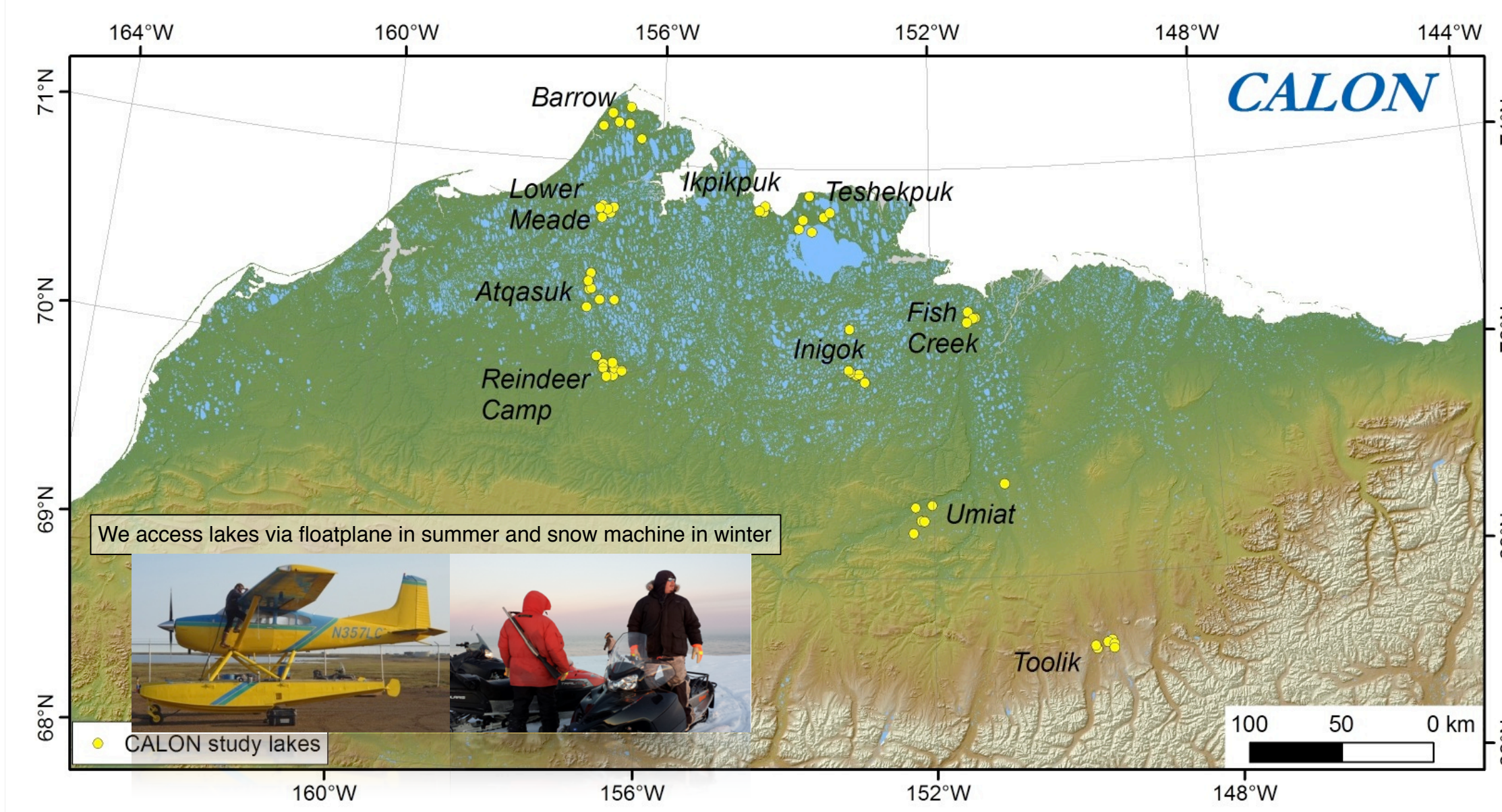


How has Iñupiaq Knowledge Helped Our Understanding of Environmental Changes on the North Slope of Alaska?



