

Alaska Tribal Resilience Learning Network



Tribal Climate Adaptation 101 Training Report

October 4-6, 2022

Alaska Climate Adaptation Science Center, Fairbanks Alaska



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Acknowledgments

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Justin Leon, NAFWS Tribal Liaison

Special Guests and presenters:

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Rick Thoman, ACCAP Climate Specialist
Nancy Fresco, SNAP Network Coordinator and Research Assistant Professor
John Walsh, International Arctic Research Center Chief Scientist
Philomena Keyes, Native Village of Bill Moore's Sough
Adelheid Herrmann, IARC Faculty and Co-Investigator of ACCAP
LaVerne Demientieff, UAF Professor and Department Chair of School of Social Work
Angela Larson, Goldstream Group Consulting
Kathy Lynn, Pacific Northwest Tribal Climate Change Project
Kylie Avery, Pacific Northwest Tribal Climate Change Project

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Bethel - Avery Hoffman
Evansville Tribal Council - Solomon Yatlin
Kokhanok Village Council - Brenda Nowatak and Tina Mann
Native Village of Chuathbaluk - Annie Fredericks
Native Village of Hooper Bay - Jan Olson
Native Village of Kwinhagak - Dorothy Mark
Native Village of Kwigillingok - Dustin Evon, Julius Carl, and Ray Kiunya
Native Village of Paimiut - James Joseph
Native Village of Unalakleet - Jacob Ivanoff
Unalakleet Village Council - Jolene Nanouk
Noorvik Native Community - Brenda Newlin
Native Village of Tetlin - Stanley Taylor
Native Village of Venetie Tribal Government - Lance Whitwell
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Training Overview

This interactive training provided introductory training to planning for climate change impacts in Alaska. The purpose of the training was to support Tribal Climate Resilience Coordinators, Environmental Professionals, and Tribal Community Leaderships that are beginning or new to climate change adaptation planning. Over three days, participants heard from climate scientists about how the climate is changing, learned about various approaches to climate adaptation, and were introduced to several adaptation strategies. This session provided an opportunity to work with and learn from other Alaska Tribes, climate scientists and statewide practitioners.

Training Objectives

- To share, learn and hear from one another about climate impacts being experienced and adaptation actions being taken
- To introduce climate science and its use in adaptation planning
- To introduce ways to approach adaptation planning
- To highlight adaptation actions being taken by Indigenous, Alaska and Arctic communities

Training Design and Content Development:

This was a three-day in-person training with an interactive and informational presentation approach. AK TRLN utilized evaluation feedback from the previous Building Resilience Today (BRT) project that took place between April 2019 and January 2020, to design the Tribal Climate Adaptation 101 (TCA 101) training. Planning and recruitment for this training was completed June - October 2022 by AK TRLN Work Group Members.

Starting in August, the AK TRLN advertised the TCA 101 training through the monthly AK TRLN e-bulletin and list-serve. Several list-serves and key contacts were used to advertise for this training. Alexis Wagner sent notices to BIA TCRP award recipients. Malinda Chase sent a request to Desirae Mack with the Alaska Native Tribal Health Consortium (ANTHC), and Michelle Davis, an Alaska EPA IGAP coordinator, asking them to send the notice out on their respective list-serve. Among those who responded to the training evaluation the AK TRLN list-serve (4) and word-of-mouth (4) were how most participants heard about the training followed by the EPA/IGAP listserv (3) and ANTHC list-serve (1).



Malinda Chase opening the training talking about the importance of the stories that maps can tell.

Academic Course Credit:

The University of Alaska Fairbanks' Tribal Governance Program approved this training to be offered as a 250 special course in Tribal Governance for 1 credit. Eight of the 20 training participants registered to take the training for credit. Scholarships for enrolled students were provided through the Drumbeats Alaska Consortium funded through the US. Department of Agriculture of which Tribal Governance is a member.

Course requirements included participating in the two follow-up teleconferences and completing the final assignment. Participants were given a choice to:

- Complete the Tools for Setting Up and Managing a System for Proposal Writing worksheet created by Angela Larson,
- Identify the next step to take to support climate adaptation in their communities, or
- Initiate and complete a specific climate adaptation activity. One participant initiated and submitted a BIA Tribal Climate Resilience Program proposal, while another participant contributed to an article and forwarded a friendly amendment to a formal statewide climate-related resolution.

Travel Scholarships:

NAFWS provided 10 travel scholarships to tribally-affiliated participants who requested them when registering for the training. The NAFWS scholarships supported through First Nations Institute reimbursed participants for lodging at Pike's Waterfront Landing and round-trip airfare to Fairbanks, where the training was held. Pike's Waterfront Lodge provided transportation to and from the airport while the AK CASC offered daily van transportation to the training site at the International Arctic Research Center.

Alaska Tribal Resilience Learning Network

TRIBAL CLIMATE ADAPTATION 101

OPEN FOR REGISTRATION
OCTOBER 4-6, 2022

In person at the International Arctic Research Center, UAF
FAIRBANKS, ALASKA

An interactive workshop for Tribes planning for climate change
This training is for Tribal Climate Resilience Coordinators, Environmental Professionals and Tribal Leadership that are beginning or new to climate change adaptation planning.

