinds of observations. They have seen as well that in areas where it was possible to collect a lot of cloud berries before, now they berries are not ripe because of climatic warming and melting of glaciers. Changes are very visible."*  
**Larisa Pavlovna Avdejeva**,  
Director of the Sámi Culture Center,  
Lovozero, 2001

## 'Rain In the Middle of the Winter?' – Voices of the Reindeer Herders

### On Temperature, Snow, Ice and Rain

*"Oh, it is warmer. Before when going to the tundra we had to take a lot of warm clothes, otherwise we would freeze. But nowadays you can sleep with just one maalitsa, reindeer skin coat on during the whole night. It is all right with that one maalitsa. Previously we were using as well boots made out of reindeer skin. You never froze your feet in those. But now you do not need them any more."*  
**Vladimir Philippov**,  
Brigade № 2, Lovozero, 2002

*"I have been living on the tundra all of my life. When I was working there were no satellites, nothing of that sort. And now they have holes in space, and the climate changes! Last December we went fishing with my friend. I guess it was the 27th or 28th December. Suddenly it started to rain. We thought no matter, we would have a good shower. I do not know where the rain came. It was not like that in our times. We drove reindeer. We had no ATVs or skidoos, we used reindeers."*  
**Vasily Alekseevich Galkin**,  
Elder, Lovozero, 2002

*"Yes, it is very interesting. First it snows, and then it melts, like it would be summertime. And this all over again. First there is a big snowfall, then it warms up and then it*

*freezes. During winter now it can rain, as happened last New Year. Before it never rained during winter-time. Rain in the middle of winter? To the extent that snow disappears? Yes, it is true. Rain and snow melts!"*  
**Vladimir Philippov**,  
Brigade № 2, Lovozero, 2002



Sami Reindeer Camp of the Tribal Community " Piras" from Murmansk region. Photo Andrey Julin

*"Rivers do not freeze at all, they are only covered in snow. Ice arrives, but the surface of the water drops so that ice is like on top of empty space and then it is covered with snow. Of course the stream flows like it should. But the changes have taken place in the last six to seven years. Before we saw none of that. Well, for the past few years the weather has been different. No decent ice comes anymore. When the freeze-up occurs, they sometimes melt right away."*  
**Arkady Khodzinsky**,  
Brigade № 9, Lovozero, 2002

### On Birds, Insects and Fish

*"The birds are about the same as they have always been but their numbers are decreasing all the time. Yes, there are very little birds nowadays. It used to be that there were ptarmigans on top of every brush. Nowadays it is not lie that anymore and it feels bad. To give you an example, in earlier times I was sitting and watching the herd. I tapped my foot to the ground and a ptarmigan would fly to me. When I would say "Kop, kop" to it, it would come so close I could even hold it. Then I said again "Kop, kop" and it took off."*  
**Arkady Khodzinsky**,  
Brigade № 9, Lovozero, 2002

*"I cannot comprehend that there are no mosquitoes. I think for two years now there have been no mosquitoes. In recent times they have not troubled us at all. Here in Lovozero it will be soon like down south. Before there were insects and they would*

*sting you, but we no longer need mosquito hats even. The biting midges come in August usually. This year there has not been biting midges or mosquitoes at all. Of course this is bad. I think they have disappeared from the northland altogether."*  
**Arkady Khodzinsky**,  
Brigade № 9, Lovozero, 2002

*"Judging by the last year, there are almost no mosquitoes left in Lovozero. It can be real evidence that the climate is changing. Even some species of southern bugs and spiders appeared in tundra."*  
**Vladimir Galkin**,  
Piras Obschina, 2003

*"Strangely enough the fish have diminished in size. There is hardly any fish left! There is whitefish. Here in lake Popovo for four years we could not catch any perch, but now we can get it again. There was a time that for four years you could not catch a single one."*  
**Vladimir Philippov**,  
Brigade № 2, Lovozero, 2002

