



# ACCAP

Alaska Center for Climate  
Assessment and Policy

A NOAA RISA TEAM

# Alaska Historical Extreme Weather Events

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International  
Arctic Research  
Center

# Overview

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# Alaska Fellows Program

- Fall-to-spring residential fellowship program nurturing the next generation of Alaskan leaders
  - Since 2014
  - Talented early-career professionals
  - Professional mentorship
- Adds much needed capacity to partner organizations
  - Nonprofit and public sector organizations



# Why did ACCAP want to do this project?

- Many high impact weather and climate events all across Alaska in recent years
- Past events important for placing current events in context
- Builds on NWS/ACCAP work from 2014
- Unlike basic weather/climate data, past events info and impacts can be hard to find



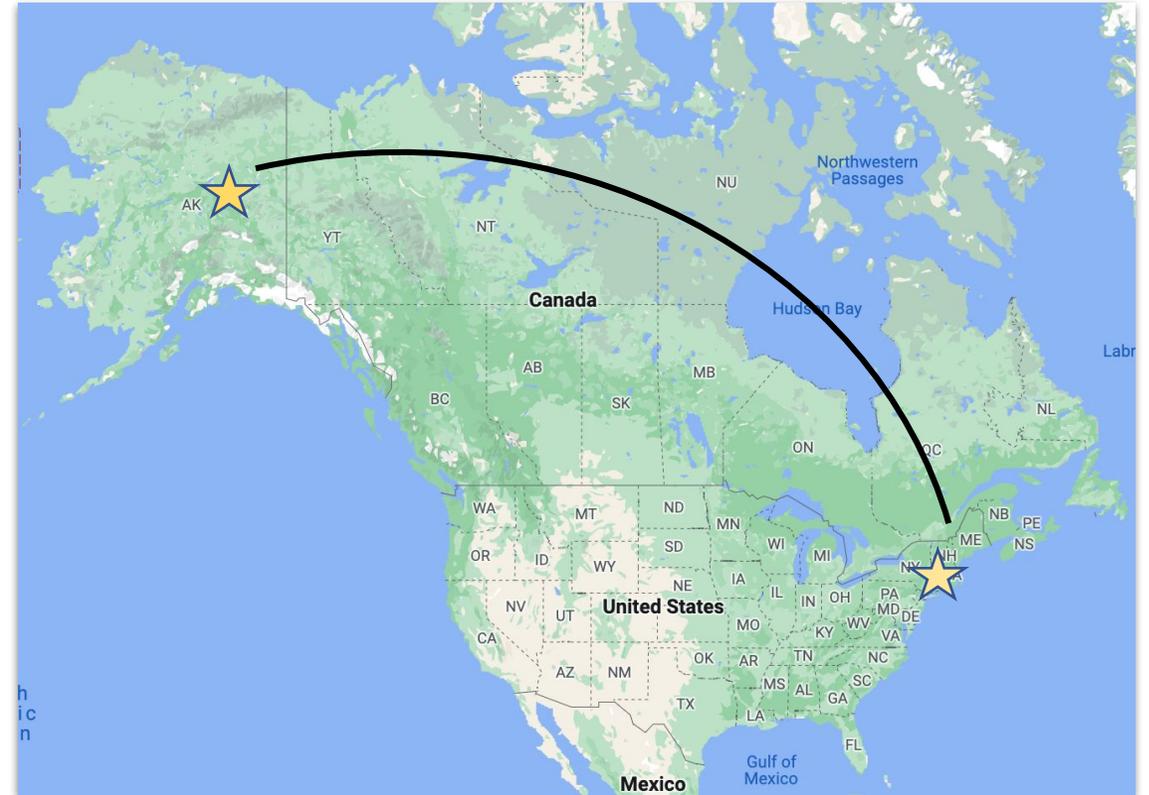
**Cordova, Alaska, January 7, 2012**

Photo credit: Kim Weibl, AP/Alaska Division of Homeland Security And Emergency Management



# Introduction

- Born and raised in Connecticut on the traditional lands of the Mohegan and Quinnipiac peoples
- Educational background in Environmental Science and Public Health
- Moved to Alaska in September to work with ACCAP through the Alaska Fellows Program
  - Learned to Xc ski this winter!