Register online to attend:
bit.ly/tribalclimate101

In this three day workshop, participants will learn:

- Various approaches to climate adaptation
- How to compile or revise a plan from an Indigenous perspective that represents their community and regional experience

This session will provide an opportunity to work with and learn from other Alaska Tribes, climate scientists and statewide practitioners.

AKCASC.ORG/AKTRLN
AK-TRLN@ALASKA.EDU

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Agenda

October 4

- 8:30 Centering and Introductions- Malinda and Krista
- 10:00 Break
- 10:15 Mapping a Personal Story of Climate Change - Malinda
- 11:45 Out of balance: The carbon cycle and why the climate is changing
- 12:00 Lunch
- 1:00 The language we use - Indigenous language and climate science jargon planning
- 2:00 Climate Models and Scenarios: Considerations for Using Climate Information
-Jeremy Littell
- 2:45 Climate Stripes & Break - Rick Thoman
- 3:00 Extreme Events - Rick Thoman
- 3:45 What is at risk: Identifying climate risks and climate actions - Krista
- 4:45 Daily Wrap up

October 5

- 8:30 Daily overview
- 9:00 Alaska and Arctic Climate Change - John Walsh
- 9:45 Approaches to Climate Change Adaptation - Philomena Keyes
- 10:45 Break
- 11:00 Mainstreaming Climate Considerations - Krista
- 11:15 Introduction to information sources to support adaptation planning - Megan
- 12:00 Lunch
- 1:15 COMPUTER LAB: Exploring publicly available tools and information for adaptation Planning
- 1:30 COMPUTER LAB: Weather Tools - Rick Thoman
- 2:15 Break
- 2:30 COMPUTER LAB: Utilizing SNAP tools for adaptation planning - Nancy Fresco
- 4:30 Wrap up
- Evening: Optional Permafrost Tunnel Tour

October 6

- 8:30 Daily overview
- 9:00 Leadership and Decision making in adaptation planning
- 9:30 Scales of decision making
- 10:15 Break
- 10:30 Wellness and climate change adaptation planning -LaVerne Demientieff
- 11:30 Where are you and your community at with adaptation planning? - Discussion
- 12:00 Lunch
- 1:00 Connecting planning with action and funding - Angela Larson
- 1:45 Tribal Climate Adaptation Funding Guide - Kathy Lynn
- 3:00 Workshop Wrap up

Agenda Amendments

Due to time constraints two topics were pulled from the agenda. These included the discussion on The carbon cycle and why the climate is changing, and the role of Traditional Ecological Knowledge in adaptation planning.

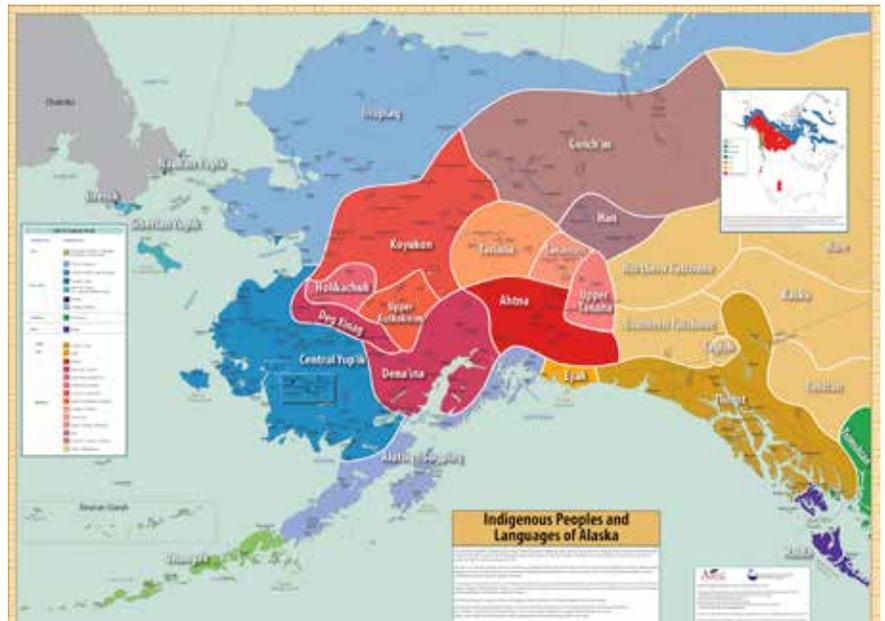
Day One: What are you experiencing?

What climate impacts are you experiencing already, and what impacts might you experience in the future?

Centering and Introductions

Malinda Chase and Krista Heeringa

Malinda Chase opened with a prayer and acknowledged the significance of each person in the room. She stressed the importance of their contributions as Indigenous people and for their work that supports their communities. Malinda also recognized the significance of the day, which was October 4th, and it marked the 50th anniversary of the Alaska Native Language Center. Though the disruptions and loss imposed through colonization are significant, so is the strength and resilience of Alaska Native people. ANLC now is directed by Yup'ik scholar and speaker, Dr. Walkie Charles, who also teaches and elevates the Yup'ik language, one of the 21 Indigenous languages of Alaska.