The CALON project is a research program that monitors the physical and biogeochemical processes in Arctic permafrost lakes. The project includes an indigenous knowledge component, with interviews of elders, hunters, and fishers from four Arctic villages

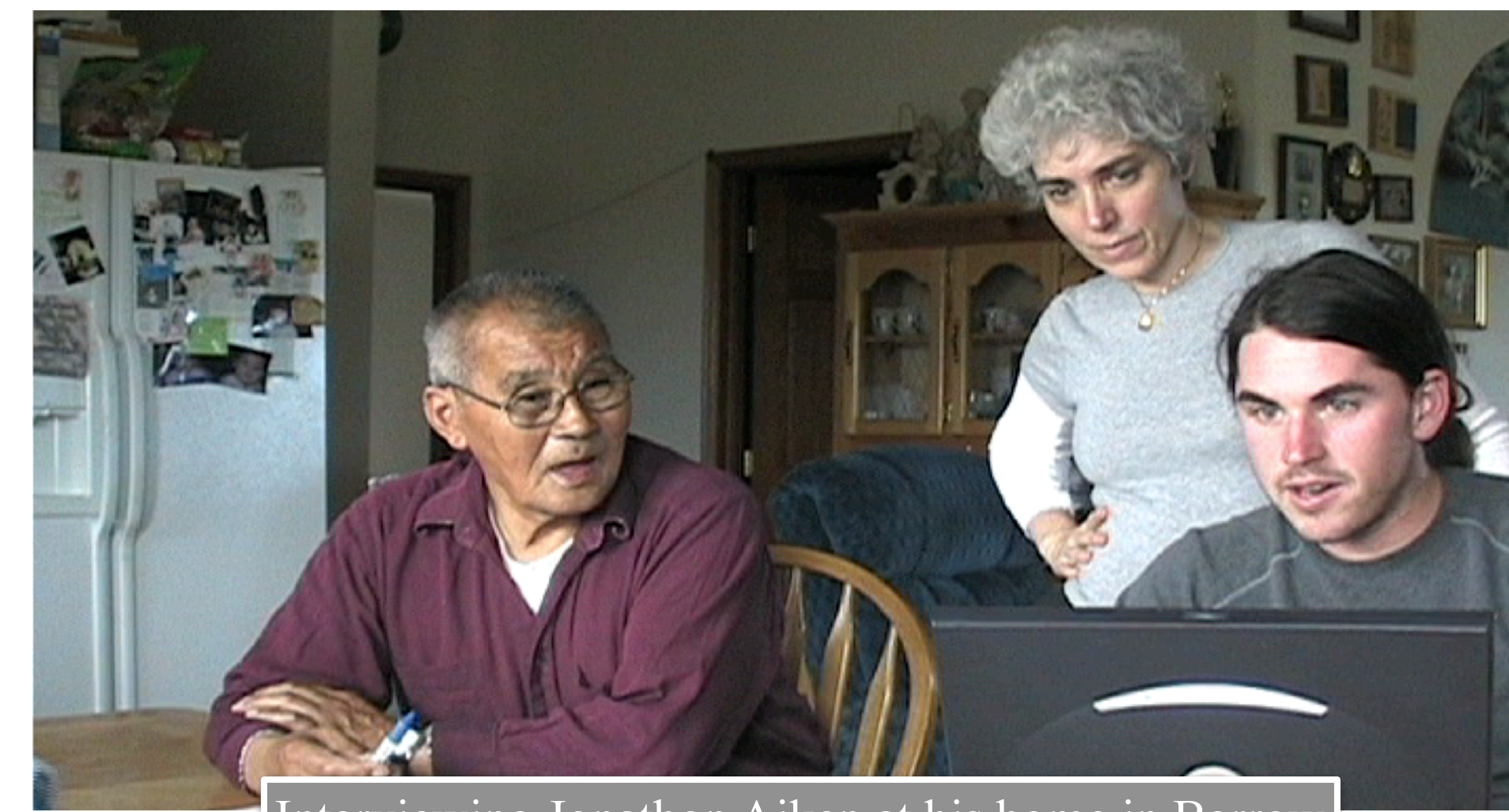
Northern Alaska is an area which has seen much environmental disruption due to climate change and petroleum exploration and extraction, and the people of this region are witnesses to these changes.

Indigenous knowledge has provided insights into events, landforms, and processes not previously identified or considered.

Many of the knowledge holders are elderly, thus time for this work is limited.



Iñupiat elders have expressed concern about the changing landscape, interest in scientific findings about those changes, and a desire to share their knowledge of local ecosystems with scientists and others with similar concerns.