# Types of events

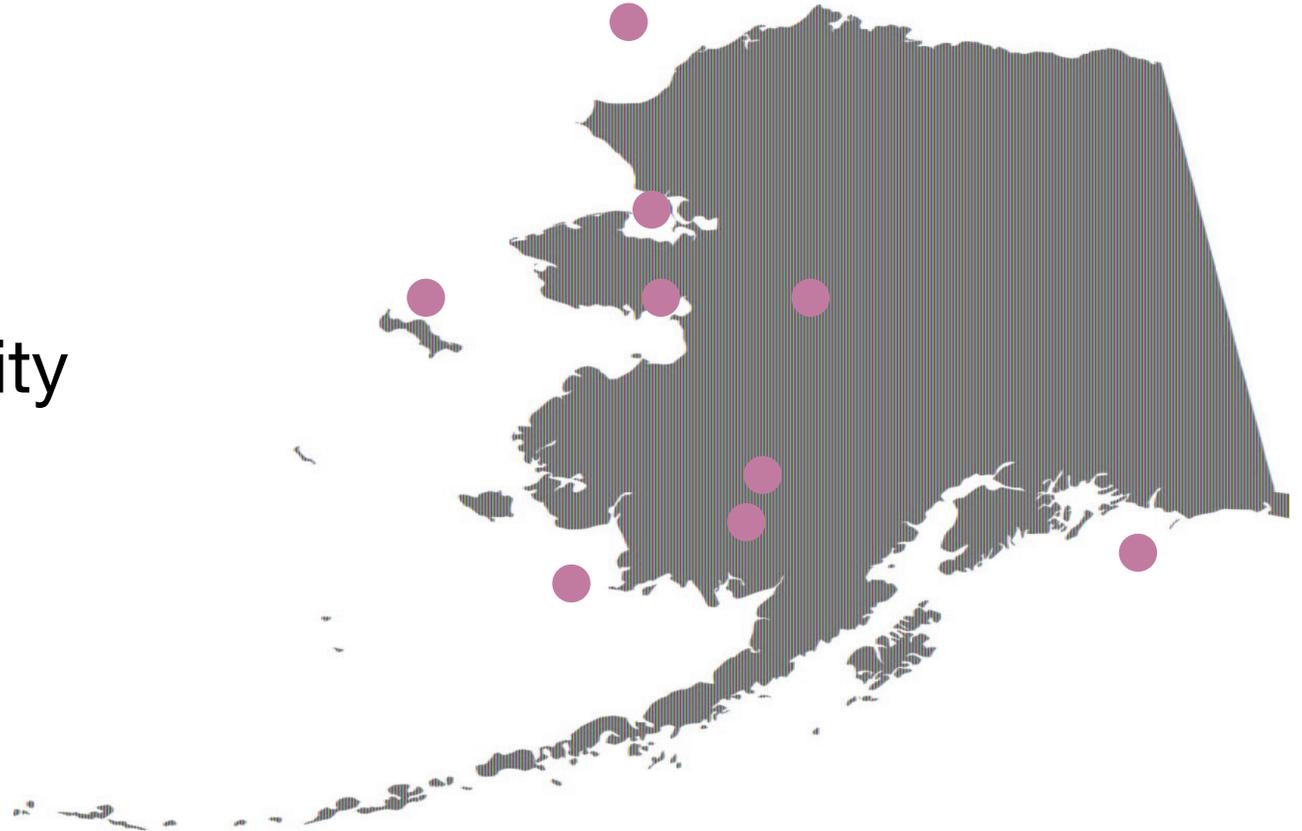
Types of events covered:

- Wildfires
- Flooding
  - Breakup flooding, Summer rainfall flooding
- Avalanches
- Loss of Sea Ice
- Extreme cold and/or winds
- Coastal storms
  - Erosion, coastal flooding



# Choosing extreme events

- Many weather and climate events in Alaska with large impacts
- Challenge of data availability and accessibility
- Large geographical span