## "They cannot foresee accurately and with precision" – Changes in the cycle of the Yearly Calendar

*"When we ask the Elders and reindeer herders for example what kind of summer it will be, how much berries to expect or what kind of fish and how much to expect they answer us that they cannot predict anything because our Sámi calendar of yearly cycle has collapsed completely because of the changes that have taken place in the nature. They cannot foresee accurately and with precision. Before we would ask the reindeer herders and the answers would be right to the mark but now the predicted times keep on moving and changing."*  
**Larisa Pavlovna Avdejeva**,  
Director of the Sámi Culture Center,  
Lovozero, 2001

### In The End

*"Our income diminishes because of climate change. Of course, and in a very drastic way. Even my wife has said that it would be a time to forget the reindeers. But I tell her always: 'Tamara, we depend on these reindeers. If there are no reindeers, we have nothing to do here either'."*  
**Vladimir Philippov**,  
Brigade № 2, Lovozero, 2002

Children the new Cultural Centre in Luujavre (Lovozero village). May 2005. Photo by Tero Mustonen, Snowchange Cooperative. Used with permission.



# “The Traditional Markers Don’t Hold True Anymore” - Community Voices from the Kaldoaivi Reindeer Herding Region, Finland

Poster by Kaisu Mustonen, Snowchange Cooperative

## ‘Snowchange Work in Kaldoaivi’

Snowchange staff and members had been visiting in the Kaldoaivi region since 1996. The community interviews began in September 2001. Full visits to reindeer separation areas in Skallovarri as well as surrounding villages of Nuorgam, Polmak, Sirma and Utsjoki were conducted in March 2002. The community documentation continued at length in Summer 2003 when the Elder Aslak Uula Aikio was interviewed. The community interviews continued in September 2003 as well as April 2004. Kaldoaivi materials were included in the Arctic Climate Impact Assessment. Since that the community monitoring has been conducted in 2005, 2006, 2007 and in 2008 with field trips to Paistunturi reindeer areas and surrounding villages. The Snowchange work in Kaldoaivi region continues as a long-term monitoring effort.

## Kaldoaivi Sámi Voices - Observations of Weather and Snow Conditions



Lake Polmak, April 2006. Photo by Tero Mustonen, Snowchange Cooperative. Used with permission.

On his reindeer farm in Lake Pulmanki reindeer herder **Taisto Länsman** talked about the changes he has witnessed in the weather. *“As I remember, the winters used to be more stabile. Nowadays the fall-winter is such that there is much rain and temperatures above zero. The ground freezes. Before it was so that when the winter came, it stayed. It was seldom that we had such sleet and high temperatures. As part of the ground freezes and with the little lichen there is, it is hard [for the reindeer] to find food. There are only some good spots and they get used up during the winter. The winters have changed for sure. I think the change began somewhere in the turn of 1970’s.”*

**Hans Kitti** from the village of Karigasniemi has seen changes in weather when compared to the past. *“In my youth winter used to set in early and there were long cold spells that lasted for months. Winters were hard then. Although then we were living outdoors and now in well-heated houses, it can be we experience cold differently now. We used to live in lavvus [a Sami shelter] in the forest as well; the cold was very much present then. The weather didn’t fluctuate as much in the past as it does nowadays. It must be a consequence from polluting this atmosphere. There is pollution in the air, there are chemicals lead to waters -I’m sure that can affect the climate and its change a lot. Today it is rare to have those good old summers! Now if it rains, it is pouring down and for days on end, flooding small creeks and rivers. When I used to live by the River Teno, it was two to three times it filled up in the best summers, it was big flooding. It never used happen like that in the past. Now the ground and soil is very thin and there are long dry periods; the ground can’t suck in the rainwater. First rains more or less fly to creeks and through them to rivers; that is why*

*the water level rises so abruptly. The soil is so tight.”*

Late reindeer herder **Ilmari Vuolab** also recalled winters he has lived. *“The winter time is shorter now, it has been visible for some ten years now. In the 1970’s and 80’s there were very cold spells. I remember it used to be -35 on the Celsius even up here on the fell in Skallovaara when we had round ups. And the cold spells were definitely longer then. Now if there is frost, it is a day or two and it gets milder again.”*

