Northern Modes of Foraging and Domestication as an Interaction among Humans, Animals, and Geography

February, 21-22, 2019

Organizers:
Hiroki Takakura (Center for Northeast Asian Studies, Tohoku University)
Florian Stammler (Arctic Centre, University of Lapland)

Program

Thursday, February 21, 2019

Plenary Session: TOKYO ELECTRON House of Creativity 3F

10:30–10:40 Welcome address: Hiroki Takakura (Tohoku University), Tatsuki Tsujimori (Tohoku University) and Florian Stammler (University of Lapland)

10:40–11:20 Keynote speech: Shigenori Maruyama (Tokyo Institute of Technology)
"Global Climate Change in the Past and Near Future: A Geological Perspective"

11:20–12:00 Keynote speech: Hugh Beach (Uppsala University)
"Sustaining Arctic Livelihoods and Sustaining Anthropology in the Anthropocene"

12:00–13:30 Lunch Break

Afternoon Session: 2F Seminar Room, AIMR Main Building

Session1 Chair: Florian Stammler (University of Lapland)

13:30–14:00 Hiroki Takakura (Tohoku University)
"Revisiting the North as a Triggered Space for Innovations in Human Cultural History"

14:00–14:30 Hirofumi Kato (Hokkaido University)
"Mobile Technology and Space Perception: Archaeological Interpretation"

14:30–15:00 David Anderson (University of Aberdeen)
"On Hunting and Holding Reindeer: A Knowledge Ecology of Human/Animals in Eurasia"

15:00–15:30 Shiaki Kondo (Hokkaido University)
"Gotta Go and Live!: (Im)mobility and Foraging Ways of Life in Interior Alaska"

15:30–16:00 Break

Session2 Chair: Hiroki Takakura (Tohoku University)

16:00–16:30 Shiro Sasaki (National Museum of Ainu Culture)
"Cultural Adaptation in Far East Russia: From the Case of the Indigenous People in the Amur Land"

16:30–17:00 Florian Stammler (University of Lapland)
"How do People Help Animals Adapt to the Arctic, and Why Should They?"

17:00–17:30 Yuka Oishi (National Museum of Ethnology)
"Domestication in Fishing-Reindeer Husbandry Complex of Western Siberian Forest from the Point of View of Environmental History"

18:00–20:00 Banquet

Friday, February 22, 2019: 2F Seminar Room, AIMR Main Building

Session3 Chair: David Anderson (University of Aberdeen)

10:00–10:30 Junko Habu (University of California, Berkeley)
"Hunter-Gatherer Mobility, Food Diversity, and Landscape Practice: Archaeological and Ethnographic Examples from Northern Japan"

10:30–11:00 Charles Stepanoff (École Pratique des Hautes Études, Laboratoire d'Anthropologie Sociale)
"What Northern Husbandry Teaches us about the Meaning of Domestication?"

11:00–11:30 Aytalina Ivanova (North-Eastern Federal University)
"Domestication institutionalised: Legal Measures to Help Animals Develop and Keep Their "Arctic" Character, and to What Extent They Make Sense"

11:30–12:00 Juha Kantanen (Natural Resources Institute Finland)
"Domestication and Adaptation of Domesticated Animal Species to Northern Environment"

12:00–13:30 Lunch break

Session4 Chair: Florian Stammler (University of Lapland)

13:30–15:00 General discussion

15:00–15:30 Technical discussion

Global Climate Change in the Past and Near Future: A Geological Perspective

Shigenori Maruyama

Tokyo Institute of Technology

IPCC (4th) had predicted global temperature would increase drastically up to 2-6K in the coming century. However, such an increase has not been observed during 2000 - 2018. Another prediction (IPCC 5th) was published in 2013, which modified the previous prediction by a much slower curve starting at 2015 and sharper increase after 2050.

The prediction through the super-computer depends on the past climate change model during the past 1000 years and evaluated the increase in atmospheric CO2. Our group has examined the radiative forcing by the level of atmospheric CO2 from zero to 800ppm by the simple model, and the result showed it increased the temperature up to only 0.6K even in the case of 800ppm.

Also, I predicted the climate change of the 21st century based on the relationship among galactic cosmic rays (GCRs) ($\Delta^{14}C$), sunspot number, and global temperature ($\delta^{14}C$ and sea-level change) during past 2,000 years. The result indicated the temperature would decrease gradually since 2000.

