

From the Banks of the Yenisey to Iceland: Scientists Trace the Waterway of the Siberian Forest

Krasnoyarsk scientist Alexander Kirilyanov have taken part in an international research devoted to the study of migration of driftwood (trees and wood residues trapped in a river or sea and transported by their current) from Russia to the shores of Iceland. Having examined wood samples using dendrochronological methods, scientists have suggested that due to global climate warming and melting of glaciers, the delivery of driftwood to the Arctic islands of Europe may cease by 2060.

Felled or fallen trees moving along rivers and seas and brought ashore have long been the main building material for territories and states located in the Arctic latitudes. In particular, Russian Pomors built houses and fishing huts from driftwood on the coasts of the White, Barents and Kara Seas; and in the Svalbard archipelago, driftwood was the only building material due to the complete absence of trees on the islands.

Iceland was covered with birch forests before human came to the island, but anthropogenic influence and active sheep farming led the island state to desertification — natural forests were cut down, and their place was taken by low-growing armeria, saxifrage, heather, rowan, dwarf willow.

*“For Iceland, which does not have its own forests, driftwood has long been an important resource — a material for building household outbuildings and even homes, and was also used as fuel, that is, for making a fire. The delivery of wood by floating and rafting ran along small and large rivers of Russia, including to the ports of Igarka and Dudinka. Sometimes rafts, caught in a storm, broke, some trees sank, but others, caught up by ice in the Arctic Ocean, after many years still reached inhabited shores. We studied 289 driftwood samples collected on the north coast of Iceland. Based on 240 local chronologies of the width of tree rings of trees in the boreal zone of Russia, we found that most of the Icelandic driftwood was Angara pine, growing on the banks of the Yenisey and Angara rivers,” said **Alexander Kirilyanov**, leading researcher at the Laboratory for Integrated Studies of the Dynamics of Eurasian Forests, SibFU.*

The age of the oldest tree studied during the research, according to the scientists, is more than 400 years. It is also interesting that up to 20% of the driftwood that came from the Angara-Yenisey basin to Iceland is spontaneous wood that got into riverbeds due to natural causes not directly related to human activity.

The nature of wood supplies has undergone significant changes since the late 80s of the 20th century. According to the foreign co-authors of the article, this is due to the retreat of the boundary of the long-term Arctic ice to the north, which, in turn, is a direct consequence of global climate warming and the concomitant melting of Arctic glaciers. However, their Krasnoyarsk co-author Alexander Kirilyanov has another version of events, also reflected in the text of the work.

“Just in the second half of the 80s, the concept of transporting harvested wood in Russia changed, in particular, sawn wood was no longer sent by means of floating, and more and more began to be transported, let’s say, targetedly with the help of barges and self-propelled vessels. In the 90s, the Igarka port practically stopped operating, and the logging enterprises of Krasnoyarsk Territory closed or slowed down the pace of harvesting. Accordingly, the amount of vagabond wood reaching the shores of Iceland through the Arctic Ocean has significantly decreased. According to the results of mathematical modeling conducted by colleagues from Iceland, the Czech Republic, Great Britain and Switzerland, by 2060 the

driftwood, in particular the Angara pine from Siberia, will be scarce to the Icelandic northern coast," the scientist explained.

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