The 1st Workshop on "Food Life History of the North"

Incubation Study, Research Institute for Humanity and Nature

November 12th and 13th, 2020 Japan Standard Time (11th and 12th, AKST)

Venue: Hybrid (Kyoto RIHN Lecture Hall and Online by Zoom)

Organized by and as a part of

Traditional Food Preservation and Cache Technology using Freezing Environment

–Transformation and heritage of "Food Life History"

under the Global Environmental Shift–

Kazuyuki Saito, Go Iwahana, Yoko Kugo, Yu Hirasawa, Shirow Tatsuzawa

Inter-University Research Institute Corporation National Institutes for the Humanities
Research Institute for Humanity and Nature

We would like to thank

Abbreviations

RIHN: Research Institute for Humanity and Nature, Kyoto, Japan

JAMSTEC: Japan Agency for Marine-Earth Science and Technology, Kanagawa, Japan

NEFU: North-Eastern Federal University, Yakutsk, Russia

IBPC: Institute for Biological Problems of Cryolithozone, RAS, Yakutsk, Russia

UAF: University of Alaska, Fairbanks, Alaska, USA

(Photo on the cover page: An underground cache near Yakutsk)

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Project Overview

Kazuyuki Saito (JAMSTEC)

Why and how do we study the practices of underground cache in the arctic communities ?

This project explores the "food life history" of the cold storage practices by indigenous peoples / local residents in the northern communities under the natural environmental changes (e.g. degrading frozen ground; wetting or drying caused by precipitation regime shift) and the social changes (e.g. modern education, technology, and economy; processed foods and lifestyle). Global warming is pronouncedly affecting the northern high latitudes, exhibiting widespread increase in winter air temperatures, and weakening of ground freezing. People in the northern communities in Siberia and Alaska have relied on the underground storage to store, ferment, and preserve their traditional harvests such as walrus and whale meat, birds, fish, fruits, and other foods. In the past few decades, they have been facing malfunctions and/or malpractices of the cold storage system. To capture the situation and meaning of the cold storage in relationship with their food cycle and their culture, we propose a new framework "food life history," which takes a composite perspective of a) the life history (or ethnography) of food resources (i.e., dietary culture and ecology in the natural world), and b) the history of food life in the community livelihood (hunting and gathering, preservation, distribution, and sharing with nature).

In the first year of the project, the team establishes co-operative and collaborating networks with institutions and communities in Siberia, Alaska, and Japan. This workshop was a great opportunity to share and discuss information of the underground storage practices in these different regions. The outcomes of this workshop help us plan further investigations of the “food life history” of the North through collaborative fieldworks with community perspectives to design the future of cold storage practices.

В рамках этого проекта исследуется «история жизни продуктов питания» в методах холодного хранения коренными народами / местными жителями в северных общинах в условиях естественных изменений окружающей среды (например, деградация, высыхание и таяние мерзлого грунта; увлажнение или высыхание, вызванное изменением режима выпадения осадков) и социальные изменения (например, современное образование, технологии и экономика; обработанные пищевые продукты и образ жизни). Глобальное потепление явно сказывается на северных высоких широтах, проявляя повсеместное повышение зимних температур воздуха и ослабление подземного промерзания. Люди в северных общинах Сибири и Аляски полагались на подземные хранилища для хранения, ферментации и сохранения своих традиционных уловов, таких как мясо моржа и кита, птицы, рыба, фрукты и другие продукты. В последние несколько десятилетий они столкнулись с неисправностями и / или неправильным использованием системы холодильного хранения. Чтобы охватить ситуацию и значение холодного хранения в связи с их пищевым циклом и их культурой, мы предлагаем новую структуру «история жизни пищи», которая принимает комплексную перспективу а) истории жизни (или этнографии) пищевых ресурсов (т. е. диетическая культура и экология в мире природы), и б) история пищевой жизни в средствах к существованию сообщества (охота и сбор, сохранение, распространение и совместное использование с природой).