Krauss, Michael, Gary Holton, Jim Kerr, and Colin T. West. 2011. Indigenous Peoples and Languages of Alaska. Fairbanks and Anchorage: Alaska Native Language Center and UAA Institute of Social and Economic Research. Online: <https://www.uaf.edu/anla/collections/map/>

Following an overview of the training agenda and logistics by Krista, Malinda introduced the concept of learning styles and asked participants to share how they best learn.

Following the training's opening, participants were asked to introduce themselves and share what they hoped to get out of the training. A few key themes included:

- Learn from each other.
- Learn more about climate change and how to help tribal members can adapt and make our community safer.
- Gain new connections and learn about new opportunities for how to respond to climate change.

"We've been here for thousands of years and now we know we have to move. If you need to move or have ideas for moving we're here and can talk about it."

- Native Village of Hooper Bay
Community Leader

Mapping a Personal Story of Climate Change

Malinda Chase

Maps tell stories. Stories about the land and its own long history, stories about the ways that people have relied on it and how it is conceived of politically. Participants were asked to map their community's story of climate change first by sketching a map of their community or place that is important to them, and then drawing changes to the land, animals, or ocean that they have observed in the last 5, 10, or 20 years. This activity is a formal climate change educational activity titled, Mapping a Personal Story of Social and Ecological Change. Directions for doing this learning activity can be accessed online at the Arctic & Earth SIGNs project website.

Once everyone had a chance to draw their maps, participants shared their maps in groups of 3-4. A volunteer was then asked to share from each table with the entire gathering. Some of the overarching themes that emerged include:

- Changes to the distribution of large animals, there are less caribou but more moose and more wolves following the moose [Western Alaska].
- Berries are less abundant, or it is necessary to travel farther away or to new places to find them.
- There are less salmon.
- Water levels are rising, there is more erosion, and higher winds.
- Summers are dry and there are more fires.
- Winter travel on the frozen river is later and later.



Participants draw story maps.

Language in Climate Adaptation Planning

Malinda Chase and Megan Pittas

There are lots of languages in spaces, like this training. This includes, our Indigenous languages, climate science terminology, academic jargon, and language from our own knowledge system. In Alaska alone, there are 21 Indigenous languages.

Participants then played an active learning styles game, called Fly Swat. Participants were divided up in two teams and had to listen to the verbal definition of a term then race to swat the correct



Participants review terms by playing the fly-swatter game.

word and get it correct before an opposing team member. Several terms relevant to climate change adaptation were included in the activity: uncertainty, risk, mainstreaming, inequtet / policy, scenarios, nunaq, climate models (and models in general), usteq, downscaling, mitigation, resilience, adaptation, and climate.

Presentation References:

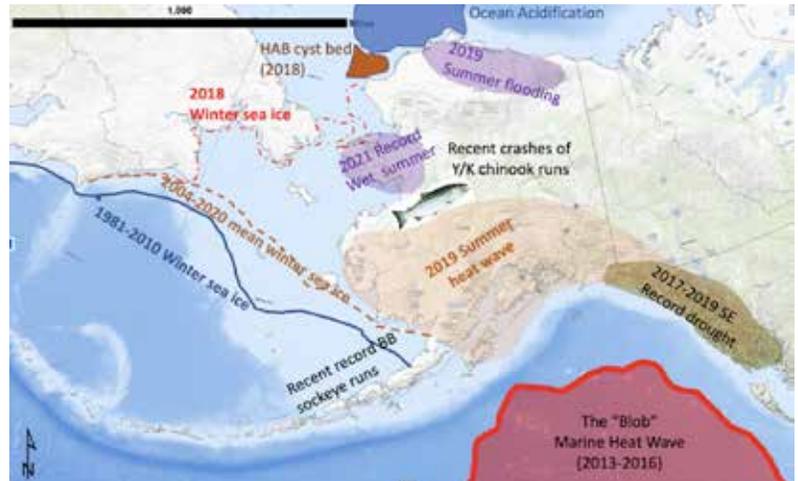
- [Kawerak's 4-Language Glossary: Iñupiaq, St. Lawrence Island Yup'ik](#)
- [English Terms for Research, Science, and Policy as well as Oscarville's Climate Adaptation Plan Pektayiinata](#)

Climate Models and Scenarios: Considerations for Using Climate Information

Jeremy Littell, USGS Lead Scientist and AK TRLN Working Group Member

While the climate varies naturally with warm years and cold years, or wet years and dry years, recent experience tells us that the climate we have known in the past will not be the climate of the future. The climate is warming much faster in Alaska. This is not just a gradual change, but will be experienced as a “wild ride” with extremes in temperature and precipitation, or lack thereof.

Climate change is presenting challenges that we are not always prepared for, climate projections are a tool for looking ahead. Climate projections are based on global climate models (GCMs), which create different snapshots of potential climate futures based on how much carbon dioxide and methane will end up in the atmosphere. In climate models, emission scenarios are input as “representative concentration pathways” (RCPs) since we don’t know the level of emissions that will actually occur in the future.