Application of the super-computer simulation to the Neoproterozoic Snowball Earth (total solar irradiation (TSI) was 94% of present-day; atmospheric CO2 was 20-50 times) and Paleoproterozoic Snowball Earth (TSI was 85%, and the level of CO2 was 100-1000 times) has been done by USA, France, and Germany, however, all failed to reconstruct the Snowball state. One possible scenario to reproduce Snowball Earth is to include GCRs-induced cloud in the super-computer simulation which was ca. 10 times more than the present-day Earth. Strong positive feedback of XCO2 through the simulation, possibly reaching to ten times than sole radiative forcing, might be overestimated.

Sustaining Arctic Livelihoods and Sustaining Anthropology in the Anthropocene

Hugh Beach

Uppsala University

For this address, I wish to broaden our definition of "domestication" to refer to the subordination of any object, ethnicity or species to the epistemological and legal purposes of another. I propose that our deep-rooted intuitive justification for the confirmation of rights for indigenous peoples does not derive merely from the fact that they were supposed "here first." It has been questioned and shown in numerous cases that their "firstness" is disproven or that the ethnic identity of the group in question loses validity in the pre-historic context. It is also the reason why there are conflicting concepts used for defining "indigeneity," and not always only firstness which holds prominence. In Russia, for example, there are criteria of living in specified areas and of practicing a traditional lifestyle. I argue that foundational to all such criteria is the notion that undomesticated or least-domesticated peoples should nonetheless be in possession of certain rights. In the Swedish case of the Saami, these rights are confirmed, not constructed, by the governing powers. This distinction of confirmation vs. construction of rights bares the basic vulnerability of the indigenous, for the rights recognized, be they confirmed or constructed, necessarily become de facto forms of domestication. The indigenous become dependent on the governing majority for their special "privileges" and face imposed legal contests about who is to be considered indigenous with access to these privileges.

The situation bears a strong resemblance to the Swedish wolf debate. When the wolf was wild, it was also shot to protect livestock. When environmental consciousness gained force, and the wolf became a protected species, this imposed a shield of domestication on the species. Its ravages amongst livestock is no longer a natural, but instead a legislated disaster. As I have argued, one can now speak of "wolf herding." Wolf categorizations have also been gerrymandered to justify being termed endangered. Similarly, I have argued that the creation of National Parks, World Heritage Sites and the like are modes of domestication of landscapes. In effect, Armstrong's first step for Mankind on the moon was also the first step toward human domestication of the moon. In time, should our species have the time and technology, I do not doubt that we will be putting the moon to some human use.

The vulnerability I spoke of earlier follows naturally when the deep-rooted moral protective shield for "the wild" be it a species, a landscape, or a people come to clash with their

perceived domestication. The wolf becomes in effect a zoo animal, the wilderness a managed Park, the indigenous "wild" nothing different from anyone else. As indigenous Saami reindeer herders are seen to herd by helicopter, snowmobiles and GPS senders on their animals, the majority population (especially those living for generations in the North) question the justification of their special rights. This is a prime reason many local people express their failing support of indigenous rights; the indigenous have simply become "too well-off." They gain support to the extent they are perceived as impoverished and needy, not when business tycoons running gambling casinos.

One obvious result of the realization of the Anthropocene era is that science projects can hardly obtain funding today if not linked somehow or other to studies dedicated to the challenges of RCC. Most applications tailor themselves regularly to this reality of project funding success. Here, I wish to draw attention to what I consider an even more sinister result of Anthropocene recognition.

Now that RCC has become the paramount focus of science across both natural and social disciplines, human survival trumps that of individual ethnicities; indigenous resources and "privilege" (as opposed to rights) become increasingly subjected to the drive to maximize efficiency for the common good, hence to become more domesticated. These sentiments are not without justification. We must all share the burden of environmental stress if we are to sustain our planet and humanity.

However, selfish intentions often purposely camouflage themselves as ecologically noble, and even good intentions are perverted by biases resulting in forms of what I have come to term "ecolonialism" or "eco-colonialism." What results is a spiraling runaway loop whereby increased environmental fears promote increased indigenous "domestication," leading to increased public sentiment that indigenous peoples, now increasingly like the ambient majority, do not deserve any special privileges and thereby further domestication, and so forth.