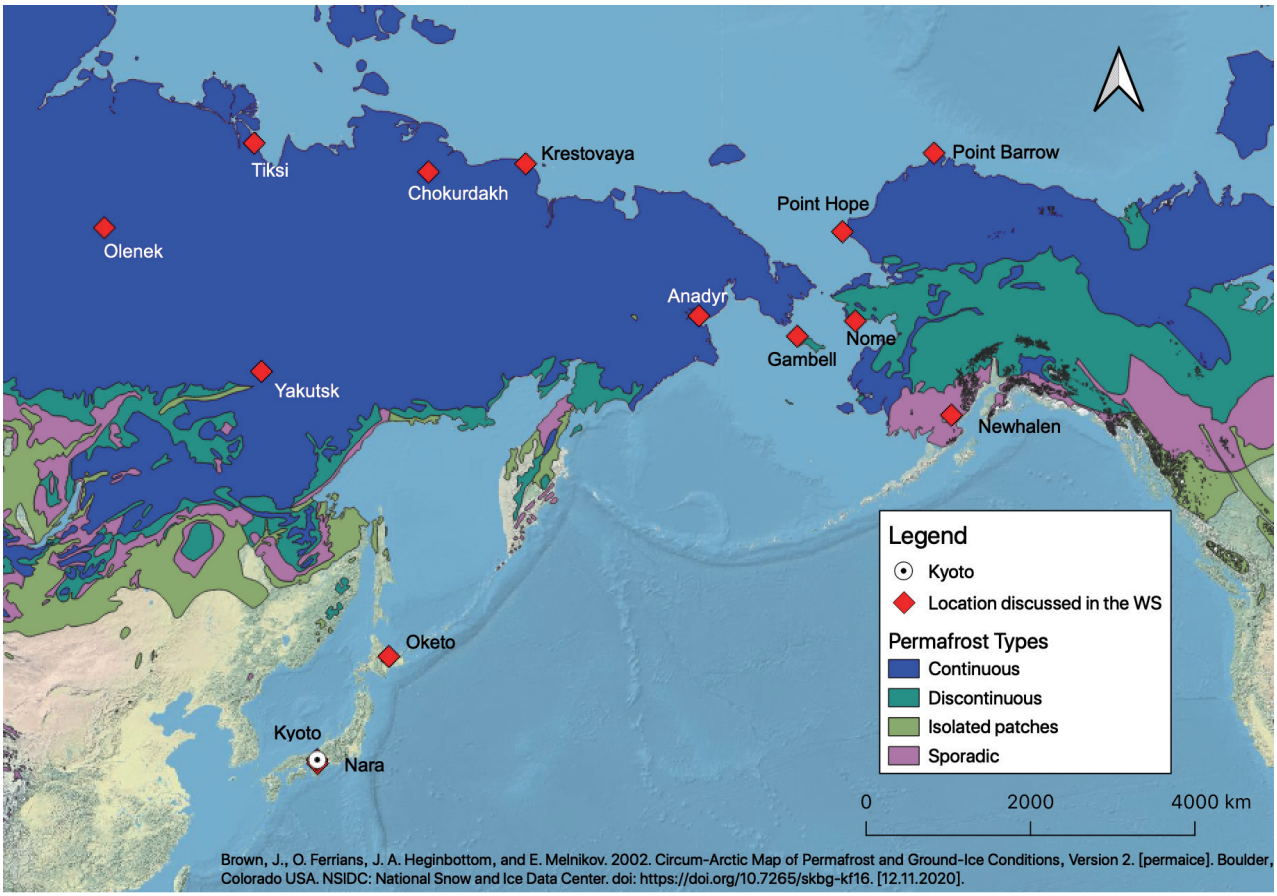
В первый год проекта команда устанавливает совместные и сотрудничающие сети с учреждениями и сообществами в Сибири, на Аляске и в Японии. Этот семинар был прекрасной возможностью поделиться и обсудить информацию о методах подземного хранения в этих различных регионах. Результаты этого семинара помогают нам спланировать дальнейшие исследования «истории пищевой жизни» Севера посредством совместных полевых исследований с точки зрения сообществ, чтобы спроектировать будущее холодильных складов.

アラスカやシベリアの北極域に住む北方先住民や現地住民は，地下や地表面に設けられていた凍結貯蔵施設で海象や鯨肉，鳥，魚果実などの収穫物の貯蔵，発酵，保存を行い，伝統的な食・生活文化体系を形作ってきました．その食・生活文化体系がグローバルな環境変動の影響を受けて変容しています．極域でより顕著に現れる全球規模の温暖化は，凍土の融解や降水機構の変化による湿潤化や乾燥化を通じて凍結貯蔵施設の機能や管理の不全を引き起します。一方，社会環境面では教育や技術，グローバルな経済活動による現代化が現地の伝統的生活様式の改変を迫られています．このプロジェクトでは，北方現地住民の食生活や食文化における凍結貯蔵の位置づけを可視化し，またこのような変化・変容の意味を理解し，今後のあり方を模索するための補助線として，北方の「フードライフヒストリー」という視座を提唱します．それは，１）食文化や生態系も含めた食資源の民俗誌 (life history or ethnography) であると同時に，２）その現地社会における狩猟･採取, 保存, 運搬, 分配といった食のサイクルの変化や歴史を多面的に記述・把握しようというものです． １年目では，シベリア，アラスカ，日本における研究者・機関や現地住民・コミュニティとの間の協働・共創のネットワークを作ろうとしています．このワークショップが，それぞれの地域での凍結貯蔵のあり方や現状などの情報を共有し，相互理解を深める機会となることを期待しています．また，その成果を北方の「フードライフヒストリー」に関する超学際的な調査・研究プロジェクトの計画と推進に繋げていきたいと思います．

Work Shop Targets

- Share a broad understanding of the underground cache practices in the communities in Siberia, Japan, and Alaska.
- Learn about the climate change and melting frozen ground in the study areas.
- Discuss current concerns of traditional ways of life in the northern communities.
- Introduce research approaches of one health and community-based participatory research.

Areas and Locations Discussed in the Workshop



Locations discussed in the workshop and distributioin of different permafrost zones

The 1st Workshop on "Food Life History of the North" Timetable

[Time in parentheses shown in Alaska Standard Time (AKST)]

Organized as a part of

Traditional Food Preservation and Cache Technology using Freezing Environment:
–Transformation and heritage of "Food Life History" under the Global Environmental Shift–

(Incubation Study, Research Institute for Humanity and Nature)

Nov. 12 (THU) and 13 (FRI) (JST) (Nov. 11 (WED) – 12 (THU), AKST)

Venue: Hybrid (Kyoto RIHN Lecture Hall and Online by Zoom)

<Day 1> November 12 Thu 12:00–17:10 (Nov 11 Wed 18:00–23:10 AKST)

12:00-12:30 (AKST Nov. 11 (Wed) 18:00-18:30): Opening Session

1. *Opening Remark*, **Makoto Taniguchi** (RIHN)
2. *Project Overview*, **Kazuyuki Saito** (JAMSTEC)

5 mins break

12:30-14:55 (AKST 18:30-20:55): Siberia Session (chair: Shirow Tatsuzawa)

1. *Introduction & Background Information on Siberia*
   Shirow Tatsuzawa (Hokkaido Univ.) and **Gavrilyeva Tuyara** (NEFU)
2. *Global Warming Issues in Siberian Local Communities*
   Gavrilyeva Tuyara
3. *Siberian Ecosystem and Indigenous Peoples' Life*
   Okhlopkov Innokentiy (IBPC) and **Maria Vladimirtseva** (IBPC)

5 mins break

4. *Permafrost and people in Siberia*
   Alexander Fedorov (Melnikov Permafrost Institute)
5. *Changes in practice of traditional food store using cold environment*
   Yuriy Zhegusov (NEFU)

5 mins break

6. *History of the food cellars (underground food storages) in Bering Strait communities: Characteristics, Temperature, Monitoring, and Distribution*
   Kenji Yoshikawa (UAF)

10 mins break

15:00-16:30 (AKST 21:00-22:30) Japan Session (chair: Kazuyuki Saito)

1. *Introduction: current situation in Japan*
   Kazuyuki Saito
2. *Significance of the Fuketsu (wind holes and natural cold storages) in Japan*
   Yuki Sawada (Fukuyama M. Univ.)
3. *Sericulture and Fuketsu*
   Yutaka Banno (Kyushu Univ.)

