

Directors' Message

2017 YEAR IN REVIEW

Changing climate, changing landscape. Alaska saw yet another warm year with the northern and western coastal regions continuing to break or nearly break temperature records owing to combined sea ice extent in the Chukchi and Bering seas reaching barely half of the 1981–2010 average and registering as the lowest in the satellite record (since 1978). The lack of sea ice was a major factor in the coastal flooding/erosion events in western and northern Alaska this fall. As climate impacts mount, the AK CSC is focused on the research required to make informed decisions in a time of rapid and severe change.

A year in transition. This year marks the end of the University of Alaska Fairbanks' first cooperative agreement as the host institution of the AK CSC, and the beginning of a new hosting agreement through 2022. University director Scott Rupp, working alongside USGS director Steve Gray, will continue to provide University-led direction. The two scientists began leading the AK CSC soon after its inception in 2010, shepherding the center through its formation, development and maturation. Over the next five years the AK CSC will continue to collaborate with its research partners, with a focus on the co-production of actionable science.

Science speaks. In this issue you will learn about ScienceTapes, a novel communication project that provides a sounding board for the voices of science.

Leadership development. We continue to support the development of the next generation of leaders in science. In this issue you will meet one of our new Fellows.

Please visit us online or contact us directly about our research, education, and outreach activities.

NORTHERN NOTES

PUBLICATIONS

AK CSC researchers published 50 peer-reviewed papers in 2016–2017. See last page for some featured publications.

AK CSC WELCOMES NEW FACES

Malinda Chase is the new Bureau of Indian Affairs Tribal Liaison with the AK CSC, serving as a link between Alaska's tribes and the climate research community.

Nicole DeCrappeo joined the AK CSC as the USGS Deputy Director.

Lindsey Heaney was chosen as the Science Communication Lead for the AK CSC.

Gabriel Wolken, Program Manager of the Climate and Cryosphere Hazards Program at the Division of Geological & Geophysical Surveys, was appointed as an AK CSC assistant research professor.

NEW COOPERATIVE AGREEMENT

CONTINUES UAF-USGS PARTNERSHIP

UAF was awarded a new five-year cooperative agreement to host the AK CSC through 2022. In this new agreement, the University of Alaska Southeast joins UAF and the University of Alaska Anchorage as a consortium partner.

University director **Scott Rupp** of UAF and USGS director **Steve Gray** will continue to provide leadership for the AK CSC. They have co-led the CSC since soon after its inception in 2010.

AK CSC researchers bring diversity of voices to science

When AK CSC researcher Jessie Young-Robertson attended a science conference that brought together scientists from around the world to give talks, she found that something was missing.

"I sat through talk after talk thinking I just want someone to tell me a story," says Young-Robertson. "That's when I started looking into StoryCorps."

StoryCorps is a non-profit organization that records and preserves stories from people of all backgrounds from around the world. With Young-Robertson and AK CSC researcher Bob Bolton taking the lead, AK CSC and StoryCorps began a year-long partnership in June 2017 to promote co-production and storytelling in science.

"This is the first time that our Community Training program has trained a university-based science center to facilitate StoryCorps recordings through a year-long recording partnership," says Eddie Gonzalez, StoryCorps Community Training manager. "In this way, there have been valuable opportunities for mutual learning."

As part of this partnership, StoryCorps came to Fairbanks, Alaska to train 12 facilitators to use recording equipment and to better understand story collecting techniques. "It was actually an interesting experience because it gave all of us as facilitators the chance to get to know one another through our own stories," says Bolton.

Young-Robertson and Bolton chose each facilitator to represent various agencies with different perspectives on science. Facilitators ranged from tribal liaisons to science communicators and educators. "It was very empowering going through the training," says Theresa Bakker, facilitator and University of Alaska Museum of the North marketing and communications manager. "Each of us had different backgrounds, but shared the same passion for science outreach."

"Our facilitators have recorded more than 20 stories, which are now archived with the Library of Congress," says Young-Robertson.

All storytellers gave insight into their experiences and knowledge. One story involved Young-Robertson and AK CSC alumni fellow Abraham Endalamaw discussing his journey from Ethiopia to Alaska.

"I really love my country and there are not good things happening; now it's just getting worse. If I were in Ethiopia right now, I would be in jail or probably, I would be killed," said Endalamaw as he explained his activism work in Ethiopia.

They also discuss his experiences during graduate school at UAF. Young-Robertson describes trying to get Endalamaw to speak louder for his thesis defense by having him read a newspaper to her from across a room.

"It's partly cultural, we are not encouraged to speak louder [in Ethiopia], but I also want to be heard," said Endalamaw.

Another story highlighted Megan Hillgartner and Sorina Seeley who came to UAF as fellows from the Middlebury Institute of International Studies to finish their degree in International Environmental Policy.



▲ AK CSC researchers Jessie Young-Robertson (left) and Bob Bolton (right) with StoryCorps trainers Roselyn Almonte and Eddie Gonzalez.