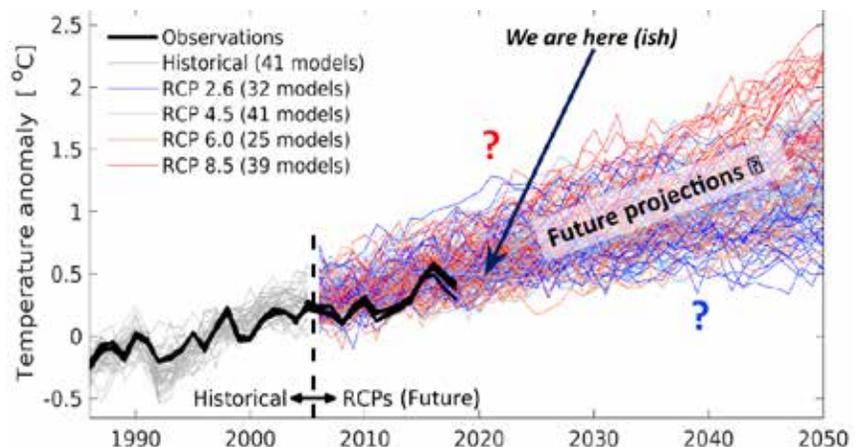


Changes won't just be gradual. Huntington et al., in review

If using climate projections, it's important to remember that there is climate model uncertainty. A few sources of this uncertainty include:

- internal variability from the climate from things like El Niño/ La Niña,
- model uncertainty that comes from how the model was constructed,
- scenario uncertainty from which RCPs are chosen.

To mitigate these uncertainties, it's important to use multiple climate models and multiple RCP scenarios.



Global surface temperature projections compared to 1986-2005 observations and model simulations. Modified from Ed Hawkins.

Looking at how the climate might change using global scale information is not that helpful for planning at a community or regional scale. Instead the climate information needs to be downscaled. Downscaled climate projections provide information at a watershed or subregion level on how the climate might change, which can be a much more useful tool for local planning.

Community knowledge, observations, and experience paired with climate information are powerful when combined, and are both needed for adaptation planning. Using Indigenous and local knowledge of a place, such as a village or area of use, as the foundational information about the local area, then adding projections to guide thoughts and discussions on what that place may and can become, can help communities prepare for an uncertain climate future.



Participants stood by their birth year in the International Arctic Research Center's climate stripe installation while Rick Thoman explained their use.

Weather and Climate Extreme Events

Rick Thoman, ACCAP Climate Specialist

Weather and climate are related, but not the same. Weather is the short term physical state of the atmosphere, whereas climate is the weather over a longer period of time, like a decade. A way to think about it is: "climate is what's in your closet and weather is what you wear today".

Extreme weather events, refer to weather that is rare or has not previously occurred. Extreme events may include extreme temperatures, precipitation, drought, or wind that may cause things like flooding, wildfires, or significant loss of sea ice.

Extreme events are complex and their impact depends on the overlap between the event itself, the time and location it occurs, and a particular domain that may be affected such as infrastructure or specific species or ecosystem.

The "same" extreme event might have significantly different impacts depending on when and where it occurs. For example, well above normal temperatures in October vs. November that causes an autumn river break-up, will have much different impacts, although both might be considered extreme events. Extreme events can occur within minutes, hours, days, months, or even seasons. Extreme events take place within context.

As the climate warms, what was once considered an extreme event might be considered "normal". For example, prior to 2007 the Arctic Ocean was rarely passable, now the question is not if the Arctic Ocean will be passable, but when and for how long.

In order to prepare and address these extreme events it's important to know what's happened in the past, and plan for extremes that are beyond past experiences.

Day 2: How do you describe what you're experiencing?

How can you tell the story of what you/ your community are experiencing using traditional knowledge, storytelling, and collective experience as well as information that is publicly available such as data, climate science, existing plans? How will compiling this story help support decision making in response to climate impacts?

Alaska and Arctic Climate Change

John Walsh, International Arctic Research Center Chief Scientist

The arctic is warming faster than the rest of the world. Climate change must be considered within a broad range of other social, cultural, economic, and political drivers which can vary widely among communities. A changing climate can dramatically influence how and what decisions are made. For example, in the late 1960's the Alaska's offshore seas and the Northwest passage were considered as a potential option for transporting North Slope oil to market by tanker. Due to sea ice extent at the time, it was decided that this option was not viable. Political pressure to construct the overland Alyeska pipeline was a key factor in the passage of the Alaska Native Claims Settlement Act in the early 1970s. Since that time, Arctic sea ice has receded, allowing Russia to transport its natural gas through Arctic seas and the Bering Sea. This historical narrative provides an example of the impact of climate change on how the land and ocean are managed or used.

There are some benefits and opportunities presented by climate change in Alaska for example, fewer episodes of extreme cold that reduce heating bills, longer growing seasons, and a longer window for marine and river resupply operations.

There are also some important concerns. Warmer air temperatures are linked to the increase of invasive species like the spruce bark beetle. Warmer water temperatures lead to harmful algae blooms and fish die offs. Hotter, drier summers increase wildfire risk and impact air quality from smoke and dust. There are also increased hazards from thawing permafrost, flooding, and more frequent occurrences of freezing rain.