5 mins break

4. *Himuro-Yukimuro: Ice and snow storage in Japan and those use*
   Iwao Takei (Hokuriku Univ. (retired))

10 mins break

16:40-17:10 (AKST 22:40-23:10) Discussion for the first day sessions

<Day2> November 13 Fri 9:00–13:00 (Nov 12 Thu 15:00–19:00 AKST)

9:00-10:25 (AKST Nov 12 Thu 15:00-16:25) Alaska Session (chair: Yu Hirasawa)

1. *Introduction*
   Yoko Kugo (UAF)
2. *Ataurciurcaraq: Way of Becoming One* -- One Health and Indigenous Way of Knowing*
   Arleigh Reynolds (UAF) and **Walkie Charles** (UAF)
   * atauciq 'one;' atauciurte- 'to become one;' -yaraq 'way of verbing;' thus atauciurcaraq 'way of becoming one' in Yugcetun (Central Yup'ik language)
3. *Background Information of the Study Area: Geography, Demography, Culture and History*
   Yoko Kugo (UAF), **Mike Koskey** (UAF), and **Yu Hirasawa** (Univ. East Asia)

15 mins break

10:40-11:30 (AKST Nov 12 Thu 16:40-17:30)

4. *Permafrost Environment Changes and Consequences*
   Go Iwahana (UAF) [15 + 5 mins]
5. *Community-Based Participatory Research with Indigenous Knowledge and Academic Science*
   Mike Koskey (UAF) [25 + 5 mins]

11:30-12:00 (AKST Nov 12 Thu 17:30-18:00) Discussion for the second day session

10 mins break

12:10-12:40 (18:10-18:40) Comprehensive discussion

12:40-13:00 (18:40-19:00) Workshop closing

1. Comments from Research Institute for Humanity and Nature
2. Closing Remark, **Kazuyuki Saito**

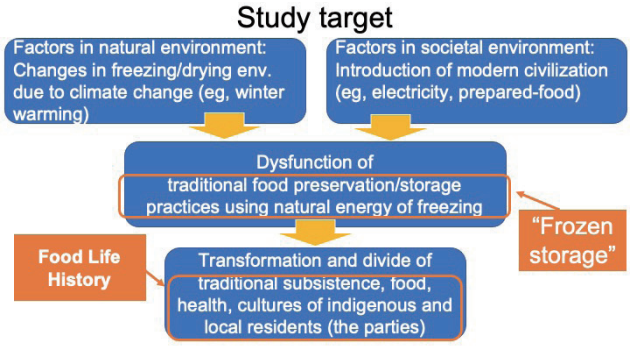
The Presentation Abstracts

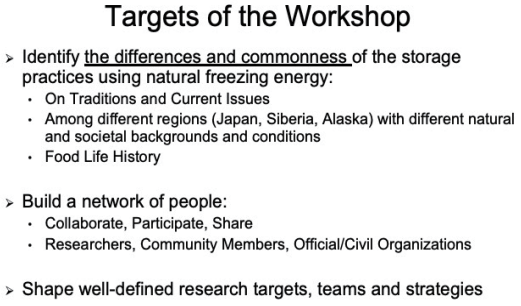
Opening Session

Project Overview

Kazuyuki Saito (JAMSTEC)

Natural (e.g. global warming) and societal (e.g., modernization) environmental changes have exerted large impacts on local food- or life-related traditions and facilities. In northern high-latitudes, use of ice cellars and underground cache, and inheritance of their tradition are facing immediate perils. Japan on the mid-latitude has traditions to use natural freezing environment for storage. In this WS, the local practices and the present-day issues are presented from Siberia, Alaska and Japan, to show the differences and similarities, and what it means in the global environmental perspective.



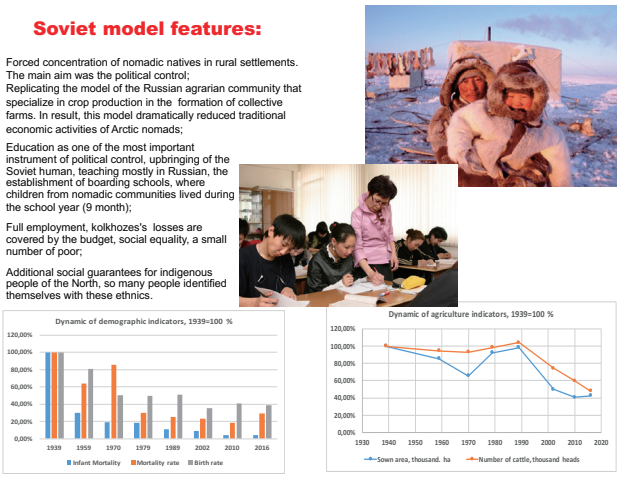


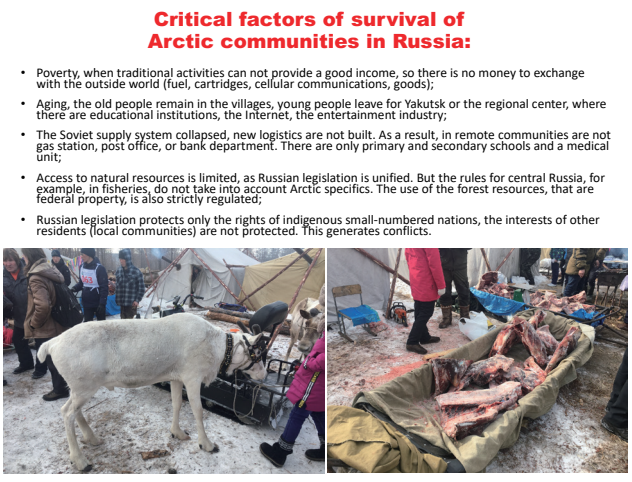
Siberia Session (chair: Shirow Tatsuzawa)

1. *Introduction & Background Information on Siberia*

Shirow Tatsuzawa (Hokkaido Univ.) , and **Gavrilyeva Tuyara** (NEFU)

As an introduction of this session, we will briefly give an overview of the geography, history, culture, social systems, politics, etc. of the Republic of Sakha, which is the main research site of all presenters of this session.