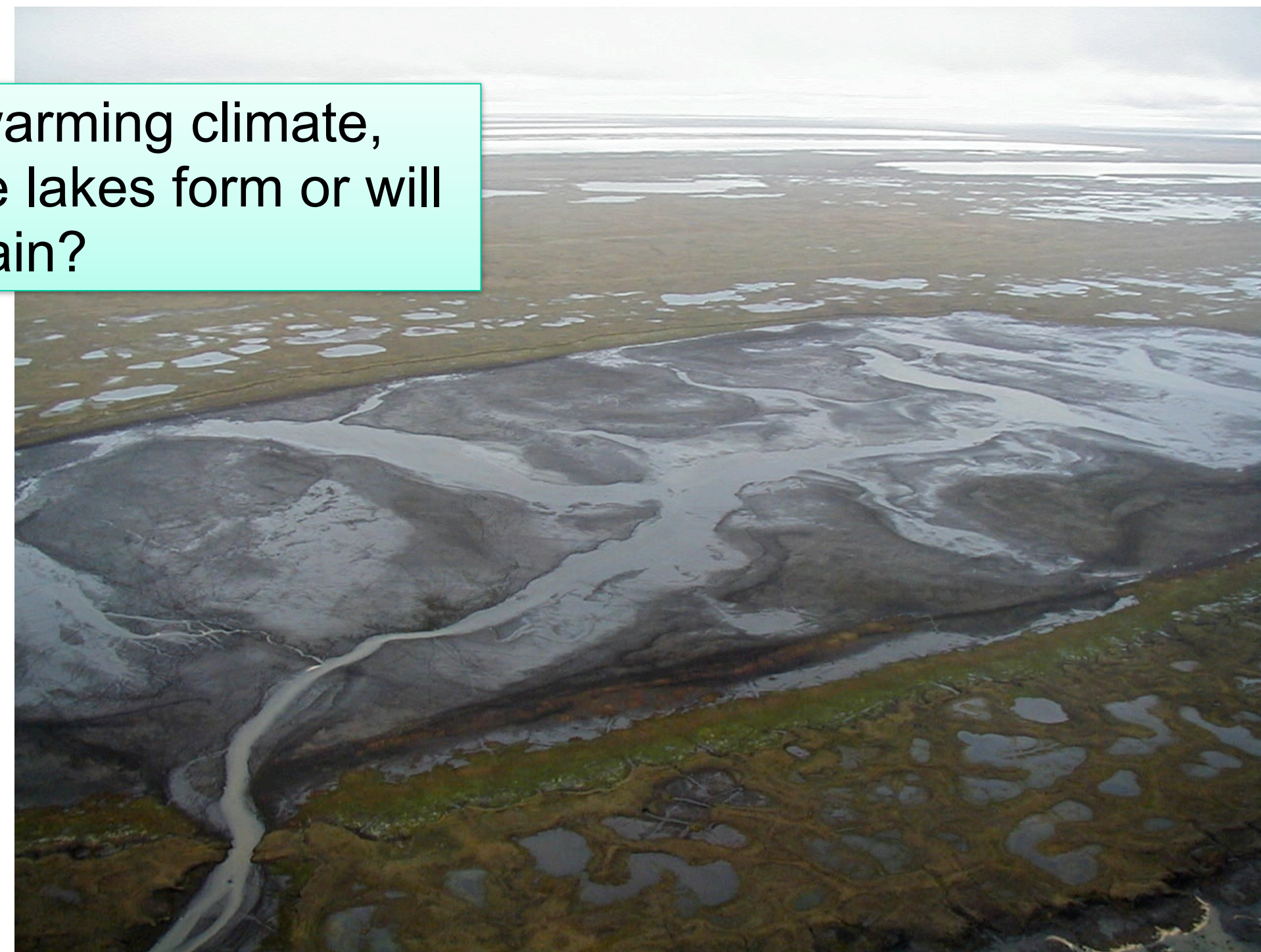


For example, Jonathan Aiken identified this empty lake basin north of Teshekpuk Lake as one that had been filled with water when he was young. When we checked the aerial photography, we could see it was indeed a lake in 1955, and we could see the track of the vehicle that destabilized the permafrost and ultimately led it to drain.