Climate change brings risks, challenges, and opportunities - anticipation and preparation will matter.

Presentation References:

[Alaska's Changing Environment](#)



Nancy Fresco, Scenarios Network for Alaska + Arctic Planning and Rick Thoman Alaska Center for Climate Assessment and Policy

Choosing an adaptation planning approach

Krista Heeringa

There are many approaches to climate change adaptation. Choosing an approach that is appropriate for a community depends on many factors including community priorities and areas of greatest need or concern, what work has already occurred and current capacity.

An adaptation planning approach narrows the focus of planning. A few examples are approaching adaptation planning through an infrastructure, food security, or emergency preparedness lens. With an infrastructure planning approach you might assess the vulnerability of community infrastructure such as roads, homes, airports, or fresh water sources to climate impacts like sea level rise, permafrost thaw, or wildfire so that you can develop strategies to protect or respond. A food security approach might consider the vulnerability of important species or ecosystems, vital for food and cultural preservation, to help determine potential adaptation strategies.

Examples of climate adaptation approaches:

Igiugig's Climate Change Adaptation Assessment focused on identifying food security as a main concern for the community, and then identifying four species of concern. The full presentation by Alexana Salmon can be found on the [Alaska Tribal Resilience Learning Network](#) resource page. The Metlakatla Indian Community Hazard Mitigation Plan decided to mainstream their climate considerations by including them in their Hazard Mitigation Plan. In a recorded presentation, Genelle Winter discusses how the Metlakatla HMP was their community's "funding playbook" to make their community more resilient to climate change in the future.

Kotlik Tribal Coastal Adaptation Assessment

Philomena Keyes

Philomena presented on the Kotlik Tribal Coastal Adaptation Assessment. In this presentation Philomena outlined the project purpose, the process the Kotlik Tribe used to complete their assessment, and a list and description of the threats and vulnerabilities that are a concern for Kotlik that included bank erosion, flooding, thawing permafrost, decreasing sea ice, and increasing storm surge and rising temperatures.

PROJECT PURPOSE

- To identify important components of Kotlik and determine risk of harm.
- Compile (collect, put together) a list of vulnerable things that are affected by climate change (flooding, storm surges, erosion, thawing land, and changing temperature)
- Assess (measure, evaluate) the vulnerability (weakness) of each identified item in the risk list and determine if each asset is susceptible (weak) or resistant (tough) to impacts from the weather or climate events
- To increase knowledge (both traditionally and scientifically) and raise awareness
- To plan for responding to change

Computer Lab

Participants spent the afternoon of Day 2 in the computer lab at Rasmuson Library, so they could walk through each of the tools themselves as presenters covered them.

Overview of Climate Tools: LEO Network and State of Alaska Site

Megan Pittas

[Local Environmental Observers \(LEO\) Network](#): An online database put forward by a group of local observers and topic experts that compiles observations about the changing land, animals, and waters. Creating posts can be a great way to connect with experts, secure funding, and raise awareness about environmental issues, and reading posts can be a way to learn more about the experiences of other communities around the world.

[State of Alaska, Division of Community and Regional Affairs \(DCRA\) Community Plans Library](#)
The community plans library is maintained by the Division of Community and Regional Affairs and is a place to search for a variety of planning documents completed by communities throughout Alaska.

TIP:

For ease of interpreting reports, ctrl +F can be one tool of searching keywords, such as “climate” or “wildfire” that the community is looking to address.



Participants search the LEO Network and Community Plans Library for their communities.



Participant Stanley Taylor shared with us reports from his community of Tetlin on the LEO Network website: [Permafrost melting is causing above and below ground tanks to shift](#)

The community documented and reported on the LEO Network website pictures of thawing permafrost and how that has caused damage to fuel tanks and fuel lines. The LEO Network documentation is helpful for securing funding or writing an adaptation plan. And because of the reporting on the site it helped the community receive aid in repairing damaged fuel lines in the community.

Weather Tools

Rick Thoman

Don't trust the icons in any weather forecast! The National Weather Forecast (NWS) is the only forecast that has a person involved in creating the forecast. All other forecasts are purely weather model outputs. NWS is the only entity that can issue weather watches, warnings, or advisories. The NWS website allows you to get a forecast anywhere in Alaska (including offshore), not just for communities. If you're a city or tribal official, or with tribal IGAP staff you can sign up to get text messages sent to you cell phone with information you've pre-selected. For example, you can sign up to get text message alerts for all weather warnings for your community. <https://inws.ncep.noaa.gov/>

"Stand-by, I'm going to give you the keys to the climate kingdom"