The main determinant of the impact of climate change is how we think about it. In this address, I wish to explore 1) the human bias in our science, 2) our species bias, 3) our eco-colonial bias and 4) our epistemological bias when attempting to forge sustainability. Can we find a pattern in our flawed thinking?

Revisiting the North as a Triggered Space for Innovations in Human Cultural History

Hiroki Takakura

Tohoku University

I wish to describe the rationale of this workshop and share the research concerns of the participants in this session. I have attempted to recast human adaptabilities in the North as an interaction among people, animals, and the climate. The starting point of this attempt is by considering the North as a triggered space for innovation in human history. The micro-blade technology developed before the Last Glacial Maximum gave human populations, which first evolved in tropical Africa, a high degree of mobility, allowing their migration up to Siberia and the Arctic, and enhanced their capacities in diversified game hunting. The Japanese Ethnologist Obayashi Taryo by referring to German ethnological studies of the 19th century argued in the 1960s that the critical feature of Northern adaptation is the formation of two unique cultural types - the inland mobile and the coastal sedentary. This perspective was sophisticatedly theorized by Russian (Soviet) and American anthropologist Igor Krupnik in his book on Arctic Adaptation. Past archaeological and anthropological studies have uncovered the real conditions of "coastal sedentary adaptation" and its significance in anthro-cultural history, which are similar to fishing based sedentary hunter-gatherer societies with social stratification in the North Pacific Rim, including the Jomon culture of Japan. These conditions make a provocative case against the generally accepted idea that inequality was the origin of agriculture. The interaction of people, animals (fish), the land, and the climate forms unique cultural plasticity. By contrast, theoretical challenges to the issue of inland mobile adaptation have originated just recently with the accumulation of ethnographic research of Siberian reindeer nomadism after the collapse of the Soviet Union. Although many previous scholars on human adaptabilities have regarded reindeer herding as an insufficient type of animal domestication compared to the steppe pastoralism that originated in the Near East, certain Siberian anthropologists have redefined domestication itself in terms of reindeer. The current animal genetic research seems to support these challenging ideas. Reviewing these trends, I would like to pose an alternative history of inland mobile adaptation and reconsider the meaning of the North in human history.

Mobile Technology and Space Perception: Archaeological Interpretations

Hirofumi KATO

Hokkaido University

Archaeological evidence of human occupation in Arctic Siberia dates to 40,000 years BP. Based on recent results of molecular genetic studies, it has been pointed out that complex patterns and admixture and replacement events throughout Arctic Siberia, with evidence for at least three human migrations into this region. It is presumed that the population history in Siberia is not simple, but a more complex.

On the other hand, the archaeological data of the Arctic Siberia proves that the human group has produced a technical invention that enables high mobility and environmental adaptation, after entering the Arctic Siberia. In previous studies, it has already pointed out new technological innovation such as microblade reduction technique, mobile tent, outerwear for cold weather, bone-antler tool, and intensive communal hunting etc. The blade technology is the most widely known mobile innovation, but its origins are still poorly understood, and even controversial issues. Characteristics of microblade technology are economical (can be produced in large quantities with few raw materials), the simplicity of the manufacturing process, high portability. Most importantly, this tool is the part of cpmposit tool usued in combination with the bone shaft. An idea that creates interchangeable tools by skillfully combining different materials of different hardness and flexibility, is clearly shown the nature of human innovation produced in the process of adaptation to Arctic Siberia, in other words, adaptation to the environment with large-scale seasonal environmental changes and widely and dispersed distribution of natural resources. Also, we can see a similar aspect in prehistoric artworks from archaeological sites.

In this report, I would like to exame interrelation between each of techno-cultural elemets related with human mobility of prehistoric polulation in Arctic Siberia and its fuction and role for process of human adaption to Arctic Siberia in human history. Besides, I would like to consider how human mobility gave influence to the spatial perception of a human.