▲ Workshop participants, including AK CSC scientists Malinda Chase and Ryan Toohey, hone their recording skills.

Their story emphasizes trust with each other and with communities during their project, which reveals their struggle with a community member's trust.

"We wanted her to trust us right away based on what we thought were principles of trust. We didn't listen to her story. And we found that when we went back we had a different approach," said Seeley. "We just listened. We didn't have any questions. We didn't have any ideas. That space for communication grew back."

What's next: ScienceTapes

As stories continue to be collected and with a successful partnership coming to an end, Young-Robertson and Bolton look to the future, hoping to move forward with their work.

"StoryCorps gave us the tools and building blocks," says Young-Robertson. "Now we're looking to move forward with our own program called ScienceTapes, which is inspired by our partnership with StoryCorps."

ScienceTapes was created to have a space to share Alaska's science-based stories to build bridges between communities, agencies, and scientists. With this in mind, Young-Robertson and Bolton hope to be able to use stories as a way to gather knowledge and inform target audiences.

"The building bridges through sharing knowledge is partly understanding the lens through which rural communities see researchers," explains Young-Robertson. "And taking that information to researchers to build better relationships."

These stories also offer content that enhances Alaskans' capacity to make well-informed, responsible decisions about science-based issues. Each story's

authenticity aims to reveal the humanity that exists within science.

With ScienceTapes, the team will start shifting towards rural and urban programming through radio. In fact, these stories will soon be featured on KUAC's Northern Soundings in the coming months. They're even looking to develop an app for mobile users to access stories right at their fingertips.

"We're waiting to see if our grant gets approved," explains Young-Robertson. "If it does, then a lot of doors start opening up."

ScienceTapes will also be available in-person for local museum enthusiasts. During AK CSC's All Hands Meeting in September, Young-Robertson and Bolton set up listening stations at the University of Alaska Museum of the North. In the near future, they plan to have permanent listening stations in place for museum visitors to experience.



▲ AK CSC facilitators—including Bob Bolton (front row, left), Scott Rupp (back row, third from left), and Allison Bidlack (front row, second from right)—and StoryCorps trainers.

"These listening stations will be very valuable to the museum's visitors," says Bakker. "It's a great venue for this resource and our staff is super excited."

As ScienceTapes continues recording stories with new collaborations and opportunities in sight, the team hopes that these stories will provide a source of inspiration and empowerment.

"I see ScienceTapes as a beacon for people to come and listen," says Young-Robertson. "And as a beacon for people to be heard."

AK CSC Fellow travels to Antarctica to discover leadership, inspiration, and relentless optimism

AK CSC graduate fellow Joanna Young traveled to Antarctica with 75 other women on a three-week Homeward Bound expedition. Young explains that it was a time for inner-reflection, learning, and developing leadership and science communication skills.

Each day involved several leadership activities, which included navigating through difficult conversations as a leader and carving out personal and professional mission and strategy maps. These activities allowed for personal reflection in order to help participants advance their leadership skills.

"You can't be a good leader if the work you're doing doesn't align with your core values," says Young.

Participants spent time on land each day exploring the magnificent landscape of Antarctica. They were transported from the ship on small, inflatable boats that scooted around icebergs and near old volcanic calderas. They explored rocky shores, snow covered beaches, cascading glaciers, and sea ice frozen to the land.

Participants also heard from researchers stationed in Antarctica that have observed alarming changes that include retreating glaciers, changes in the length of seasons, and relocation of wildlife populations.

Participants watched interviews of leading women around the world with messages to everyone on board, including an interview from Jane Goodall, primatologist and United Nations (UN) Messenger of Peace; and Christiana Figueres, Executive Secretary of the UN Framework Convention on Climate Change.

Young was particularly inspired by Figueres' interview and two words have resonated with her ever since: relentless optimism.



▲ AK CSC Fellow Joanna Young with friends in Antarctica.

"That captures what I feel working in climate science," says Young. "That's what we need and that's been my approach. With relentless optimism we can make progressive changes to help start mitigating and adapting to climate change."

Young is applying all that she learned from this expedition to her career as a glaciologist and to further promote leadership as an instructor for AK CSC-sponsored Girls on Ice Alaska.

Young's participation in this expedition was made possible by the AK CSC and the UAF Resilience and Adaptation Program.

NORTHERN NOTES

ALASKA HOSTS CSC ALL HANDS MEETING

AK CSC hosted the CSC All Hands Meeting in September 2017. University and USGS directors from the eight CSCs attended, as well as others from the National Climate Change and Wildlife Science Center, program coordinators, and communication specialists.

Participants discussed the federal budget, community and indigenous adaptation, engaging community partners, and co-production of research.

In addition to a Science Showcase and poster session, the AK CSC also coordinated field trips to Poker Flat Research Range, the Cold Regions Research and Engineering Laboratory permafrost tunnel, and a glacier near Anchorage.