2. *Dynamics of economy-related GHG emissions and validation of the Environmental Kuznets Curve for Sakha Republic (Yakutia)*

Gavrilyeva Tuyara (NEFU)

Significant territorial differentiation of GHG emission in terms of municipal districts and economic zones of Yakutia caused by climatic and economic factors: energy resources consumed, generating capacities, economic and population location. In contrast with Russia, the environmental Kuznets curve model for Sakha (Yakutia) has not been confirmed for Yakutia.

Fig. 1. Electricity generation in Sakha (Yakutia), mln. KW. h

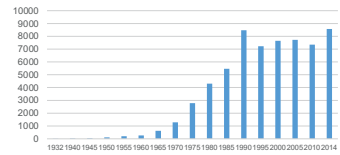


Table. 1. The structure of electricity generation in the Sakha (Yakutia) in 2014

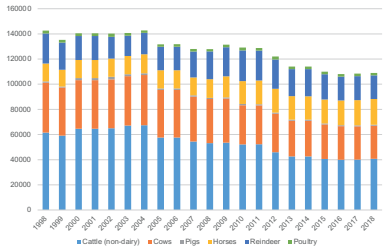
Energy district	Districts of RS(Y)	Settlement	The volume of production, MW	Structure,%	Type of fuel
Central	Yakutsk	Yakutsk	420,4	17,1%	Natural gas, coal
Western	Mirninsky district	Svetly	1228,3	50,1%	Hydropower and other
Southern	Neryungrinsky district	Serebryany Bor	618	25,2%	Coal
Northern	Northern and Eastern Yakutia, Arctic zone	The various settlements	187,2	7,6%	Diesel fuel, coal

Electricity production

Fig. 2. Energy districts in Sakha (Yakutia)

Carbon emissions from livestock farming

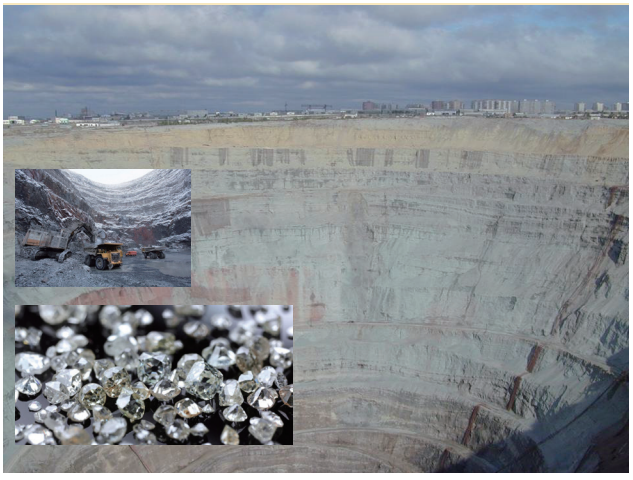
Fig. 8. GHG Emissions from Livestock Farming by Year, t C



3. *Natural ecosystems and traditional nature management of the indigenous peoples of Yakutia*

Okhlopkov Innokentiy (IBPC) and **Maria Vladimirtseva** (IBPC)

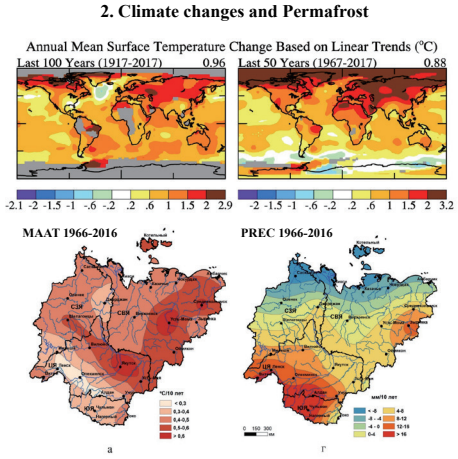
The Republic of Sakha (Yakutia) is currently almost the only region in the world where natural ecosystems have been preserved in their original cosystems. The uniqueness of the natural ecosystems of Yakutia lies in the fact that they function in the coldest part of the inhabited part of the Earth and cover several natural zones, such as polar deserts, tundra, forest-tundra, northern taiga and mountains. In these natural ecosystems, the indigenous peoples of the North and the Sakha preserve their traditional use of natural resources. However, at the present stage of global climate change and the beginning of large-scale industrial development of the Arctic, new tasks arise that can only be solved by consolidating the efforts of the international community of scientists. Currently, specially protected natural areas are preserved in the natural ecosystems of Yakutia and the traditional crafts of the peoples of Yakutia. However, the natural dynamics of the climate are already making unprecedented changes to the traditional lifestyle of the Yakut people, associated with new economic conditions and natural reasons for the reduction in the quantity and quality of traditional food.