On Hunting and Holding Reindeer: A Knowledge Ecology of Human/Animals Relationships in Eurasia

David Anderson

University of Aberdeen

This paper uses the tools of the history of science to examine the various ways that domestic animals have been understood in Eurasia. The paper queries definitions of domestication based on domination and commensialism, and argues that share knowledge – and awareness of sentience – is a useful approach to understanding what is often seen as a domestic relationship. The question will start by querying why certain enduring relationships – for example between people and migratory "free range" caribou – are not marked as domestic but described of as being wild. Pulling on ethnography from both the Canadian and Siberian Arctic, the paper will explore how anticipation, respect, and "herd-following" can be used to explain relationships of mutual respect can be understood to explain these cases. The paper will move on to explore why situations of tethering or enclosure are understood as relationships of domination – and argue that mutuality and openness can also be identified in these cases. The paper will be illustrated with both archaeological and ethnographic cases from across Eurasia.

Gotta Go and Live!:
(Im)mobility and Foraging Ways of Life in Interior Alaska

Shiaki Kondo

Hokkaido University

In this presentation, I explore Alaskan Athabascans' interactions with animals and geography in connection with their attitude on human and non-human mobility. In so doing, I focus on their interaction with (stranded) migratory birds and salmon, based on ethnographic data I collected during my 14-months fieldwork in Nikolai, Alaska (2012-2016). Prior studies have revealed that mobility is a crucial part of the ways of living for Northern Athabascans, while there are still continuing anthropological and archaeological debates on how availbility of salmon affected Athabascan people's mobility in the Pacific Drainage area. I argue that preference for mobility characterizes not only people's relationship with each other and human outsiders, but also forms a basis for human-animal interactions. For example, they take pity on what they call "leftover" birds, or mobility-impaired individuals of migrating birds. They catch them with a basket trap, keep them during the winter, and let them go when the spring comes. Keeping them during the spring and summer time is prohibited. This means that people are willing to share the *domus* and food with their non-human neighbors in need of help, but they are reluctant to extend this practice to a total control of reproduction. People are also very keen to notice salmon and whitefish which cannot continue their migration due to increasing number of beaver dams and low level of water. In such cases, Athabascan fisher-hunters partly break the beaver dams to make a opening for the fish to escape. In order to adapt to changing environmental situations, they intervene the landscape so that non-human mobility is ensured. Boreal forests host numerous creatures which come and go. Humans must also be open to movement in order to survive such environment. Being mindful about human and non-human self-autonomy and mobility is a good adaptation strategy in a ever-changing environment which made possible by constant movement of many beings.

Cultural Adaptation in Far East Russia: From the Case of the Indigenous People in the Amur Land

Shiro Sasaki

Preparatory Office for National Ainu Museum
Tokyo National Museum

In this brief paper, I will clarify how the indigenous people of the southern part of the Russian Far East (present Primor'e, Khabarovsk, and Sakhalin regions) adapted to and reacted against the change of the political, economic and social environment to survive the severe regional history. During recent 150 years since the mid-nineteenth century, they have been ruled by four kinds of governing system, i.e., pre-modern feudalistic East Asian empire (the Qing Dynasty), modern imperialistic European empire (Russian Empire), modern socialistic state (the Soviet Union), and contemporary capitalistic and globalized state (Russian Federation). Each political system gave them different status and rights, while, in their side, they organized specialized societies and formed original culture not to contradict against the system in each epoch. The societies and culture much described during the regimes of the Soviet Union (1917-91) and the present Russian Federation (1992-) were results of the adaptation and reaction to the changes up to the time of the description.

I will analyze the historical documents and results of my own field research to clarify the changing process of their social and cultural reactions against the transitions from macro and micro perspectives. First, I will overview the transition and changing process in the macro perspective. Secondly, I will focus on the changes of the land use of the indigenous inhabitants of the specific villages on the Amur River basin, analyzing satellite pictures taken in the 1970s and the 2010s and my observation.

This analysis will reveal that the indigenous people in this region have never been free from the political power of the surrounding countries, that they have consistently lived in the international and globalized political, economic, and social environment, and that, at the same time, their society and culture reflected the modernization process of Russia, China and Japan since the mid-nineteenth century.

How do People Help Animals Adapt to the Arctic, and Why Should They?

