

Your plane travel destroys polar bear habitat

January 23 2020, by Nancy Bazilchuk



Melting summer sea ice makes it harder for polar bears for hunt seals and other prey. Some researchers think if the world doesn't do more to cut its carbon emissions, all summer Arctic sea ice will be gone by 2040. Credit: NTB Scanpix

A group of polar bear researchers wants you to do more than worry about the fate of these beautiful animals. They've calculated how much summer sea ice is melted per metric tonne of CO₂ emissions. Then you can decide if the flight you're planning to take is worth destroying polar bear habitat.

We all know we should fly less as a way to reduce our individual and

collective effect on the [global climate](#). But transforming that vague understanding into concrete reasons for action can be difficult—until now.

An international coalition of researchers can now tell you how much damage you're doing to polar bear habitat when you get on a plane. Next time you take a round-trip flight from Oslo to Copenhagen, for example, you've just been responsible for emitting enough CO₂ to melt nearly 1 m² of Arctic summer sea ice.

"There are good numbers showing how CO₂ emissions correlate with decreases in sea ice," said Bjørn Munro Jenssen, a biologist at the Norwegian University of Science and Technology who has spent decades studying polar bears. "And we know that decreasing sea ice means less habitat for polar bears."

Jenssen was senior author on a letter detailing the relationship as a way to encourage academics, in particular, to stop flying so much. The letter was published in *Environment International*.

More flights, and longer flights

To make their estimates, the researchers made a number of assumptions based on published information.



Bjørn Munro Jenssen out in the field in Svalbard. Like all field researchers on the Norwegian archipelago, he has to carry a rifle and a flare gun because of the risk of polar bear attack. Credit: NTNU

They started with a 2016 research report in *Science* which describes how 30 years of September Arctic sea-ice data were used to estimate that each metric tonne of CO₂ emitted causes a loss of 3 m² of September sea-ice area. September is the month when summer sea-ice amounts are at their annual lowest.

They then took aviation data that showed there were roughly 4.3 billion passengers who flew in 2019, and estimated that each passenger flight averaged 2000 km. Using published conversion data, the researchers calculated that each passenger's carbon footprint would be 0.42 metric tonnes, for a total of 1.83 billion tonnes for all passenger flights.

That's enough to melt 5470 km² of sea ice, or the home range for four polar bears in the Hudson Bay area of Canada, Jenssen said. While it's possible to quibble with some of the researchers' assumptions, the trend is indisputable, he said—more CO₂ in the atmosphere means less sea ice, which is critical to polar bears.

Climate researchers may fly a lot

One of the bigger ironies of climate research is that many of the researchers who study the consequences of global warming fly—often a lot.

"We're supposed to be the ones contributing to saving the world, but we're flying all over the place," Jenssen said.

Sometimes, of course, it's unavoidable, he said. For example, Jenssen can't study polar bears without traveling to his research area on the Norwegian archipelago of Svalbard.



A polar bear (*Ursus maritimus*), mother with two cubs swimming between ice floes off of the Svalbard archipelago. Credit: NTB Scanpix

That's also a problem for Sofia E. Kjellman, a Ph.D. candidate at UIT—The Arctic University of Norway, who published an article about this dilemma in *Nature* in mid-2019. Kjellman is also working on Svalbard on climate-related issues, often in remote areas that are only accessible by helicopter.

In an email, Kjellman wrote that she thinks researchers need to challenge the travel culture that pervades academia.

"I don't think our research or careers have to suffer just because we choose to fly less," she wrote. "I've been talking to my colleagues about

the purpose of our trips—do we really need to go, or do we go mostly because we want to and have the funding to do so? Or maybe because of expectations from supervisors or collaborators? It seems like talking about it helps people evaluate their decisions and look for other solutions."

Trains and video conferencing

Kjellman says she hasn't figured out any new solutions to cutting her carbon footprint from flying, aside from simply flying less. Choosing less carbon-intensive travel, such as trains, is an option sometimes, as is attending conferences virtually, she said.

For example, she recently gave a presentation of the carbon footprint issue via a video connection to a workshop held by the Association of Polar Early Career Scientists in Stockholm about ethical and sustainable research.

"It went very smoothly and it was great to talk to other young researchers battling with similar thoughts," she said in her email. "Avoiding flying can in some cases be limiting, of course, but I think I am getting better at prioritizing, which can be rewarding in itself."



Sofia Kjellman collecting sediment cores in Svalbard as part of her PhD research. She sometimes works in remote locations that can only be reached by helicopter. Credit: Lis Allaart

No Fly Climate Sci

Kjellman and Jensen and his co-authors are among a small but growing group of researchers who are giving their travel habits a hard look.

One of the more visible efforts is a website called No Fly Climate Sci, which was started in 2017 by a climate researcher from the Jet Propulsion Lab in Pasadena, California, Peter Kalmus.

Kalmus wrote on his website that he started the effort to raise the

public's sense of climate urgency in order to accelerate large-scale political action. He also wanted to give people who fly less a place to share their stories, so they would realize they weren't alone.

To date, 538 people have registered with the site, describing how they have either cut their number of flights or stopped flying altogether.

Seventeen [research institutions](#) are also listed on the site, one of which, the University of Edinburgh, took the opportunity to create a "Roundtable of Sustainable Academic Travel," where research institutions themselves can find ways to cut travel.

And in a May 2019 article in Times Higher Education, New Zealand researcher Joanna Kidman issued a strong call to her fellow academics to do something about this issue:

"I think there is a day of reckoning coming for those of us in academia who, through willful neglect rather than deliberate planning, are gambling away our futures, one air ticket at a time," she wrote. "The deathly silence about our addiction to air travel needs to be broken as the Anthropocene era of human-driven climate change manifests itself all around us. It is high time."

More information: Christian Sonne et al. Aviation, melting sea-ice and polar bears, *Environment International* (2019). [DOI: 10.1016/j.envint.2019.105279](#)

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