

Gulf Stream

By Lennart Kiil

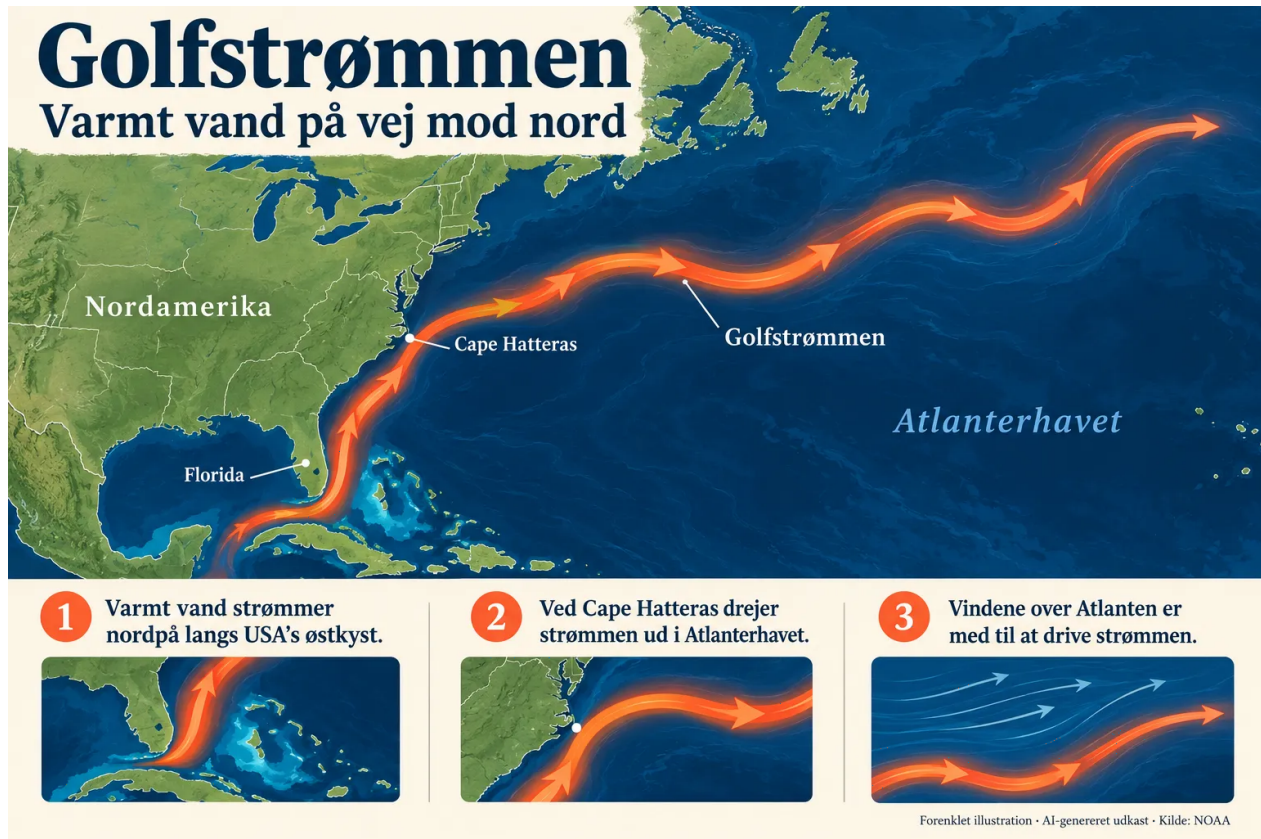


Illustration: AI-generated for Climate Encyclopedia. Simplified from NOAA.

A warm ocean current that flows out of the Gulf of Mexico, and continues up along the east coast of North America before turning into the Atlantic. Here it eventually splits in two, with one part returning south towards northwest Africa, and the other continuing into the North Atlantic.

As the surface current travels north it is cooled by the wind, which also increases the [evaporation](#) from the water. This makes the water more salty and colder, which both make the water more dense. In the North Atlantic the northbound movement of surface water eventually ends, and is instead turned into a deep current of cold dense water returning south.

The Gulf Stream influences the climate of the North American east coast, and the coast of Western Europe by adding warm waters. Without the current, these areas would experience a much colder climate.

There are some concerns, that the [global warming](#) could disturb the flow of the Gulf Stream. The fear is that an increase of melt water from the [Greenland ice sheet](#) will decrease the salinity of the surface water in the northern part of the Gulf Stream, and disrupt the sinking of dense water. The downward movement of dense water in the North Atlantic creates the deep current going south, which is probably the main force driving the Gulf Stream by simultaneously "pulling" the surface current north.

Assuming that the Gulf Stream is largely responsible for keeping Western Europe warm, a change in the Gulf Stream could drastically alter the climate in Northern Europe, with [temperatures](#) dropping dramatically.

However, recent [climate models](#) suggest that the flow of the Gulf Stream has not diminished significantly through the last 50 years, and that the system is more resilient than previously thought. The doomsday scenario of a sudden halt of the Gulf Stream is, therefore, considered unlikely.

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