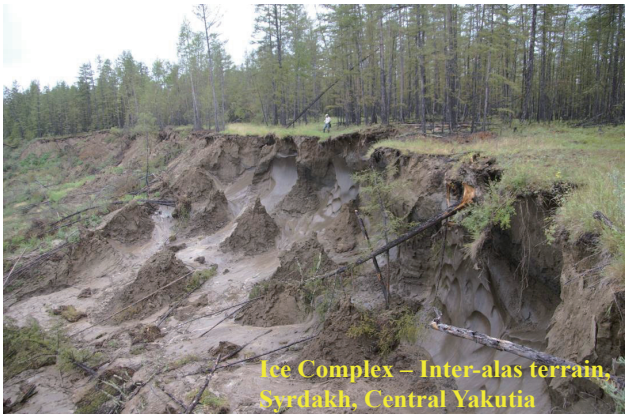


4. *Permafrost and people in Siberia*

Alexander Fedorov (Melnikov Permafrost Institute)

Global warming and anthropogenic disturbances have intensified the development of permafrost-related processes in Siberia during the last three decades, adversely affecting the landscapes and socio-economic conditions in this permafrost region. Until 1990 when there were no problems with global warming, large areas of the ice complex were developed into farmland. Presently, much of this land has degraded due to anthropogenic impacts and global warming. Thermokarst development has made thousands of hectares of cropland useless for agriculture. The ice-rich permafrost landscapes are in a critical condition under global warming. In rural communities, permafrost degradation is causing problems for buildings.





5. *Changes in practice of traditional food store using cold environment*

Yuriy Zhegusov (NEFU)

According to the results of the survey, it was revealed that those ice cellars (buluus) located at a height and in areas without visible signs of landscape change are not subject to melting and flooding. The following factors usually contribute to the melting of ice cellars: 1) violation of the technology of construction and operation of Buluuses. 2) Rainy summers, abnormal heavy rainfall contribute to the penetration of water into the ice cellars. 3) Disruption of water circulation in the soil as a result of flooding or excavation nearby. 4) The deterioration of the state of ice cellars is observed in areas where changes in the landscape of the so-called "bylaar" was formed, and also in those areas where there was a forest, trees grew that were cut down. Local residents inform that the berries have recently become worse stored, even in the form of jam - they quickly began to become moldy in a short time. Therefore, now berries and harvested jam are often stored in chest freezers. With the development of freezing equipment and filling stations for clean, filtered water, there is a tendency for residents of regional centers to refuse to use buluus for storing ice for drinking water and products.

Ice cellar (buluus)

Permafrost protection methods used by local residents

Local residents are trying to protect permafrost with layers of cow dung.

Cow dung is a good heat insulator and protect permafrost

6. *History of the food cellars (underground food storages) in Bering Strait communities: Characteristics, Temperature, Monitoring, and Distribution*

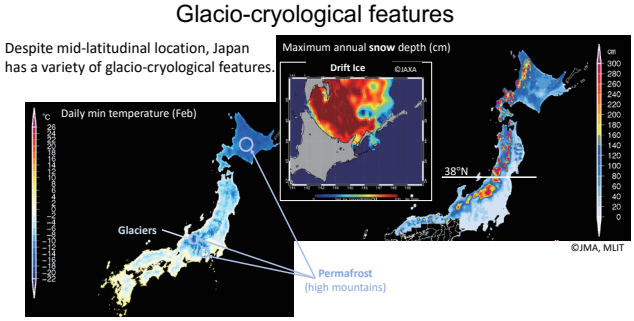
Kenji Yoshikawa (University of Alaska Fairbanks (UAF))

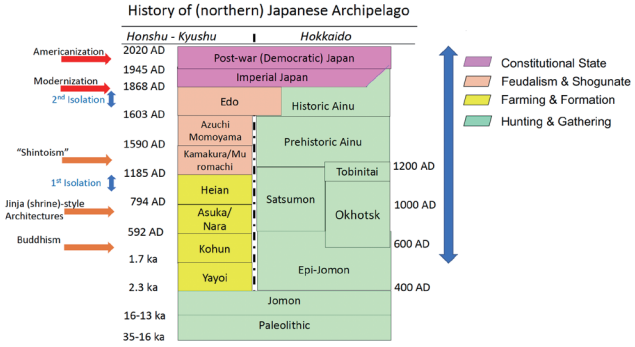
Food/ice cellars (Lednik in Russian, K'aetyran in Chukchi, Sigluaq in Iñupiat, Siglugaq in Yup'ik) typically dug into the ground/permafrost are a natural form of preserving harvested foods (marine mammals, fish, and some plant etc.), aging, or fermentation. However, cellars are not necessary to located permafrost regions or Arctic. Humans were used underground storage everywhere in the world including the indigenous people from Arctic, such as Even, Evenk, Nenets, Chukchi, Yukagir, Dolgan, Buryat, Iñupiat, Inuit, and Yup'ik. In cooperation with local stakeholders, we measured the temperature of many cellars and the usage at various regions of Siberia, Alaska and Canada. Though cellars are widely used variety of regions, these structures and the purpose for their usage as well as the methods of maintenance are quite different among communities and groups of people.

Japan Session (chair: Kazuyuki Saito)

1. *Introduction: current situation in Japan*
   Kazuyuki Saito (JAMSTEC)

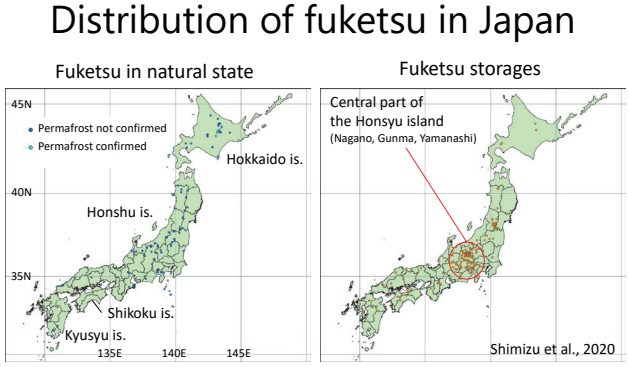
Although located in the middle latitude, Japan is a unique area with a variety of glacio-cryological phenomena, which enabled the use of a freezing environment for storage of ice, foods and other resources like silkworm eggs. Today, they still have strong ties with the locals and beyond through rituals, tourism, value-adding on foods, and preservation of species. Three presenters will provide the historical background to the present-day situations on Fuketsu, and HImuro-Yukimuro.





2. *Significance of the Fuketsu (wind holes and natural cold storages) in Japan*
   Yuki Sawada (Fukuyama M. Univ.)