AK CSC SCIENTISTS CONTRIBUTE TO CLIMATE REPORT

AK CSC scientists **Uma Bhatt**, **John Walsh**, **Vladimir Romanovsky**, and **Gabriel Wolken** made key contributions to the Bulletin of the American Meteorological Society State of the Climate 2016 Report.

NEW NORTHERN MANAGEMENT TOOL

The Northwest Boreal Landscape Conservation Cooperative worked with the AK CSC, the Alaska Resources Library & Information Services, and DataBasin to launch a new Alaska-Canada Boreal Science and Management Research Tool.

Leadership workshop brings together early-career women scientists and supporters

In August 2017, AK CSC graduate fellow Joanna Young and AK CSC program coordinator Jane Wolken organized and hosted a two-day Leadership Workshop for Early Career Women in Science in Fairbanks. The AK CSC-sponsored workshop brought together 45 women scientists and supporters with backgrounds from science education to natural resource management.

“I wanted to host this workshop to bring the things I learned from my Antarctic experience back to my community,” says Young.

Workshop activities and discussions ranged from personal to professional development with topics including navigating work-life balance, collaboration strategies, communication techniques, awareness of cultural differences, visibility, and inclusivity. These topics relate to the overarching mission of the workshop: to increase the capacity of women in science to have a voice at the leadership table, in any field they are passionate about.

“One thing I learned in Antarctica is that effective leadership isn’t just a matter of directing workers around—it is a matter of knowing yourself and your team members,” explains Young. “This is why focusing on things like communication techniques and inclusivity were such a crucial part of our training”

The discussions addressed challenges that women face in academia and as early career scientists, including sexual harassment, implicit bias, and work-life balance. Of the many challenges discussed, the limited number of women in science-related fields was prominent.

Featured 2017 publications

Bieniek, P.A. and Walsh, J.E. 2017. Atmospheric circulation patterns associated with monthly and daily temperature and precipitation extremes in Alaska. *International Journal of Climatology*, 37(S1):208-217.

Endalamaw, A., Bolton, W.R., Young-Robertson, J.M., Morton, D., Hinzman, L., and Nijssen, B. 2017. Toward improved parameterization of a macro-scale hydrologic model in a discontinuous permafrost boreal forest ecosystem. *Hydrology and Earth System Sciences*, 21:4663-4680.

Euskirchen, E.S., Bret-Harte, M.S., Shaver, G.R., Edgar, C.W., Romanovsky, V.E. 2017. Long-term release of carbon dioxide from Arctic tundra ecosystems in northern Alaska. *Ecosystems*, 20(5):960-974.

Lader, R., Walsh, J.E., Bhatt, U.S., and Bieniek, P.A. 2017. Projections of twenty-first-century climate extremes for Alaska via dynamical downscaling and quantile mapping. *Journal of Applied Meteorology and Climatology*, 56:2393-2409.

Partain, J.L., Jr., Alden, S., Bhatt, U.S., Bieniek, P.A., Brettschneider, B.R., Lader, R.T., Olsson, P.Q., Rupp, T.S., Strader, H., Thoman, R.L., Jr., Walsh, J.E., York, A.D., and Ziel, R.H. 2016. An Assessment of the Role of Anthropogenic Climate Change in the Alaska Fire Season of 2015 [in “Explaining Extremes of 2015 from a Climate Perspective”]. *Bulletin of the American Meteorological Society*, 97(12): S14-S18.

▲ Find more publications at csc.alaska.edu/publications.

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▲ Leadership workshop participants, including AK CSC fellows Joanna Young and Erin Trochim, program coordinator Jane Wolken, and researcher Bob Bolton. Photo: Lindsey Heaney

“The feedback from participants has been incredibly positive, and we have had several requests from within and outside of UAF to host more of these events,” says Young. “I think we’re onto something truly helpful and important, and I look forward to seeing how we can continue offering this kind of opportunity in the future.”

Meet AK CSC Fellow Erin Trochim

With a background in geography and a passion for the outdoors, Erin Trochim moved from Whitehorse, Yukon to earn her master’s degree in hydrology in the civil engineering department at UAF.

Through her studies and her project modeling water on the North Slope, Trochim found that water is essential to understanding what’s important to local communities and changing landscapes. Interactions between permafrost and water occur throughout much of the Alaska landscape, further complicating research efforts.

Trochim’s interest in permafrost led her to a PhD in remote sensing and hydrology in the geoscience department while working on projects with NASA to describe drainage networks and the Alaska Department of Transportation to use geophysics to characterize permafrost for road design.

Currently, Trochim is leading a collaboration between the AK CSC and the Study of Environmental Arctic Change (SEARCH) to create knowledge pyramids on permafrost and infrastructure as well as ecosystem services. These pyramids are designed to help policymakers, students, media, and scientists in other disciplines better understand Arctic science.

She is also working on a project that examines how surface water has changed the Arctic landscape as well as other permafrost areas.

With these projects, Trochim emphasizes collaboration by working with experts and stakeholders to produce efficient and effective tools.