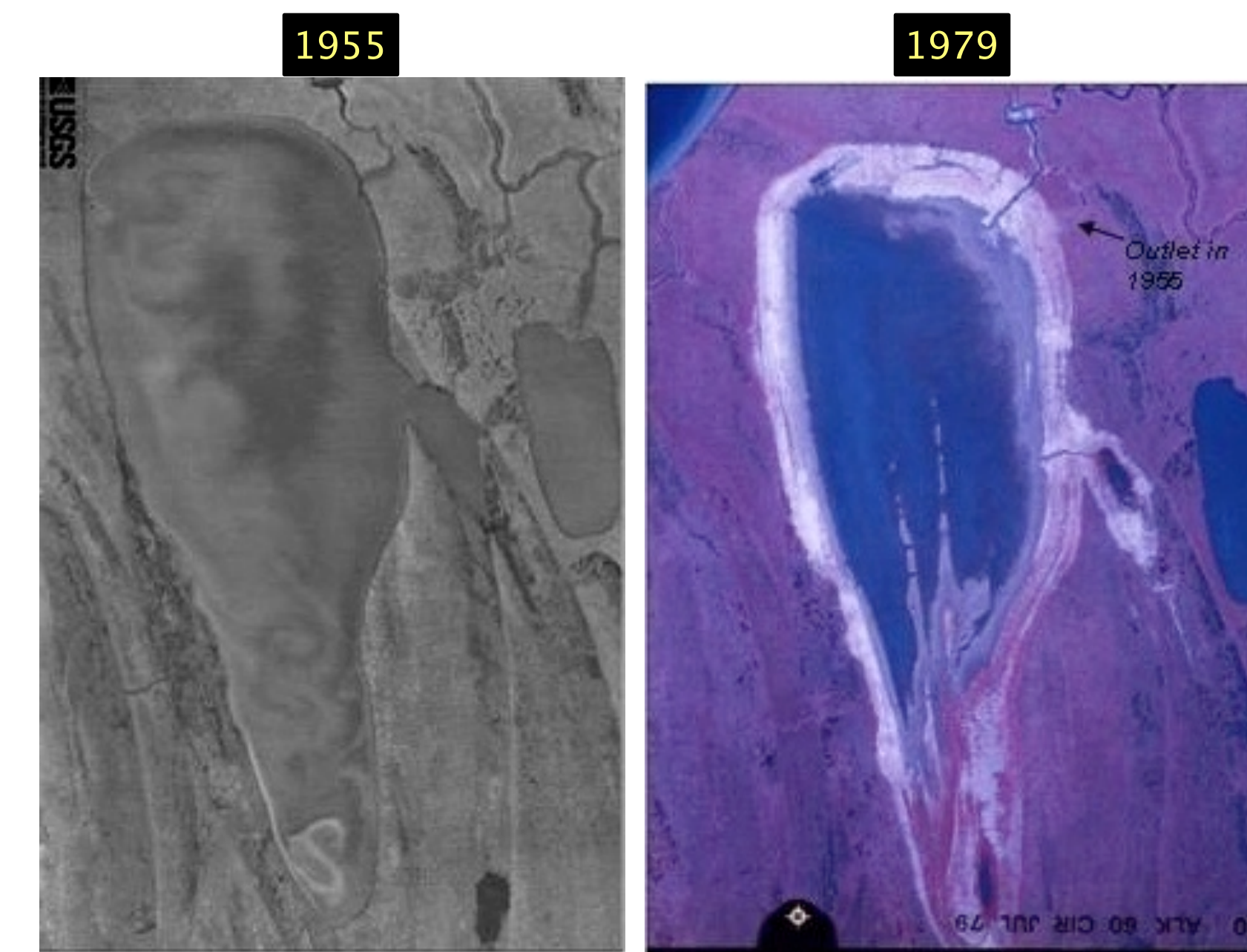
Indigenous knowledge (IK) can provide insights for understanding landscape/climate processes affecting in the tundra of Alaska

From 2003 to 2015, over 75 Iñupiat elders, hunters, and berry pickers from Barrow, Atqasuk, Wainwright, Nuiqsut, and Anaktuvuk Pass were interviewed and more than 125 hours of videotaped interviews were produced.