<https://scacis.rcc-acis.org/>

Useful links

NWS Forecast Offices

Anchorage: <https://www.weather.gov/afc/>

Fairbanks: <https://www.weather.gov/afg/>

Juneau: <https://www.weather.gov/ajk/>

Mobile Friendly: <https://mobile.weather.gov>

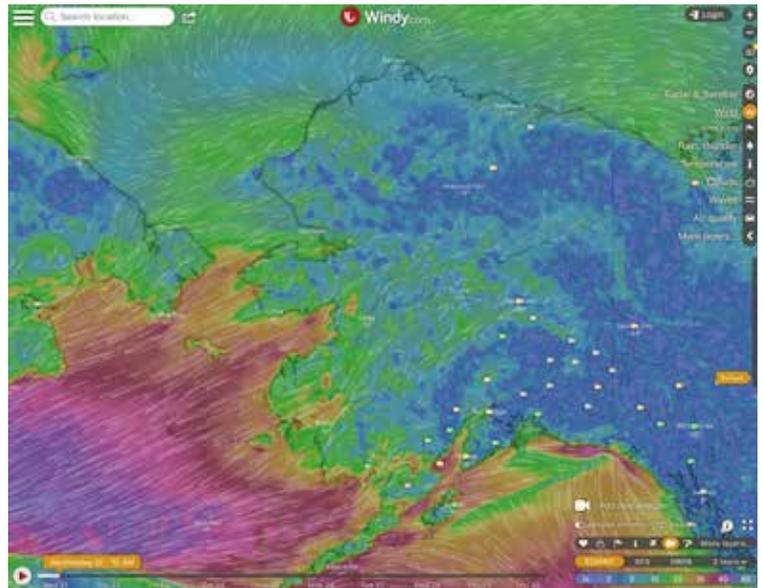
Popular weather model sites (these have apps). Include "wind in motion" options

<https://www.windy.com/>

<https://www.ventusky.com/>

Climate Prediction Center for week to seasonal outlooks

<https://www.cpc.ncep.noaa.gov>



SNAP Tools

Nancy Fresco, SNAP Network Coordinator and Research Assistant Professor

Mike DeLue, AK CASC & SNAP Communications Lead

The following online tools pull information from current modeled data and present the results in a friendly web-based format. There are more tools available at the SNAP tools page that are not covered in this training session.



Community Charts Tool

The most straightforward of the SNAP tools, this tool provides information on projected temperature and precipitation for each community Alaska and western Canada. Chart exports produce the data as a .png image which can be downloaded and inserted into grant proposals, reports, or plans.

<https://snap.uaf.edu/tools/community-charts>



Historical Sea Ice Atlas

Of particular interest to coastal communities, the Atlas shows historical sea ice modeled back through the late 1800's using whaling ship logs, up through modern data acquired through satellite imagery. There are videos and a poster available to provide context (only for the Alaska region) or points can be requested by community name, or by selecting a point on the map (circumpolar Arctic). This is somewhat unique as a current SNAP tool in that it only presents historical information with no modeled projections of future sea ice conditions.

<https://www.snap.uaf.edu/tools/sea-ice-atlas>

Northern Climate Reports
FOR CHANGING ARCTIC ECOSYSTEMS



Northern Climate Reports

An ongoing development, this tool brings together much of SNAP's projected climate data for a single location in one place. Community information includes projections on temperature, precipitation, flammability, permafrost, and vegetation cover, with Spruce Beetle infestation risk soon to come. Information is available for single locations, or for areas including parks, ethnolinguistic regions, watersheds, game management units and more.

<https://northernclimatereports.org/report/community/AK124#results>

Field Trip: Permafrost Tunnel Tour

A portion of participants attended an optional tour of the Permafrost Tunnel Research Facility operated by the Cold Regions Research and Engineering Laboratory (CRREL). The permafrost tunnel run by CRREL is one of only two permafrost tunnels in the world, with the other being a tunnel in Yakutsk in Siberia. Participants were able to see mammoth tusks, the two different types of permafrost continuous and discontinuous. The tunnel provides fruitful ground for discussing the increasing rate of permafrost thaw due to climate change, engineering avenues of mitigating permafrost thaw, and the practical challenges of building on and around permafrost.



Operations Manager, Gary Larsen, gave a brief tour to several of the training participants.

Day 3: What do you do about climate change?

What are individual and community level actions that are possible based on you/your communities experience, level of energy, and strengths? What are possible funding mechanisms for supporting those actions?

Relocation, Managed Retreat, and Protect in Place

Malinda Chase

Climigration is a term that describes internal displacement and external migration. With ocean level rise and an increase in extreme events, we are seeing more internal migration with Alaska. As other locations through the US and world become more inhospitable, we may also see an increase of people moving into Alaska.

With an increase of internal displacement that may lead to loss or limited access to important traditional foods and need to move or relocate infrastructure due to coastal and river erosion, flooding, and storm events; land issues are central.

It is significant and critically important to consider how your Tribe characterizes traditional land and ocean use areas, and the status of land changes through erosion, permafrost thaw, and sea level rise. Describing how land has been used in the past, how it is changing today, and what it might look like in the future are all important in making future land planning decisions.

Relocation (or site expansion)

Moving the entire community to a new location at higher ground that is not connected to the current site.

Managed Retreat

Moving portions of the community in a phased approach from hazard-prone areas to other locations in the community or adjacent to the current site.

Protect-in-place

The use of shoreline protection measures and structure rehabilitation, restabilization, or other adaptation measures to prevent or minimize impacts, allowing the community to remain in its current location.



Lower Golovin 9/27/22 during ex-typhoon Merbok. Courtesy of Carol Oliver.

