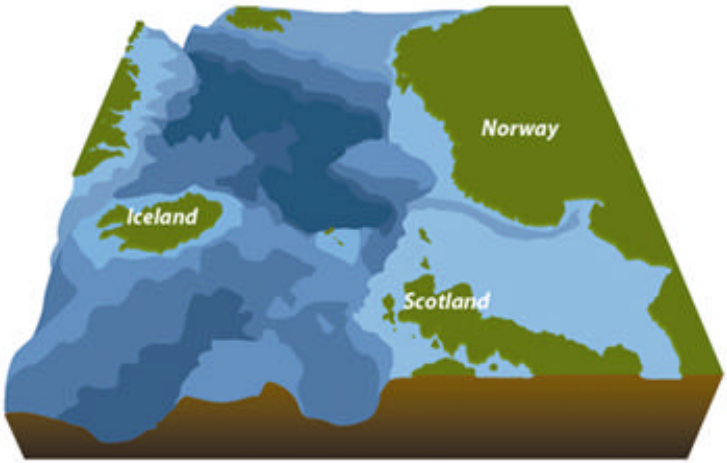
Waiting for an answer to sever warming 1918-1939

Let's face the facts. World War One was the most destructive global event for many years, since the volcanic Krakatoa, three decades ago. Much of the North Atlantic water bound for Arctic regions was part of the naval battleground for four war years before moving northwards towards Spitsbergen. Since 1918, the Arctic warmed twice as fast until 1938 as it had since 1980. From slightly above the Arctic Circle to the pole, the warmest years on record in the Arctic were the years of 1937 and 1938. War winter 1939/40 ended the Warming of Europe. The most convincing conclusion is: WWI must have played a significant role in the warming of the climate since 1918, but how?

We started the chapter on Spitsbergen warming in 1918 by pointing to the fact that two-decades sustained warming could only come from the Norwegian Sea and/or from the northern arm of the Atlantic Gulf current.

The Norwegian Sea basis is a three thousand meter deep hole. The heat reservoir is enormous, enough to keep the Northern Hemisphere ice-free during Nordic winters and to sustain regularly storms and winds. But not only the mass matters, what matters even more is a very delicate balance of water temperatures and salinity at numerous water depth. It may be hundreds or thousands, which counts.



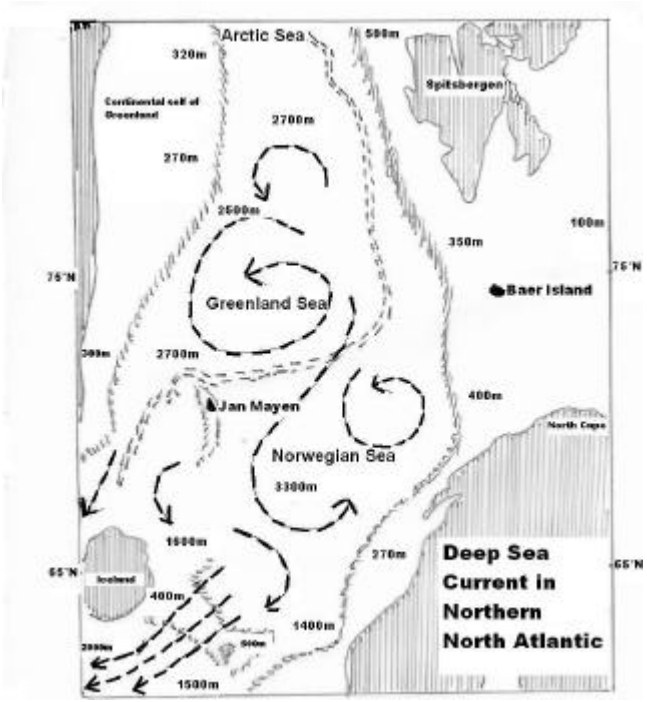
The Norwegian Sea basis is a 3000 meter deep hole.

Image concept from University Oslo

Major Sea War activities 1914-1918 in North Europe

The distant between the naval war theatres 1914-1918 is only 2000km and the sea currents need only few weeks to bridge the distant between North Sea and northern Norwegian Sea, respectively Spitsbergen.

In addition, the warm water inflow from the south cannot be ignored. The inflow west of Scotland is the most significant and about 6-7° C warmer than water that travels north, crossing the Iceland-Faroe Ridge. The inflow to Norwegian Sea is roughly eight times the total outflow of all the world rivers or eight million tones per second, while the forwarded energy in terms of heat transport corresponds to an energy output of 100,000 major electricity power plants. In comparison to the 8x106 m3/sec warm water from the Gulf Current, the water transport in the Norwegian Coastal current at the southwest coast is of about 1 million cubic meter per second (1x106 m3/sec), increasing northwards with a speed between 30 and 100 cm/sec or 1 to 4 km per/h. The water needs merely 3 to 8 weeks to reach Spitsbergen. That is all big stuff and a nearby war at sea cannot necessarily compete with such dimensions, might quickly cross one's mind. But nature is not black and white and physics offers thousands of variations. In the same way as a very thin and undisturbed freshwater layer over huge sea areas during winter time would isolate almost completely the sea water body from the atmosphere, hundreds of other activities can change the structure of sea water layers. That must have happened in 1918, and it was a very severe phenomenon, indeed. Two decades of warming do not come from nowhere. Scientists who speak about climatic changes as a matter of expertise have to answer this question.



Giving reasonable explanation for the warming of Spitsbergen in 1918 might not be as difficult as it seems at the first glance. One explanation could be based on the fact that naval war around Britain and in the North Sea cooled the water down from September to March, thus affecting about up to 20% of all water that formed the Norwegian Currents, whereby the water from the North Sea had significant lower salinity as compared to the high saline water of the Atlantic. This colder water would go down faster than usually, forcing saltier water (from the inner Norwegian Basin) to the surface. Significant parts of the system were forced into higher motion, and, at the north of Spitsbergen, colder and saltier water flowed quicker into the Artic Basin, which, at its turn, allowed more water to flow into the Norwegian Sea via the Scotland, Faroe, and Iceland ridges. The "experiment" ended with a larger amount of warm water at north of Scotland, after the end of WWI.

There might be other more convincing explanation and we are always interested in any good reasoning. But what we find difficult to accept is that the severe and long-lasting warming of Spitsbergen, which took place almost one hundred years ago, has not been explained yet. After all, almost one century has passed since this sudden and severe warming started, lasting for two decades.