**Jouni Tapiola** believes the climate is changing. *“Sure it has changed, you can tell it from the white frost or rime. In the olden times we never had this sort of white frost. Yesterday those birches out were all clean but then it was little cold temperature during nighttime and they [birch trees] are white frosted. It must be some sort of odd moisture in the air.”*



Late Sámi Elder Aslak Uula Aikio with a friend and wolverine cubs in 1950s. Mr. Aikio was much-respected for his knowledge of the land and animals. Photo by family Aikio, Snowchange Cooperative. Used with permission.

**Niillas Vuolab** stated that the winters used to be much colder in the olden times. *“We used to have periods of even -45 to -50 below zero and weeks of -30 to -40 below. But we managed somehow even then! We had to herd the reindeer constantly; we used the lavvu before and after the wartime. We didn’t have real protective clothes or sleeping bags or such. First we put twigs on the bottom [of lavvu] and then a rein-*

*deer pelt on top. There was fire in the stove. At bedtime we pulled on a thick-haired pelt as a cover and another one to cover the feet.”*

According to **Ilmari Tapiola** from the Paistunturi reindeer herding area snow is setting in constantly later. *“It used to snow in October - November but now it is hardly any snow at the end of December. We can barely move with our skidoos. It has delayed our herding somewhat. With no or little snow we cannot round them up. This has been happening for the past ten years. We also used to have longer cold spells and it was colder in the winter. Now the springtime has grown longer. Snow melts later in spring and that causes another kind of harm to reindeer herding. There are no snow-free areas when the reindeer have their calves in the spring. They don’t have much food when they really need it as they start feeding the calves as well.”*

## Observations of Birds and Insects

**Hans Kitti** is frightened to notice the change in the volume of birds. *“Bird singing has disappeared. In the spring if you go the mires, it is nothing compared to the old days. There used to be all kinds of birds... it is so empty nowadays. And I don’t understand the protective measures applied on species that eat all beneficial game. And beneficial are the fell area species like rabbit and ptarmigan. Now there are only ravens croaking.”*

**Niillas Vuolab** recalls the nature having lost a lot. *“It is poorer now. Summer time migratory birds are so few these days. We can find almost all species, but the numbers are not like in the past. We used to have flocks of sea birds and ducks but not any more. And it is not that long ago, still after the war the spring migration was great. I don’t know why this is so but I think they might be wiped out excessively where they spend the winters, in the south. Maybe that prevents them from returning here. Ptarmigans are less these days too, but we still have them.”*

Ptarmigan hunter **Heikki Länsman** predicts that [If climate would warm and the snow melt] *“that would mean an end to ptarmigan trapping. It is an*

*old traditional way of hunting for the Sami so it would have an effect on the culture. Trapping cannot be done during unfrozen ground. Those hunting with good dogs are the only ones able to hunt when there is no snow.”*

**Ilmari Vuolab** talks about the changes in the amount of insects: *“Gadflies and all insects have diminished a lot. I remember stories how there used to gather clouds of insects on people’s yards. You could tell who had cattle, cows and sheep, by the amount of insects buzzing around the yard. But I think all insects are less today.”*

**Hans Kitti** has noticed a difference in the amount of wasps: *“I miss wasps. In summers I go to places where there used to be wasps, but there are none anymore. I was afraid of wasp stings before but now I’m lucky if I can find one of them. I think butterflies have gone too. We used to have so many different kinds of butterflies, now they are very few.”*



Kaldosriver. Photo by Eero Murtoämäki, Snowchange Cooperative. Used with permission.