# Research process

- Compilation of Storm Events Database, FEMA Disaster Declaration
- Newspapers
  - The Nome Nugget, Juneau Empire, The Daily News Miner
- Agency Reports, Community Hazard Mitigation Plans, Scientific papers



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## Storm Events Database

[Prev](#) / [Search Results](#) / [Next](#)

### Event Details:

Event	Coastal Flood
State	ALASKA
County/Area	YUKON DELTA
WFO	AFG
Report Source	Tribal Official
NCEI Data Source	CSV
Begin Date	2022-09-16 18:00 AKST-9
End Date	2022-09-19 10:00 AKST-9
Deaths Direct/Indirect	0/0 (fatality details below, when available...)
Injuries Direct/Indirect	0/0
Property Damage	0.00K
Crop Damage	0.00K
Episode Narrative	The remnants of Typhoon Merbok in the northern Pacific Ocean the Bering Sea on Thursday, September 15, 2022. This storm hit extra-tropical area of low pressure and strengthened as it traversed the Bering Sea from southwest to northeast. Central and Western Aleutian to move northeast and peaked at 937 mb at 4:00 AM, which i



Oct. 08, 2022  
DR-4672-AK NR.002  
State News Desk: (907) 428-7140  
FEMA News Desk: (425) 487-4610  
**News Release:**

### FEMA Establishes Disaster Hotline For Alaska Survivors

ANCHORAGE, ALASKA – FEMA has established a new Alaska-specific Disaster Assistance Hotline for residents in the Regional Educational Attendance Areas of Bering Strait, Khashunamit, Lower Kuskokwim and Lower Yukon who experienced damage or loss from September's severe storm, flooding and landslides.

Those affected by the storms can apply for FEMA disaster assistance in the following ways:

- Call 1-866-342-1899, the Anchorage-based FEMA hotline will be operable from 10 a.m. to 8 p.m., Monday through Saturday and from 12 p.m. to 6 p.m. on Sunday, Oct. 9 and Oct. 16
- Dial 711 for TTY users. For TTY users with an out-of-state area code, dial 1-800-770-8973 for Alaska Relief.
- Go online at [disasterassistance.gov](https://disasterassistance.gov).
- Download the FEMA app.

The hotline will provide survivors with shorter wait times and be staffed by case workers who can register survivors for FEMA assistance as well as answer any follow-up questions.

The deadline to apply for FEMA assistance is Nov. 22, 2022.