The Japanese word "Fuketsu", or wind hole by literal translation, indicates naturally induced cool area in talus slopes or caves. More than 300 wind holes have been identified in Japan. Although the mean annual air temperature is positive, permafrost is confirmed in some wind hole sites in northern Japan (Hokkaido).
Wind holes have traditionally been used as the storage for food or ice by local people. In the 19th century, a new technology using wind holes to control the timing of hatching of silk warm was established, then the use of wind holes had been widely adopted as the new business. Sericulture was a major industry in Japan in the late 19th - early 20th centuries, and it accounted for more than half of the export value. Most wind hole storages had been abandoned after the invention of the electric refrigerators. Many remains of the storages have been found in the present days. In recent years, some remains are designated as world heritage, geopark, or cultural assets. However, many wind holes and wind hole storages have been left abandoned. Further studies, not only physical but also historical or economical, are necessary for understanding the significance of the wind holes. (Video clip on The growth and decay of ground ice in Nagabashiri Wind Caves (https://www.youtube.com/watch?v=Ojd4i-xXM08)

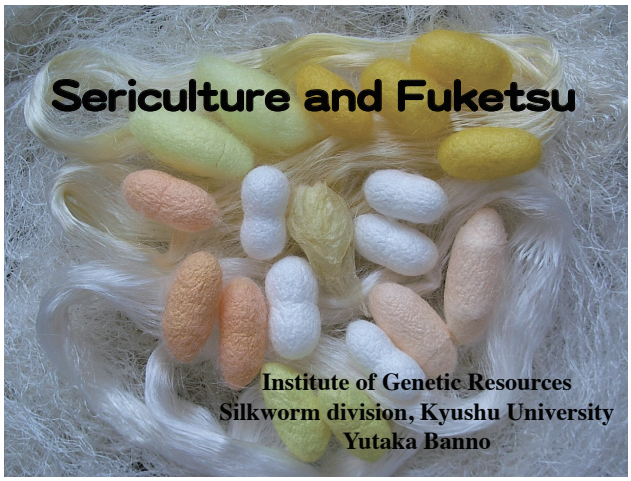


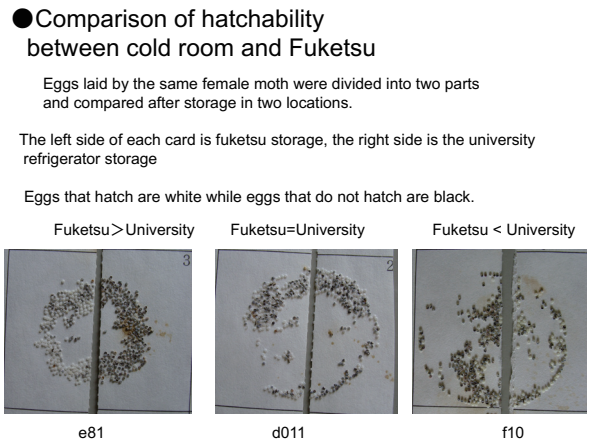
Most of the fukestu occur on talus slopes in mountain region
Fuketsu storages are concentrated in central part of the Honsyu island

3. *Sericulture and Fuketsu*

Yutaka Banno (Kyushu Univ.)

In Japan, sericulture was expanded in the 20th century. Storage of silkworm eggs under adequate condition is important for sericulture. Fuketsu was used for the storage of silkworm eggs. With the development of electric refrigerators, usage of Fuketsu was decreasing, and practically there are no users now. I still use Fuketsu, and found an unknown ability of Fuketsu, which generates high humidity conditions, advantageous for the stock of the eggs.

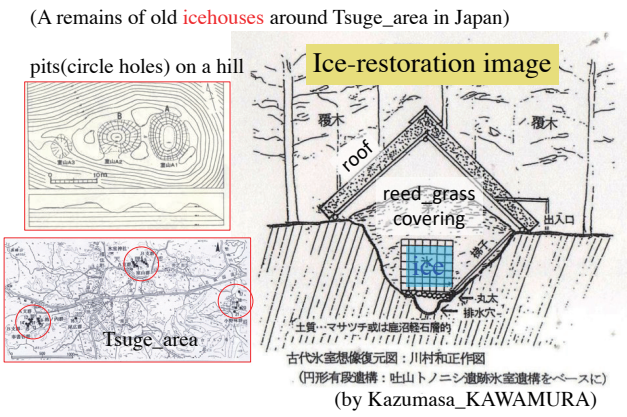


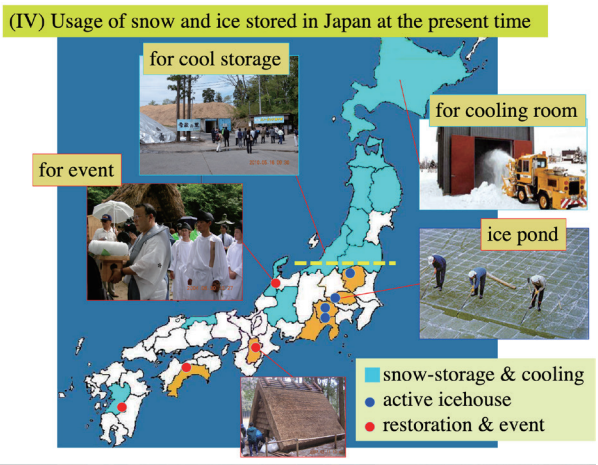


4. *Himuro-Yukimuro: Ice and snow storage in Japan and those use*

Iwao Takei (Hokuriku Univ. (retired))

It has been confirmed in Japan, as a temperate region, since the 8th century that ice collected in winter is stored in ice houses and is used for cooling something in summer. In addition to the cooling, the use of ice also had cultural uses such as ceremonies and gifts. Characteristically in Japan, not only ice but also snow is used as coolant; icehouse is called "Himuro" for ice and "Yukimuro" for snow. In Japan, ice-using areas and snow-using areas are distributed: the former sites in a high-altitude-inland location with few snowfall in winter and the latter sites in a location facing the Sea of Japan with heavy snowfall.