Florian Stammler

University of Lapland

There is evidence from genetics that adaptation of organisms to a changing environment can happen faster than we thought before. This presentation asks what this means for anthropological understandings of adaptive processes in societies where we can see domestication as a symbiotic relationship continuously unfolding in a negotiation process of humans and animals. While reindeer has been in the focus of Arctic pastoralism so far, I show how this human footprint in animal adaptation to the Arctic can be best traced in the anthropological study of special breeds of non-Arctic pastoral animals. The example of Sakha cattle and horses serve as ethnographic cases for showing the key variables in the process of 'symbiotic domestication'. In terms of domestication theory, we can use this evidence to highlight that besides humans and animals, the environment is the third agent in this process, forming a triangle of knowledge exchange and development. I show how humans' and their animals' ways of knowing the specifics of their habitat, such as micro-climate, vegetation and topography influence the daily interaction and animal handling that forms the base of his triangle. The result of this knowledge-exchange can be traced genetically in the specificity of Arctic cattle and horse breeds.

Domestication in Fishing-Reindeer Husbandry Complex of Western Siberian Forest from the Point of View of Environmental History

Yuka Oishi

National Museum of Ethnology

The Northern Khanty, who live in the Western Siberian forest, manage fishing, hunting, gathering, and reindeer herding. They use the abundant freshwater fish resources of the Ob' River tributaries and the many lakes in the lowland. It is said that fish is the highest ratio in their food and subsistence. In addition, this study reveals the herding techniques in semi-sedentary environmental use for fishing, considering the fish samples they feed to the reindeer. This paper will also consider the process in which the Northern Khanty has formed its subsistence complex and will discuss reindeer domestication as the end of the diffusion. First, there is a connection between the spread of reindeer herding and the marriage relationships between the Khanty and the Nenets. Reindeer herding was brought from the Northern ethnic group, the Nenets, to the Northern Khanty in the middle of the second millennium. The Northern Khanty have many husbandry terms that have come from the Nenets language, but now they mainly rely on fish resources. This study considers why they have not transited to pastoralism completely from the perspectives of the marriage system and the ecological environment. Second, this research examines their flexibility in subsistence complex. The Khanty's fishing has developed in their interactions between the local communities and the outside world. In the czarist Russia era in Western Siberia, the merchants found the economic value of freshwater fish resources, and they traded fish with the Khanty. In the Soviet era, the sovkhoz managed the fish production of the indigenous peoples. After the Soviet era, municipal or private agricultural companies conducted indigenous fishing in the same manner as the sovkhoz. Finally, this research assumes that the Khanty's cultural ecological adaptation to the North is not based on reindeer herding; rather, it is based on their flexibly in their dependence on fishing activities to deal with environmental and social changes.

Hunter-Gatherer Mobility, Food Diversity, and Landscape Practice: Archaeological and Ethnographic Examples from Northern Japan

Junko Habu

University of California, Berkeley &
Research Institute for Humanity and Nature

In this presentation, I argue that the examination of rich archaeological data from the Jomon period of prehistoric Japan (ca. 16,000-2500 cal. BP) can contribute to recent discussions of the resilience of food and socioeconomic systems. In particular, historical ecological approaches (Balee 2006) with a focus on human-environment interactions at multiple temporal and spatial scales are useful as a framework to examine how human impacts on the environment may positively or negatively contribute to the resilience of food and socioeconomic systems depending on local and historical contexts. Theories of resilience, which consider the importance of adaptive cycles and panarchical connections, provide an ecological viewpoint from which we can pose the question of why diversification and decentralization, among several other traits, are crucial for systems' resilience (Redman et al., 2009). Discussions of local and traditional ecological knowledge (LEK and TEK; see e.g., Colson 1979) have revealed the limitations of a "scientific" understanding of the efficiency of food production systems, and calls for an integrative understanding of food production in relation to the whole range of human-environmental interaction, including the role of material culture (Berkes et al. 2000, Horowitz 2015). In particular, physical and social landscapes are inextricably linked to LEK, TEK and material culture, which manifest bundles of practices, meanings, attributes and values. Using archaeological and ethnographic examples from northern Japan, including Iwate, Aomori and Hokkaido, I argue that understanding continuity and change in landscape use from prehistoric times to the present may be key for our understanding of the non-linear dynamics of long-term changes in human-environmental interaction.

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What Northern Husbandry Teaches us about the Meaning of Domestication?