## The Nome Nugget

Alaska's Oldest Newspaper

• USPS 598-500 • Single Copy Price - 50 Cents in Nome •

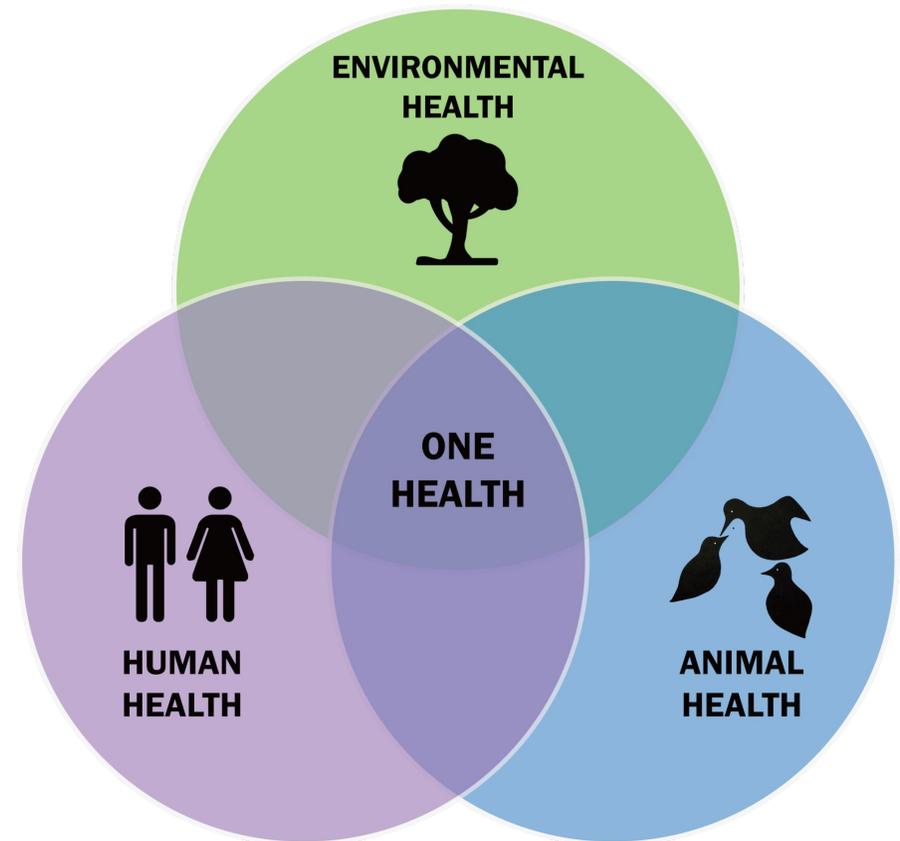
VOLUME CXVIII NO. 38 September 22, 2022

### Mega-storm hits region, causing massive destruction

**By Diana Haecker**  
"This storm is so big that it will take about three hours for the sun to fully set on." This was the caption to a Facebook post by the National Weather Service Alaska Region, showing a satellite photo of a gigantic weather system swirling around an area south of the Aleutian Island chain to the Beaufort Sea. Every coastline, was in the path of gale and even hurricane force winds, pushing the ocean to batter coastlines and cause extensive erosion. As of press time on Monday, city officials going on three days without much sleep were bleary-eyed. Homes began picking up the pieces, pumping out basements and cleaning up an unimaginable mess. School was cancelled, the sea level at Norton pumped out of the building. The worst part of the storm hit Nome Friday night, Saturday and into Saturday night. After the worst was over, the City, the Dept. of Transportation and residents are clearing debris left behind by one of the biggest storms in recorded history descending on western Alaska. By Sunday, the sea level at Norton showers fell. The destruction left by the remnants of tropical typhoon Merbok are mindboggling: piles of driftwood, rocks, and hundreds of red cup bottles and debris lined the streets. A house was dislodged from Belmont Point and floated in the coastal Nome-Council Highway is buried under sand and ocean debris. Aerial video footage posted on social damage to subsistence camps is unknown as the Nome-Council Road is impassable just mile 24. Yards along east Front Street are torn apart and, courtesy of the ocean, driftwood logs, sand and gravel was deposited in driveways. The asphalt of one of the few paved roads in Nome was peeled off and the boulders of the seawall were rearranged as if a giant

# A focus on communities

- Community impacts as a focus for this project
  - Tying in a public health lens to the work
    - Sanitation, water quality, secure housing, food security
- A record of past community response to extreme events



# Visit to Nome, coastal storm research

- Western Alaska experiences strong autumn storms that can bring extreme flooding and coastal erosion
  - To name a few: 1974, 2011, Merbok
- Place-based learning in Nome