**Ilmari Vuolab** thinks the ecosystem has changed: *“The traditional markers in nature don’t hold true anymore. It is a very good question as what has contributed to the change. It cannot all be because of cyclic weather patterns in different years. I believe the changes we have seen are long-term phenomena. The wise people say that there will be changes for the next 100 years even if we acted now to reduce emissions. I feel the Sami have always been quite adaptive people and we adapt to the changes as well. After all, climate changes in small steps; not in a year.”*

**Hans Kitti** voiced a need for change in order to redirect the poor state of the earth. *“It is depending greatly on the world situation. Instead of lots of talking, the whole attitude in the world should change, totally. We can see the results of poisoning the nature in countries where forests have perished. I see that the forest is the lung that breathes and balances this interaction between the atmosphere and the earth. People don’t understand [what they are ruining]. It would be much richer to live in a nature that has not been burdened and exploited.”*



# “Nowadays No Two Days Are Alike” - Community Voices from Purnumukka, Vuotso, Finland

Poster by Kaisu Mustonen, Snowchange Cooperative

## ‘Snowchange Work in Vuotso’

The community interviews began in Vuotso in September 2001. In the Spring 2002 a student working with Snowchange Project Mika Nieminen spent several weeks in the Purnumukka reindeer village, conducting interviews and working as a helping hand in the reindeer community. Representatives from the community, especially Pentti Nikodemus and Riitta Lehtonen took active part in the Snowchange Conferences in 2002, 2003 and 2005. Vuotso materials were included in the Arctic Climate Impact Assessment. Since that the community monitoring has been conducted in 2005 and since that regular communications are held with the community.

## Vuotso Sámi Voices

### “It used to be so hot in the Summer-time I could not Sleep at Night” – Observations on Seasonal Weather

The oldest reindeer herder in the community of Purnumukka is **Niila Nikodemus**. He reflected on the local weather by saying “during summers it used to be warmer for longer. Now it is about three days and everything changes during summertime. Changes used not to be so rapid in the past. It used to be so warm in the summertime that when I could not sleep at night I would go sleeping on the concrete floor of the sauna at my cabin! But this was decades ago. Things have slowly changed here. They are putting some kind of ‘buzzers’ to the air. Nowadays no two days are alike.”



Sámi Reindeer Herder Pentti Nikodemus with an Elder. Early 2000s. Photo by Riitta Lehtonen. Used with permission.

**Veikko Magga** is a reindeer herder for over 50 years and has observed change in the seasonal weather: “It has been about twenty years that the changes have been visible. We ran out of horsehair lichen and everything from trees then and even areas where reindeer did not go lost their lichen cover. Summers used to be much hotter before. In the forest we could sleep outside without any cover. This has changed.”

**Heikki Hirvasvuopio**, a retired reindeer herder, talked a lot about the seasonal changes, mostly of summer and fall. “The summers used to be like standard. It was dry weather and these lasted quite long in the early summer. We had then the marking of calves in the beginning of summer and we had all the reindeer up on those big fells because especially the start of summer was so hot. It was the hot weather that drove the reindeer on the fells, and insects too of course. Now the summers have changed, it is very unstable nowadays. The reindeer cope here in the woods now. They don’t move up on the fells anymore like they used to do. The fall has gotten longer now.”



Ravens. Photo by Eero Murtomäki. Used with permission.

### “The Reindeer will Ruin the Lichen, Trying to Dig it Out” - Impacts of the Changing Weather

**Niila Nikodemus** remembered how the ground used to freeze. “Before there was good portion of a meter of rain in the fall and then it would be frost and the ground would freeze. The frost was really good; it dried the lichen before it snowed on top of everything. With snow on the lichen it preserved well there. Nowadays there is no proper ground freezing. The snow can melt on the ground. Now it rains and still when it is wet, there’s frost and everything freezes and that is bad for the reindeer. It can’t get to it. And the reindeer will ruin the lichen, trying to dig it out. It [the lichen] is stuck in the ice, and it will come all up. When the lichen is frozen it will detach with the ice. I have seen this when the melt takes place in the spring. There have been massive amounts of lichen clawed

out. The lichen is loose; not in the ground and it will no longer grow but dry out.”