Charles Stépanoff

Ecole Pratique des Hautes Études, Paris

In 1861, Isidore Geoffroy Saint-Hilaire defined domestication as control and domination of humans on an animal population. Until today anthropological and philosophical debates on human-animals relationships tend to contrast univocal schemes of relations: domination vs. respect; isolation vs. hybridization. However, North Asian ethnography shows that husbandry systems often alternate seasonally between strikingly different modes of herding, such as complete freedom followed by captivity. Herders and their herds seem to go smoothly through categories deemed incompatible by anthropologists: slavery, partnership, mutual ignorance.

This intermittence parallels the seasonality of social organizations of the herding-hunting communities themselves, which alternate between aggregation and dispersion (see Wengrow & Graeber, "Farewell to the 'childhood of man': ritual, seasonality, and the origins of inequality" JRAI 2015). It seems that a similar kind of intermittent coexistence, between hierarchy and autonomy, is found in both human and inter-species relationships.

Due to the lack of continuous control by herders, reindeer husbandry was often qualified as "protodomestication" or "half-domestication" as compared to Western farming supposed to be "complete". Should not we rather broaden our notion of domestication and consider a specific Northern mode of domestication? How different is this mode of domestication from the Mediterranean one? Archeological and paleogenetic evidence suggests that Neolithic Mediterranean modes of herding may have been not so different from the North Asian ones. This comparison will draw the search of the origins of the modern paradigm of domination toward a new direction.

Domestication institutionalised: Legal Measures to Help Animals Develop and Keep Their "Arctic" Character, and to What Extent They Make Sense

Aytalina Ivanova

North-Eastern Federal University

In the 21st century animal husbandry is nowhere any more just a decision of humans and animals in a particular environment. Any practice of humans with animals is regulated - and at times over-regulated - by authorities. Within the Arctic, the Republic of Sakha (Yakutia) has been particularly active in legally protecting particular breeds of animals that the authorities decided to be particularly important in the area. Laws on reindeer herding, horse herding and cattle establish the area as an exceptional place of multi-species animal pastoralism in the Arctic. In this research I analyse the principles on which the above mentioned three laws base, and rank them in terms of economic, social-cultural and genetic importance. Legal anthropological analysis shows then to what extent the existence of specific laws for specific breeds of animals has an influence on concrete livelihoods and cultures of people. I argue for a closer investigation of overlap between realities created by regulations on paper and realities created by practices of people with animals in the environment.

Domestication and Adaptation of Domesticated Animal Species to Northern Environment

Juha Kantanen

Natural Resources Institute Finland

In the Arctic, traditional animal husbandry is based almost exclusively on reindeer (*Rangifer tarandus*) but in Fennoscandian Lapland, northern Russia and Siberia also other locally adapted animals, namely cattle (*Bos taurus*) and horse (*Equus caballus*) are used for food production and other societal and cultural needs. From these species, locally adapted, northern native breeds, such as Northern Finncattle, Yakutian cattle, Mezen horse, Yakutian horse and various reindeer ecotypes, have been developed. Genetics of these animal breeds has been investigated using modern genomic tools to investigate adaptation and their genetic resources utilized for northern agriculture and pastoralism.

It is suggested that reindeer descended from a large Eurasian glacial reindeer population, have the longest adaptation history (but the shortest domestication history) among the 3 species studied here and can be considered as native to the Arctic. Cattle and horses, on the other hand, have longer domestication histories, but have shorter adaptation histories and are regarded as having been "imported" into the Arctic. The horse study on complete genomes of modern Yakutian horses and ancient horses that lived in Sakha (Yakutia) around 5,200 years ago provided evidence that the native Yakutian horse descends from domestic livestock and not from extinct wild horse populations once existed in Sakha. Correspondingly, the northern native cattle breeds appear to have descended from near-eastern domesticated cattle some 8 000 – 10 000 years ago. However, the recent paper of genomic variations of contemporary northern native cattle breeds suggested that the prehistory of domestic cattle in East Asia may have been more complex than previously assumed. For example, the past effective population size of the Asiatic humpless taurine cattle (*Bos taurus*) may have been higher than that of the ancient European taurine cattle.

In addition to past domestication events, the genomic analyses can reveal genetic patterns of adaptation to harsh environments. The recent studies have indicated several candidate genes and chromosomal regions important for the adaptation and production traits of the breeds and reindeer. The studies have indicated that partly same genes have promoted and been under selection in the different species indicating convergent evolution between the mammalian populations adapted to the subarctic and arctic environments.