Building Capacity and Workforce Development

Adelheid Herrmann, Co-Investigator of the Alaska Center for Climate Assessment and Policy

Workforce development is an important component of climate change adaptation. Climate change workforce development includes approaches, skills acquisition, networks, careers, collaborations that create “green and blue jobs” that support the development of needed capacity to respond to current climate conditions and jobs that support a sustainable future. After conducting a literature review, very few plans were found to include workforce development. Workforce development can include things like promoting traditional and adapted food preservation techniques. The key is that it supports the use or development of local resources and labor.

Workforce Development Definition

“Workforce development is the coordination of public and private sector policies and programs that provides individuals with the opportunity for a sustainable livelihood and helps organizations achieve exemplary goals, consistent with the societal context.” (Jacobs, R., & Hawley, J, in press).

Solar Energy: Practicality, Logistics and Training in SW Alaska

Eric Goddard, Sustainability Energy and Environmental Studies Faculty at UAF Bristol Bay Campus

Solar energy is a “good infection” that offers the potential for a more resilient power source when extreme weather events like coastal storms impact the larger grid. Solar energy reduce carbon emissions and can begin paying back after 3-6 years. Solar is a good long-term investment. The technology is improving, and the costs for initial installation are more and more affordable, but it also offers local economic investment and opportunity for localized specialized labor.

One of the biggest challenges for increasing the number of solar installations in Alaska is the lack of the technical expertise that is needed for installation and maintenance of the solar energy systems. UAF Bristol Bay campus is partnering with Solar Energy International for a train-the-trainers program beginning in May of 2023.

BECOME PART OF THE SOLAR ENERGY WORKFORCE TRAINING!

Solar Electric Installer Training
May 6th – 15th | In-person in Dillingham

EARN A SOLAR CERTIFICATE
Credits provide credit toward a Solar Professional Installer Certificate, a nationally-recognized certificate from the North American Board of Certified Energy Practitioners.

RECEIVE COLLEGE CREDIT
Students will receive two University of Alaska Fairbanks college credits by completing this course.

Join us to become part of the Solar Energy workforce training that is **changing the world**. You'll learn the science and practicality **ins and outs** of Solar PV (photovoltaic) installation and then take the next step by installing a working system on the UAF Bristol Bay Campus to complete your training and professional certificate.

The normal cost for this training would be a **\$4000** value. **Cost of tuition and lodging has been greatly reduced** due to generous grant funding. Contact us for details (portions not included).

To register, contact Eric Goddard
egoddard01@aleka.edu | 807-843-2323 | www.alaskasolar.org

Logos for UAF ALASKA, SOLAR ENERGY INTERNATIONAL, Remote Energy, and USDA are shown at the bottom.

An Example of Community Gathering Data with Drones

Mike DeLue, AK CASC & SNAP Communications Lead

Drones as a data collection tool are a growing interest among planners, decision-makers, and researchers. Mike DeLue presented the ongoing work of a research group headed by John Henry (Native Village of Unalakleet), Jessica Garron (AK CASC), and Margaret Hall (Model Forest Policy Program). The project aims to train a group of drone pilots in the community of Unalakleet to perform data collection missions with drones, providing the community with increased capacity and making a drone data collection team available to potential partners in government, research, and business in the Norton Sound region.



The project funded by the Department of Homeland Security (through the Arctic Domain Awareness Center (Award Number 2014-ST-061-ML0002))

Developing the capacity to fly drones for data collection and processing feeds into numerous decision-making processes at the local level. Community mapping can provide up-to-date imagery at higher detail and more often than satellite imagery to measure flooding and monitor coastal erosion. Terrain or surface maps can be used for flood mapping and tracking subsiding land as permafrost thaws. 3D mapping capabilities available in the drones used in this project are also powerful for infrastructure inspection purposes allowing for remote examination of fuel tank farms and wind turbines. Drones with long wave infrared capabilities may also be able to provide awareness of power infrastructure and have applications in examining building efficiency, and in search and rescue efforts.

Healing Centered Engagement: Compassion, Connection, Community, Culture, and Curiosity

LaVerne Demientieff, UAF Professor and Department Chair of School of Social Work

When we are experiencing trauma and stress it is hard to plan, to make decisions, be in relationships, and stay connected with ourselves and our communities. It's helpful to understand where trauma starts, and how it impacts the brain, body, and spirit, so that we can better understand how to move forward together. While you or individuals you know may have a trauma history, you and others also have a wellness and resilience history.

'If you can respect the smallest life with compassion it shows you can start small and you can give that respect to others in your life' - Jacob Ivanoff

The amygdala is the part of the brain that is like an alarm system and is connected to the hippocampus, which stores memories as sets of stimuli, such as smells, the way things look and feel, temperature, etc. If we have experienced a traumatic or stressful event, we might become triggered if we experience similar sensations (e.g sights, smells, physical positions, etc.) to those that occurred during the trauma, even if we are safe in the present. The hippocampus sends

messages to the amygdala of the familiar, unsafe memory and feeling, which then sends an alarm to the rest of our system causing us to become alert, ready to react, and do what we need to do to survive. When we become triggered, the thinking part of our brain, the prefrontal cortex, gets overridden by the fight or flight parts of the brain, the amygdala and the brain stem, which is our survival brain. We want our thinking part of the brain (our frontal cortex) to lead us through the world, but in order to do so it is important to find strategies that bring us back to ourselves, back into our bodies, and into the space and time that we are in at the present moment.