### “Nowadays it is Silent in the Forest” - Observations on Birds and Insects

**Niila Nikodemus**, an Elder, voiced his observations: “There used to be more birds, such as capercaillies, ptarmigan and others. We didn’t need to go far to hunt them. We trapped ptarmigans here on the riverbank. They used to come sit on the field and on the nearby birch trees.”

**Heikki Hirvasvuopio** talked about the disappearance of birds in Kakslautanen. “Especially the ground birds, we could be talking about extermination almost when compared to the past amounts. I used to hunt quite much alongside reindeer herding back in those days so I have a good idea of the stocks. We cannot even talk about the same amounts during the

same day. This is true especially with ptarmigans, capercaillie and ground birds. With small singing birds the same trend is noticeable. Nowadays it is silent in the forest - they do not sing in the same way anymore. It used to be that your ears would get blocked, as the singing was so powerful before. They [singing birds] have disappeared completely as well.”

According to Heikki both mosquitoes and gadflies have disappeared to a certain extent: “Especially this is true with gadflies, nowadays they are very few. Back then when the vermin were aplenty, that was what made the reindeer move up on those big fells.”

### “In the Olden Times One Could See Beforehand What Sort of Weather it Would Be” – Changes in the Traditional Calendar

**Veikko Magga** shared his observations: “I would not advocate that the traditional Sámi calendar would be mixed up yet. But traditional weather reading skills cannot be trusted anymore. In the olden times one could see beforehand what sort of weather it would be. These signs and skills hold true no more. Old markers don’t hold true anymore; the world has changed too much now. We can say the nature is mixed up now.”

**Niila Nikodemus** reflected on the traditional weather reading skills in the following way. “Winters used to be windier. Blizzards always followed cold spells in the past. Old markers do not hold anymore! Climate can change so suddenly now; there is no stability. It used to be good weather for a longer period but now the changes occur already after a day or two. Marked, special days vary too much now, they don’t hold steady anymore. However, the Sámi calendar has remained true. It is always dependent on the year, they are not the same.”

**Heikki Hirvasvuopio** stated “Today we can have almost 30 degrees of variation in temperatures in a very small time frame. In the olden days the Sámi would have considered this almost like an apocalypse if similar drastic changes had taken place so rapidly. Before I spent all of my winters in the forest and was at home for maximum of one week. Nowadays the traditional weather forecasting cannot be done anymore as I could before. Too many significant and big changes have taken place. Certainly some predictions can be read from the way reindeer behaves and this is still a way to look ahead in weather-wise. But for the markers in the sky we look now at vain. Long term predictions can not be made anymore.”



Home of the reindeer herders in Purnumukka village. May 2005 Photo by Tero Mustonen, Snowchange Cooperative. Used with permission.

Brilliant autumn. Photo by Eero Murtomäki. Used with permission.



Reindeer. Photo by Eero Murtomäki. Used with permission.



Spring breakup in Sámi taiga. May 2005 Photo by Tero Mustonen, Snowchange Cooperative. Used with permission.



# 'In My Childhood When We Would Watch The Northern Lights Start To Move This Meant That You Had To Stay Inside And You Couldn't Shout Or Run'

## – Community Voices of Jokkmokk Region of Sápmi, Sweden

Poster by Kaisu Mustonen, Snowchange Cooperative

### 'Snowchange Work in Jokkmokk'

Snowchange worked in Jokkmokk region since 2003. In 2001-2002 the fieldwork topics and themes had been discussed with Stefan Mikaelsson who was the chairman of the Swedish section of the Sámi Council at the time. Mr. Mikaelsson participated as well actively in the Snowchange Conferences 2002 and 2003. First round of community interviews was conducted March-April 2003 by Eija Syrjämäki, a student of Environmental Engineering from Tampere Polytechnic, Finland. A full field season was spent with the reindeer herders and residents of the region from June to August 2003 by students Niina Huovari and Ari Hiltunen. Documented materials and photographs were returned to the Sámi representatives prior publication. The full article of the Jokkmokk weather and climate change knowledge was published in June 2004 in the Snowscapes, Dreamscapes book.