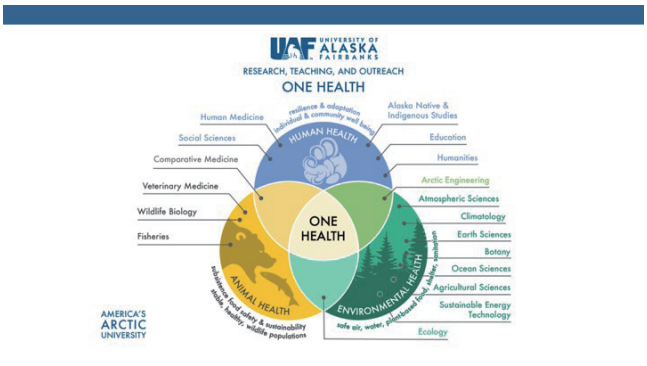




Alaska Session (chair: Yu Hirasawa)

1. *Ataurciurcaraq: Way of Becoming One* -- One Health and Indigenous Way of Knowing*
   Arleigh Reynolds (UAF) and **Walkie Charles** (UAF)

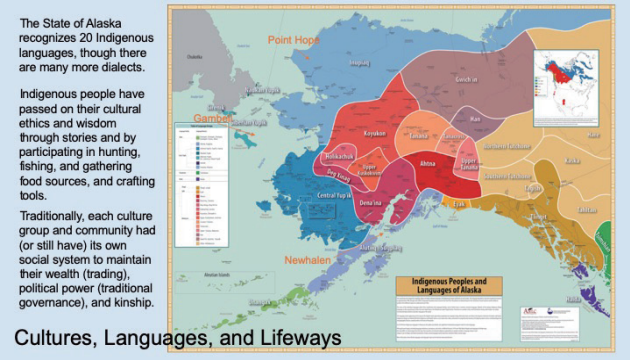
* atauciq 'one;' atauciurte- 'to become one;' -yaraq 'way of verbing;' thus atauciurcaraq 'way of becoming one' in Yugcetun (Central Yup'ik language)

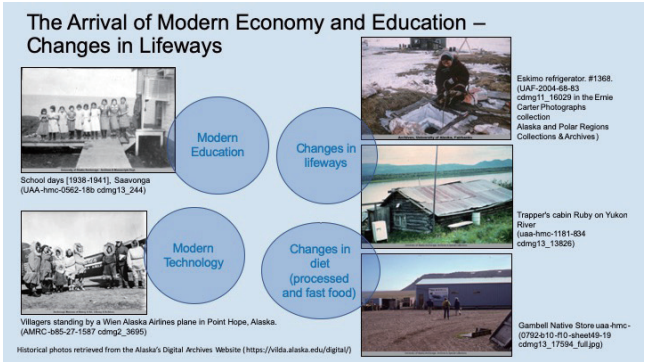


(One of the slides, presented by Arleigh Reynolds and Walkie Charles)

2. *Background Information of the Study Area: Geography, Demography, Culture and History*
   Yoko Kugo (UAF), **Mike Koskey** (UAF), and **Yu Hirasawa** (Univ. East Asia)

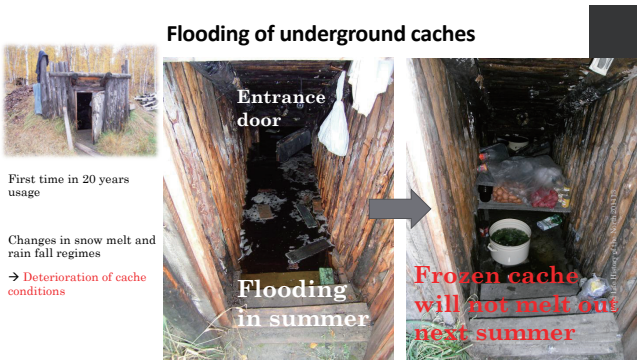
This presentation introduces the geography, demography, cultures, and histories of Alaska. Literature reviews and ethnographic reports show that food life-history varies in differing climate conditions. Community Elders are local knowledge experts who have passed down their wisdom about the land through stories and daily practices. We acknowledge the Indigenous peoples of Alaska, their cultural heritages and lifeways.





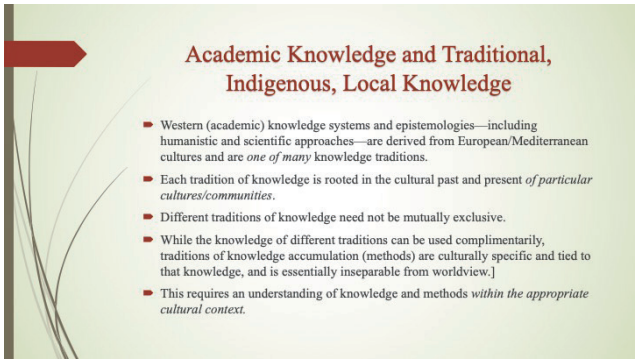
3. *Permafrost Environment Changes and Consequences*
Go Iwahana (UAF)

Given the increasing number of reports about rapid permafrost thaw and infrastructure damages in the Arctic, it is of great social concern to know where and to what extent permafrost degradation is currently ongoing and may occur in the near future. Saline permafrost in the Arctic coastal regions is impacted by the warming earlier than normal permafrost degrades due to the depressed thawing temperature by salt contents. This is true, especially in ice-rich permafrost zones, as consequential subsidence by ice-rich permafrost thaw (thermokarst) will cause massive changes in surface ecology, landscape evolution, and hydrological processes and will also affect local life and subsistence. Despite the increasing need to understand thermokarst processes in broader areas of permafrost zones, it has been a big challenge to utilize remote sensing techniques to quantify permafrost degradation because it is underground processes. This presentation introduces landscape changes because of thermokarst processes, permafrost thaw in the Arctic coastal regions, and a new remote sensing method to quantify the degradation.



