

## Capital Weather Gang

# It's been exceptionally warm in Greenland lately and ice is melting a month early

By Matthew Cappucci

April 18

You might have heard about the exceptional heat this year in the northern hemisphere and around the world. March [was just declared](#) the second warmest on record globally

Records have been [shattered in Alaska](#). [Scotland hit 70 degrees](#) in February. [Winter warmth](#) has torched the U.K., Netherlands and Sweden as well — coming on the heels of Europe's warmest year on record. But they're not alone.

Greenland is baking, too. In fact, its summer melt season has already begun — more than a month ahead of schedule.

Marco Tedesco is a professor in atmospheric sciences at the Lamont Doherty Earth Observatory of Columbia University. He monitors behavior of the cryosphere — the part of earth's water system that is frozen. He says melting of this extent shouldn't begin until May. "The first melt event was detected on April 7," he wrote in email.

"Air temperature anomalies were up to more than 20 degrees Celsius [36 Fahrenheit] above the mean," noted Tedesco. His team has been eyeing Greenland's southeast coast as ground zero for the early-season thaw.

"Surface air temperature jumped to 41 degrees on April 2, up from minus-11," he said. Temperatures dropped below freezing briefly before again soaring into the 30s, where the mercury has held steady for most of the past week.

What's been sling-shotting this balmy air northward?

"The subtropical jet stream," wrote Jennifer Francis, senior scientist at the Woods Hole Research Center in Falmouth, Mass. It's teamed up with the polar jet to "transport warm, moist air from near Florida northward into southern Greenland," she explained. "Locking this pattern in place has been a strong ridge — a northward bulge in the jet stream — just east of Greenland."

A lack of ice cover in the Arctic Ocean north of Scandinavia gave this bubble of warmth a bit of an extra boost, intensifying its warm conveyor belt into Greenland.

Going forward, "[t]hese types of patterns are expected to occur more frequently," Francis wrote, citing climate change as the culprit. "Arctic ice cover continues to dwindle and temperatures there **soar**."

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It's been exceptionally warm in Greenland lately and ice is melting a month early - The Washington Post

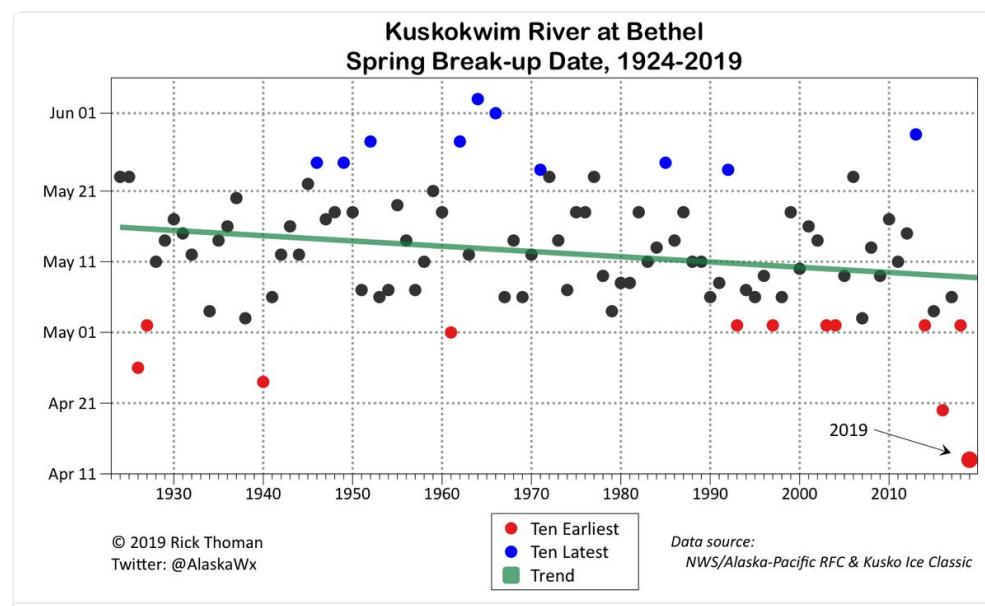
But *advection* — the transport of air, in this case warm, from somewhere else — is just half the battle. Adding insult to injury is a shortage of cloud cover in recent weeks over Greenland. The high pressure “block” that Francis described has also helped clear the skies, allowing more sunshine to pour in and heat the ground further.

“Incoming solar radiation reached a value similar to ones we observed in August last year,” wrote Tedesco. That heats the ground even *more*. It’s a vicious cycle of *positive feedback*, indicating just how unstable — and delicate — the Arctic is.

“I call this ‘melting cannibalism,’ explained Tedesco. And it could get even worse, as it preconditions the ice to be more vulnerable to melting in the summer.

When snow/ice on the ground melt, they form small pools of water. That changes how *reflective* the surface is — a measure scientists refer to as “albedo.” Snow and ice have a very high albedo, meaning it reflects most of the incoming light that hits it. That’s why you have to wear sunglasses when you go skiing. Water, on the other hand, is a lot less shiny, which allows it to absorb more heat, a cyclical process on a local level and a driver of additional warming on the global level.

According to the [National Snow and Ice Data Center](#), the rate of melting this early in the year has been off the charts. Satellite imagery shows several patches of extremely early melt along the coast.



**Rick Thoman**  
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Kuskokwim River ice went out at Bethel on April 13, by a week the earliest of record. Four of the past six years have been in the top ten earliest. Overall, Kusko ice is breaking about a week earlier than 90 years ago. #akwx @Climatologist49

@MarkSpringer @klshall @KYUKNews

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16 people are talking about this

And it's not just Greenland. Much of the Arctic has been baking. Ice melt in Alaska has set rivers gushing more than a month before normal in some places, setting records along the Kuskokwim River in Bethel, and triggering the earliest ice breakup along the Tanana River in Nenana.