### Jokkmokk Sámi Voices

**Stefan Mikaelsson** is as well a reindeer herder by trade and he lives west of Harads – a small town by the River Luleälv. He belongs to the Udtja saame village (sameby), which is considered a Sámi village of the 'forest Sámi' because its pasturelands lie in the forest area situated below a high mountain range.



Vice President of the Sámi Council Stefan Mikaelsson. Photo by Tero Mustonen, Snowchange Cooperative. Used with permission.

Mikaelsson's concerns arise over the well being of reindeer husbandry – or rather the lack thereof. In his opinion, the forest industry and air pollution are to blame for the poor condition of the forests, thus leading to the harder circumstances for the reindeer husbandry: *"Old forests are diminishing and the average age of trees has fallen from 120 to 90 years due to the new forest law that allows companies and private forest owners to clear-cut forests that are not fully grown. I have enjoyed being in the forest for many, many years since I started to follow my father when he went to see his herd, but now I have noticed changes. The trees are not as green as they used to be – the colors are different – and it feels to me like they are saying that they don't feel so well."*



Elli-Karin Pavval and Niina Huovari in the middle of the community documentation in Tårrajaure June 2003. Photo by Niina Huovari, Snowchange Cooperative. Used with permission.

**Gun Aira**, a Jokkmokk native, a reindeer herder who during winter works as a teacher in a Sámi elementary school, has noticed the changes in the nature especially in the autumn and wintertime. She states that one of the biggest concerns for reindeer herders living in the area are the regulated rivers since the ice have become unstable: *"It's hard to even think about moving with the reindeer along the river. Sometimes it is possible if you move earlier in the spring but then you must be very observant."* But even the unregulated rivers can be dangerous. *"If there is not much snow the ice is stronger. Last year there was*



Janyary. -40°C. Photo by Eero Murtomäki. Used with permission.

