

Melting sea ice leaves Arctic vulnerable to erosion

- 17:03 18 April 2011 by [Jeff Hecht](#)
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Arctic shorelines are crumbling in the face of climate change, as the permafrost that holds them together starts to melt.

Sea ice gives permafrost shorelines some protection. When the ice clears, waves pounding the shore can thaw the permafrost, freeing the soil that it holds, which then falls into the sea.

Most of the storms at the edges of the Arctic Ocean occur in the autumn. If the warming climate keeps coastal waters ice-free after summer ends, these storms can dig deep into the permafrost, according to a [report issued this week](#) by the [International Arctic Science Committee](#).

The changes are most dramatic in the Beaufort Sea north of Alaska. Here ice-rich bluffs have retreated 14 metres per year on average from 2002 to 2007 – double the mean figure for the period from 1955 to 1979. Erosion has already forced some coastal communities to relocate.

Another study, just published by [Hugues Lantuit](#) of the Alfred Wegener Institute for Polar and Marine Research in Potsdam, Germany, finds that erosion along 100,000 kilometres of Arctic coast – about a quarter of the total coastline – is taking place at an average rate of about 50 centimetres per year.

Worrying though they are, the new findings are not surprising: researchers have long warned that Arctic coasts are vulnerable to erosion because the region is [warming faster than lower latitudes](#).

Journal reference: *Estuaries and Coasts*, DOI: [10.1007/s12237-010-9362-6](#)