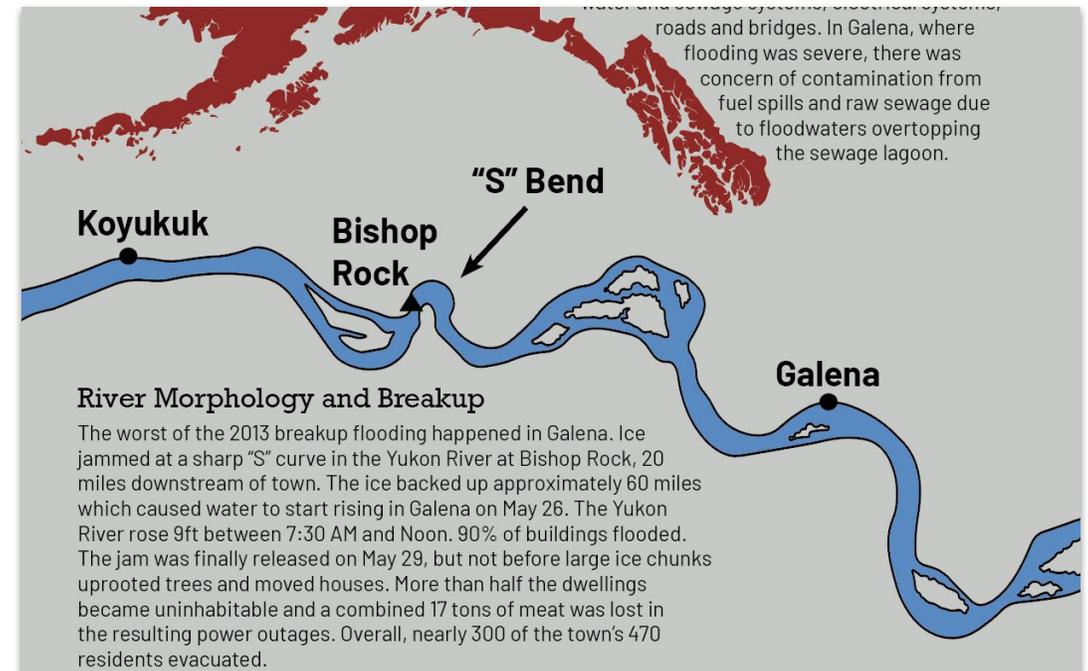
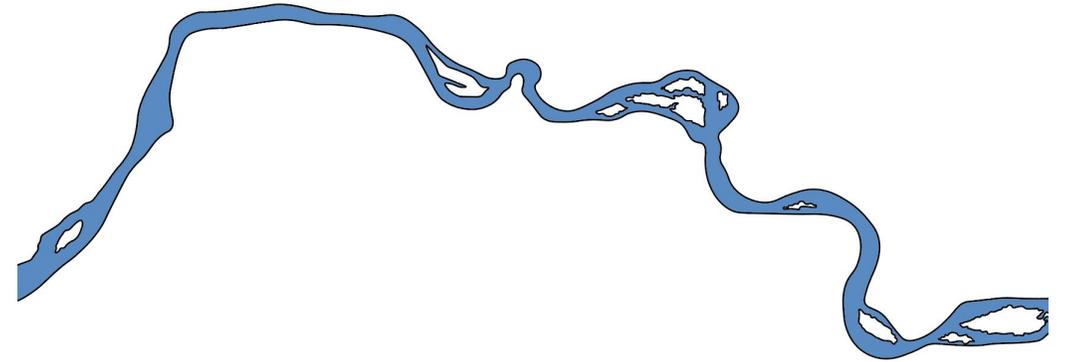
**Rick and Caroline in Nome**