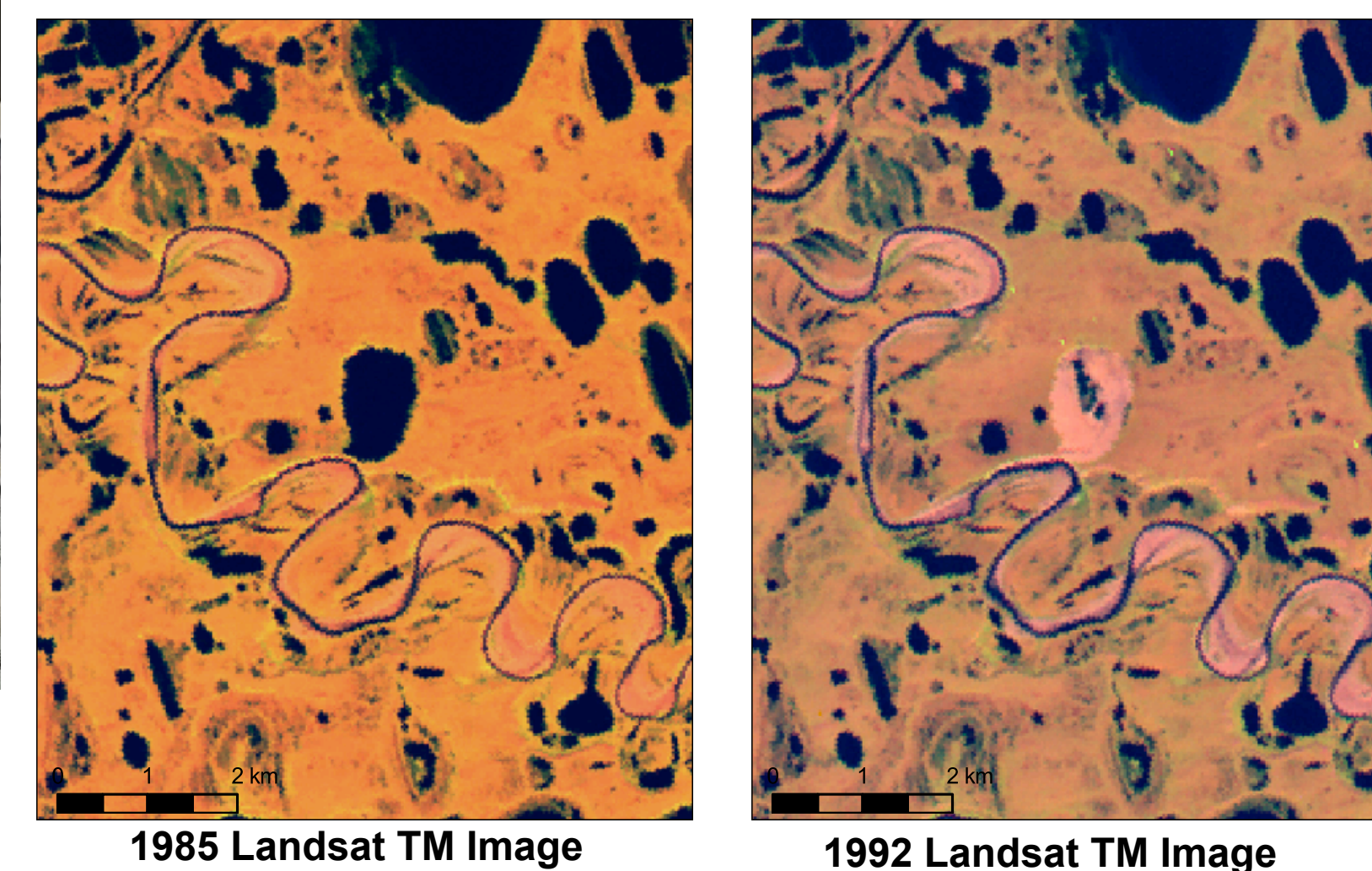
With a warming climate, will more lakes form or will more drain?



Thomas Brower, Jr., of Atqasuk witnessed the draining of a thaw lake while he was setting his fishing nets on the Usuktuk river. He first noticed that water was seeping from the cut bank of the river, and that the water drained extremely fast: "Faster than anything". Thomas identified 1989 as the year the lake drained, which pinpointed lake drainage more precisely than available satellites images.



We were particularly interested in hearing from the elders about the changes in the lakes, streams, and permafrost that they observed during their years exploring the tundra.



The Elders of the North Slope have identified many changes, including:

- thaw lakes that have drained
- areas where permafrost thaw has been extreme
- places where sea coast and river bluffs are eroding
- disturbance related to oil development resulting in severe thermokarst.
- long-term impacts of winter roads and ATV trails on landscape.

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