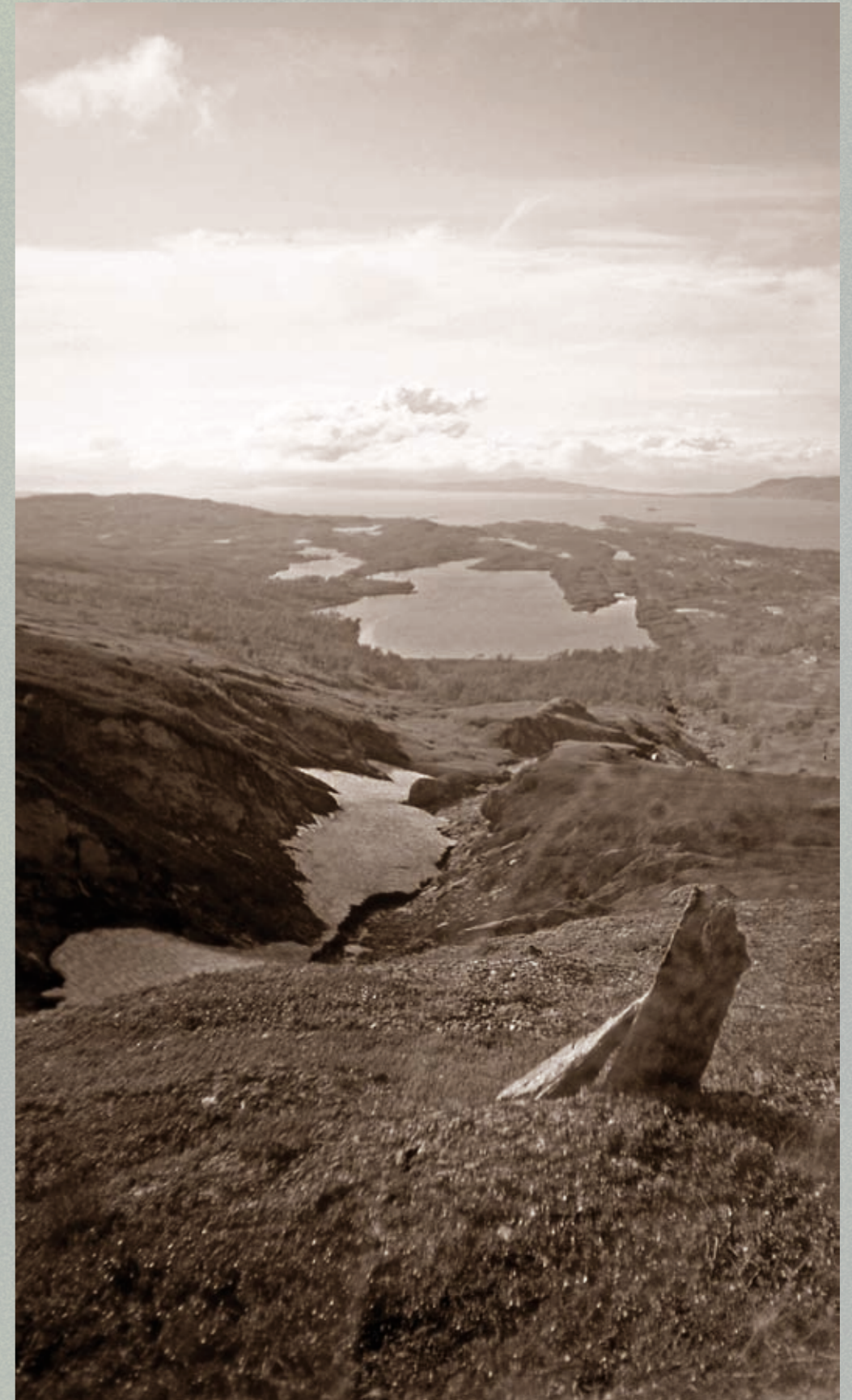


Free river. Photo by Eero Murtomäki. Used with permission.

*much snow so the ice wasn't thick. It changes from year to year."*

**Lars Anders Baer** belongs to the northern Arjeplog saame village (sameby). He is the chairman of the Swedish Sámi Parliament (Sámediggi) and a reindeer herder. He was born in 1952 and has witnessed many changes in the environment during his lifetime. Many of these changes have made reindeer herding unstable especially in the wintertime: *"Snow is wetter than before and arrives later. Temperatures in the autumn have varied from cold to warm making the snow-covered pastures more unreliable for reindeer herding. But of*

*course it depends quite a lot on the first snow. If the ground is warm when the snow comes, the resulting ice on the ground makes it difficult for the reindeer to feed themselves. In my lifetime there has been less wind from the west in the mountains. From the reindeer herder's point of view that was a good wind. Reindeer always headed towards the wind so more mountain areas were utilized. But now there have been more winds from the east and the reindeer can end up in the forest. When I was a child, summers used to be very windy but nowadays we rarely get strong winds from the west."*



Virihauve Lake in Jokkmokk Region, summer 2003. Photo by Niina Huovari, Snowchange Cooperative. Used with permission

*case, I think that when I started out as a reindeer herder there were more frequent and longer cold spells than what we have now. And with cold spells I mean temperatures lower than -30°C – temperatures between -30°C and -40°C. That was a lot more common thirty years ago. And if you look back ten or fifteen years, it seems that the ice has become a bit weaker."*

**Per Ola Utsi** talks about the knowledge reindeer herders hold: *"We cannot put it into words, but we know how the weather works. We know when it pays off to gather the reindeer (for separation or calf-marking) and we know when it's suitable not to. Without that knowledge there can't be any reindeer herding or culture. That's how it is. We are very skilful in binding our knowledge of nature and the weather together, because without it we are nothing."*

Concluding remarks come from **Isak Påve**: *"Knowledge exists, we live it. But I do not think about that ever. It is just there. We follow the old ways still. Naturally. This is our way."*

A Controversial Hydro-Dam Displaying Sami Symbols Drawn by Lars Pirak, summer 2003. Photo by Niina Huovari, Snowchange Cooperative. Used with permission