Photo credit: Gay Sheffield

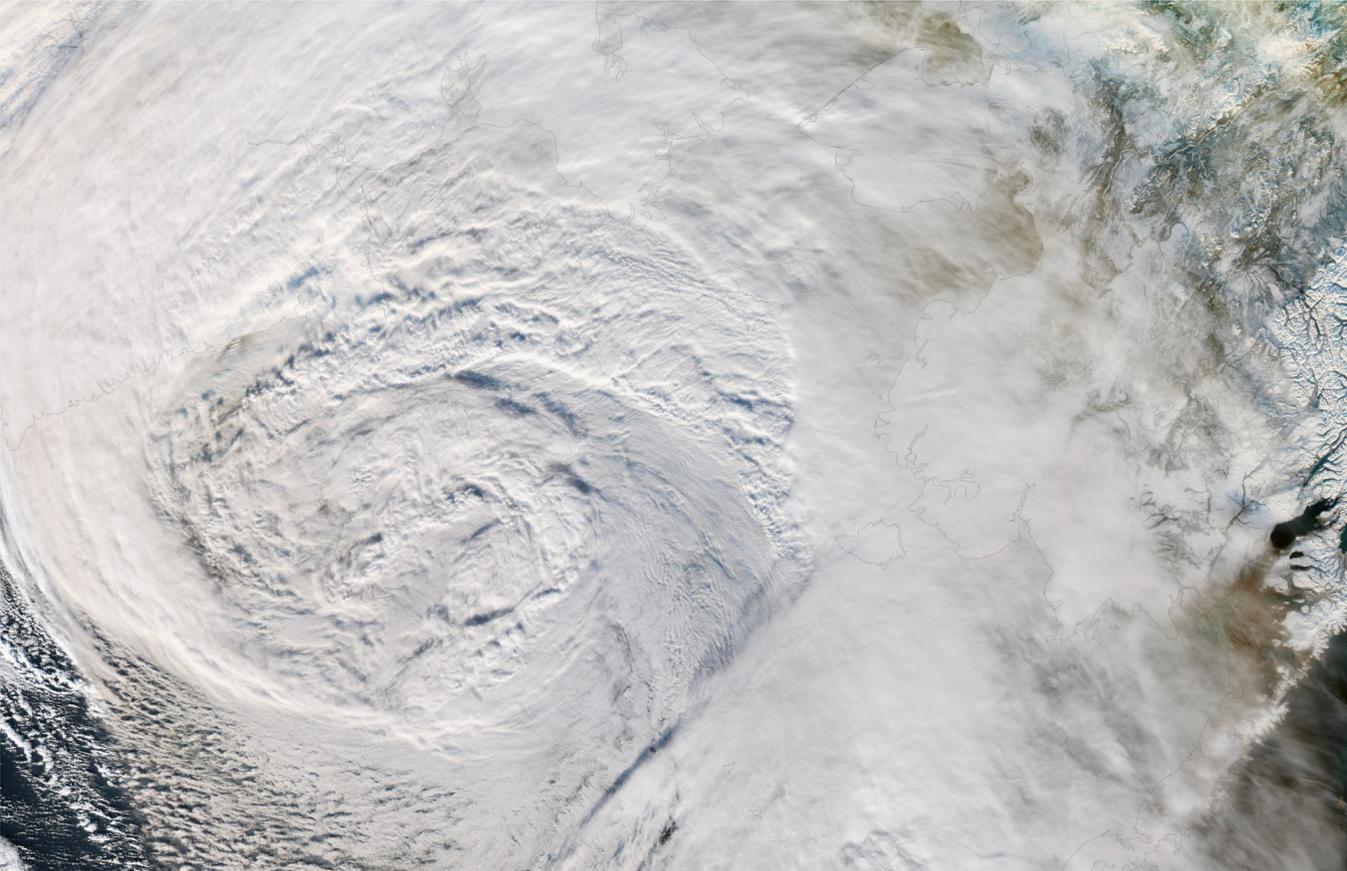


# Developing products

- Use of Indesign, Illustrator, and occasionally Photoshop
  - Principles of color theory
  - Fonts
- Develop concept using natural features from the event itself
  - Avalanche
  - Rivers
  - Map making
- Condensing information
  - General information
  - Weather
  - Community impacts