4. *Community-Based Participatory Research with Indigenous Knowledge and Academic Science*
Mike Koskey (UAF)

This presentation will outline the principles and application of community-based participatory research (CBPR), and how and why this approach to cultural research is well suited to the accurate and effective understanding of a community's culture, as well as their worldview. This method will be considered within the context of cooperative research into local sociocultural questions informed by Indigenous knowledge and academic research. Important is the understanding that one knowledge tradition cannot be 'incorporated into' the other merely as a further source of evidence, but that cooperative research must be equitable and include a significant understanding of differing knowledge and research traditions. Finally, these methods and notions will be applied to the current proposed project on food storage and food security.



Post-Workshop Summaries

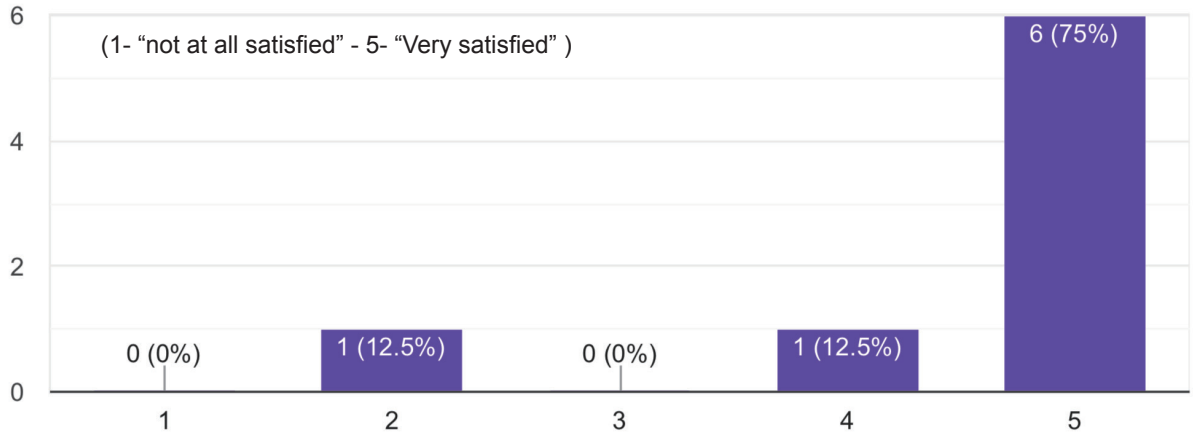
We had 32 participants on the 1st day sessions, and 37 participants on the 2nd day session (Total registered number was 51). Below is an excerpt of the responses to the post-workshop questionnaire. We thank those who participated in the questionnaire. The workshop was successful, we believe, in show-casing the diversity and variety in the underground cache practices using freezing energy in different regions, but had some issues especially in organization and time management. In the coming workshops we will prepare ourselves better, and secure the time for discussions and Q&As between the presenters and participants.

Excerpt of the questionnaire responses

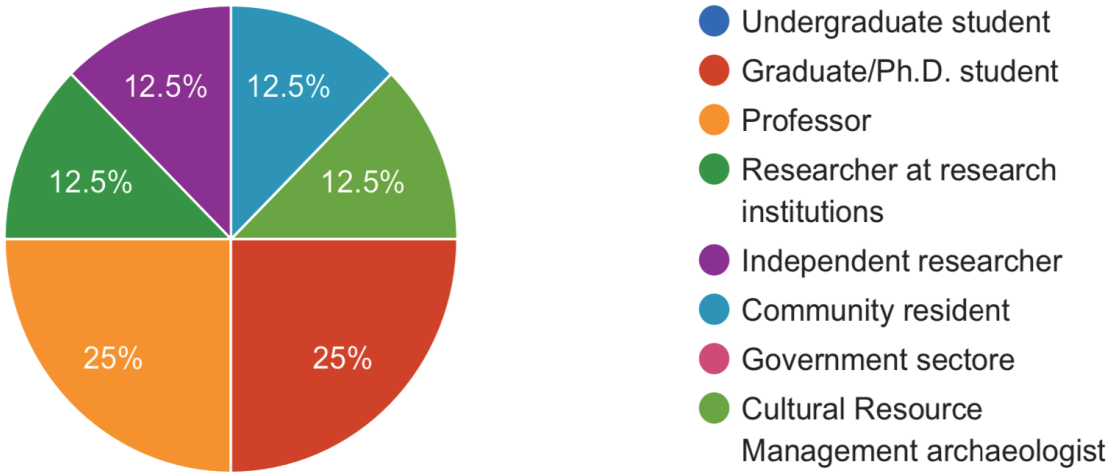
Questions	Responses
What is the most important thing you learned from the workshop?	· There are so much diversity in usage, form, tradition, issues people are facing at, regarding the cold storage practices in different regions. · That it is being done · Names and definitions of underground storages vary in various language groups. · The international effort on studying traditional food storage. · What communities are doing. · ice vs. meat cellaring & how cellar health impacts every element of the usual yearly cycle/calendar; necessity of CBIR · The importance of community led, participatory research. · The variation of types of cold storage facilities between ethnic groups.
What could we have done better?	· The meetingID should have been one all through the workshop. It was confusing. · Expand access to Alaska and especially rural communities tries to keep up with the schedule as planned and maintains a Q&A time after every presentation. · Nothing. I liked it. · Link to any papers written · Technology was the biggest problem, but I am surprised that all worked as well as it did! · It went really well, considering the circumstances we are all facing. In the future more advance advertising and involvement from researchers, communities, and students will be welcome. · Only more time for discussions and presentations, but an otherwise outstanding conference.

Any final feedback?	· That was a successful workshop. · Our villages have much to offer in this communication and blocks prevented it. · Looking forward to more. · Thank you so much for tackling a big foodways issue in the north across three countries - bravo! · Thank you for organizing such an informative workshop. · Well done throughout, but maybe add an extra day next time.

How satisfied were you with this workshop?



What is your occupation?



Thank you, Quyanaqvaa, Спасибо, and

ありがとう！

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