Breathing

If we are stuck in toxic stress, or start feeling triggered, simple breathing techniques can help us get back to a place of calm. Practice breathing from your belly. Inhale 1-2-3 seconds, hold, and exhale slowly 1-2-3-4-5. Do this several times, and as you do, inhale what you need, love, rest, peace and breathe out what you don't need, breathe out whatever is not serving you, stress, toxicity, resentment, anxiety, etc.

It is important to build a community of care where we practice these strategies together, not just by ourselves. The key is to practice and build these practices into every space.

Affirmations

Thoughts impact our feelings and our behaviors. Shutting down the patterns of negative thinking and correcting negative thoughts about yourself can make a big difference. Identifying positive thoughts and affirmations, and repeating them often, can help replace negative and toxic thoughts about yourself.



The 5 C's can help with centering healing and engaging with one another and withing the community..

Compassion - Having compassion for self and others can help you stay healthy and in your body.

Connection - Being connected to your body, staying connected with your culture and community, this is where healing from past trauma can begin.

Community - Being in community is such an important part of staying healthy and being well. Elders often tell stories about how much their communities used to do together. They yearn to be in community and know how important it is.

Curiosity - Our elders are curious and lifelong learners, scientists, and observers. Being curious about the world and about the impacts of trauma helps us understand each other, learn strategies for wellness and healing, and nurtures compassion and connection.

Ceremony - Indigenous people wouldn't be here without their ceremonies. Ceremonies connect us to ourselves, earth, others, spirit, and the land. Ceremony can help clear energy that is not serving the community, others, or me.

Establishing a System for Proposal Writing

Angela Larson, Goldstream Group, Inc.

Building a team

Writing grants can be overwhelming, building a grant writing team is an important part of writing successful grant proposals. Proposals need people with different skills, for example the idea maker, financial person, project management, the writer, and the data or technical person.

Project Plan

You should have a project plan developed before you ever look for funding. Logic models can be a really helpful tool for helping you clarify and define your project. Some important planning areas include:

- 1 Defining what the big picture is for your project,
- 2 Defining specific goals or objectives,
- 3 Listing out the specific people, equipment, or resources that will be needed to accomplish your goals
- 4 Identifying the activities that will be needed to accomplish your goals,
- 5 Clarifying the direct products or outputs of your project or program.
- 6 Long term outcomes are, how do you think your community will improve because of your activity?

Helpful tips

Create a funding calendar - there often is not a convenient time to write grants. However planning ahead can help you do much of the work during windows of time when you don't have to compete with other activities such as hunting, or holidays.

Thought partners - This might be part of the grant writing team, but it can also be people that help you think through and clarify your ideas.

Helpful documents - Tribal resolutions, documentation of community support whether from community meetings, tribally adopted plans, or records of votes with sign in sheets can all be helpful documents. Letters of support might also be crucial.

Where you can find grants

Kathy Lynn and Kylie Avery, Pacific Northwest Tribal Climate Change Project

<https://tribalclimateguide.uoregon.edu/funding>

The Tribal Climate Change Guide is intended to provide up-to-date information on grants, programs and plans that may assist tribes in addressing climate change through a broad range of sectors. The FUNDING tab specifically, is regularly updated to include the most current funding opportunities available. Many of the highlighted grants are federal grants, but the funding guide also includes funding opportunities from private foundations and states. Tribes are eligible for ALL grants that are highlighted in this funding guide.



Participants share short term and long term goals for their work and their community in closing circles.

Training Closing, Wrap Up, and Evaluation

The closing activity for the three day training included small group discussions, where participants were asked to reflect on what their short and long term goals were related to work for their community, and what long and short term goals were for them personally.

Closing Circle

Everyone sat in a circle similar to our session opening and were asked to share whatever came to mind. Many shared their gratitude for being in a space to learn and connect with others. A closing prayer was shared, and words or wisdom from an elder that it is so important to support each other in this work.

Looking Forward

Excitement and participation surrounding this training highlights the need for increased and improved technical support surrounding Tribal Climate Adaptation initiatives. Based on feedback from participants and discussion among presenters, future trainings would benefit from:

- An increased focus on adaptation action, rather than just science application.
- Consistently participants asked specific questions about what projects have worked for other communities and how to act.
- Further dedicated computer lab time for participants to explore tools and templates while presenters are covering them, especially with regards to the funding piece.
- More interactive activities that make learning and understanding climate science fun.
- Including a youth focus including but not limited to content areas, but also involving youth in the planning.

Tribal Climate Adaptation 101 Participant quotes from Evaluation

- *"I learned a lot of resource[s] that are available that would help in the planning of a 'move'."*
- *"More hands on or computer lab work and the funding source. We can search for funding and bring it home and apply and prepare to apply it."*
- *"Try to target more youth to help in these times and situations. So they are aware plus help with the common cause."*