# 2011 Bering Sea storm

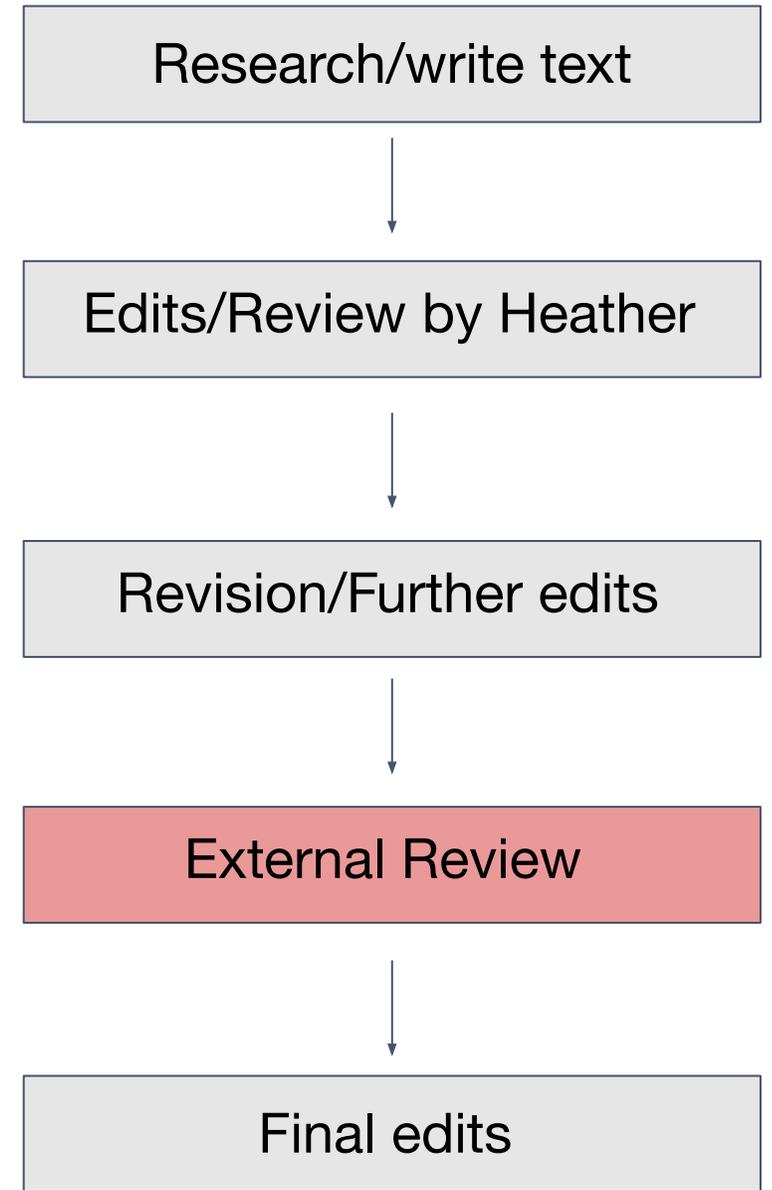


Satellite imagery  
of the 2011  
storm!



# External review

- Spoke with experts in given fields to ensure an accurate representation of events
- Aided in verification of information
- Deepened understanding of events and unearthed further research materials



# Results

- Individual pdfs
- Compiled booklet
- Web page



<https://uaf-accap.org/projects/extreme-events-library/>

A screenshot of the ACCAP website's resources page. The browser address bar shows 'uaf-accap.org/resources/'. The ACCAP logo is in the top left of the navigation bar. The navigation menu includes 'Our Work', 'People', 'Webinars', 'Resources', and 'Our Approach'. The 'Resources' dropdown menu is open, with 'Projects' highlighted in a red circle. Below the navigation, the 'Projects' section is titled, followed by 'Featured projects'. Four project cards are displayed: 'Historic extreme events library' (circled in red), 'S2S Sea Ice Information', 'Fiscal Pathways', and 'Southeast Alaska Drought and Extreme Events'. A 'Search all projects' link is located below the featured projects.



# Events available by the end of summer

- 1974 Bering Sea storm
- 1984 Thanksgiving day storm
- 1986 Southcentral flooding
- 1989 Cold Snap
- 1994 Koyukuk River flooding
- 1995 Kenai Peninsula flooding
- 1996 Miller's Reach Fire
- 2005 Bristol Bay storm
- 2008 Juneau avalanche
- 2011 Bering Sea storm
- 2013 Breakup flooding
- 2022 Merbok
- Fairbanks fires
- Anchorage winds
- Southeast landslides
- North Slope Autumn sea ice



# Future work

- Historic Spring break-up flooding
  - 1937, 1945, 1947, 1964, 2009
- 1963 Utqiagvik storm
- 1989 Extreme Anchorage rain
- 1989 Southeast Drought
- 1992 Interior Alaska Sept snow
- 2011-2012 gulf coast snows
- 2012 Southcentral floods
- 2020 Dutch Harbor windstorm
- 2021 Interior extreme rain/snow



**Fairbanks, Alaska, 2021**

Photo credit: Jeff Chaucer, Fairbanks Daily News Miner



# Future steps

- Continue research/data collection on extreme events
  - History of Nome's past events
- Gather feedback
  - Is this useful? What kinds of events should be included? Does this have the info you would want to see?



# Thank you to external reviewers!

Heidi Strader, Eric Stevens, Alison York, Ed Plumb, Aaron Jacobs, Celine van Breukelen,  
Richard Buzard, Gay Sheffield





# Thank You! Questions? Comments?

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