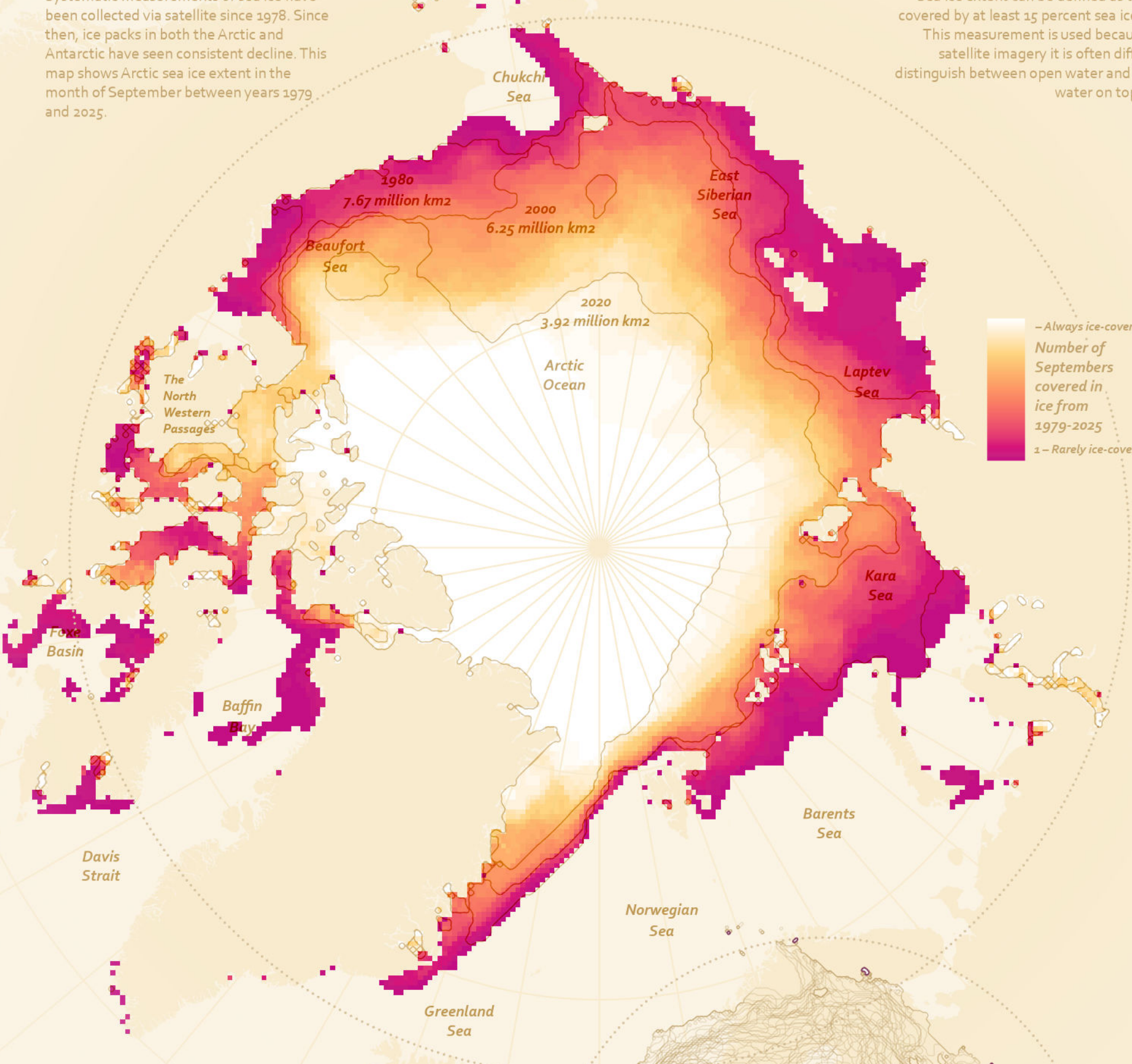


# ARTIC SEA ICE DECLINE

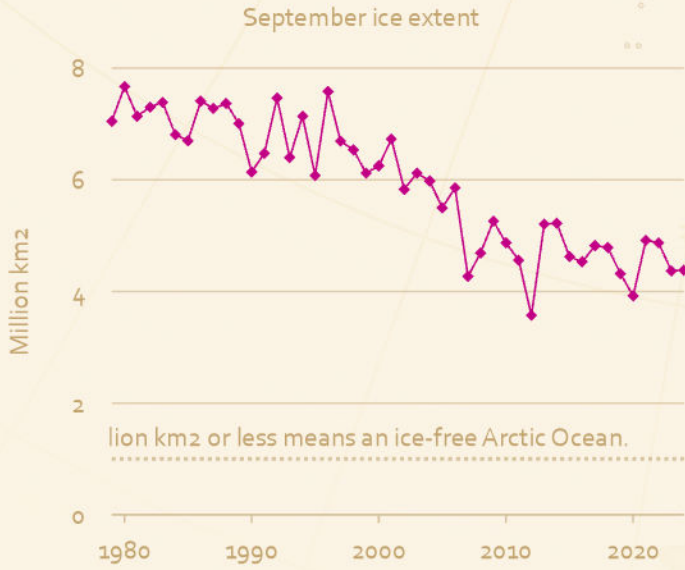
Systematic measurements of sea ice have been collected via satellite since 1978. Since then, ice packs in both the Arctic and Antarctic have seen consistent decline. This map shows Arctic sea ice extent in the month of September between years 1979 and 2025.

Sea ice extent can be defined as the area covered by at least 15 percent sea ice cover. This measurement is used because with satellite imagery it is often difficult to distinguish between open water and melted water on top of ice.

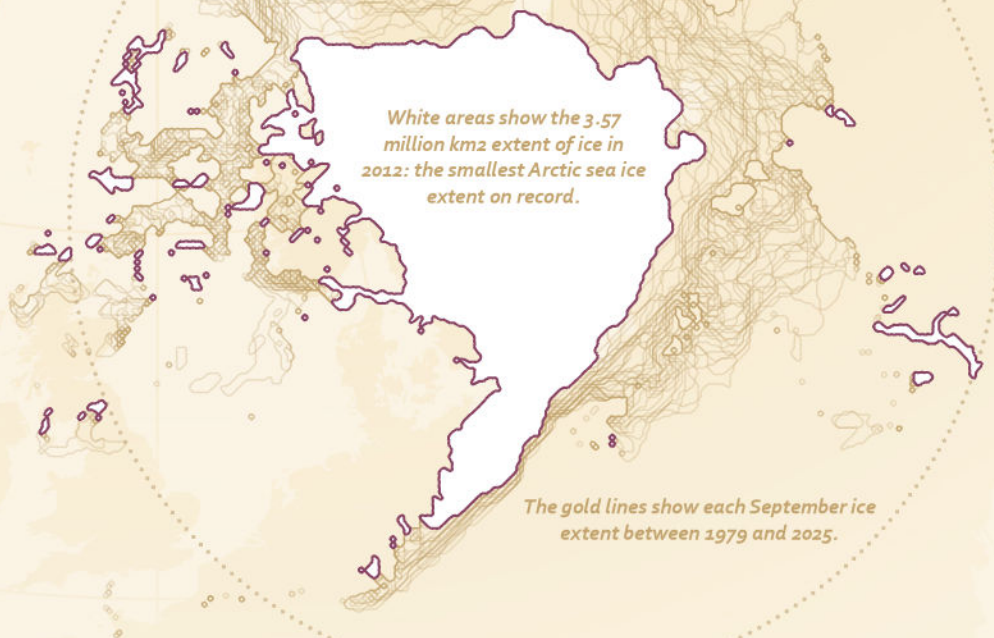


The decline in sea ice is caused by global warming. It also contributes to global warming: ice reflects 60-80 percent of radiation from the sun, compared to only 10 percent reflected by open water. When solar radiation is not reflected, it warms the oceans faster.

As the ice melts, more of the Arctic Ocean becomes open sea, which generates waves. Wave action contributes to further decline of the remaining ice.



September is the month with the least ice cover. Sea ice must persist through September if it is to become or remain multi-year ice, which is thicker and less likely to melt than first-year ice. A lesser September extent means younger ice and faster melting for future years.



At some point during this century summer ice will disappear entirely from the Arctic. The most common definition of "ice-free" is a September arctic ice extent of fewer than 1 million square kilometers. At that point, the Arctic Ocean will be open water, although ice will still cling to some coastlines of Canada, Greenland, and Alaska.

Ice data: Fetterer, F., K. Knowles, W. N. Meier, M. Savoie, and A. K. Windnagel. 2017, updated daily. Sea Ice Index, Version 3. [Ice extent]. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center. doi: <https://doi.org/10.7265/N5K072F8>. [October 2021].