



Into Thin Ice

By Andy Isaacson
Photographs by Nick Cobbing

The Arctic ice pack is dwindling. What will that do to the planet?

The sea ice that blankets the Arctic Ocean isn't the unbroken white mantle depicted in maps. It's a jigsaw puzzle of restless floes that are constantly colliding, deforming, and fracturing from the force of wind and ocean currents. Last February I stood shivering on the deck of the *Lance*, an old Norwegian research vessel, as it picked a path through a labyrinth of navigable fractures. A barren white plain of ice and snow extended to the horizon in every direction. The ship's steel hull shuddered and screeched as it plowed through floating chunks of jagged ice. The *Lance* was seeking a solid patch of ice to attach to--the last one had shattered--so that it could resume its erratic drift across the frozen sea, charting the fate of Arctic sea ice by going with the floe.

The Norwegians have done this before, more than a century ago, when polar explorer Fridtjof Nansen and the *Fram* were locked in pack ice for nearly three years during a vain attempt to drift across the North Pole. But the Arctic is a different ocean now. The air above it has warmed on average about 5 degrees Fahrenheit in the past century, more than twice the global average. Much less of the ocean is covered by ice, and much more of that ice is thinner, seasonal ice rather than thick, old floes. A feedback loop with far-reaching consequences has taken effect: As white ice is replaced in summer by dark ocean water, which absorbs more sunlight, the water and air heat further--amplifying the ongoing thaw.

"The Arctic warms first, most, and fastest," explains Kim Holm 鱒 the long-bearded international director of the Norwegian Polar Institute (NPI), which operates the *Lance*. Climate models predict that by as early as 2040 it will be possible in summer to sail across open water to the North Pole.

Arctic sea ice helps cool the whole planet by reflecting sunlight back into space. So its loss inevitably will affect the climate and weather beyond the Arctic, but precisely how remains unclear. Better forecasts require better data on sea ice and its shifting, uneven distribution. "Most scientific cruises to the Arctic are conducted in summer, and this is where we have the most field data," says Gunnar Spreen, an NPI sea-ice physicist I met on board the *Lance*. "The continuous changes that occur from winter into spring are a huge gap in our understanding."

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